US Army Corps
of Engineers
St. Louis District

DRAFT SCOPING REPORT

Supplement to:
Final Environmental Statement
Mississippi River Between the Ohio and Missouri Rivers
(Regulating Works)

Draft Scoping Report

April 2014

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1.0 INTRODUCTION

The National Environmental Policy Act (NEPA) of 1969 established a nationwide policy to include a detailed statement of the environmental impact of the proposed action in every recommendation or report on proposals for major Federal actions significantly affecting the environment. Such detailed statements are referred to as environmental impact statements (EIS). For the Regulating Works Project, the EIS was completed in April, 1976. However, due to significant new circumstances and information relating to the potential impacts of the Regulating Works Project on the resources, ecosystem, and the human environment, the U.S. Army Corps of Engineers (Corps), St. Louis District (District) has begun the preparation of a Supplemental Environmental Impact Statement (SEIS).

A notice of intent (NOI) to prepare a draft SEIS for the Regulating Works Project was published in the *Federal Register* (volume 78, number 245) on December 20, 2013.

The intent of the NOI was to announce the Corps' intention to prepare a draft SEIS that addresses the Regulating Works Project.

NEPA also provides for an early and open public process for determining the scope of issues, resources, impacts, and alternatives to be addressed in an SEIS. This process is referred to as scoping. This scoping report documents scoping comments from interested parties and describes where in the SEIS individual comments should be addressed. It also outlines the project background and scoping process to date, and summarizes the key issues identified by members of the public during the initial scoping period. Section 5.0 of this report contains a detailed analysis of the comments received. The top five themes identified by members of the public include:

- The belief that river training structures increase flood heights
- The Corps should expand the scope of the SEIS beyond the Middle Mississippi River
- The Corps should initiate a study by the National Academy of Sciences to evaluate the impacts of river training structures on flood risks.
- The Corps should stop building river training structures until the analyses of impacts are complete
- The Corps should evaluate all reasonable alternatives

2.0 STUDY AUTHORITY

The Congress of the United States, through the enactment of a series of Rivers and Harbors Acts beginning in 1824, authorized the Secretary of the Army, by and through the U.S. Army Corps of Engineers St. Louis District (District), to provide a safe and dependable navigation channel, currently 9 feet deep and not less than 300 feet wide, with additional width in the bends as required, on the Middle Mississippi River (MMR).[1] The MMR is defined as that portion of the Mississippi River that lies between its confluence with the Ohio and the Missouri rivers (hereinafter referred to as the Project; Figure 1). This ongoing Project is also commonly referred to as the Regulating Works Project. The Regulating Works Project utilizes bank stabilization and sediment management to maintain bank stability and ensure adequate navigation depth and width. Bank stabilization is achieved by revetments, while sediment management is achieved by river training structures, i.e. dikes. Other activities performed to obtain the navigation channel are rock removal and construction dredging. The Project is maintained through dredging and any needed maintenance to already constructed features. The long-term goal of the Project, as authorized by Congress, is to provide a sustainable and safe navigation channel and reduce federal expenditures by alleviating the amount of annual maintenance dredging and the occurrence of vessel accidents through the construction of regulating works.

[1] Congress originally authorized the project of improving navigation of the Mississippi River from the mouth of the Missouri to New Orleans in the Rivers and Harbors Act dated May 24, 1824, by the removal of trees that were endangering the safety of navigating the river. In the Rivers and Harbors Act dated June 10, 1872, Section 2, Congress mandated that an examination and/or survey be completed of the Mississippi River between the mouth of the Missouri River and the mouth of the Ohio River, providing the first Congressional action to define this portion of the Mississippi River as distinct from the rest of the Mississippi River. Congress authorized the specific improvement of the Mississippi River between the mouth of the Missouri River and the mouth of the Ohio River in the Rivers and Harbors Act dated March 3, 1873. Between 1874-1892, Congress expanded this section of the Mississippi River to include that portion between the mouth of the Missouri and the mouth of the Illinois, but in the Rivers and Harbors Act dated July 13, 1892, Congress removed this additional section of the river and once again referred to it as the Mississippi River between the mouth of the Ohio River and the mouth of the Missouri River. In the Rivers and Harbors Act dated June 25, 1910, Congress provided exactly how this Project was to be carried out by authorizing the construction, completion, repair, and preservation of "[i]mproving [the] Mississippi River from the mouth of the Ohio River to and including the mouth of the Missouri River: Continuing improvement in accordance with the plan adopted in [1881], which has for its object to eventually obtain by regularization works and by dredging a minimum depth." The 1881 plan called for the removal of rock hindering navigation, the contraction of the river to compel the river to scour its bed (now known as regulating works), and to be aided by dredging, if necessary. The 1881 plan also provided for bank protection improvements (now known as revetment) wherever the river is causing any serious caving of its banks. (Letter from the Secretary of War, dated November 25, 1881, 47th Congress, 1st Session, Ex. Doc. No. 10). The Project's current dimensions of the navigation channel were established in the Rivers and Harbors Acts dated January 21, 1927 and July 3, 1930. The Rivers and Harbors Act dated January 21, 1927 modified the Project pursuant to the Chief of Engineers recommendations, which further detailed the purpose of the Project to construct the channel through regulating works and augment this by dredging, stating that dredging should be reduced to a minimum. The Project was also later modified to provide for the Chain of Rocks Canal and Lock 27 in the Rivers and Harbors Acts dated March 2, 1945 to address the rock formation hindering navigation in this area, and the rock filled low water dam at the Chain of Rocks was authorized in the Rivers and Harbors Act dated July 3, 1958 to assure adequate depth over the lower gate sills at Locks and Dam 26.

3.0 PROPOSED ACTION

The Corps proposes to continue to provide a safe and dependable 9-foot-deep and minimum of 300-foot-wide navigation channel on the Middle Mississippi River by means of one of the alternatives currently recommended for consideration. Economic and environmental impact analyses will be utilized to determine which alternative is the best course of action.

Alternatives recommended for consideration currently include:

- Continue with the Regulating Works Project. This would entail continuing to build rock dikes, weirs, and revetment at the current pace and continuing to dredge as necessary to maintain the navigation channel. This alternative would lead to the minimum amount of continued maintenance dredging.

- Do not build any new dikes, weirs, or revetment going forward but maintain the existing structures to perform their intended functions. Maintenance dredging would continue into the future at roughly the current level.

To the extent possible under existing authorities, environmental laws, regulations, and policies, the District considers the environmental consequences of its activities as it constructs and operates the Project and acts accordingly. An important component of each activity is the use of scientific, economic, and social knowledge to understand the environmental context and effects of District actions in a collaborative manner, employing an open, transparent process that respects the views of Federal and State stakeholders, individuals, and groups interested in District activities.

4.0 SCOPING PROCESS

NEPA affords all persons, organizations and government agencies the right to review and comment on proposed major Federal actions that are evaluated by a NEPA document. This is known as the "scoping process." The scoping process is the initial step in the preparation of the SEIS and will help identify (1) the range of actions (project, procedural changes) (2) alternatives (both those to be rigorously explored and evaluated and those that may be eliminated), and (3) the range of environmental resources considered in the evaluation of environmental impacts.

A special public notice (Public Notice No. 2013-744) requesting comments regarding the scope of the SEIS was sent to Federal, state, and local agencies; and interested groups and individuals on December 20, 2013. The media advisory announcing the scoping meetings was provided to more than 35 media outlets January 8, 2014, including regional print and broadcast outlets and wire services. Announcements for the public scoping meetings appeared on the Corps web and social media pages, and in the following publications the week prior to the events:

- *The Alton Telegraph*
- *The Southern Illinoisan*
- *The Southeast Missourian*

The public scoping meetings were held on:

- Tuesday, January 14, 2014
  National Great Rivers Museum, Classroom
  #2 Locks and Dam Way
  Alton, IL 62002

- Wednesday, January 15, 2014
  Chester City Hall
  1330 Swanwick St.
  Chester, IL 62233

- Thursday, January 16, 2014
  Missouri Dept of Conservation
  Cape Girardeau Nature Center, Multipurpose Room
  2289 County Park Dr.
  Cape Girardeau, MO 63701

The schedule for each scoping meeting was:

- 5:00 – 7:00 p.m. Open House

The open house session provided attendees with an opportunity to visit a series of poster stations staffed by project team members and subject matter experts regarding the following topics: the NEPA process, dredging on the MMR, river engineering on the MMR, as well as maps of the study area. Comment cards were provided.

Before leaving, attendees were reminded to pick up comment sheets, should they wish to submit additional comments at a later date.

Partnering agencies were invited to participate in the Scoping Process via the River Resources Action Team (RRAT) Executive Board. A meeting with the RRAT Executive Board was held on February 20, 2014. Each agency decided in the meeting that they would provide comments on the SEIS via agency letters to the Corps. Letters received are included in Appendix C.

River Industry personnel were invited to participate in the Scoping Process via a conference call on April 23, 2014 with River Industry Executive Task Force (RIETF) and River Industry Action Committee (RIAC) personnel. To date, no comments have been received from these organizations.

This Scoping Report presents and summarizes the scoping comments expressed at the public scoping meetings, a partnering agency / stakeholder scoping meetings, as well as all other scoping comments received.

This Scoping Report indicates where in the draft SEIS individual comments should be addressed. This Scoping Report will remain in draft form until the draft SEIS is submitted for public review, and will be published on the SEIS website at the following address:

http://www.mvs.usace.army.mil/Missions/Navigation/SEIS.aspx

5.0 SCOPING COMMENTS

Scoping comments document the public's concerns, partnering agency concerns, and river industry concerns about the scope of the proposed course of action as well as identify significant resources and suggested alternatives. Scoping comments shall be considered during the study process and in preparation of the draft SEIS. A total of 17 participants signed in for the scoping meetings, with 5 at Alton, IL, 5 at Chester, IL, and 7 at Cape Girardeau, MO.

A total of 79 comments were received during the comment period. However, the total number of communications generating these comments was 17,731. Table 1 below provides a breakdown of the comments received.

Table 1. Scoping Comments by Organization / Comment Method.

Commenter	No. of Communications	No. of Comments
National Wildlife Federation Action Alert System Emails	17,154	5*
Izaak Walton League of America Congress Web System Emails	464	4*
Traditional Mail	1	1
Izaak Walton League of America	1	4
National Wildlife Federation, American Rivers, Great Rivers Environmental Law Center, Missouri Coalition for the Environment, Prairie Rivers Network, River Alliance of Wisconsin	1	4
USEPA Region 7	1	9
Missouri Coalition for the Environment	2	6
United States Fish and Wildlife Service	1	6
Missouri Department of Conservation	1	22
Public Meeting Comment Cards	5	17
Total	17731	79

*Template email. Three percent or less of emails were modified.

A scoping comment may contain several specific comments directed at multiple areas of concern. Hence, a single comment could potentially be addressed in multiple sections of the draft SEIS.

The comments were categorized according to their applicability to the SEIS. SEIS categories include: Purpose and Need; Alternatives; Affected Environment; Environmental Consequences; and Consultation, Coordination, and Compliance with Regulations. An individual scoping comment may be categorized under more than one SEIS subject matter heading.

Purpose and Need
A majority of the comments received in this category indicated that the Corps should expand the scope of the SEIS to include the entire Upper Mississippi River - Illinois Waterway (UMR-IWW) System instead of focusing on the Middle Mississippi River portion of that system and that a moratorium should be imposed on construction of new river training structures until the analyses of impacts are complete.

Alternatives
The most frequent comment in the Alternatives category suggested that the Corps should fully evaluate all reasonable alternatives. It was suggested that an alternative that protects and restores the Mississippi River should be selected. It was also suggested that the No Action Alternative should be defined.

Affected Environment
Comments related to the Affected Environment covered a broad range of topics. The most frequent dealt with the belief that river training structures increase flood heights, the need to expand the scope of the SEIS to the entire UMR-IWW, and the need to initiate a National Academy of Sciences study to evaluate the impacts of river training structures on flood risks.

Environmental Consequences
Comments related to Environmental Consequences covered a broad range of topics. As with the Affected Environment comments, the most frequent dealt with the belief that river training structures increase flood heights, the need to expand the scope of the SEIS to the entire UMR-IWW, and the need to initiate a National Academy of Sciences study to evaluate the impacts of river training structures on flood risks.

Consultation, Coordination, and Compliance with Regulations
Two comments were received that fell under this category. The comments indicated that the Corps should specify the manner by which it intends to permit individual projects under the Clean Water Act and that the SEIS should include external independent review.

Table 2 displays the categorization of specific comments by SEIS subject matter. The most numerous comments were expressed regarding the Affected Environment and Environmental Consequences followed by Purpose and Need, Alternatives, and Consultation, Coordination, and Compliance with Regulations.

Table 2. Categorization of Scoping Comments by Draft SEIS Subject Matter. P&N = Purpose and Need, ALT = Alternatives, AE = Affected Environment, EC = Environmental Consequences, and CC = Consultation, Coordination, and Compliance with Regulations.

Source of Scoping Comment	P&N	ALT	AE	EC	CC	Totals
Scoping Meeting Comment Cards	9	3	7	7	1	**27**
Scoping Comment Letters and Emails	23	6	41	38	1	**109**
Totals	**32**	**9**	**48**	**45**	**2**	**136**

NOTE: A single scoping comment may be categorized under multiple SEIS subject matter headings.

Table 3 below summarizes each scoping comment and indicates by SEIS subject matter, where an individual comment would likely be addressed in the draft SEIS. SEIS categories include: Purpose and Need for Action; Alternatives; Affected Environment; Environmental Consequences; and Consultation, Coordination, and Compliance with Regulations (Federal, state and local environmental laws and regulations). An individual scoping comment may be categorized under more than one SEIS subject matter heading.

Table 3. SEIS for Middle Mississippi River Regulating Works Project -- Summary of Scoping Comments. This table categorizes scoping comments by SEIS subject matter, which is where an individual comment would likely be addressed in the draft SEIS. SEIS categories include: P&N = Purpose and Need; ALT = Alternatives; AE = Affected Environment; EC = Environmental Consequences; CC = Consultation, Coordination, and Compliance with Regulations (Federal, state, and local environmental laws and regulations). An individual scoping comment may be categorized under more than one SEIS subject matter heading.

Programmatic SEIS Section Where Comment Addressed						SCOPING COMMENT
#	PN	ALT	AE	EC	CC	
Reponses to Public Notice 2013-744						
1	X X		X X X	X X X		**17,154** personal emails generated from National Wildlife Federation template **(bold number represents number of submissions)**, comments: (1) Extensive peer-reviewed science also shows that river training structures constructed by the Corps for the sole purpose of reducing navigation dredging costs have increased flood levels 10 to 15 feet in much of the Middle Mississippi. Despite this science, the Corps continues to build new river training structures at an alarming rate (**17,139**). (2) It's critical that the Corps comprehensively evaluate impacts of all its navigation activities on fish, wildlife, and public safety (**17,142**). (3) Expand the scope of the Regulating Works Project supplemental environmental impact statement to encompass all navigation improvements and operations (**17,138**). (4) Initiate a study by the National Academy of Sciences to evaluate the impacts of river training structures on flood risks (**17,144**). (5) Stop building new river training structures until the National Academy study and supplemental environmental impact statement are complete (**17,144**). (6) Concerns that River Training Structures pose a risk to eagle habitats. (Not in template email) (**93**)
2	X X		X X	X X		**464** personal emails generated from Izaak Walton League template **(bold number represents number of submissions)**, comments: (1) Since 1986, at least 51 peer-reviewed scientific studies have linked river training structures to increased flood heights. These studies show that river training structures constructed by the Corps to reduce navigation dredging costs have increased flood levels on the Mississippi by 10 to 15 feet (and, in some places, even more) during large floods (**462**). (2) Expand the SEIS to evaluate the full suite of navigation operations and maintenance (O&M) activities for the Upper Mississippi River – Illinois Waterway (UMR-IWW) (**461**). (3) Initiate a National Academy of Sciences study on the effect of river training structures on flood heights to inform development of the SEIS (**461**). (4) Impose a moratorium on the construction of new river training structures pending completion of the SEIS (**462**).
4	X		X	X		Rose and Mike Schulte, comments: (1) We are in favor of continuing the Regulating Works Project. Properly designed, the installed dikes, weirs, and revetments would certainly trap much of the sediment in the river, resulting in much less need to dredge.

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Programmatic SEIS Section Where Comment Addressed						**SCOPING COMMENT**
#	**PN**	**ALT**	**AE**	**EC**	**CC**	
5						Izaak Walton League of America, comments:
	X		X			(1) Expand the SEIS to evaluate the full suite of O&M activities for the Upper Mississippi River –Illinois Waterway navigation system. Actions must be examined in a single environmental impact statement because they are connected actions. A SEIS is required due to: a. Dramatic decline in the ecological health of the system b. Significant new scientific Information c. Significant changes in precipitation and stream flow d. Significant changes in applicable law and policy
			X	X		(2) Initiate a National Academy of Sciences study on the effect of river training structures on flood heights to inform development of the SEIS.
	X					(3) Impose a moratorium on the construction of new river training structures pending completion of the National Academy of Sciences Study and the SEIS.
	X	X	X	X		(4) Fully evaluate the impacts of all reasonable alternatives and select an alternative that protects and restores the Mississippi River. a. Properly define project purpose b. Rigorously evaluate all reasonable alternatives and ultimately select an alternative that protects and restores the Mississippi River c. Fully analyze direct, indirect, and cumulative Impacts d. Types of impacts that must be examined i. Impacts on hydrology ii. Impacts on fish and wildlife iii. Impacts on endangered species iv. Impacts on key habitats v. Impacts on sedimentation vi. Impacts on water quality vii. Cumulative impacts of climate change viii. Impacts on restoration and flood damage reduction efforts ix. Impacts on ecosystem services provided by a healthy Mississippi River and floodplain x. Impacts on recreational fishing and tourism industries that rely on a healthy Mississippi River and floodplain xi. Impacts on navigation e. Actions that must be evaluated in the cumulative impacts analysis

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Programmatic SEIS Section Where Comment Addressed						SCOPING COMMENT
#	PN	ALT	AE	EC	CC	
6						National Wildlife Federation, American Rivers, Great Rivers Environmental Law Center, Missouri Coalition for the Environment, Prairie Rivers Network, River Alliance of Wisconsin, comments:
	X		X			(1) Expand the SEIS to evaluate the full suite of O&M activities for the Upper Mississippi River –Illinois Waterway navigation system. Actions must be examined in a single environmental impact statement because they are connected actions. A SEIS is required due to: a. Dramatic decline in the ecological health of the system b. Significant new scientific Information c. Significant changes in precipitation and stream flow d. Significant changes in applicable law and policy
			X	X		(2) Initiate a National Academy of Sciences study on the effect of river training structures on flood heights to inform development of the SEIS.
	X					(3) Impose a moratorium on the construction of new river training structures pending completion of the National Academy of Sciences Study and the SEIS.
	X	X	X	X		(4) Fully evaluate the impacts of all reasonable alternatives and select an alternative that protects and restores the Mississippi River. a. Properly define project purpose b. Rigorously evaluate all reasonable alternatives and ultimately select an alternative that protects and restores the Mississippi River c. Fully analyze direct, indirect, and cumulative Impacts d. Types of impacts that must be examined i. Impacts on hydrology ii. Impacts on fish and wildlife iii. Impacts on endangered species iv. Impacts on key habitats v. Impacts on sedimentation vi. Impacts on water quality vii. Cumulative impacts of climate change viii. Impacts on restoration and flood damage reduction efforts ix. Impacts on ecosystem services provided by a healthy Mississippi River and floodplain x. Impacts on recreational fishing and tourism industries that rely on a healthy Mississippi River and floodplain xi. Impacts on navigation e. Actions that must be evaluated in the cumulative impacts analysis

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Programmatic SEIS Section Where Comment Addressed						SCOPING COMMENT
#	PN	ALT	AE	EC	CC	
7						Environmental Protection Agency Region 7, comments:
	X					(1) The programmatic scope of the regulating works project SEIS should describe the reach of the document including dredging and RTS.
		X				(2) The "no Action" Alternative should be defined.
		X				(3) Expand the range of alternatives beyond just new construction and no new construction.
	X					(4) Characterize the relationship between the SEIS and subsequent individual, tiered NEPA compliance efforts.
	X					(5) Prioritize project locations.
			X			(6) Consider lateral scope of analysis within meander belt of the MMR and the 500 year floodplain.
				X		(7) Include direct and indirect impacts for evaluation.
			X	X		(8) Address adaptation to regional climate change.
					X	(9) Specify the manner by which the Corps intends to permit individual projects under the Clean Water Act.
8						Missouri Coalition for the Environment, comments:
			X	X		(1) Multiple and peer-reviewed scientific studies have linked river training structures with increased flood levels on the Mississippi River.
			X	X		(2) The Corps could comprehensively evaluate the affects of all its navigation activities on wildlife and public safety.
	X					(3) The scope of the SEIS should be expanded to encompass all the navigation operations and maintenance activities for the Upper Mississippi River – Illinois Waterway.
			X	X		(4) A National Academy of Sciences study should be initiated to study the effect of river training structures on flood heights.
	X					(5) A moratorium should be imposed on the construction of river training structures until the SEIS is completed.
	X	X	X	X		(6) Fully comply with the NEPA, by properly defining the project purpose, fully evaluating impacts and review all reasonable alternatives.

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Programmatic SEIS Section Where Comment Addressed						SCOPING COMMENT
#	PN	ALT	AE	EC	CC	
9	X		X	X		Fish and Wildlife Service, comments: (1) Since 1976 structures have been built that were not considered in the original EIS. While some hydraulic modeling has been conducted for individual projects, the cumulative environmental impacts of these new structures have not been assessed with appropriate NEPA or Clean Water Act analyses. In order to assess the landscape scale of their environmental effects, these new structures should be considered in the Draft Supplemental Environmental Impact Statement (DSEIS). (2) Because stage-discharge relationships have been altered anthropogenically and are likely to be further altered by climate change, a cumulative effects analysis would also benefit from an inclusion of flood control works on the Middle Mississippi River. Analyses should consider the effects of altered river stages on public lands acquired since 1976, such as Middle Mississippi National Wildlife Refuge and other lands secured for natural resource management. (3) Also since the 1976 EIS, a significant amount of new information has been generated about the ecology of the Upper Mississippi River and is applicable to the river between the confluences of the Missouri and Ohio Rivers. This information should be used to fully inform an analysis of impacts. (4) Analysis should also include the cumulative effects of the Regulating Works Project and flood control on the Middle Mississippi National Wildlife Refuge. (5) Fully address all direct, indirect, and cumulative effects on Fish and Wildlife. (6) Since 1976, the pallid sturgeon and least tern have been listed as endangered species. The Corps' ongoing and future actions to deal with the effects of the Regulating Works on these species should be addressed.
			X	X		
			X	X		
				X		
				X		

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Programmatic SEIS Section Where Comment Addressed						SCOPING COMMENT
#	PN	ALT	AE	EC	CC	
						Missouri Department of Conservation Comments:
	X		X	X		(1) Since 1976, there have been numerous studies and reviews conducted on river management and river ecology.
	X		X	X		(2) Since 1976, a new perspective on river management has emerged. In 1986, as part of WRDA86, the river was declared a "nationally significant ecosystem and a nationally significant commercial navigation system" and it expressed Congress' desire "to ensure the coordinated development and enhancement of the Upper Mississippi River System.
	X		X	X		(3) During the last 10 to 12 years, in an attempt to provide habitat diversity and to further reduce the need for dredging, different types of rock structures have been used in addition to the standard dike and revetment structures. Limited biological monitoring has occurred to determine if these structures provide new habitats that are used by fish and other wildlife.
			X	X		(4) Concerns have recently been raised that further constricting the river with dike fields to minimize dredging in cross-over sections, these unique channel habitats that provide variable flows and depths are being lost. While the 1976 EIS mentioned that there would be a loss of cross-over habitats as the river is further constricted by traditional rock structures and dredging, there has been no analysis of cumulative environmental impacts of the new types of rock structures that are now in use.
			X	X		(5) Loss of freshwater mussel habitat due to the operations and maintenance of the 9-foot Channel Project received little attention in the 1976 and 1976 NEPA documents.
			X	X		(6) The presence of invasive species, combined with the loss of habitat through operation and maintenance of the navigation channel, was not addressed in previous NEPA documents.
10						
	X					(7) Because similar circumstances and questions exist in the Pools and in the Middle Mississippi River with regard to use of channel training structures and other channel maintenance techniques, we encourage the Corps to consider broadening the focus of the NEPA assessment to include the pools.
		X				(8) In addition to the proposed alternatives for the study, we suggest that the following alternatives also be considered: a. An intermediate option where a greater level of dredging is acceptable that what is currently desired for the Channel Project, and funding is consistent to provide this level of dredging where it is the more environmentally benign maintenance strategy. b. Evaluate and remove certain river training structures that are unnecessary for maintaining the navigation channel and removal restores important habitat.
			X	X		(9) Address changes in the amount of public lands adjacent to the river and affects of channel management on those lands, including hydraulic and sediment transport.
			X	X		(10) Determine with partners, whether the habitat categories used in 1976 are still appropriate for analysis, and if not, identify the appropriate habitat classification scheme for the NEPA analysis. Examine changes to those habitats since the 1970's and predicted future changes.
			X	X		(11) Work with partners to develop a process to evaluate the impacts of different rock training structures, revetments, and dredging on fish and wildlife resource habitats and ecological functions, at local and reach levels, and from a cumulative perspective.

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Programmatic SEIS Section Where Comment Addressed						SCOPING COMMENT
#	PN	ALT	AE	EC	CC	
			X	X		(12) Consider alteration of aquatic habitats due to issuance of Clean Water Act Section 404 Permits and Rivers and Harbor Act Section 10 Permits, in conjunction with the 9-foot Channel Project.
	X					(13) As boats have increased in size and horsepower, the drafting depths of tows have increased. While a 9-foot channel is authorized, additional depth is necessary in places to allow tows to pass during low water situations. This requires continued alterations to the riverbed. These additional impacts should be included in the NEPA analysis.
			X	X		(14) Recreational impacts should be addressed, including, but not limited to those due to: loss of water surface area due to channel constriction; loss of slower/slack water habitats such as backwaters in the pools and side channel habitats, and backwater areas; impacts of dike fields to boaters; and positive and negative opportunities for fishing access due to dike construction.
			X	X		(15) Water quality concerns; regulatory and biological considerations.
			X	X		(16) Fish movement, both local and migratory patterns.
			X			(17) Update lists of federal and state-listed species affected by river management and analyze effects of the Channel Project on the species and their habitats.
			X			(18) Identify existing freshwater mussel resource information, data gaps and effects of the Channel Project at local, pool, and cumulative levels.
			X			(19) Develop a list and maps of chronic dredging sites and spoils placement.
						(20) For the study area, update information in the Natural Resources Inventory Project.
			X	X		(21) In order to fully understand changes that have occurred to the river's resources, we need to quantify and describe existing habitats, and have information on historic habitat conditions. This information is critical in determining avoidance, minimization, and mitigation needs that will be addressed in the SEIS.
			X	X		(22) Ideally, river habitat would be modeled using velocities at the 0.1 m/s (0.328 ft/s) intervals and the depth in 0.33 m (1.08 ft) ranges. We believe this will allow for the best resolution to assess change detection during habitat modeling. Using depth intervals of 1 m (3.2ft) is not preferred, but may be necessary given the complexity of the data sets. We understand that modeling at this level of detail may be expensive and time consuming; however, the information provided will be invaluable in determining changes to aquatic habitat conditions information needed for the SEIS, and we encourage modeling at this scale.

Table 3. SEIS for Middle Mississippi River Regulating Works Project -- Summary of Scoping Comments. This table categorizes scoping comments by SEIS subject matter, which is where an individual comment would likely be addressed in the draft SEIS. SEIS categories include: P&N = Purpose and Need; ALT = Alternatives; AE = Affected Environment; EC = Environmental Consequences; CC = Consultation, Coordination, and Compliance with Regulations (Federal, state, and local environmental laws and regulations). An individual scoping comment may be categorized under more than one SEIS subject matter heading.

Programmatic SEIS Section Where Comment Addressed						SCOPING COMMENT
#	PN	ALT	AE	EC	CC	
Comment Card Comments from Public Scoping Meeting						
11	X X X X		X	X 	 X 	Dr. Nicholas Pinter, comments: (1) We seek a vigorous study of the benefits and impact of the full range of channel construction and maintenance activities on the MMR. (2) New construction, including at Dogtooth Bend and Grand Tower, should be placed on hold until completion of the SEIS. (3) New construction types, e.g. S-dikes, should be numerically modeled in advance, not prototyped in the river. (4) The SEIS should be, or include, external and independent of the St. Louis District, including external independent review. (5) For all Corps MMR activities, specific goals and success metrics should be specified and monitoring plans provided. (6) The SEIS should explicitly recognize a "burden of proof" for impacts related to public safety.
12	X X X		X X X			Ms. Emily Lyons comments: (1) Dredging is needed at the mouth of the old channel of the Mississippi River north ½ mile of Chester Bridge. The old channel is still a waterway for the creeks and rivers watershed off the MO hills. It is virtually stopping the flow. That impacts the western side of Kaskaskia Island and St. Mary and much farmland. (2) The 1675 historic Immaculate Conception Church is threatened by the impact. The historic 1706 Village retains its government and houses. Preserving our past secures our future. (3) On the eastern side of Kaskaskia, an old cemetery has been eroded by the placement of the dikes.
13	X	X				Mr. Edward Lekosky, comments: (1) Increase bank line placement to dredge quantity. This protects the cultivated bar-ground.
14	X X X	 X	 X X X	 X X X		Ms. Fern Hopkins, comments: (1) No more rock in river. (2) Dredging increase with money saved from not doing rock construction. (3) Side channel access is being restricted. (4) Bottom of river is filing and too narrow, resulting in higher flood stages. (5) Boats can't pass each other on the river. (6) Problem structures should be removed.

Table 3. SEIS for Middle Mississippi River Regulating Works Project -- Summary of Scoping Comments. This table categorizes scoping comments by SEIS subject matter, which is where an individual comment would likely be addressed in the draft SEIS. SEIS categories include: P&N = Purpose and Need; ALT = Alternatives; AE = Affected Environment; EC = Environmental Consequences; CC = Consultation, Coordination, and Compliance with Regulations (Federal, state, and local environmental laws and regulations). An individual scoping comment may be categorized under more than one SEIS subject matter heading.

Programmatic SEIS Section Where Comment Addressed						SCOPING COMMENT
#	PN	ALT	AE	EC	CC	
15	X	X				Mr. Charles Hopkins, comments: (1) Increase the bank line placement to dredge quantity. This protects the cultivated bar-ground.

Appendix A:
Special Public Notice,
Notice of Intent (NOI) to Prepare a Supplemental Environmental Impact Statement (SEIS) and Open Public Workshops

Public Notice

US ARMY CORPS OF ENGINEERS
St. Louis District
Gateway to Excellence

Reply To:
U.S. Army Corps of Engineers
Attn: CEMVS-OD-F
1222 Spruce Street
St. Louis, MO 63103-2833

Public Notice No.
2013-744
Public Notice Date
December 20, 2013
Expiration Date
February 15, 2014

Postmaster Please Post Conspicuously Until:

SPECIAL PUBLIC NOTICE
NOTICE OF INTENT (NOI) TO PREPARE A
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (SEIS)
AND OPEN PUBLIC WORKSHOPS
FOR U.S. ARMY CORPS OF ENGINEERS, ST. LOUIS DISTRICT
MIDDLE MISSISSIPPI RIVER REGULATING WORKS PROJECT

Interested parties are hereby notified that the U.S. Army Corps of Engineers (USACE) intends to prepare a draft supplemental environmental impact statement (SEIS) for the Middle Mississippi River Regulating Works Project. This project is the means by which USACE provides a safe and dependable 9-foot navigation channel on the Middle Mississippi River. The Middle Mississippi River is defined as that portion of the Mississippi River that lies between the confluences of the Ohio and Missouri rivers. The original environmental impact statement (EIS) for the Project was finalized in 1976. USACE has determined that there is sufficient significant new information regarding the potential impacts of the project on the human environment to warrant the preparation of a SEIS.

Scoping is the process for determining the range of alternatives and significant issues to be analyzed in detail in the SEIS. Public involvement is an integral part of the scoping process. All parties believed to have an interest in the analysis, including affected federal, state, and local agencies, and affected Federally Recognized Tribes will be included in the SEIS scoping process. Letters will be sent to all interested parties requesting their input on alternatives and issues to be evaluated. The letters will also notify interested parties of public scoping meetings that will be held in the local area. Notices will also be sent to local news media. All interested parties are invited to comment at this time, and anyone interested in the SEIS should request to be included in the mailing list. Public Scoping Open Workshops will be held to obtain comments and to receive feed-back from the public on the proposed SEIS. The Public Workshops will provide the opportunity to view the proposed study area, large-scale maps, ask questions about the project, discuss potential alternatives, discuss environmental and potential mitigation issues, and to provide comments on the proposed SEIS. No formal presentations will be given at the Public Workshops. There will be three open public workshops and they will be held:

WHEN: Tuesday, January 14, 2014
TIME: 5:00 p.m. until 7:00 p.m.
WHERE: National Great Rivers Museum, Classroom
#2 Locks and Dam Way
Alton, IL

WHEN: Wednesday, January 15, 2014
TIME: 5:00 p.m. until 7:00 p.m.
WHERE: Chester City Hall
1330 Swanwick Street
Chester, IL

WHEN: Thursday, January 16, 2014
TIME: 5:00 p.m. until 7:00 p.m.
WHERE: Missouri Department of Conservation
Cape Girardeau Nature Center, Multipurpose Room
2289 County Park Drive
Cape Girardeau, MO

The Middle Mississippi River Regulating Works Project is specifically and currently authorized pursuant to Rivers and Harbors Acts beginning in 1881. These authorize USACE to provide a safe and dependable navigation channel, 9 feet deep and not less than 300 feet wide. USACE accomplishes this mission through bank stabilization and sediment management to ensure adequate navigation depth and width. Project improvements are achieved through the construction of river training structures, revetment, rock removal, and construction dredging. The Regulating Works Project is maintained through dredging and any needed maintenance to already constructed features. The long-term goal of the Regulating Works Project, as authorized by Congress, is to reduce or eliminate the amount of annual maintenance dredging and the occurrence of vessel accidents through the construction of river training structures to provide a sustainable navigation channel and reduce federal expenditures. Since the 1970s various environmental laws, regulations, and policies have resulted in consideration of the environment in the design and construction of the Regulating Works Project.

1. Proposed Action. USACE proposes to continue to provide a safe and dependable 9-foot-deep and minimum of 300-foot-wide navigation channel on the Middle Mississippi River by means of one of the alternatives currently recommended for consideration or by another reasonable alternative developed during the scoping process. Economic and environmental impact analyses will be utilized to determine which alternative is the best course of action.

2. Alternatives. Alternatives recommended for consideration currently include:

- Continue with the Regulating Works Project. This would entail continuing to build rock dikes, weirs, and revetment at the current pace and continuing to dredge as necessary to maintain the navigation channel. This alternative would lead to the minimum amount of continued maintenance dredging.

- Do not build any new dikes, weirs, or revetment going forward but maintain the existing structures to perform their intended functions. Maintenance dredging would continue into the future at roughly the current level.

3. Significant Issues. The significant new information that has been developed since completion of the original EIS will be evaluated and the EIS will be supplemented pursuant to this evaluation. Resources and issues which could reasonably be expected to be analyzed in the SEIS at this time include aquatic habitat, navigation, river stages, fish and wildlife resources, water quality, air quality, threatened and endangered species,

commercial and recreational fisheries, historic and cultural resources, and socioeconomic resources.

4. Environmental Consultation and Review. The U.S. Fish and Wildlife Service (USFWS) will be assisting in the documentation of existing conditions and assessment of the effects of project alternatives through Fish and Wildlife Coordination Act consultation procedures. The USFWS will provide a Fish and Wildlife Coordination Act Report. Consultation will be accomplished with the USFWS concerning threatened and endangered species and their critical habitat. USACE will also work closely throughout the SEIS process with other resource agency partners including the Missouri Department of Conservation and Illinois Department of Natural Resources. The draft SEIS or a notice of its availability will be distributed to all interested agencies, organizations, and individuals.

5. Estimated Date of Availability. The earliest that the draft SEIS would be available for public review would be in the fall of 2015. The draft SEIS or a notice of availability will be distributed to all interested agencies, organizations, and individuals.

Public involvement will be sought during scoping and conduct of the study in accordance with NEPA procedures. A public scoping process will help to clarify issues of major concern, identify any information sources that might be available to analyze and evaluate impacts, and obtain public input on the range and acceptability of alternatives. Comments on the scope of the proposed SEIS will be accepted for 30 days after the date of the public workshops. Interested parties are encouraged to attend these workshops at their leisure anytime during the workshops. No set or formal presentations will be held. Additional opportunities for comment will be available after the Draft SEIS is released in the fall of 2015. Comments and requests for additional information should be mailed to the U. S. Army Corps of Engineers, CEMVS-EC-H, 1222 Spruce St., St. Louis, MO 63103-2833. Questions about the proposed action and SEIS should be addressed to Mr. Jasen Brown, phone: (314) 331-8540; fax: 314-331-8346; or e-mail: jasen.l.brown@usace.army.mil or RegWorksSEIS@usace.army.mil

Danny D. McClendon

DANNY D. MCCLENDON
Chief, Regulatory Branch

Appendix B:
Scoping Comment Cards

US Army Corps of Engineers
St. Louis District

Comment Form

Supplemental Environmental Impact Statement (SEIS)
for Regulating Works on the Middle Mississippi River

We need your comments! Your input helps us to identify issues for evaluation in the Supplemental Environmental Impact Statement for Regulating Works on the Middle Mississippi River. Please complete this comment form today or mail to the address below. Comments must be received no later than February 15, 2014.

Comments may be mailed to:

U.S. Army Corps of Engineers – St. Louis District
Attn: Jasen Brown (CEMVS-EC-H)
1222 Spruce St.
St. Louis, MO 63103-2833

If you prefer, you may email comments to RegWorksSEIS@usace.army.mil

Please provide your comments below (Please print legibly):

We seek a vigorous study of the benefits and impacts of the full range of channel construction and maintenance activities on the MMR
New construction, incl. at Dogtooth Bend and Grand Tower should be placed on hold until completion of the SEIS
New construction types, e.g. J-dikes, should be numerically modeled in advance not prototyped in the river
The SEIS should be, or include, external and independent of the St. Louis District, including external third-party review
For all Corps MMR activities, specific goals and success metrics should be specified & monitoring plans provided
The SEIS should explicitly recognize a "burden of proof" for impacts related to public safety

Signature: N. Pinter Date: 1/15/14

Name: Nicholas Pinter Title: Professor

Mailing address: Geology Department, Southern Illinois Univ.

City, State, Zip code: Carbondale IL 62901-4324

Phone: 618-453-7375 Fax: _____ E-mail: npinter@geo.siu.edu

Thank you for your interest and participation!

Other comments will be forthcoming

US Army Corps of Engineers
St. Louis District

Comment Form

Supplemental Environmental Impact Statement (SEIS)
for Regulating Works on the Middle Mississippi River

We need your comments! Your input helps us to identify issues for evaluation in the Supplemental Environmental Impact Statement for Regulating Works on the Middle Mississippi River. Please complete this comment form today or mail to the address below. Comments must be received no later than February 15, 2014.

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Attn: Jasen Brown (CEMVS-EC-H)
1222 Spruce St.
St. Louis, MO 63103-2833

If you prefer, you may email comments to RegWorksSEIS@usace.army.mil

Please provide your comments below (Please print legibly):

#1 Dredging needed at the mouth of the old channel of the Mississippi River North ½ mile of Chester Bridge. The old channel is still a waterway for the creeks & rivers watershed off the MO. hills. It is virtually stopping the flow. That impacts the western side of Kaskaskia Island - and St. Mary and much farmland.
The 1675 historic Immaculate Conception Church is threatened by the impact. The historic 1703 Village retains its government and homes.
Preserving our past secures our future.
On the eastern side of Kaskaskia, an old cemetery has been eroded by the placement of the dykes.

Signature: Emily Lyons Date: 15 Jan 2014

Name: Emily Lyons Title:

Mailing address: 104 Hillcrest Dr

City, State, Zip code: Chester IL 62233

Phone: 618-826-2667 Fax: E-mail: elyons@powrup.net

Thank you for your interest and participation!

US Army Corps of Engineers
St. Louis District

Comment Form

Supplemental Environmental Impact Statement (SEIS)
for Regulating Works on the Middle Mississippi River

We need your comments! Your input helps us to identify issues for evaluation in the Supplemental Environmental Impact Statement for Regulating Works on the Middle Mississippi River. Please complete this comment form today or mail to the address below. Comments must be received no later than February 15, 2014.

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U.S. Army Corps of Engineers – St. Louis District
Attn: Jasen Brown (CEMVS-EC-H)
1222 Spruce St.
St. Louis, MO 63103-2833

If you prefer, you may email comments to RegWorksSEIS@usace.army.mil

Please provide your comments below (Please print legibly):

~~dredge~~ INCrease bANK lined placement to dredge quanity. this protects cultivated bargroung?

Signature: Edward F. Lekosky III Date: Tues. 14 JAN. 2014

Name: Edward F. Lekosky, III Title: Mississippi Riv Historian

Mailing address: 13407 N. Sherwood DRV.

City, State, Zip code: Columbia IL 62236-1112

Phone (618) 281-4855 Fax: E-mail: woodhawk1@yahoo.com

Thank you for your interest and participation!

US Army Corps of Engineers
St. Louis District

Comment Form

Supplemental Environmental Impact Statement (SEIS)
for Regulating Works on the Middle Mississippi River

We need your comments! Your input helps us to identify issues for evaluation in the Supplemental Environmental Impact Statement for Regulating Works on the Middle Mississippi River. Please complete this comment form today or mail to the address below. Comments must be received no later than February 15, 2014.

Comments may be mailed to:

U.S. Army Corps of Engineers – St. Louis District
Attn: Jasen Brown (CEMVS-EC-H)
1222 Spruce St.
St. Louis, MO 63103-2833

If you prefer, you may email comments to RegWorksSEIS@usace.army.mil

Please provide your comments below (Please print legibly):

- NO MORE ROCK IN RIVER (LIKE TO SEE)
- DREDGING INCREASED W/ MONEY SAVED FROM NOT DOING ROCK CONSTRUCTION
- SIDE CHANNEL ACCESS IS BEING RESTRICTED
- BOTTOM OF RIVER IS FILLING AND TOO NARROW, RESULTING IN HIGHER FLOOD STAGES
- BOATS CANT PASS EACHOTHER ON THE RIVER
- PROBLEM STRUCTURES SHOULD BE REMOVED

Signature:_____ Date:_____

Name: FERN HOPKINS Title:_____

Mailing address:_____

City, State, Zip code:_____

Phone:_____ Fax:_____ E-mail:_____

Thank you for your interest and participation!

US Army Corps of Engineers
St. Louis District

Comment Form

Supplemental Environmental Impact Statement (SEIS)
for Regulating Works on the Middle Mississippi River

We need your comments! Your input helps us to identify issues for evaluation in the Supplemental Environmental Impact Statement for Regulating Works on the Middle Mississippi River. Please complete this comment form today or mail to the address below. Comments must be received no later than February 15, 2014.

Comments may be mailed to:

U.S. Army Corps of Engineers – St. Louis District
Attn: Jasen Brown (CEMVS-EC-H)
1222 Spruce St.
St. Louis, MO 63103-2833

If you prefer, you may email comments to RegWorksSEIS@usace.army.mil

Please provide your comments below (Please print legibly):

Increase the bank line placement to dredge quantity & This protects the cultivated bar-ground?

Signature: Charles Hopkins Date:

Name: Charles Hopkins Title:

Mailing address: P.O. Box 44

City, State, Zip code: Grimswick, Mo. 63053

Phone: 636-467-6157 Fax: E-mail:

Thank you for your interest and participation!

Appendix C:
Scoping Comment Letters

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Rock Island Field Office
1511 47th Avenue
Moline, Illinois 61265
Phone: (309) 757-5800 Fax: (309) 757-5807

IN REPLY REFER TO:
FWS/RIFO

January 17, 2014

Colonel Christopher G. Hall
U.S. Army Corps of Engineers
St. Louis District
1222 Spruce Street
St. Louis, Missouri 63103-2833

Re: Notice of Intent to Prepare a Draft Supplemental Environmental Impact Statement (DSEIS) for the Middle Mississippi River Regulating Works Project, MO and IL, Department of the Army, Corps of Engineers (CE), (ER13/785)

Dear Colonel Hall:

The U.S. Department of the Interior has reviewed the above-referenced notice of intent. This response is provided in accordance with provisions of the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 et seq.), the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d), the Migratory Bird Treaty Act (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The Regulating Works Project is the means by which the U.S. Army Corps of Engineers (CE) provides a safe and dependable 9-foot navigation channel on the Middle Mississippi River, which is defined as that portion of the Mississippi River that lies between the confluences of the Missouri and Ohio Rivers. The proposed project involves construction of river training structures, revetment, rock removal, and construction dredging. The proposed project also involves maintenance dredging and maintenance of already constructed features. Alternatives considered for the proposed project include an alternative where no new structures would be constructed but existing structures would be maintained and maintenance dredging would continue at the current level and an alternative to continue with the current Regulating Works Project.

General Comments

The 1976 Environmental Impact Statement (1976 EIS) addressed revetments, dredging, and locks and dams and selected river training structures. However, many structures with designs

not considered in the 1976 EIS have been recently built. These include bendway weirs and alternate dike structures such as chevrons, w-dikes, notched dikes, and rootless dikes. These structures were not identified nor were their impacts analyzed in the 1976 EIS. While some hydraulic modeling has been conducted for individual projects, the cumulative environmental impacts of these new structures have not been assessed with appropriate NEPA or Clean Water Act analyses. In order to assess the landscape scale of their environmental effects, these new structures should be considered in the Draft Supplemental Environmental Impact Statement (DSEIS).

Because stage-discharge relationships have been altered anthropogenically and are likely to be further altered by climate change, a cumulative effects analysis would also benefit from an inclusion of flood control works on the Middle Mississippi River. Analyses should consider the effects of altered river stages on public lands acquired since 1976, such as Middle Mississippi National Wildlife Refuge and other lands secured for natural resource management.

Also since the 1976 EIS, a significant amount of new information has been generated about the ecology of the Upper Mississippi River and is applicable to the river between the confluences of the Missouri and Ohio Rivers. This information includes, but is not limited to the Upper Mississippi River System Master Plan, studies related to GREAT 1, GREAT 2, and GRRM studies, the EIS for the 2nd Lock at Mel Price Lock & Dam, the Upper Mississippi River Habitat Needs Assessment, the 2004 Upper Mississippi River and Illinois Waterway System report to the Chief of Engineers with accompanying EIS, and numerous CE studies specific to the management of the Middle Mississippi River. This information was unavailable for the 1976 EIS and should be used to fully inform an analysis of impacts. In addition, much information about the river ecosystem and human uses has been generated by the Upper Mississippi River System Environmental Management Program.

In addition to new information and analyses performed since 1976, the Middle Mississippi River National Wildlife Refuge was established in response to the 1993 Flood. Currently comprised of 8,074 acres on 7 Divisions (Meissner, Harlow, Beaver, Horse, Crain's, Rockwood, and Wilkinson Islands), the Middle Mississippi NWR provides important floodplain functions including flood attenuation, nutrient cycling, and habitat for a variety of large river fish and wildlife. The EIS should consider the effects of the Regulating Works Project system on the Refuge. The analyses should also include the cumulative effects of the Regulating Works Project and flood control on Refuge resources.

Fish and Wildlife Resources

The DSEIS should include an alternative in which execution of the existing project would incorporate appropriate NEPA compliance and a process for avoidance, minimization, and additional improvement measures for fish and wildlife resources.

In addition, the DSEIS should fully address the physical and biological impacts of river training structures and channel maintenance on fish and wildlife resources. This should include all direct, indirect, and cumulative effects. Measures to avoid, minimize, and compensate for adverse impacts should be identified, discussed, and implemented, as appropriate. Such measures should

include additional monitoring and research studies to fully determine the effects of Regulating Works projects (and channel maintenance) where information is lacking. To ensure adequate and equitable protection, mitigation of damages to, and enhancement of fish and wildlife resources, the CE should consult with the U.S. Fish and Wildlife Service (Service), the Illinois Department of Natural Resources and the Missouri Department of Conservation regarding general fish and wildlife issues early in the planning process.

Federally Threatened and Endangered Species

Since completion of the 1976 EIS, the pallid sturgeon (*Schaphirynchus albus*) and least tern (*Sterna antillarum*) have been listed as endangered under the Endangered Species Act of 1973, as amended. As a result, much new information on these species has become available which was not considered in the 1976 EIS. In 2000, the Service provided the CE with a Biological Opinion for the Operation and Maintenance of the 9-Foot Navigation Channel on the Upper Mississippi River System (BiOp). In the BiOp the Service determined that the continued operation and maintenance of the 9-foot Navigation Project would jeopardize the continued existence of the pallid sturgeon and provided reasonable and prudent alternatives that would prevent jeopardy of the species. These alternatives were accepted by the CE, but remain to be fully implemented. The Service also provided an Incidental Take Statement with reasonable and prudent measures for the least tern. Because these species were not listed when the 1976 EIS was prepared, the CE's ongoing and future actions to deal with the effects (both positive and negative) of the Regulating Works Project on these listed species should be addressed in the DSEIS.

To facilitate compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, Federal agencies are required to obtain from the Service information concerning any species, listed or proposed to be listed, which may be present in the area of the proposed action. A current list of species can be obtained from our Information, Planning, and Conservation System at https://ecos.fws.gov/ipac/.

Conclusion

We look forward to additional consultation with the CE regarding protection and enhancement of fish and wildlife resources and appreciate the opportunity to review the notice of intent and provide these comments. Questions or comments for the Service can be directed to Mr. Matt Mangan at the Ecological Services Sub-Office, 8588 Route 148, Marion, Illinois 62959-4555; telephone 618-997-3344, ext. 345; facsimile: 618-997-8961.

Sincerely,

Richard C. Nelson
Field Supervisor

S:\Office Users\Rick\Middle Miss Regulating Works Project\Middle Mississippi Regulating Works Project Comment, 1-17-2014.doc

MISSOURI DEPARTMENT OF CONSERVATION

Headquarters

2901 West Truman Boulevard, P.O. Box 180, Jefferson City, Missouri 65102-0180

Telephone: 573-751-4115 ▲ www.MissouriConservation.org

ROBERT L. ZIEHMER, Director

April 24, 2014

Colonel Christopher G. Hall
U.S. Army Corps of Engineers
St. Louis District
1222 Spruce Street
St. Louis, MO 63103-2833

Dear Colonel Hall:

As the agency responsible for Missouri's forest, fish and wildlife resources, the Missouri Department of Conservation (Department) participates on the River Resources Action Team and provides input to the U.S. Army Corps of Engineers (USACE) on channel maintenance structures and techniques in order to avoid and minimize negative impacts to the river's natural resources. The Department was asked to provide scoping comments on the Supplemental Environmental Impact Statement (SEIS) being prepared to address the use of river training structures on the Middle Mississippi River (*i.e.*, river miles 195 – 0) and we appreciate the opportunity to provide the following comments.

In 2012, the Department provided scoping comments on the Environmental Assessment (EA). In those comments, we stated that completion of an EIS was the appropriate National Environmental Policy Act level of review. We are pleased that this is now the chosen course of action. We wish to reiterate comments made in our letter dated April 3, 2012, and include them by reference as part of this current response. A copy of the 2012 letter is attached. As you address the points raised in the 2012 letter, if you need additional information or explanation, please let me know.

In addition to our 2012 comments, following the February 2014 meeting to discuss certain components of the SEIS, we provided Mr. Eddie Brauer information on defining aquatic habitat within the Middle Mississippi River (MMR). In order to fully understand changes that have occurred to the river's resources, we need to quantify and describe existing habitats, and have information on historic habitat conditions. This information is critical in determining avoidance, minimization and mitigation needs that will be addressed in the SEIS.

Ideally, river habitat would be modeled using velocities at the 0.1 m/s (0.328 ft./sec) intervals and the depth in 0.33 m (1.08 ft.) ranges. We believe this will allow for the best resolution to assess change detection during habitat modeling. Using depth intervals of 1 m (3.2 ft.) is not preferred, but may be necessary given the complexity of the data sets. We understand that modeling at this level of detail may be expensive and time consuming; however, the information provided will be invaluable in determining changes to aquatic habitat conditions, information needed for the SEIS, and we encourage modeling at this scale.

The Department appreciates the efforts of USACE to address environmental concerns while it constructs, operates and maintains the authorized 9-foot Channel Project. We also appreciate the coordination efforts of your staff in seeking Department input on the SEIS and in channel maintenance activities. We look forward to further communication and coordination efforts on the SEIS, including aquatic habitat assessment, as requested and as schedules allow.

Thank you for the opportunity to provide comments on the proposed environmental analysis of river training structures in the Middle Mississippi River. If you have any questions on our response, please contact me at 573-522-4115, extension 3372, or by e-mail at janet.sternburg@mdc.mo.gov.

Sincerely,

JANET E. STERNBURG
POLICY COORDINATOR

Attachment

c: USACE – Johnson, Brown
USFWS – Nelson, Mangan
IL DNR – Atwood

MISSOURI DEPARTMENT OF CONSERVATION

Headquarters

2901 West Truman Boulevard, P.O. Box 180, Jefferson City, Missouri 65102-0180

Telephone: (573) 751-4115 ▲ www.MissouriConservation.org

ROBERT L. ZIEHMER, Director

April 2, 2012

Colonel Christopher G. Hall
U.S. Army Corps of Engineers
St. Louis District
1222 Spruce Street
St. Louis, MO 63103-2833

Dear Colonel Hall:

As the agency responsible for Missouri's forest, fish and wildlife resources, the Missouri Department of Conservation (Department) participates on the River Resources Action Team and provides input to the U.S. Army Corps of Engineers (Corps) on channel maintenance structures and techniques in order to avoid and minimize negative impacts to the river's natural resources. The Department was asked to provide scoping comments on the Environmental Assessment (EA) being prepared to address the use of new river training structures on the Middle Mississippi River (i.e., river miles 195 – 0) and we appreciate the opportunity to provide the following comments.

Completion of the EA was a recommendation of the 2011 report prepared by the Government Accountability Office (GAO) that addressed questions raised on the environmental impact of river training structures in the Middle Mississippi River and their impact on river stages. According to the report's recommendations, the National Environmental Policy Act (NEPA) document is to be used to determine if there are "significant new circumstances or information relevant to the Middle Mississippi navigation project's environmental concerns that have emerged since publication of the 1976 environmental impact statement (EIS) and if so, prepare a supplemental EIS (SEIS), in accordance with NEPA, or if not, prepare a finding of no significant impact in accordance with NEPA."

The St. Louis Corps District completed two EIS documents in the 1970s to address Regulating Works and operation and maintenance of the 9-foot Channel Project in the Middle Mississippi River (1976 EIS) and in Pools 24 – 26 (1975 EIS). The Department provided input to both assessments and it raised concerns that river habitats were being lost through maintenance of the 9-foot navigation channel by placement of dikes, revetments, and dredging, and also water level management in the Pools, in addition to the habitat already altered or lost through the construction of the lock and dam system. The Corps agreed that habitat had been lost and that it would likely continue to be lost as the project was constructed, operated and maintained. A post-authorization change to address environmental impacts was recommended in the EIS for the both reaches of the river, and while an attempt was made to obtain the authorization change, it was never finalized. While we cannot at this time quantify how much additional river habitat has been lost or altered since the 1970s, it is recognized that changes have occurred and habitat conditions have continued to be altered. The GAO recommendation only addresses the Middle Mississippi River and not the three Pools created by dam construction.

Changes since the 1970s

Information and Programs

Since the preparation of both of the EIS documents referenced above, there have been numerous studies and reviews conducted on river management and river ecology, including, but not limited to:

- Great River Environmental Action Team (GREAT) studies;
- Comprehensive Master Plan for the Management of the Upper Mississippi River System;
- Upper Mississippi River Restoration – Environmental Management Program and Long Term Resource Monitoring program – authorized in 1986, numerous reports;
- Ecological Status and Trends of the Upper Mississippi River – 1998;
- Ecological Status and Trends of Selected Resources of the Upper Mississippi River System - 2008;
- Upper Mississippi River – Illinois Waterway System Navigation Feasibility Study and Integrated Programmatic EIS and its associated reports - 2004;
- Navigation and Ecosystem Sustainability Program – authorized in 2007;
- Upper Mississippi River Conservation Committee's A River that Works and a Working River;
- Middle Mississippi River Side Channels – A Habitat Rehabilitation and Conservation Initiative;
- Habitat Needs Assessment for the Upper Mississippi River;
- Geomorphology Study of the Middle Mississippi River;
- Upper Mississippi River System Flow Frequency Study, 2004;
- Upper Mississippi River Comprehensive Plan; and
- Middle Mississippi River Corridor Study.
- Additionally, in 2000, a Biological Assessment was prepared and a Biological Opinion issued to address operation and maintenance of the 9-foot Channel Project and its impacts on species listed under the Endangered Species Act.

Channel Management Focus/Policy Perspectives

In addition to the wealth of information that has been gathered since the EIS documents of the 1970s were prepared, a new perspective on river management has emerged. In 1986, as part of the Water Resources Development Act (Public Law 99-662) the river was declared a "nationally significant ecosystem and a nationally significant commercial navigation system" and it expressed Congress' desire "to ensure the coordinated development and enhancement of the Upper Mississippi River System." When the Upper Mississippi River – Illinois Waterway System Navigation Feasibility Study was reinitiated in the early 2000's, the Corps recognized the need to also address and restore ecosystem changes predicted to occur due to an expected increase in navigation traffic. The authorized Navigation and Ecosystem Sustainability Program was to be a dual-purpose program, addressing habitat impacts as part of navigation management.

Channel Management Techniques

During the last 10 to 12 years, in an attempt to provide habitat diversity and to further reduce the need for dredging, different types of rock structures have been used in addition to the standard dike and revetment structures. These include hard points, chevrons, bendway weirs, notched dikes, rootless dikes and w-shaped dikes. Although these structures were modeled to examine hydraulic and sediment changes, limited biological monitoring has occurred to determine if these structures provide new habitats that are used by fish and other wildlife. More recently, concerns have also been raised that by further constricting the river with dike fields to minimize dredging in cross-over sections, these unique channel

habitats that provide variable flows and depths are being lost. While the 1976 EIS mentioned that there would be a loss of cross-over habitats as the river is further constricted and it evaluated traditional rock structures and dredging, there has been no analysis of cumulative environmental impacts of the new types of rock structures that are now in use.

Natural Resources

Since the 1970s, greater attention has been placed by fish and wildlife agencies on sensitive and declining aquatic species. In addition to the species that now have a federal Endangered Species Act status (e.g., pallid sturgeon, interior least tern, Indiana bat, decurrent false aster; and spectaclecase and sheepnose mussels, soon to be listed), both Missouri and Illinois have Natural Heritage Programs that address state-listed species and other species of conservation concern. When individual projects might impact these resources, we provide input to help reduce and avoid affects to these resources.

One faunal group that receives greater attention than in the 1970s, is freshwater mussels. While formerly numerous in the Pools, this resource has declined across its range and the Mississippi River is no exception. While some information exists on the individual species, locations and quality of mussel beds, little information is available to help evaluate project impacts. It is believed that suitable habitats for mussels are limited, partly due to channel management and sedimentation issues. As these habitats are altered or lost, suitable new habitats are not being formed. Additionally, restriction of fish passage between Pools affects freshwater mussel populations because access to species specific fish hosts is needed to complete reproduction. Loss of freshwater mussel habitat due to the operation and maintenance of the 9-foot Channel Project received little attention in the 1975 and 1976 NEPA documents.

Aquatic invasive species and their impacts to the native aquatic resources is a new stressor to the river's natural resources. Since the early- to mid-1990s, Asian carps and zebra mussels have expanded throughout the Upper Mississippi River. The invasive species compete with native species for habitat and food. Because this is a recent occurrence, the presence of the invasive species, combined with the loss of habitat through operation and maintenance of the navigation channel, was not addressed in the previous NEPA documents.

NEPA Perspective and Study Focus

We believe additional evaluation of the regulating works and channel maintenance tools are warranted and we commend the Corps for agreeing to address the concerns raised in the GAO report. For the following reasons, we anticipate the Corps will determine that the completion of an Environmental Impact Statement is the appropriate course of action:

- Significant policy changes with regards to river management and consideration of environmental issues;
- Greater awareness of and concern for ecologically sensitive (i.e., rare, threatened and endangered species; mussel resources) and problems with invasive species;
- Use of new types of river training structures not included in the 1976 and 1975 EIS documents and lack of biological evaluation information or cumulative impacts analysis;
- Substantial number of biological studies and information unavailable in the 1970s;
- Continued channel restriction and loss of available water surface for public access; and

- Lack of post-authorization change to incorporate fish and wildlife purposes into the river management plan in order to address and offset anticipated habitat losses.

While the GAO report and recommendations did not address the impounded portion of the river in the St. Louis District, because similar circumstances and questions exist in the Pools and in the Middle Mississippi River with regard to use of channel training structures and other channel maintenance techniques, we encourage the Corps to consider broadening the focus of the NEPA assessment to include the Pools. In addition, we believe the analysis should address all channel operation and maintenance techniques, such as dredging and spoil placement, in addition to river training structures and revetments. Because both 1970's era EIS documents stated that there would be impacts to the river's natural resources through operation and maintenance of the 9-foot Channel Project, we believe it is reasonable to conduct a cumulative impacts analysis to those natural resources in addition to other environmental analyses, beginning with the completion of the EIS documents in 1976 and 1975.

As the NEPA document is prepared, it is likely we will have additional comments and information to share in the different analyses. At the present time, we offer the following comments for consideration to aid in the NEPA analysis, in addition to the items mentioned previously:

1) In addition to the proposed alternatives for the study, we suggest that the following alternatives also be considered:

a) An intermediate option where a greater level of dredging is acceptable than what is currently desired for the Channel Project, and funding is consistent to provide this level of dredging where it is the more environmentally benign maintenance strategy.

b) Evaluate and remove certain river training structures that are unnecessary for maintaining the navigation channel and removal restores important habitat.

2) Address changes in the amount of public lands adjacent to the river and affects of channel management on those lands, including hydraulic and sediment transport.

3) Determine with partners, whether the habitat categories used in 1976 are still appropriate for analysis, and if not, identify the appropriate habitat classification scheme for the NEPA analysis. Examine changes to those habitats since the 1970s and predicted future changes.

4) Work with river partners to develop a process to evaluate the impacts of different rock training structures, revetments and dredging on fish and wildlife resources habitats and ecological functions, at local and reach levels, and from a cumulative perspective.

5) Consider alteration of aquatic habitats due to issuance of Clean Water Act Section 404 Permits and Rivers and Harbor Act Section 10 Permits, in conjunction with the 9-foot Channel Project.

6) As boats have increased in size and horsepower, the drafting depths of tows have increased. While a 9-foot channel is authorized, additional depth is necessary in places to allow tows to pass during low water situations. This requires continued alterations to the riverbed. These additional impacts should be included in the NEPA analysis.

7) Recreational impacts should be addressed, including, but limited to those due to: loss of water surface area due to channel constriction; loss of slower/slack water habitats such as backwaters in the pools and side-channel habitats, and backwater areas; impacts of dike fields to boaters; and positive and negative opportunities for fishing access due to dike construction.

8) Water quality concerns: regulatory and biological considerations.

9) Fish movement, both local and migratory patterns.

10) Update lists of federal and state-listed species affected by river management and analyze effects of the Channel Project on the species and their habitats.

11) Identify existing freshwater mussel resource information, data gaps and effects of the Channel Project at local, pool and cumulative levels.

12) Develop a list and maps of chronic dredging sites and spoils placement.

13) For the study area, update information in the Natural Resource Inventory Project.

The Department appreciates the efforts of the Corps to address environmental concerns while it constructs, operates and maintains the authorized 9-foot Channel Project. In many instances, the Department's concerns are readily addressed and projects are modified to avoid or minimize adverse impacts to the resources. Through funding from other Corps programs, such as the Avoid and Minimize Program and the Biological Opinion in the Pools and Open River and the Environmental Management Program in the Pools, habitat restoration projects have helped enhance existing habitats.

However, as stated by the Corps in the 1970s EIS documents, management of the river for navigation purposes has resulted in loss of habitat diversity, habitat quality and quantity. Additionally, habitat enhancement within the Middle Mississippi River has been limited. Analyzing the existing changes to the river's natural resources and forecasting future habitat changes and biological response, whether using rock structures, dredging or a combination of these techniques, is important to completely identify resource impacts and to identify resource restoration needs and enhancement opportunities.

Thank you for the opportunity to provide comments on the proposed environmental analysis of river training structures in the Middle Mississippi River. If you have any questions on our response, please contact me at 573-522-4115, extension 3372, or by e-mail at janet.sternburg@mdc.mo.gov.

Sincerely,

JANET E. STERNBURG
POLICY COORDINATOR

c: USFWS – Nelson, Collins, Mangan
IL DNR – Atwood

Missouri Coalition for the Environment
Effective Citizen Action since 1969

January 15, 2014

U.S. Army Corps of Engineers

ATTN: CEMVS-OD-F (Charles Frerker)

1222 Spruce Street
St. Louis, MO 63103-2833

Subject: Comments regarding Public Notice P-2858, Jefferson County Port Authority Fleeting Permit Request

This document is the Missouri Coalition for the Environment's response to the subject Public Notice.

We have been awaiting a fleeting plan from the US Army Corps of Engineers (USACE) for years (See USFWS September 1989 Background Study on the Environmental Impacts of Barge Fleeting) and it appears the plan has not yet been completed. This plan would provide some assistance in evaluating the cumulative impact of all of the fleeting occurring on the UMR and would have included useful mapping of the existing fleeting and the vulnerable habitat areas that are or could be impacted by barge fleeting. The USACE April 2000 Fleeting-Interim Report provided some basic information about what fleeting permits had been approved along the UMRS but apparently was also incomplete and likely not fully accurate.

The USACE Information Paper - N. Systemic Barge Fleeting Plan indicates a schedule for completing information regarding barge fleeting but has no information past projected activities for 2008. A Draft meeting notes of a July 15, 2008 conference call discusses the status of the Project "N" indicating there was much to be done and that there were questions about what existed and what criteria for selecting fleeting sites was needed. Below are specific relevant quotes on issues covered in the notes:

> *"1. Mapping – Industry thought the mapping was confusing, inaccurate, and incomplete…. The Corps understands that some ownerships and activities change over time, but we are not necessarily informed of those changes. Additionally, the regulatory database is imperfect. Fleeting and mooring activities occur on the UMR system, frequently without a Corps permit. We are striving to improve the mapping information and the accuracy of the data, thus the request for collaborative review.*
>
> *2. Fleeting capacity formulas – Nelson suggested that each district should come up with fleeting capacity formulas for different sections of the river based on river constraints. This information is essential to determine whether market demands are being met. Capacities may be difficult to determine for grandfathered fleets or fleets that are not under any Corps permit. The subject of total capacity and practical capacity was discussed.*
>
> *…..*
>
> *4. Criteria for new fleeting site development. Nelson suggested that we need to either ID potential sites for barge fleeting or make criteria for a new site. Might be better to make criteria instead of guessing on good sites. Past discussions with industry led to conclusion that identifying future potential fleeting areas was not desired by the industry. The fleeting plan can include a section that details necessary permit/survey requirements for approval of new fleeting sites. Daily*

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proposed a 30 to 60 day time frame for each District work group to set up criteria for existing or new fleeting. Nelson commented that St Paul's work group example could be shared. Machajewski will forward to Bollman. Criteria for new development can be discussed at the existing mapping workgroup meetings. Discussion resulted in general agreement that criteria for determining future sites would be most beneficial, rather than specific site identification."

The potential impacts to endangered species (as well as vulnerable habitats) from barge activity remain largely unknown despite the USACE's assertion contained in the Public Notice No. P-2858.

We have listed specific quoted excerpts from the USFWS report FINAL BIOLOGICAL OPINION FOR THE UPPER MISSISSIPPI RIVER-ILLINOIS WATERWAY SYSTEM NAVIGATION FEASIBILITY STUDY dated AUGUST 2004 that lists many of the Services concerns regarding barge fleeting related to the Navigation and Ecosystem Sustainability Program (NESP), which are likely pertinent to this permit request as well.

"The 2000 O&M BO noted factors attributable to the 9-Foot Navigation Project that also affect the species: impoundment and water level regulation, dredged material disposal, channel regulating structures and bank revetment, fleeting, recreation, cabin leases, and General Plan Land management. These are summarized as follows:

Fleeting - Development of existing fleeting areas required various levels of habitat modification, including placement of on-shore deadmen. Operation of heavy equipment and soil disturbance may have affected B. decurrens to an unknown degree." (Page 45)

"Numerous fleeting and terminal facilities are located in the action area. Fleeting areas are typically constructed within main channel border habitats. Towboats maneuvering within fleeting areas cause resuspension of sediments, or direct contact with the bottom in shallow areas. In addition, fleeting areas and terminals often require periodic dredging, which disturbs bottom sediments. In addition, contaminated sediments may be resuspended and transferred downstream. Consequently, fleeting activities may adversely affect Higgins eye located in the action area of new fleeting/terminal facilities through direct contact with propellers/hulls, from dredging and disposal activities, or from increased sedimentation and resuspension of contaminants.

The Corps completed a Fleeting Analysis (USACE 2000) as part of the Navigation Study in order to determine if fleeting is likely to increase as a result of increased navigation traffic. The Corps concluded that no new fleeting areas are expected as a result of improvements to the navigation system. The Service disagrees with this assessment. While it is uncertain as to whether construction of additional fleeting areas will be necessary, there will be more barges moving throughout the UMRS (U.S. Army Corps of Engineers 2004a). In addition, with implementation of navigation improvements, tow lockage will become more efficient. For these reasons, there will likely be increased movement of barges into and out of some existing fleeting and terminal areas, or expansion of existing facilities to accommodate increased usage, either of which could adversely affect Higgins eye in the action area. However, although we anticipate that a few individuals may be harmed, we do not expect the reproduction, numbers or distribution of Higgins eye populations within UMRS will be appreciably reduced.

The Corps has proposed to develop a Systemic Barge Fleeting Plan for the UMRS (U.S. Army Corps of Engineers 2004a). However, the details of this plan remain unknown, and therefore, it is uncertain as to the extent it will address

impacts associated with fleeting, including impacts to Higgins eye. The Service supports development of the Systemic Barge Fleeting Plan for the UMRS in a timely manner." (Page 69)

"The Service believes the following Reasonable and Prudent Measures (RPM) are necessary and appropriate to minimize impacts of incidental take of Higgins eye. The RPMs are a modification of the Standards and Guidelines found on Page 123 of the Corps of Engineers Tier I Biological Assessment, and proposed Systemic Barge Fleeting Plan (U.S. Army Corps of Engineers 2004a):

1. Implement the Higgins Eye Planning Guidelines listed below for design and implementation of navigation and ecosystem restoration actions.

2. Complete the Systemic Barge Fleeting Plan for the UMRS (U.S. Army Corps of Engineers 2004a) in a timely manner." (Page 83)

"In coordination with the U.S. Fish and Wildlife Service and other appropriate federal and state natural resource agencies, initiate development of the Systemic Barge Fleeting Plan for the UMRS in Funding Year One of the Upper Mississippi River – Illinois Waterway System Navigation Capacity Improvement Project. Information from the plan will assist in locating future actions to avoid and minimize effects to Higgins eye. The fleeting plan should be completed within three years of initiation and identify (1) important Higgins eye habitat areas that should be avoided; (2) areas that are suitable for fleeting and have no or minimal impacts on Higgins eye; and (3) other measures to avoid/minimize the impacts of fleeting on Higgins eye. (Page 86)

"Numerous fleeting and terminal facilities are located in the action area. Within the species range, these facilities are most numerous in the St. Louis Harbor, but are also widely distributed along the river system to take advantage of rail and highway transportation modes. Fleeting areas are typically constructed within main channel border habitats. Towboats maneuvering within fleeting areas cause resuspension of sediments. In addition, fleeting areas and terminals often require periodic dredging, which disturbs bottom sediments. Most often, these sediments are disposed in the open water downstream. As a result of these activities, fleeting operations likely affect macroinvertebrate production on a local scale. In addition, contaminated sediments may be resuspended and transferred downstream." (Page 108)

"Harbor boats and towboats maneuvering in near-shore areas contribute to bankline erosion as well as bottom sediment resuspension noted previously. Since pallid sturgeon exhibit a preference for main channel border habitats (Sheehan et al. 1998, 2002), this may result in entrainment of juvenile and adult sturgeon, thus resulting in some degree of mortality." (Page 109)

"Fleeting - Towboats are utilized to maneuver barges into and out of fleeting areas. Increased towboat activity will result in additional pallid sturgeon being killed or injured through towboat propeller entrainment. In addition, habitat modification associated with constructing fleeting areas, movement of barges into/out of fleeting areas and maintenance dredging will result in physical displacement of pallid sturgeon or decreases in forage food abundance which is harassment." (Page 127)

"The Service believes the following reasonable and prudent measures are necessary and minimize impacts of incidental take of pallid sturgeon:"

"3. The Corps shall develop a fleeting plan for the Middle Mississippi River. This fleeting plan shall identify important pallid sturgeon habitat areas that should be

placed "off-limits" to fleeting, identify areas that are suitable for fleeting and having no or minimal impacts on pallid sturgeon and identify other measures that should be taken to minimize the impacts of fleeting on pallid sturgeon."

"Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must comply with the following terms and conditions, which carry out the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary."

"5. In coordination with the U.S. Fish and Wildlife Service and other appropriate federal and state natural resource agencies, initiate development of the Systemic Barge Fleeting Plan for the Upper Mississippi River System in Funding Year One of the Upper Mississippi River - Illinois Waterway System Navigation Capacity Improvement Project. Information from the plan will assist in locating future actions to avoid and minimize effects to pallid sturgeon. The fleeting plan should be completed within three years of initiation and identify (1) important pallid sturgeon habitat areas that should be avoided; (2) areas that are suitable for fleeting and have no or minimal impacts on pallid." (from Page 129-131)

We do understand that funding for NESP has been suspended but the strong need for the System Barge Fleeting Plan remains regardless.

We question the use of the term "human environment" in Item 2 of the Public Notice. We understand this is a general term used by the USACE to satisfy NEPA obligations but we find its use in the Public Notice confusing. Is this intended to cover the areas along or near the river altered for development of the port facility, which are no longer considered natural to any reasonable degree? Does it cover the river channel that is highly altered for human use but still marginally supports other species? If the USACE is using the typical context or definition of "human environment", e.g. developed land; the barge fleeting would obviously have little impact upon it. However, if the USACE is addressing its initial assessment of the impact of the barge fleeting specifically on the river environment, then, contrary to the USACE assertion, there likely will be an impact to the river environment in and around the area of the barges.

From our review of the USACE Fleeting Report-Interim Report of April 2000 fleeting areas from St. Louis to the Jefferson County area had capacity of over 1,700 barges. From the more recent documents we now know that this number is not necessarily accurate or up to date based upon possible new permits and undocumented fleeting; so it appears that no one really knows completely how many barges are being fleeted and where.

Although the addition of a 60-barge fleeting area (over 9 acres) at Jefferson County is small in comparison to the total already existing upstream it will have an impact upon the local river environment, both directly and indirectly through activities of filling, emptying, adding and removing barges. It is the cumulative impact of all of these barges upon the natural environment that concerns us, which has never been properly investigated and evaluated.

In light of the recent barge incident during the April 2013 flooding when 114 barges broke loose with eleven of them sinking and four hitting the Jefferson Barracks Bridge, it seems prudent to pursue a thorough investigation of barge fleeting. Since the barge industry pays virtually nothing for the use of the river, and all damages, both to infrastructure and the environment caused by their activities is paid for by the public, at a minimum, the public deserves complete information about the extent of the barge industry's activities on and within the river.

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Because of the lack of availability of the Barge Fleeting Plan report and its valuable information we contend that any new fleeting permits should be denied, especially one as large as the requested fleeting area at the Jefferson County Port Authority facility. We request that USACE deny the requested permit based on insufficient information to evaluate its impacts.

We also suggest that the Supplemental EIS that the St. Louis USACE District office is currently pursuing for the Middle Mississippi River be expanded to include the cumulative impacts of barge fleeting and all ports within the Middle Mississippi River.

Brad Walker

Rivers & Sustainability Director

Missouri Coalition for the Environment

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February 13, 2014

US Army Corps of Engineers – St. Louis District
CEMVS-EC-H
1222 Spruce St.
St. Louis, MO 63103-2833Sent by email to jasen.l.brown@usace.army.mil

RE: Scoping Comments for the Supplemental Environmental Impact Statement for the Middle Mississippi River Regulating Works Project, Public Notice 2013-744

Mr. Jasen Brown:

Thank you for providing this comment opportunity during the scoping process for the supplemental environmental impact statement (SEIS) on the Middle Mississippi River Regulating Works Project (Project). In 2011, the Government Accountability Office (GAO) found the St. Louis District (District) in violation of the National Environmental Policy Act. To rectify this violation, the District conducted an environmental assessment to determine if the 1976 environmental impact statement should be supplemented and I agree with the District that a SEIS is necessary.

Between 1980 and 2009, the Corps built at least 380 new river training structures in the Middle Mississippi, including 40,000 feet of wing dikes and bendway weirs between 1990 and 1993. This dramatic expansion of construction in the river is concerning. The impacts of these structures on fish, wildlife, and river stage have not been properly examined. Since 1986, at least 51 scientific studies have been published linking river training structures to increased flood heights. These studies show that river training structures constructed by the Corps to reduce navigation dredging costs have increased flood levels by 10 to 15 feet and more in some locations of the Mississippi River during large floods.

In order to adequately evaluate the environmental and human impacts and risks of the Project, I recommend the Corps incorporate the following suggestions into the SEIS.

1. Expand the SEIS to evaluate the full suite of navigation operations and maintenance (O&M) activities for the Upper Mississippi River – Illinois Waterway (UMR-IWW). The Project is just part of a number of activities carried out to maintain navigation on the UMR-IWW. In addition to construction of river training structures, which the Project SEIS evaluates, other O&M activities include water level regulation, dredging and disposal of dredged material, construction of revetment, barge fleeting, and O&M of the system's 37 locks and dams. Since all O&M activities are designed to maintain a single project – the UMR-IWW navigation channel – individual activities should not be evaluated in isolation.

2. Initiate a National Academy of Sciences study on the effect of river training structures on flood heights to inform development of the SEIS. A National Academy of Sciences review is critical for ensuring that: (a) the SEIS is based on the best possible scientific understanding of the role of river training structures on increasing flood heights; (b) the SEIS produces recommendations that will provide the highest possible protection to the public; and (c) the public will have

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confidence in this aspect of the evaluation and recommendations contained in the final SEIS.

3. Impose a moratorium on the construction of new river training structures pending completion of the SEIS. Extensive peer-reviewed science demonstrates that river training structures have increased flood levels. In light of these findings, it is critical that additional river training structures not be built unless and until, a comprehensive SEIS establishes that such construction will not contribute to increased flood risks to communities.

4. Fully comply with the National Environmental Policy Act by properly defining the project purpose, fully evaluating project impacts, and fully reviewing all reasonable alternatives. Impacts that must be examined include, direct, indirect, and cumulative impacts (including the cumulative impacts of climate change) of all O&M activities on the UMR-MW ecosystems; the effect of those activities on flood heights and public safety; alternatives to those activities that could cause less harm to the environment, including alternative water level management regimes and removal and/or modification of river training structures; and mitigation for those impacts that cannot be avoided. The project purpose is most properly defined as maintaining navigation.

Sincerely,

Brad Walker

Rivers and Sustainability Director

Missouri Coalition for the Environment

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Rose and Mike Schulte
2842 Chadwick Dr.
Bel Nor, MO 63121
Jan 21, 2014

US Army Corps of Engineers
CEMVS-EC-H
1222 Spruce Street
St. Louis, MO 63103-2833

Sirs:

This is a response to Public Notice 2013-744, a notice to prepare a supplemental EIS for the USACOE Middle Mississippi River Regulating Works Project.

We are in favor of continuing the Regulating Works Project. Properly designed, the installed dikes, weirs, and revetments would certainly trap much of the sediment in the river, resulting in much less need to dredge. Dredging is an expensive proposition, interferes with the barge traffic in the channel, and results in environmental problem both with the stirring up of the bottom while dredging and with the problems of the disposal of the dredge material. As such dredging should be replaced when possible with other solutions to channel maintenance.

The installation of controlling structures is done close to the banks of the river. They are outside the river channel, so the construction and maintenance of the structures will not interfere with the barge traffic and it will provide shore access as needed for construction and maintenance. Properly constructed, these controlling structures will provide pools, similar to the pools that formed behind the historic sand bars, to provide habitat for the aquatic life in the river. This could also improve the amount of recreational fishing done from the banks.

We feel that the Regulating Works Projects' continuation has more benefits than relying on dredging. We support the continuation of the Regulating Works Project.

Sincerely,

Rose and Mike Schulte

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

FEB 2 1 2014

Mr. Jasen Brown
Department of the Army
St. Louis District, U.S. Army Corps of Engineers
CEMVS-EC-H
1222 Spruce Street
St. Louis, MO 63103

Dear Mr. Brown:

RE: Notice of Intent to Prepare a Draft Supplemental Environmental Impact Statement for the Middle Mississippi River Regulating Works Project

The U.S. Environmental Protection Agency received notice on December 20, 2013, of the U.S. Army Corps of Engineers' intent to prepare a draft Supplemental Environmental Impact Statement for the Middle Mississippi River Regulating Works Project in Missouri and Illinois. A Notice of Intent was also published in the Federal Register on December 20, 2013. The original EIS for the Project was finalized in 1976 and the Corps has determined that there is sufficient significant new information regarding the potential impacts of the project on the human environment to warrant the preparation of an SEIS. In addition, the Corps' development of the SEIS is intended to address issues identified in a 2011 Report to Congress by the General Accounting Office regarding potential cumulative impacts of river training structures.

The Middle Mississippi River Regulating Works Project is authorized pursuant to the Rivers and Harbors Act to provide a safe and dependable navigation channel between the confluences of the Ohio and Missouri Rivers. The Corps accomplishes this mission through bank stabilization and sediment management to ensure adequate navigation depth and width. Project improvements are achieved through the construction of river training structures, revetment, rock removal, and construction dredging. The long-term goal of the Project is to reduce or eliminate the amount of annual maintenance dredging through the construction of river training structures. The Corps proposes to continue to provide a safe and dependable navigation channel on the MMR by means of one of the alternatives presently under consideration or by another alternative identified during the scoping process. Alternatives presently under consideration include continuing with the existing Project relying on both the continued construction of training structures and maintenance dredging, as necessary, and the maintenance of existing structures without the construction of any new river training structures.

Please consider the following comments regarding the scope and content of the planned SEIS.

Programmatic Scope of the Regulating Works Project SEIS

The SEIS should clearly describe the reach of this document in assessing the impacts of the Regulating Works Project. The Regulating Works Project relies upon both maintenance dredging of the navigation

channel and margins and the construction and maintenance of river training structures to provide a safe and dependable navigation channel. The scope of this assessment should include both aspects of this program as either connected actions or through the assessment of cumulative impacts.

Definition of "No Action" Alternative

The NOI does not identify what the Corps would consider it's required 'no action' alternative. The FR notice does identify two currently proposed alternatives distinguished by whether or not new river training structures would be built. The Corps could define its 'no action' alternative as either the discontinuation of both dredging and river structure construction and maintenance (i.e., no regulatory action) or only the discontinuation of the river training structures portion of the Project (i.e., dredging, but no new construction or maintenance). Defining 'no action' as being literally the absence of regulatory action would provide a valuable contrast among alternatives and impacts. Whether maintenance dredging is included under the 'no action' alternative or as part of a 'no construction' action alternative (i.e., all dredging and no structure construction), the rigorous exploration of all reasonable alternatives required by Council on Environmental Quality regulations would still be satisfied. We expect that the assessment of impacts resulting from the complete reliance on dredging, relying only on the maintenance of existing river training structures and the addition of new training structures to maintain the navigation channel would all be carried forward for comprehensive assessment in the SEIS.

Range of Alternatives

We suggest that the range of alternatives include, to the extent practicable and purposeful, action alternatives more detailed than simply 'new construction' or 'no new construction.' Specifically, the types of river training structures and the placement of such structures have varying impacts on the river environment and vary in their effectiveness. Variables such as the placement of structures on the inside or outside of river bends, structure frequency per unit length of river (i.e., density), the use of closeout structures and the use of many types of control structures (e.g., chevrons, notched dikes) affect the kind of environmental impacts, the severity of impacts (e.g., the loss of secondary channel area) and the long-term sustainability of the structures themselves. An inventory of different structure types and placements, their expected impacts on river habitat and their suitability in different channel environments would strengthen the SEIS and would support site-specific tiering from this broader document to individual NEPA compliance documents supporting site-specific projects. Alternatives and components of alternatives not addressed within the SEIS must be comprehensively characterized and their impacts assessed within individual, tiered NEPA documents for each site-specific project. The more comprehensive and inclusive the SEIS, the more targeted subsequent site-specific documents can be while still complying with NEPA.

NEPA Coverage Provided by the SEIS

The 2011 GAO report states that the 1976 EIS "does not provide any information on site-specific structures or locations and discusses the environmental effects only at a high level." The SEIS should clearly characterize the relationship between the SEIS and subsequent individual, tiered NEPA compliance efforts specific to individual projects or sites. Additional NEPA compliance coverage for individual projects would address site-specific conditions or unique project design which could require additional NEPA compliance beyond that provided by a broad or programmatic EIS for the river structures program. For example, we would expect that the SEIS would identify criteria for determining

whether an individual project "qualifies" for coverage under the SEIS, whether further and additional NEPA compliance is necessary (i.e., tiered EA or EIS) and the degree to which an individual project or its impacts are so unique that a more complex separate impact assessment is warranted beyond the scope of a tiered EA or EIS. The decision-maker and the public should understand where the SEIS 'ends' and where the tiered EA or EIS 'begins.'

EPA previously provided comments on several river training structure project-specific NEPA documents tiering from the 1976 EIS. Some of our comments speak directly to what we would look for in a NEPA document providing a more site-specific assessment, but which builds from a larger, more generic program NEPA document. We've enclosed a copy of those comments to illustrate the relationship between the program-level document and the site-specific document.

Prioritization of Project Locations

The SEIS would be significantly more useful if specific sub-reaches within the MMR reach were identified for prioritization based on continuing or increasing channel maintenance needs or where major or any maintenance dredging would be particularly harmful to aquatic life or habitat in those reaches. Reaches could be prioritized for the construction of new structures or modification of existing structures based either on continuing or unaddressed navigational problems or the presence of natural resources more sensitive to dredging.

Geographic Scope of Impact Assessment or Affected Environment

We suggest that the Corps consider the lateral scope of the analysis of impacts associated with the construction of training structures. Specifically, the SEIS should specify its scope of analysis within the meander belt of the MMR. We suggest that the SEIS address impacts to tributaries to the MMR and their floodplain in addition to the 500 year floodplain of the MMR itself. In any case, the SEIS should identify and provide a rationale for the extent of its scope of analysis.

Impacts Evaluation

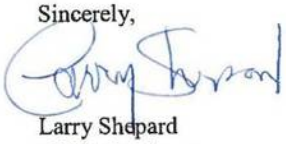
As the Regulating Works Project includes both channel maintenance dredging and structure placement as a means of maintaining the navigation channel, all management actions should be included in the environmental assessment. If the Corps believes direct, indirect and cumulative impacts resulting from the construction and maintenance of the navigation channel have been adequately assessed elsewhere, the SEIS should identify those other vehicles of NEPA compliance and summarize that information in this document.

The SEIS should evaluate any direct impacts from the construction, maintenance and performance of river control structures and maintenance dredging. Specifically, the EIS should characterize any bed degradation occurring through the MMR and the relationship between river control structures and their placement and dredging to past, present and predicted future bed loss. Data on bed degradation should be current and comprehensive enough to characterize impacts throughout the entire MMR reach. The EIS should also characterize the impacts of river training structures and dredging on sediment transport or routing, in general, and the accretion of sediment in various channel and channel margin locations throughout the MMR which provide important shallow water habitats supporting riverine species including, but not limited to, those protected under the Endangered Species Act. We suggest an evaluation of both the surface areas of types of SWH and unvegetated sandbars and the area and volume

characterization of a formal environmental monitoring program should be part of the SEIS and such a formal monitoring program should be included in the adaptive management approach designed for the Regulating Works Project.

Thank you for the opportunity to provide scoping comments for SEIS preparation. I look forward to working with Corps staff on the SEIS and would greatly appreciate receiving future draft NEPA documents for this project as early as possible to enhance our review. If you have any questions about these comments, please contact me at 913-551-7441 or shepard.larry@epa.gov.

Sincerely,



Larry Shepard
NEPA Reviewer

Enclosure

cc: Ken Westlake, NEPA Implementation Section, Office of Enforcement and Compliance Assurance

National Wildlife Federation
American Rivers
Great Rivers Environmental Law Center
Missouri Coalition for the Environment
Prairie Rivers Network
River Alliance of Wisconsin

February 14, 2014

Via Email: jasen.l.brown@usace.army.mil and RegWorksSEIS@usace.army.mil

U.S. Army Corps of Engineers
St. Louis District
CEMVS-EC-H
1222 Spruce St.
St. Louis, MO 63103-2833

RE: Scoping Comments for the Supplemental Environmental Impact Statement for the Middle Mississippi River Regulating Works Project, Public Notice 2013-744

Dear Mr. Brown:

The National Wildlife Federation, American Rivers, Great Rivers Environmental Law Center, Missouri Coalition for the Environment, Prairie Rivers Network, and River Alliance of Wisconsin (collectively, the Conservation Organizations") appreciate the opportunity to submit these comments on the scope of the Supplemental Environmental Impact Statement for the Middle Mississippi River Regulating Works Project (the SEIS).

The National Wildlife Federation (NWF) is the Nation's largest conservation education and advocacy organization. NWF has more than four million members and supporters and conservation affiliate organizations in forty-seven states and territories. NWF has a long history of interest and involvement in the programs of the U.S. Army Corps of Engineers (Corps) and the management and protection of the Mississippi River. NWF is a strong supporter of ecologically sound efforts to restore the Mississippi River and the nation's many other damaged rivers, coasts, and wetlands.

American Rivers protects wild rivers, restores damaged rivers, and conserves clean water for people and nature. Since 1973, American Rivers has protected and restored more than 150,000 miles of rivers through advocacy efforts, on-the-ground projects, and an annual America's Most Endangered Rivers® campaign. Headquartered in Washington, DC, American Rivers has offices across the country and more than 200,000 members, supporters, and volunteers. As the nation's leading river conservation organization, American Rivers has an interest in restoring and protecting the health of the Mississippi River Basin for people and wildlife.

Great Rivers Environmental Law Center is a nonprofit organization dedicated to providing free and reduced-fee public interest legal services to individuals and organizations working to protect and preserve Missouri's environment.

The Missouri Coalition for the Environment is Missouri's independent, citizens' environmental organization for clean water, clean air, clean energy, and a healthy environment. The Missouri Coalition for the Environment works to protect and restore the environment through education, public engagement, and legal action.

Prairie Rivers Network is Illinois' only statewide river conservation organization and is the Illinois affiliate of the National Wildlife Federation. We are a 501(c)(3), tax-exempt nonprofit based in Champaign, Illinois. Our mission is to protect the rivers of Illinois and to promote the lasting health and beauty of watershed communities. We use sound science and policy analysis to stand up for strong, fair laws to protect clean water and natural areas. We engage citizens, businesses, and governments across Illinois in this effort, providing them with the policy information, scientific data, technical assistance, and outreach programs needed to support effective river advocacy. A recognized leader on issues involving the implementation and enforcement of the Clean Water Act in Illinois, Prairie Rivers Network leads efforts to improve clean water standards, review pollution permits, protect wetlands, reduce polluted runoff from farms and streets, and restore natural areas along rivers and streams.

The River Alliance of Wisconsin is a statewide nonprofit river conservation organization with 2,500 individual and over 200 business and organizational members. Its interest in the Mississippi stems from the fact that the river forms about half the state's western boundary with Minnesota. Thousands of Wisconsinites recreate on the river, and the more than two dozen cities and villages along the river are concerned with how the river's management affects water levels, especially flooding.

General Comments

The Conservation Organizations appreciate the Corps' decision to prepare a supplemental EIS for its Regulating Works Project. However, since this project is just one of many types of operations and maintenance (O&M) activities designed to maintain a 9 foot navigation channel in the Upper Mississippi River-Illinois Waterway Navigation System (UMR-IWW), evaluating just the Regulating Works Project would constitute an impermissible piecemeal assessment that cannot satisfy the requirements of the National Environmental Policy Act (NEPA). Instead, NEPA requires preparation of a supplemental Environmental Impact Statement that evaluates **all** O&M activities and identifies alternatives that could cause less harm to the environment.

As discussed in detail below, the Corps' O&M activities are causing significant harm to the environment, increasing flood risks for communities, and undermining the work carried out under the Corps' restoration and flood damage reduction authorities. For example, while the Corps is authorized to reduce flood damages along the river, extensive peer-reviewed science demonstrates that river training structures constructed under the Regulating Works Project have increased flood levels by up to 15 feet in some locations and 10 feet in broad stretches of the Mississippi River where these structures are prevalent.[1] The Corps, however, continues to deny the validity of this science.

[1] 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-

To comply fully with NEPA and to ensure the highest level of protection to the public, the Conservation Organizations urge the Corps to:

I. Expand the SEIS to evaluate the full suite of O&M activities for the Upper Mississippi River – Illinois Waterway navigation system. As the Corps is well aware, the Regulating Works Project is just one of a number of activities carried out by the Corps to maintain navigation on the UMR-IWW. Other O&M activities include water level regulation, dredging and disposal of dredged material, construction of revetment, and operation and maintenance of the system's 37 locks and dams. Since all O&M activities are designed to maintain a single project, individual activities may not be evaluated in isolation. A supplemental EIS for the full suite of O&M activities would help ensure that future O&M activities comply with current law, planning criteria and policies, including the requirements established by the Clean Water Act, the Endangered Species Act, the Water Resources Development Act of 2007, and the Fish and Wildlife Coordination Act.

II. Initiate a National Academy of Sciences study on the effect of river training structures on flood heights to inform development of the SEIS. A National Academy of Sciences review is critical for ensuring that: (a) the SEIS is based on the best possible scientific understanding of the role of river training structures on increasing flood heights; (b) the SEIS produces recommendations that will provide the highest possible protection to the public; and (c) the public will have confidence in this aspect of the evaluation and recommendations contained in the final SEIS.

III. Impose a moratorium on the construction of new river training structures pending completion of the National Academy of Sciences Study and the SEIS. As discussed below, extensive peer-reviewed science demonstrates that river training structures have increased flood levels by up to 15 feet in some locations and 10 feet in broad stretches of the Mississippi River where these structures are prevalent. In light of these findings, it is critical that additional river training structures not be built unless, and until, the National Academy of Sciences study and comprehensive SEIS establish that such construction will not contribute to increased flood risks to communities.

IV. Fully evaluate the impacts of all reasonable alternatives and select an alternative that protects and restores the Mississippi River. To comply with NEPA, the SEIS must (among other things) properly define the project purpose, fully evaluate project impacts, and fully review all reasonable alternatives. The project purpose is most properly defined as maintaining navigation. Impacts that must be examined include, direct, indirect, and cumulative impacts (including the cumulative impacts of climate change) of all O&M activities on the UMR-IWW

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. There is also a global consensus that river training structures can and do increase flood heights as evidenced by actions being carried out by the government of the Netherlands to modify hundreds of river training structures "as part of a nationwide effort to reduce flood risk in [the Rhine River] floodplain" at significant cost. Government Accountability Office, GAO-12-41, Mississippi River, Actions Are Needed to Help Resolve Environmental and Flooding Concerns about the Use of River Training Structures (December 2011) (GAO Study on River Training Structures) (concluding that the Corps is out of compliance with both the National Environmental Policy Act and the Clean Water Act).

ecosystems; the effect of those activities on flood heights and public safety; alternatives to those activities that could cause less harm to the environment, including alternative water level management regimes and removal and/or modification of river training structures; and mitigation for those impacts that cannot be avoided. To comply with the National Water Policy and the Corps' civil works mitigation requirements, the SEIS must ultimately select an alternative that will protect and restore the natural functions of the Mississippi River system and mitigate any unavoidable damage.

The independent external peer review that is clearly required for the SEIS should be conducted by the National Academy of Sciences, and the panel's task should explicitly include a charge to evaluate: the appropriateness of the alternative recommended by the Corps; whether the selected alternative will in fact protect and restore the functions of the Mississippi River system; whether the selected alternative includes a mitigation plan that is likely to produce ecologically successful mitigation; and whether the selected alternative includes appropriate and meaningful criteria for determining project success.

Specific Comments

I. The Corps Should Expand the SEIS to Evaluate the Full Suite of O&M Activities

The UMR-IWW navigation system includes 1,200 miles of 9-foot navigation channel, 37 lock and dam sites, and thousands of channel training structures. This system requires "continuous regular operations and maintenance" at a cost of more than $120 million each year.[2] These operations and maintenance (O&M) activities include: dredging and disposal of dredged material, water level regulation, construction of river training structures (wing dikes, bendway weirs, chevrons), construction of revetment, and operation and maintenance of the system's 37 locks and dams.

These actions must be examined in a single environmental impact statement because they are "connected actions."[3] Actions are connected if they:

(i) Automatically trigger other actions which may require environmental impact statements.
(ii) Cannot or will not proceed unless other actions are taken previously or simultaneously
(iii) Are interdependent parts of a larger action and depend on the larger action for their justification.[4]

Under these standards, the full suite of O&M activities are clearly "connected actions" that must be evaluated in a single environmental impact statement (EIS). Each O&M activity is an interdependent part of a larger action – maintaining the UMR-IWW navigation system – and will not proceed unless other actions that independently would require an environmental impact statement are undertaken (for

[2] USACE Brochure, Upper Mississippi River – Illinois Waterway System Locks and Dams (September 2009) available at http://www.mvr.usace.army.mil/brochures/documents/UMRSLocksandDams.pdf; Congressional Research Service, *Inland Waterways: Recent Proposals and Issues for Congress* (July 14, 2011) at 15.
[3] 40 C.F.R. § 1508.25; *e.g., Thomas v. Peterson*, 753 F.2d 754, 758 (9th Cir. 1985).
[4] 40 C.F.R. § 1508.25(a).

example, dredging the Mississippi River, controlling water levels in the Mississippi River). There is no independent utility for constructing river training structures for navigation purposes absent the full suite of O&M activities that are required to maintain the UMR-IWW navigation system.[5]

All O&M activities must be reviewed under a comprehensive supplemental environmental impact statement for the same reasons that mandate preparation of the SEIS for the Regulating Works Project. A supplemental EIS must be prepared where, as here, there "are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts" or when the agency makes "substantial changes in the proposed action that are relevant to environmental concerns." 40 C.F.R. § 1502.9(c); 33 C.F.R. § 230.13(b).

The Supreme Court has ruled that:

> If there remains 'major Federal actio[n]' to occur, and if the new information is sufficient to show that the remaining action will 'affec[t] the quality of the human environment' in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared.[6]

New information requires preparation of a supplemental EIS if the information "'presents a picture of the likely environmental consequences associated with the proposed action not envisioned by the original EIS'" and "'raises new concerns of sufficient gravity such that another, formal in-depth look at the environmental consequences of the proposed action is necessary.'"[7]

The Corps is not free to ignore the possible significance of new information. The Corps must "take a hard look" at any new information (*i.e.*, information that did not exist when the original environmental impact statement was prepared) to determine whether a supplemental environmental impact statement is required.[8] Where, as here, an EIS is "more than 5 years old," it should be "carefully reexamined" to determine if a supplement is required.[9]

Despite the significant changed circumstances discussed below, the Corps continues to rely on a series of five outdated and piecemeal environmental impact statements that do not satisfy the requirements of NEPA. Four of these EISs are more than 35 years old – two were written in 1974, one in 1975, and one in 1976.[10] Another assessment that reviews only a portion of O&M activities carried out in one

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[5] *See Save the Yaak Committee v. Block*, 840 F.2d 714, 720 (9th Cir. 1988) (agency must consider both the logging road project and timber sale together because they road would not proceed absent the timber sale); *Thomas v. Peterson*, 753 F.2d 754, 757 (9th Cir. 1985) (same).

[6] *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989) (emphasis added).

[7] *Louisiana Wildlife Federation v. York*, 761 F.2d 1044, 1051 (5th Cir. 1985) (quoting *Wisconsin v. Weinberger*, 745 F.2d 412, 418 (7th Cir. 1984) (a supplemental EIS must be prepared when "new information provides a *seriously* different picture of the environmental landscape such that another hard look is necessary")).

[8] *Marsh*, 490 U.S. at 385.

[9] 46 Fed Reg. 18026 (March 23, 1981), as amended, 51 Fed. Reg. 15618 (April 25, 1986), Question 32; *see also Oregon Natural Resources Council v. U.S. Forest Serv.*, 445 F. Supp. 2d 1211, 1232 (D. Or. 2006) (recognizing passage of time likely warrants supplemental NEPA analysis).

[10] The St. Paul District prepared an EIS in 1974 for the operation and maintenance of a 9-foot channel on the Upper Mississippi River from the head of navigation to Guttenberg, Iowa. The Rock Island District prepared an EIS in 1974

Corps District was written in 1997, but that 17-year old EIS itself acknowledged a major shortcoming: "The major unresolved issue is the *cumulative impacts* of the continued operations and maintenance of the 9-foot navigation channel."[11]

None of these O&M EISs evaluate the cumulative impact of the more than 1,375 river training structures[12] constructed by the Corps in the middle Mississippi River on flood heights or on the safety of river communities.[13] The Corps has never prepared a single, comprehensive environmental impact statement evaluating the full range of impacts, including the cumulative impacts, of O&M activities on the UMR-IWW system.[14]

In addition to the changes mandating a supplemental EIS on all O&M activities discussed below, the Conservation Organizations also understand that the Corps is dredging the Mississippi River channel to at least 11.5 feet rather than the authorized depth of 9-feet. The original EISs do not evaluate the environmental impacts of dredging the channel 2.5 feet deeper than the authorized depth. The Corps must analyze the environmental impacts of the actual dredging that it is conducting.

The failure to supplement the out of date and piecemeal environmental reviews and to develop less environmentally damaging alternatives violates the clear requirements of NEPA. The failure to examine and adopt less damaging alternatives is extremely troubling since the Corps has long been aware that alternative methods exist for maintaining the system's navigational capacity while also improving the system's ecological health.[15]

A. Dramatic Decline in the Ecological Health of the System

Since the O&M EISs were completed there has been a dramatic decline in the ecological health of the UMR-IWW that triggers the need to prepare a supplemental EIS for all O&M activities. Moreover, it is well recognized – including by the Corps itself – that the Corps' O&M activities have completely altered

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for the operation and maintenance of a 9-foot navigation channel on the Upper Mississippi River. The St. Louis District prepared an EIS in 1975 and 1976 for the operation and maintenance of pools on the Mississippi and Illinois Rivers and the regulating works for the Mississippi River between the Ohio and Missouri River.

[11] The St. Paul District issued a fifth EIS in 1997 that evaluated navigation maintenance activities within that district. 1997 EIS at 1-4 (emphasis added). The 1997 EIS acknowledged that the document did not evaluate "operations" and did not examine cumulative impacts.

[12] GAO Study on River Training Structures.

[13] GAO Study on River Training Structures.

[14] The duty to discuss cumulative impacts in an EIS is mandatory and not within the agency's discretion. 40 C.F.R. §§ 1502.16, 1508.7; *see also Oregon Natural Resources Council v. Marsh*, 52 F.3d 1485 (9th Cir. 1995) (holding that the Corps violated NEPA by narrowly limiting the scope of the discussion of cumulative impacts).

[15] For example, in 1997, the Donald J. Barry, Deputy Assistant Secretary for Fish and Wildlife and Parks, U.S. Department of Interior wrote a letter to the Martin Lancaster, Assistant Secretary of the Army for Civil Works advising the Corps of the new information that has been developed by the Corps and FWS regarding the impacts of the Corps' O&M activities on the Upper Mississippi River System and that the Corps' activities "can be managed to achieve the goals of navigation and a healthy river system." (Letter dated April 12, 1997). Similarly, the Upper Mississippi Water Level Management Task Force advised the Corps in 1996 that "[w]ater level management experiences from around the world amply demonstrate that opportunity exists for improving the ecological conditions of the Upper Mississippi River." Upper Mississippi Water Level Management Task Force, Problem Appraisal Report for Water Level Management (1996) at 3-3.

the natural processes of the Upper Mississippi River and have played a major role in the dramatic decline in the ecological health of the Mississippi and Illinois Rivers and the species that rely on them.[16] Construction of river training structures has also resulted in significant increases in flood heights along the Mississippi River. These adverse impacts also undermine the effectiveness of work carried out under the Corps' restoration and flood protection authorities for the Mississippi River

For example, in December 1997, the Corps issued a report to Congress which concludes that "conditions at even the most healthy sites within the [Upper Mississippi River System] are at least partially artificial, non-sustainable, and in a recognized state of degradation."[17]

In a 1999 report on the Status and Trends of the Upper Mississippi River System, the U.S. Geological Survey concluded that the Corps' O&M activities in the UMR-IWW system were: destroying critical habitats including the rivers' backwaters, side channels and wetlands; altering water depth; destroying bathymetric diversity; causing nonnative species to proliferate; and severely impacting native species.[18]

The 1999 Status and Trends Report also rated the health of the Mississippi River System as follows:

1. The Lower Reach of the Illinois River is degraded for all 6 criteria of ecosystem health evaluated by the report.[19]
2. The Unimpounded Reach of the Mississippi River is degraded for 3 criteria, heavily impacted for 2 criteria, and moderately impacted for 1 criterion.
3. The Lower Impounded Reach of the Mississippi River (Pools 14-26) is degraded for 2 criteria, heavily impacted for 3 criteria, and moderately impacted for 1 criterion.
4. The Upper Impounded Reach of the Mississippi River (Pools 1-13) is degraded for 1 criterion and moderately impacted for 5 criteria.

The 1999 Status and Trends report further concluded that no segment of the Upper Mississippi River system was unchanged from historic conditions, or deemed to require no management action to maintain, restore or improve conditions. Equally important, no segment of the system was improving in quality.[20]

In May 2000, the U.S. Fish and Wildlife Service issued a Final Biological Opinion on the Corps' O&M activities which concludes that the "continued operation and maintenance of the 9-foot Navigation project will jeopardize the continued existence of the Higgins eye pearly mussel (*Lampsilis higginsi*) and the pallid sturgeon (*Sacphirhynchus albus*)."[21] The Biological Opinion also concludes that the Project will

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[16] U.S. Geological Survey, Ecological Status and Trends of the Upper Mississippi River System 1998: A Report of the Long Term Resource Monitoring Program (April 1999) (1999 Status and Trends Report).
[17] Rock Island District, U.S. Army Corps of Engineers, *Report to Congress, An Evaluation of the Upper Mississippi River System Environmental Management Program* (December 1997) at 2-3.
[18] *Id*.
[19] "Degraded" is the lowest possible grade issued by the report and is defined as a condition where the factors associated with the criteria "are now below ecologically acceptable levels" and where "[m]ultiple management actions are required to raise these conditions to acceptable levels." 1999 Status and *Trends Report* at 16-2.
[20] 1999 Status *and Trends Report at* 16-1 to 16.-2.
[21] U.S. Fish and Wildlife Service, Biological Opinion for the Operation and Maintenance of the 9-Foot Navigation Channel on the Upper Mississippi River System at 1.

result in the incidental take of the least tern (*Sterna antillarum*) and winged mapleleaf mussel (*Quadrula fragosa*). The Biological Opinion also concludes that the Project will likely adversely affect the bald eagle (*Haliaeetus leucocephalus)*, the Indiana bat (*Myotis sodalis*), and the decurrent false aster (*Boltonia decurrens*).[22]

In December 2008, the U.S. Geological Survey issued a second report on the status and trends of selected resources in the Upper Mississippi River system which also found that the Corps' O&M activities were causing significant adverse impacts.[23] For example:

> The current condition of the UMRS is heavily influenced by its agriculture-dominated basin and by the dams, channel training structures, dredging, and levees that regulate flow distribution during most of the year. Although substantial improvements in some conditions have occurred since the 1960s because of improvements in sewage treatment and land use practices, the UMRS still faces substantial challenges including
>
> 1. High sedimentation rates in some backwaters and side channels;
> 2. An altered hydrologic regime resulting from modifications of river channels, the floodplain, and land use within the basin, and from dams and their operation;
> 3. Loss of connection between the floodplain and the river, particularly in the southern reaches of the UMRS;
> 4. Nonnative species (e.g., common carp [*Cyprinus carpio*], Asian carps [*Hypophtalmichthys* spp.], zebra mussels [*Dreissena polymorpha*]);
> 5. High levels of nutrients and suspended sediments; and
> 6. Degradation of floodplain forests.[24]

The 2008 Status and Trends report also recognized that there has been "a substantial loss of habitat diversity"[25] in the system over the past 50 years due in large part to excessive sedimentation and erosion:

> In all reaches, sedimentation has filled-in many backwaters, channels, and deep holes. In the lower reaches, sediments have completely filled the area between many wing dikes producing a narrower channel and new terrestrial habitat. Erosion has eliminated many islands, especially in impounded zones.[26]

These changed conditions, and the role of all the O&M practices in these changes, mandates preparation of a supplemental EIS that comprehensively examines all O&M activities.

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[22] *Id*.
[23] Johnson, B. L., and K. H. Hagerty, editors. 2008. U.S. Geological Survey, *Status and Trends of Selected Resources of the Upper Mississippi River System,* December 2008, Technical Report LTRMP 2008-T002. 102 pp + Appendixes A–B (Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin) (2008 Status and Trends Report).
[24] *Id*. at 3.
[25] *Id*. at 6.
[26] *Id*. at 6.

B. Significant New Scientific Information

Since the O&M EISs were completed there has been a deluge of new scientific studies that bear directly on the environmental impacts of the Corps' O&M activities and that trigger the need to prepare a supplemental EIS for all O&M activities.

For example, since 1976, hundreds of studies have been published addressing large river sediment transport and deposition.[27] As discussed above, sedimentation in the navigation pools, side channels, and backwater areas is well recognized as one of the most critical ecological problems affecting the Upper Mississippi River ecosystem.

Since 1986, at least 51 scientific studies have been published linking the construction of river training structures to increased flood heights. More than 15 studies published from 2000-2010 demonstrate the role of river training structures on flood heights in the Mississippi River. These studies show that river training structures constructed by the Corps to reduce navigation dredging costs have increased flood levels by 10 to 15 feet and more in some locations of the Mississippi River during large floods. A list of the 51 studies assessing the role of instream structures on increasing flood heights is attached to these comments at Attachment A.

Indeed, there is a global consensus that river training structures can and do increase flood heights. For example, the government of the Netherlands is expending a significant amount of resources to modify hundreds of river training structures to reduce flood risks.[28]

As discussed below, new science also shows significant changes in precipitation in the Mississippi River basin triggered by climate change. New science also shows that climate change may significantly exacerbate the impacts on the many migratory species that utilize the Mississippi River, Mississippi River Flyway, and the project area. As recognized by the United Nations Environment Program and the Convention on the Conservation of Migratory Species of Wild Animals, migratory wildlife is particularly vulnerable to the impacts of climate change:

> "As a group, migratory wildlife appears to be particularly vulnerable to the impacts of Climate Change because it uses multiple habitats and sites and use a wide range of resources at different points of their migratory cycle. They are also subject to a wide range of physical conditions and often rely on predictable weather patterns, such as winds and ocean currents, which might change under the influence of Climate Change. Finally, they face a wide range of biological influences, such as predators, competitors and diseases that could be affected by Climate Change. While some of this is also true for more sedentary species, migrants have the potential to be affected by Climate

[27] E.g., DeHaan, H.C. 1998, *Large River Sediment Transport and Deposition: An Annotated Bibliography,* U.S. Geological Survey, Environmental Management Technical Center, Onalaska, Wisconsin, April 1998, LTRMP 98-T002. 85 pp. (identifying more than 250 scientific studies addressing large river sediment transport and deposition published since 1976): Pierre Y. Julien and Chad W. Vensel, Department of Civil and Environmental Engineering Colorado State University, *Review of Sedimentation Issues on the Mississippi River*, DRAFT Report Presented to the UNESCO: ISI, November 2005 (referencing more than 100 studies published between 1979 and 2005).
[28] GAO Study on River Training Structures at 41.

> Change not only on their breeding and non-breeding grounds but also while on migration."
>
> "Apart from such direct impacts, factors that affect the migratory journey itself may affect other parts of a species' life cycle. Changes in the timing of migration may affect breeding or hibernation, for example if a species has to take longer than normal on migration, due to changes in conditions *en route*, then it may arrive late, obtain poorer quality breeding resources (such as territory) and be less productive as a result. If migration consumes more resources than normal, then individuals may have fewer resources to put into breeding . . . ."
>
> * * *
>
> "Key factors that are likely to affect all species, regardless of migratory tendency, are changes in prey distributions and changes or loss of habitat. Changes in prey may occur in terms of their distributions or in timing. The latter may occur though differential changes in developmental rates and can lead to a mismatch in timing between predators and prey ("phenological disjunction"). Changes in habitat quality (leading ultimately to habitat loss) may be important for migratory species that need a coherent network of sites to facilitate their migratory journeys. Habitat quality is especially important on staging or stop-over sites, as individuals need to consume large amounts of resource rapidly to continue their onward journey. Such high quality sites may [be] crucial to allow migrants to cross large ecological barriers, such as oceans or deserts."[29]

Migratory birds are at particular risk from climate change. Migratory birds are affected by changes in water regime, mismatches with food supply, sea level rise, and habitat shifts, changes in prey range, and increased storm frequency.[30]

This new scientific information mandates preparation of a supplemental EIS that comprehensively examines all O&M activities.

C. Significant Changes in Precipitation and Stream Flow

Since the O&M EISs were completed there have been documented changes in precipitation and stream flow within the Mississippi River basin that trigger the need to prepare a supplemental EIS for all O&M activities.[31] For example:

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[29] UNEP/CMS Secretariat, Bonn, Germany, *Migratory Species and Climate Change: Impacts of a Changing Environment on Wild Animals* (2006) at 40-41 (available at http://www.cms.int/publications/pdf/CMS_ClimateChange.pdf).

[30] *Id*. at 42-43.

[31] The Corps is required as a matter of law to evaluate the cumulative impacts of climate change. *See Center for Biological Diversity v. Nat'l Hwy Traffic Safety Administration*, 538 F.3d 1172, 1217 (9th Cir. 2008) (holding that analyzing the impacts of climate change is "precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct" and that NEPA requires analysis of the cumulative impact of greenhouse gas emissions when deciding not to set certain CAFE standards); *Center for Biological Diversity v. Kempthorne*, 588 F.3d 701, 711 (9th Cir. 2009) (NEPA analysis properly included analysis of the effects of climate change on polar bears, including

- In March 2005, the U.S. Geological Survey released a study showing upward trends in rainfall and stream flow for the Mississippi River.[32]

- In 2009, the U.S. Global Change Research Program issued a report showing that the Midwest experienced a 31% increase in very heavy precipitation events (defined as the heaviest 1% of all daily events) between 1958 and 2007.[33] That study also reports that during the past 50 years, "the greatest increases in heavy precipitation occurred in the Northeast and the Midwest."[34] Models predict that heavy downfalls will continue to increase:

  > Climate models project continued increases in the heaviest downpours during this century, while the lightest precipitation is projected to decrease. Heavy downpours that are now 1-in-20-year occurrences are projected to occur about every 4 to 15 years by the end of this century, depending on location, and the intensity of heavy downpours is also expected to increase. The 1-in-20-year heavy downpour is expected to be between 10 and 25 percent heavier by the end of the century than it is now. . . . Changes in these kinds of extreme weather and climate events are among the most serious challenges to our nation in coping with a changing climate.[35]

- In March 2012, Midwest regional assessments were issued that provide important technical input into the National Climate Assessment.[36]

- In 2013, Regional Climate Trends and Scenarios were issued for the Midwest U.S. showing that for the Midwest region, annual and summer trends for precipitation in the 20th century are upward and statistically significant; the frequency and intensity of extreme precipitation in the region has increased, as indicated by multiple metrics; and models predict increases in the number of wet days (defined as precipitation exceeding 1 inch) for the entire Midwest region, with increases of up to 60%.[37]

Notably, climate change could significantly exacerbate the public safety impacts of O&M activities because climate change-induced variability in the Upper Mississippi River Basin will likely lead to more extreme weather and higher flows than have been experienced in the past.

"increased use of coastal environments, increased bear/human encounters, changes in polar bear body condition, decline in cub survival, and increased potential for stress and mortality, and energetic needs in hunting for seals, as well as traveling and swimming to denning sites and feeding areas.").

[32] USGS Fact Sheet 2005-3020, Trends in the Water Budget of the Mississippi River Basin, 1949-1997.

[33] Global Climate Change Impacts in the United States, Thomas R. Karl, Jerry M. Melillo, and Thomas C. Peterson, (eds.). Cambridge University Press, 2009, at page 32 (available at http://nca2009.globalchange.gov/).

[34] *Id*.

[35] *Id*.

[36] The Midwest regional assessment can be accessed at http://glisa.msu.edu/great_lakes_climate/nca.php (visited January 22, 2014).

[37] Kunkel, K.E, L.E. Stevens, S.E. Stevens, L. Sun, E. Janssen, D. Wuebbles, S.D. Hilberg, M.S. Timlin, L. Stoecker, N.E. Westcott, and J.G. Dobson, 2013: Regional Climate Trends and Scenarios for the U.S. National Climate Assessment. Part 3. Climate of the Midwest U.S., NOAA Technical Report NESDIS 142-3, 95 pp. (available at http://scenarios.globalchange.gov/regions/midwest).

These documented changes in precipitation and stream flow trigger the need to prepare a supplemental EIS for all O&M activities.

D. Significant Changes in Applicable Law and Policy

Since the O&M EISs were completed there have been significant changes to the laws and policies applicable to the Corps' O&M practices that trigger the need to prepare a supplemental EIS for all O&M activities. For example:

(1) New Executive Orders: Executive Orders issued in 1977 direct agencies to protect wetlands and floodplains. Executive Order 11990 (Protection of Wetlands) directs each federal agency to provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values in carrying out agency policy. Executive Order 11988 (Floodplain Management) directs each federal agency to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of floodplains; to avoid direct and indirect support of floodplain development wherever there is a practicable alternative; and "to restore and preserve the natural and beneficial values served by flood plains in carrying out its responsibilities."

(2) NEPA Implementing Regulations: In 1978, the Council on Environmental Quality promulgated regulations for implementing NEPA. The Corps' own regulations implementing NEPA were promulgated in 1988.

(3) Clean Water Act Regulations: In 1980, the Clean Water Act's Section 404(b)(1) guidelines were promulgated. These guidelines must be followed for the Corps' civil works activities. In 1990 the Corps and EPA signed a Memorandum of Agreement on mitigation that establishes priorities and procedures to be used in implementing mitigation under the Clean Water Act § 404. In 2008, the Corps and EPA issued new mitigation requirements applicable to the Clean Water Act § 404 program. Corps civil works projects are subject to these new mitigation requirements (and to the mitigation requirements established by the Water Resources Development Act of 2007, discussed below). 33 U.S.C. § 2283(d). These mitigation requirements must be satisfied for both new projects and existing projects that are reevaluated under NEPA. *Id.*

(4) Water Resources Development Acts: The Water Resources Development Act (WRDA) of 1986 authorizes the Corps to modify existing water resources projects and operations to improve the quality of the environment. WRDA 1990 changed the Corps' fundamental mission to "include environmental protection as one of the primary missions of the Corps of Engineers in planning, designing, constructing, operating, and maintaining water resources projects." 33 U.S.C. § 2316. WRDA 2007 created a new federal water policy that requires all Corps projects to protect and restore the environment and imposes new and important mitigation requirements for Corps projects, including existing projects that are re-evaluated through an EIS or supplemental EIS. 33 U.S.C. § 2283(d).

These significant changes in law and policy trigger the need to prepare a supplemental EIS for all O&M activities.

II. The Corps Should Initiate A National Academy of Sciences Study on the Effect of River Training Structures on Flood Heights to Inform Development of the SEIS

The Conservation Organizations call on the Corps to initiate a National Academy of Sciences study on the effect of river training structures on flood heights to inform development of the SEIS. A National Academy of Sciences study is needed to provide important guidance on this significant public safety issue, and to ensure that that the Corps fully accounts for the flood height inducing effects of river training structures when planning and carrying out future O&M activities. To date, the Corps has denied the existence of this flood-height inducing effect, ignoring extensive peer-reviewed science and global recognition of this impact.

As discussed in Section I.B. above, an extensive body of peer-reviewed scientific literature demonstrates that river training structures constructed by the Corps to help maintain the 9 foot navigation channel are significantly increasing the risks of floods for riverside communities and floodplain lands.[38] These structures, constructed by the Corps to reduce navigation dredging costs, have increased flood levels by up to 15 feet in some locations and 10 feet in broad stretches of the river where these structures are prevalent.[39] Independent scientists have determined that the more than 40,000 feet of "wing dikes" and "bendway weirs" constructed by the Corps in the Mississippi during the 3 years prior to the great flood of 1993 contributed to record crests in 1993, 1995, 2008, and again in 2011. Indeed, there is a global consensus that river training structures increase flood risks as evidenced by the costly work being carried out by the government of the Netherlands to modify hundreds of river training structures to reduce flood risks.[40]

In the face of the overwhelming scientific consensus on the role of river training structures in increasing flood levels and the resulting significant risks to public safety, the Corps should not construct new structures without a detailed and comprehensive analysis of this issue by the National Academy of Sciences. The costs associated with a National Academy study are far outweighed by the public benefits, including public confidence in a final decision regarding construction of new river training structures.

III. The Corps Should Impose A Moratorium on the Construction of New River Training Structures

In light of the public safety implications discussed above, and the fact that navigation can in fact continue without the construction of new river training structures, the Conservation Organizations urge the Corps to impose a moratorium on the construction of new river training structures pending completion of the requested National Academy of Sciences study and the SEIS. New river training structures should not be built unless the National Academy of Sciences study and a comprehensive and

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[38] See Attachment A listing 51 peer reviewed studies linking instream structures to increased flood heights.
[39] 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.
[40] GAO Study on River Training Structures at 41.

legally adequate SEIS establish that such construction will **not** contribute to increased flood risks to communities.

The moratorium should apply to all new river training structures in the Mississippi River, whether they are for navigation or other purposes, including the extensive field of chevrons proposed as a restoration project for the Herculaneum Reach of the Mississippi River. Absent such a moratorium, construction of new river training structures will certainly continue without the much-needed comprehensive assessment of public safety and environmental impacts. For example, the Corps is currently seeking approval for at least the following additional projects that would add a significant number of new training structures to the river:

- The Grand Tower project which would add 2 new chevrons, 3 new S-dikes, 3 new weirs, 1 dike extension, and additional new revetment.
- The Dogtooth Bend project would add 8 new bendway weirs and 1 new dike.
- The Eliza Point project which would add 4 new bendway weirs and 1 new rootless dike.
- The Moosenthein Ivory project which would add 1 new rootles dike and 2.2 miles of new revetment.
- The Herculaneum Reach project which would add 12 new chevrons in a narrow, 3.5 mile stretch of the Mississippi River (creating the River's largest concentration of chevrons).

These, and any other structures constructed by the Corps during the SEIS review period, would add to the more than 1,375 wing dikes, bendway weirs, chevrons, and similar structures already in the 195 miles that constitute the Middle Mississippi River.[41] Independent scientists who have studied the effects of river training structures report that as of 2001, the Corps had constructed 1.5 miles of river training structures for each mile of the Middle Mississippi River (river miles 180 to 37). The Conservation Organizations understand that between 1980 and 2009, the Corps built at least 380 new river training structures in the Middle Mississippi, including 40,000 feet of wing dikes and bendway weirs between 1990 and 1993. The Corps built at least 23 chevrons between 2003 and 2010.

The potentially significant risks to public safety, the fact that navigation can in fact continue without the construction of new river training structures, and the current lack of a legally adequate environmental review, warrant the adoption of a moratorium on the construction of new river training structures pending completion of the requested National Academy of Sciences study and the SEIS.

IV. The SEIS Must Fully Evaluate the Impacts of All Reasonable Alternatives and Select an Alternative that Protects and Restores the Mississippi River

To comply with NEPA, the SEIS must properly define the project purpose, fully evaluate project impacts, and fully review all reasonable alternatives. To comply with the National Water Policy and the Corps' civil works mitigation requirements, the SEIS must select an alternative that protects and restores the natural functions of the Mississippi River system and that mitigates any unavoidable damage.

The independent external peer review that is clearly required for the SEIS should be conducted by the National Academy of Sciences, and the panel's task should explicitly include a charge to evaluate: the

[41] GAO Study on River Training Structures at 9-10.

appropriateness of the alternative recommended by the Corps; whether the selected alternative will in fact protect and restore the functions of the Mississippi River system; whether the selected alternative includes a mitigation plan that is likely to produce ecologically successful mitigation; and whether the selected alternative includes appropriate and meaningful criteria for determining project success.

A. Properly Define Project Purpose

It is critical that the SEIS properly define the purpose and need for the proposed project as this determines the universe of reasonable alternatives that must be evaluated.[42] The project purpose drives the evaluation of alternatives because all reasonable alternatives that accomplish the project purpose must be examined in an environmental impact statement, while alternatives that are not reasonably related to the project purpose do not have to be examined.[43]

Because the evaluation of alternatives is "the heart of the environmental impact statement,"[44] an overly narrow project purpose defeats the very purpose of NEPA:

> "One obvious way for an agency to slip past the strictures of NEPA is to contrive a purpose so slender as to define competing "reasonable alternatives" out of consideration (and even out of existence). . . . If the agency constricts the definition of the project's purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role. Nor can the agency satisfy the Act. 42 U.S.C. § 4332(2)(E)."[45]

As a result, the courts have made it clear that an agency may not define a project so narrowly that it "forecloses a reasonable consideration of alternatives."[46] An agency also may not define the project's purpose so narrowly that it makes the final EIS "'a foreordained formality.'"[47]

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[42] *Citizens Against Burlington v. Busey*, 938 F.2d 190, 195 (D.C. Cir. 1991) (the project purpose and need "delimit[s] the universe of the action's reasonable alternatives.") *See also Wyoming v. U.S. Dep't of Agric.*, 661 F.3d 1209, 1244 (10th Cir. 2011) ("how the agency defines the purpose of the proposed action sets the contours for its exploration of available alternatives.").

[43] Methow Valley Citizens Council v. Regional Forester, 833 F.2d 810, 815-16 (9th Cir. 1987).

[44] 40 C.F.R. § 1502.14.

[45] *Simmons v. United States Army Corps of Eng'rs*, 120 F.3d 664, 666 (7th Cir. 1997); *City of Carmel-by-the-Sea v. United States Dep't of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997) ("an agency cannot define its objectives in unreasonably narrow terms"); *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 195-96 (D.C. Cir. 1991), *cert. denied*, 502 U.S. 994 (1991) ("an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action"); *City of New York v. United States Dep't of Transp.*, 715 F.2d 732, 743 (2d Cir. 1983), *cert. denied*, 456 U.S. 1005 (1984) ("an agency will not be permitted to narrow the objective of its action artificially and thereby circumvent the requirement that relevant alternatives be considered").

[46] *Fuel Safe Washington v. Fed. Energy Regulatory Comm'n*, 389 F.3d 1313, 1324 (10th Cir. 2004) (quoting *Davis v. Mineta*, 302 F.3d 1104, 1119 (10th Cir. 2002); *Citizens' Comm. To Save Our Canyons v. U.S. Forest Serv.*, 297 F.3d 1012, 1030 (10th Cir. 2002); *Simmons v. United States Army Corps of Eng'rs*, 120 F.3d 664, 666 (7th Cir. 1997); *City of New York v. United States Dep't of Transp.*, 715 F.2d 732, 743 (2d Cir. 1983), *cert. denied*, 456 U.S. 1005 (1984) ({holding that "an agency may not narrow the objective of its action artificially and thereby circumvent the requirement that relevant alternatives be considered); *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991), *cert. denied* 502 U.S. 994 (1991).

According to the Public Notice (Public Notice 2013-744), the long-term goal of the Regulating Works Project "is to reduce or eliminate the amount of annual maintenance dredging and the occurrence of vessel accidents through the construction of river training structures to provide a sustainable navigation channel and reduce federal expenditures." Public Notice at 2. If the Corps were to adopt this stated goal as the project purpose, it would be too narrow to allow consideration of reasonable alternatives as it would preclude consideration of measures for maintaining channel depth that did not include additional river training structures. A more appropriate project purpose would be **"to maintain navigation in the Middle Mississippi River"** or for the expanded SEIS requested by the Conservation Organizations **"to maintain navigation in the UMR-IWW."** The Conservation Organizations urge the Corps to adopt this as the project purpose for the SEIS.

The SEIS should also evaluate, and demonstrate in the purpose and need statement, that there is in fact a need for new navigation structures (*e.g.*, dikes, weirs, chevrons, and revetment). This is critically important because the current O&M regime is clearly able to maintain a reliable navigation channel while projects constructed under the Regulating Works Project have been implicated in significant increases in flood risks for communities and floodplain lands.

The SEIS should also clearly document whether any actions proposed in the SEIS can be carried out under the existing authorization, or whether new authorization from Congress would be required. According to the 1976 EIS for the "Mississippi River Between the Ohio and Missouri Rivers (Regulating Works)", prepared by the Corps' St. Louis District, the Regulating Works Project is authorized by the Rivers and Harbors Act of 1910, the Rivers and Harbors Act of 1927 and the Rivers and Harbors Act of 1930. Each of these Acts authorizes activities recommended in a Chief of Engineers Report prepared prior to enactment of each Act. These Chief of Engineers Reports, however, are not readily accessible to the public and the text of the reports was not provided in the 1976 EIS.

It is of course possible that these Chief of Engineers reports recommend an ongoing program of river training structure construction, or authorize construction for a more than 100 year period. However if, as is more likely, these reports recommend a more limited scope of construction, new Congressional authorization would likely be required to carry out any additional construction of river training structures that might be recommended in the final SEIS.[48] The public and decision makers should have a clear understanding of the precise activities currently authorized (including any limitations on those activities) and whether new authorization would be required.

B. Rigorously Evaluate All Reasonable Alternatives and Ultimately Select an Alternative that Protects and Restores the Mississippi River

The consideration of alternatives is "the heart of the environmental impact statement" and to satisfy the requirements of NEPA, the SEIS must "[r]igorously explore and objectively evaluate all reasonable alternatives." 40 C.F.R. § 1502.14. "[T]he existence of reasonable but unexamined alternatives renders

[47] *City of Bridgeton v. FAA*, 212 F.3d 448, 458 (8th Cir. 2000) (quoting *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991), *cert. denied* 502 U.S. 994 (1991); citing *Simmons v. U.S. Army Corps of Eng'rs*, 120 F.3d 664, 666 (7th Cir. 1997)).

[48] It is also possible that the numerous river training structure projects currently being proposed by the Corps also exceed the existing authorization, and thus cannot be constructed without new Congressional authorization.

an EIS inadequate."[49] "Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant."[50]

The National Water Policy established by Congress in 2007 requires the Corps to operate and maintain the UMR-IWW navigation system to protect the Mississippi River and its floodplain. That policy states that "all water resources projects" shall "protect[] and restor[e] the functions of natural systems and mitigat[e] any unavoidable damage to natural systems." 33 U.S.C 1962-3 (established by § 2031(a) of the Water Resources Development Act of 2007, and immediately applicable to all water resources projects).[51] As a result, the SEIS must evaluate alternatives that would protect and restore the natural functions of the Mississippi River, and must ultimately select an alternative that achieves these objectives.

Critically, the alternative ultimately recommended by the SEIS must also comply with the full suite of federal laws and policies designed to protect the environment. These include, the Endangered Species Act, the Clean Water Act, the Migratory Bird Treaty Act, and the mitigation requirements applicable to Corps civil works projects that were established by § 2036(a) of the Water Resources Development Act of 2007. These mitigation requirements must be satisfied, among other times, whenever the Corps will be recommending a project alternative in an EIS. 33 U.S.C. § 2283(d). The alternative ultimately recommend by the SEIS must also obtain a Clean Water Act water quality certification from the appropriate Mississippi River states.

The Public Notice proposes the consideration of only two alternatives: (1) continuing with the Regulating Works Project at the current pace; and (2) not building new dikes, weirs, or revetments but maintaining existing structures. While we agree that these two alternatives should be evaluated, such a truncated alternatives analysis would violate the Corps' duty under NEPA to fully review "all reasonable alternatives."[52]

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[49] Ctr. for Biological Diversity v. United States Dep't of the Interior, 623 F.3d 633, 642 (9th Cir. 2010); Westlands Water Dist. v. U.S. Dep't of Interior, 376 F.3d 853, 868 (9th Cir. 2004); Morongo Band of Mission Indians v. Fed. Aviation Admin., 161 F.3d 569, 575 (9th Cir. 1998); Oregon Natural Desert Ass'n v. Bureau of Land Management, 531 F.3d 1114, 1121 (9th Cir. 2008).

[50] Forty Most asked Questions Concerning CEQ's NEPA Regulations, 46 Fed. Reg. 18,026 (March 23, 1981).

[51] Enhancement of the environment has been an important federal objective for water resources programs for decades. Corps regulations in place since 1980 state that: "Laws, executive orders, and national policies promulgated in the past decade require that the quality of the environment be protected and, where possible, enhanced as the nation grows. . . . Enhancement of the environment is an objective of Federal water resource programs to be considered in the planning, design, construction, and **operation and maintenance of projects**. Opportunities for enhancement of the environment are sought through each of the above phases of project development. Specific considerations may include, but are not limited to, **actions to preserve or enhance critical habitat for fish and wildlife; maintain or enhance water quality; improve streamflow**; preservation and restoration of certain cultural resources, **and the preservation or creation of wetlands."** 33 C.F.R. § 236.4. (emphasis added).

[52] Evaluations of alternative configurations of river training structures cannot satisfy the requirement to evaluate all reasonable alternatives because each alternative would have the same end result – construction of river training structures in the project area. *State of California v. Block*, 690 F.2d 753, 767 (9th Cir. 1982) (holding that an inadequate range of alternatives was considered where the end result of all eight alternatives evaluated was development of a substantial portion of wilderness).

Additional alternatives that should be examined include, but are by no means limited to:

- Removing and/or modifying existing river training structures to reduce flood risks and restore backwater, side channel, and braided habitat.

- Maintaining the authorized navigation channel through alternative approaches, including such things as alternative water level management regimes, alternative dredging strategies, and/or removing sediment dredged from the river rather than pumping dredged sediment back into the river adjacent to the main channel.

- Minimizing the use of new structures, including by placing restrictions on the number and/or types of structures that can be utilized in a given reach based on a robust scientific assessment of the cumulative impacts of the various types of river training structures.

Each alternative **must** include mitigation for any unavoidable adverse impacts as required by 33 U.S.C. § 2283(d) and the Clean Water Act.

The SEIS should also provide the construction and full life cycle maintenance costs of each alternative to assist the public and decision makers in assessing the full impact of each alternative.

C. Fully Analyze Direct, Indirect, and Cumulative Impacts

In comparing and analyzing potential alternatives, the SEIS must examine, among other things, the direct, indirect, and cumulative environmental impacts of alternatives, the conservation potential of those alternatives, and the means to mitigate adverse environmental impacts that cannot be avoided. 40 C.F.R. § 1502.16. This assessment is essential for determining whether less environmentally damaging alternatives are available.

Direct impacts are caused by the action and occur at the same time and place as the action. Indirect impacts are also caused by the action, but are later in time or farther removed from the location of the action. 40 C.F.R. § 1508.8. Cumulative impacts are:

> "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

40 C.F.R. § 1508.7. The cumulative impacts analysis ensures that the agency will not "treat the identified environmental concern in a vacuum."[53]

[53] *Grand Canyon Trust v. FAA*, 290 F.3d 339, 346 (D.C. Cir. 2002).

The cumulative impacts analysis must examine the cumulative effects of federal, state, and private projects and actions.[54] The cumulative impacts analysis must also evaluate the cumulative impacts of climate change.[55] This evaluation is extremely important as:

> "Climate change can increase the vulnerability of a resource, ecosystem, or human community, causing a proposed action to result in consequences that are more damaging than prior experience with environmental impacts analysis might indicate . . . . [and] climate change can magnify the damaging strength of certain effects of a proposed action."
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> * * *
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> "Agencies should consider the specific effects of the proposed action (including the proposed action's effect on the vulnerability of affected ecosystems), the nexus of those effects with projected climate change effects on the same aspects of our environment, and the implications for the environment to adapt to the projected effects of climate change."[56]

Notably, climate change could significantly exacerbate the public safety impacts of the Regulating Works Project because climate change-induced variability in the Upper Mississippi River Basin will likely lead to more extreme weather and higher flows than have been experienced in the past. The Conservation Organizations urge the Corps to **begin** its assessment of climate change impacts by evaluating the studies and analyses referred to in Section I.C. above.

The SEIS must provide "quantified or detailed information" on the impacts, including the cumulative impacts, so that the courts and the public can be assured that the Corps has taken the mandated hard look at the environmental consequences of the Project.[57] **If information that is essential for making a reasoned choice among alternatives is not available, the Corps must obtain that information unless the costs of doing so would be "exorbitant."** 40 C.F.R. § 1502.22 (emphasis added).

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[54] The requirement to assess non-Federal actions is not "impossible to implement, unreasonable or oppressive: one does not need control over private land to be able to assess the impact that activities on private land may have" on the project area. *Resources Ltd., Inc. v. Robertson*, 35 F.3d 1300, 1306 (9th Cir. 1993).

[55] *See Center for Biological Diversity v. Nat'l Hwy Traffic Safety Administration*, 538 F.3d 1172, 1217 (9th Cir. 2008) (holding that analyzing the impacts of climate change is "precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct" and that NEPA requires analysis of the cumulative impact of greenhouse gas emissions when deciding not to set certain CAFE standards); *Center for Biological Diversity v. Kempthorne*, 588 F.3d 701, 711 (9th Cir. 2009) (NEPA analysis properly included analysis of the effects of climate change on polar bears, including "increased use of coastal environments, increased bear/human encounters, changes in polar bear body condition, decline in cub survival, and increased potential for stress and mortality, and energetic needs in hunting for seals, as well as traveling and swimming to denning sites and feeding areas.").

[56] Council on Environmental Quality, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions* (February 18, 2010). The CEQ guidance makes it clear that analyzing the impacts of climate change is not restricted to evaluating whether a project could itself exacerbate global warming. The magnifying and additive effects of global warming also must be evaluated.

[57] Neighbors of Cuddy Mountain v. U. S. Forest Service, 137 F.3d 1372, 1379 (9th Cir. 1998); Natural Resources Defense Council v. Callaway, 524 F.2d 79, 87 (2d Cir. 1975).

Importantly, as CEQ has made clear, in situations like those in the Mississippi River where the environment has already been greatly modified by human activities, it is **not** sufficient to compare the impacts of the proposed alternative against the current conditions. Instead, the baseline must include a clear description of how the health of the resource has changed over time to determine whether additional stresses will push it over the edge.[58]

D. Types of Impacts That Must Be Examined

The SEIS should examine the direct, indirect, and cumulative impacts of all reasonable alternatives on at least the impacts discussed below. Importantly, the SEIS should also carefully examine such impacts for each different type (e.g., bendway weir, chevron, wing dike, S-dike, rootless dike) and configuration of structures that would be utilized in each alternative since different types and configurations of river training structures have different impacts on the environment.

- **Impacts on hydrology, including the impacts on flood heights; impacts on channel morphology; and impacts on stream flow (including deviations from the historical water levels and natural flood pulse).**

  As part of this analysis, the SEIS must review and incorporate the findings of the extensive body of peer-reviewed science demonstrating that river training structures are causing significant increases in flood heights in the Middle Mississippi River. As noted above, the Conservation Organizations urge the Corps to initiate a National Academy of Sciences study to evaluate this issue.

  Since 1986, at least 51 scientific studies have been published linking the construction of river training structures to increased flood heights. More than 15 studies published from 2000-2010 demonstrate the role of river training structures on flood heights in the Mississippi River. These studies show that river training structures constructed by the Corps to reduce navigation dredging costs have increased flood levels by 10 to 15 feet and more in some locations of the Mississippi River during large floods. Independent scientists have also determined that the more than 40,000 feet of "wing dikes" and "bendway weirs" constructed by the Corps in the Mississippi during the 3 years prior to the great flood of 1993 contributed to record crests in 1993, 1995, 2008, and again in 2011. A list of the 51 studies assessing the role of instream structures on increasing flood heights is attached to these comments at Attachment A. We request that these studies be included in the record for this project.

  The SEIS should also evaluate and incorporate the global consensus that river training structures can and do increase flood heights. For example, the government of the Netherlands is expending a significant amount of resources to modify hundreds of river training structures to reduce flood risks.[59] In light of this global consensus on the potentially deadly impacts of river training structures, the Corps should be required to prove that such structures are safe and effective *before* building any additional structures.

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[58] Council on Environmental Quality, Considering Cumulative Effects Under the National Environmental Policy Act at 41 (January 1997).
[59] GAO Study on River Training Structures at 41.

As part of this analysis, the Corps should also analyze the potential increased risk of levee failures due to higher flood levels (both in terms of general risks due to overall higher flood levels, and in terms of risks to individual levees upstream or nearby specific fields of river training structure), including the cumulative impacts on such risks from climate-change induced increases in precipitation and extreme weather events.

In carrying out its hydrologic analysis the Corps must utilize the most up-to-date modeling to evaluate the potential impacts of each alternative such as by using state of the art two-dimensional and three-dimensional hydrodynamic models with inputs that recognize the current conditions in the river system. The Corps should abandon its use of micro models to evaluate the impacts of river training structures (including the Corps' Hydraulic Sediment Response or HSR model which is a small-scale physical sediment transport model used by the St. Louis District) as such models cannot be relied upon to provide accurate planning information as they lack "predictive capability".[60] A study published in the Journal of Hydraulic Engineering concludes that because of the "lack of predictive evidence, the micromodel should be limited to demonstration, education, and communication." A copy of this study is attached to these comments at Attachment B.

- **Impacts on fish and wildlife.** The SEIS must examine the impacts of the alternatives on the species that utilize the Mississippi River, including the impacts to fish, waterfowl, birds, mammals, reptiles, amphibians, and mussels. The Mississippi River is used by an astounding array of wildlife, including 360 species of birds, 260 species of fish, 145 species of amphibians and reptiles, 98 species of mussels, and 50 species of mammals.

  Forty percent of North America's waterfowl migrate through the Mississippi River flyway. The impacts on the critical array of migratory species that utilize the Mississippi River and Mississippi River flyway must also be analyzed, including the cumulative impacts of climate change on these species. As discussed in Section I.B. above, migratory wildlife is particularly vulnerable to the impacts of climate change.

  An accurate assessment of fish and wildlife impacts will require an accurate assessment of impacts to the full range of habitats that these species rely on. A meaningful assessment would also include an evaluation of the impacts of each alternative on the ability of the fish and wildlife that utilize the river and flyway to withstand the adverse impacts of climate change (*i.e.*, the species' resiliency to climate change).

- **Impacts on endangered species.** The SEIS should pay particular attention to the impacts on threatened and endangered species and any critical habitat. This should include an analysis of impacts to recently listed species (for which there currently is no biological opinion) and to species covered by the "Tier 1 Biological Opinion for the Operation and Maintenance of the 9-Foot Navigation Channel in the Upper Mississippi River System." The Conservation Organizations urge the Corps to reinitiate formal consultation under the Endangered Species Act and demonstrate full compliance with all conditions established in the Tier I biological opinion.

[60] Stephen T. Maynord, Journal of Hydraulic Engineering, Evaluation of the Micromodel: An Extremely Small-Scale Movable Bed Model (April 2006).

- **Impacts on key habitats – including backwater, side channel, mid-channel bars, braided river habitat, riverine wetlands, and floodplain wetlands.** The large-scale loss of backwater and side channel habitat is one of the most significant problems caused by the O&M activities. The Mississippi River and its floodplain have also suffered astounding wetland losses. The loss of these vital habitats has cascading negative impacts on fish and wildlife, public safety, recreation, and economies that rely on healthy river and floodplain systems. The SEIS must carefully evaluate and quantify the potential for additional losses – or gains – of backwater areas, natural side channels, crossover habitat, mid-channel bars, riverine wetlands and floodplain wetlands. The cumulative impacts of historical losses to these key habitats must also be fully evaluated and accounted for in any final recommended alternative.

- **Impacts on sedimentation.** Sedimentation is one of the most significant problems caused by O&M activities. The SEIS must carefully evaluate and quantify the impacts of each alternative on: increasing sedimentation in vital habitats; relocating sedimentation problems (*i.e.*, shifting the loci of sedimentation which could eventually lead to even more river training structure construction and dredging); and altering sediment transport downstream, including any resulting impacts on coastal wetland losses and/or coastal wetland restoration.

- **Impacts on water quality, including nutrient composition.** The Mississippi River remains plagued by water quality problems, including excess nutrients that have both local and ecosystem wide impacts (including, for example, yearly development of the Gulf of Mexico dead zone). The SEIS must carefully evaluate and quantify the impacts of each alternative on water quality in the river, including the potential water quality impacts caused by loss of backwater habitats and wetlands and increased sedimentation.

- **Cumulative impacts of climate change.** As discussed above, the SEIS must assess the cumulative impacts of climate change, including climate-change induced increases in precipitation and extreme weather events, on the direct and indirect impacts of each alternative. Of critical concern are the additive and magnifying effect of climate change on increased flood risks and on harm to migratory species.

- **Impacts on restoration and flood damage reduction efforts.** The Corps, other federal agencies, states, non-governmental organizations, and members of the public are engaged in significant efforts to restore the Mississippi River and its floodplain and to reduce flood damages to communities and floodplain lands. The Regulating Works Project and many of the Corps' other O&M activities work against these efforts, including through increasing flood levels and destroying vital habitats. The SEIS should carefully assess the impacts of each alternative on these other vital efforts. The SEIS should also evaluate the ability of each alternative to comply with the National Water Policy which requires that all water resources projects protect and restore the functions of natural systems and mitigate any unavoidable damage to natural systems. 33 U.S.C 1962-3.

- **Impacts on ecosystem services provided by a healthy Mississippi River and floodplain.** "Ecosystem services" are the goods and services produced by ecosystems that benefit humankind. These services include (but are by no means limited to) such things as carbon

sequestration, wildlife habitat, nutrient retention, and erosion reduction. While these services have traditionally been undervalued because they often fall outside of conventional markets and pricing, society is increasingly recognizing the essential link between healthy ecosystems and human welfare and significant progress has been made in the science of ecosystem services evaluation. The SEIS should carefully assess the impacts of each alternative on ecosystem services. The Conservation Organizations refer the Corps to the three ecosystem services valuations attached at Attachment C of these comments for information on preparing a meaningful ecosystem services valuation and for examples of ecosystem services valuations carried out in the Mississippi River Valley.

- **Impacts on recreational fishing and tourism industries that rely on a healthy Mississippi River and floodplain.** Mississippi River tourism generates approximately $2 billion annually. Recreational opportunities, including recreational fishing, are vitally important to the public. The SEIS should fully evaluate the impacts of each alternative on these important activities.

- **Impacts on navigation.** The Conservation Organizations have been advised that river training structures can create difficulties for safe navigation. The SEIS should examine the impacts of each alternative on the ability of barges to safely navigate the Mississippi River and reaches within the Mississippi River that are particularly dangerous or that have large concentrations of river training structures.

E. Actions that Must be Evaluated in the Cumulative Impacts Analysis

The SEIS must meaningfully evaluate the cumulative impacts of past, present, and reasonably foreseeable future actions that affect the Mississippi River on each alternative evaluated in the SEIS. The actions that must be examined include those carried out by the Corps, other federal agencies, state agencies, and members of the public.

With respect to the Corps' activities, it is critical that the Corps evaluate the cumulative impacts of the full suite of past, present, and reasonably foreseeable future O&M activities for the Mississippi River navigation system. As the Corps is of course aware, O&M activities carried out by the Corps to maintain navigation on the 1,200 miles of the UMR-IWW, including dredging and disposal of dredged material, water level regulation, construction of revetment, construction of river training structures, and operation and maintenance of the system's 37 locks and dams. Impacts from major rehabilitation efforts and reasonably foreseeable new construction must also be evaluated.

As discussed above, the Corps has already constructed more than 1,375 wing dikes, bendway weirs, chevrons, and similar structures in the 195 miles that constitute the Middle Mississippi River. The Corps constructed at least 150 of the bendway weirs between 1990 and 2000, and constructed 23 chevrons in this portion of the river between 2003 and 2010.[61] Reasonably foreseeable future projects[62] include at least the following:

[61] GAO Study on River Training Structures at 9-10.
[62] These projects should not be constructed unless (and until) the SEIS and the requested National Academy of Sciences study demonstrate that they will not pose a threat to public safety and that they are otherwise in the public interest and appropriate for construction.

- The Grand Tower project which would add 2 new chevrons, 3 new S-dikes, 3 new weirs, 1 dike extension, and additional new revetment.
- The Eliza Point project which would add 4 new bendway weirs and 1 new rootless dike.
- The Moosenthein Ivory project which would add 1 new rootles dike and 2.2 miles of new revetment.
- The Herculaneum Reach project which would add 12 new chevrons in a narrow, 3.5 mile stretch of the Mississippi River (creating the River's largest concentration of chevrons).

The cumulative impacts analysis should incorporate the significant body of scientific evidence, much of which was prepared with the Corps' input, which demonstrates that the Corps' O&M activities are a significant cause of the severe decline in the ecological health of the UMR-IWW system and have completely altered the natural processes in the Upper Mississippi River. A number of these studies are discussed in Sections I.A. and I.B. above.

In addition, the cumulative impacts analysis must evaluate the cumulative impacts of work carried out by the Corps under its flood damage reduction authority, including the construction and maintenance of Mississippi River levees and reasonably foreseeable future flood damage reduction projects. The cumulative impacts analysis should also evaluate such things as past, present, and reasonably foreseeable future: (a) lock and dam construction; reservoir and dam operations that affect the Mississippi River and its floodplain – including for such facilities located in areas outside of the Mississippi River; (b) residential and commercial development, including road construction, that affects the Mississippi River and its floodplain; and (c) agricultural practices that have affected and will continue to affect floodplain wetlands and Mississippi River water quality.

In analyzing the cumulative effects of the activities discussed above, the Corps must compare the impacts to the historical, non-disturbed, Mississippi River and not compare the impacts to the current condition of the river. This includes both the historic ecological condition and the historical flow and flood level conditions. If this information is not currently available, the Corps must obtain this information unless the costs of doing so would be "exorbitant." 40 C.F.R. § 1502.22. To establish the proper baseline, the SEIS should document and evaluate the historical changes in the Mississippi River with respect to at least the following indicators:

- Historical flows and flood levels;
- Acres of river and floodplain wetlands lost;
- Acres of native upland habitats lost;
- Miles of streambed lost or modified;
- Changes in stream flows;
- Changes in ground water elevations;
- Changes in the concentrations of indicator water quality constituents;
- Changes in the abundance, distribution, and diversity of indicator fish, waterfowl, bird, mammal, reptile, amphibian, and mussel communities;
- Changes in rainfall, and reasonably foreseeable future changes.

Conclusion

The Conservation Organizations appreciate the opportunity to provide these comments and look forward to working with the Corps to ensure that the SEIS fully evaluates environmental impacts, complies with NEPA and the nation's other vitally important environmental laws, and identifies and selects an alternative that will protect and help restore the Mississippi River.

Sincerely,

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Attachments

THE IZAAK WALTON LEAGUE OF AMERICA

February 15, 2014

Via Email: jasen.l.brown@usace.army.mil and RegWorksSEIS@usace.army.mil

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St. Louis District
CEMVS-EC-H
1222 Spruce St.
St. Louis, MO 63103-2833

RE: Scoping Comments for the Supplemental Environmental Impact Statement for the Middle Mississippi River Regulating Works Project, Public Notice 2013-744

Dear Mr. Brown:

The Izaak Walton League of America appreciates the opportunity to submit these comments on the scope of the Supplemental Environmental Impact Statement for the Middle Mississippi River Regulating Works Project (the SEIS).

Founded in 1922, the Izaak Walton League is one of the nation's oldest and most respected conservation organizations. With a powerful grassroots network of more than 240 local chapters nationwide, the League takes a common-sense approach toward protecting our country's natural heritage and improving outdoor recreation opportunities for all Americans.

General Comments

The League appreciates the Corps' decision to prepare a supplemental EIS for its Regulating Works Project. However, since this project is just one of many types of operations and maintenance (O&M) activities designed to maintain a 9-foot navigation channel in the Upper Mississippi River-Illinois Waterway Navigation System (UMR-IWW), evaluating just the Regulating Works Project would constitute an impermissible piecemeal assessment that cannot satisfy the requirements of the National Environmental Policy Act (NEPA). Instead, NEPA requires preparation of a supplemental Environmental Impact Statement that evaluates **all** O&M activities and identifies alternatives that could cause less harm to the environment.

As discussed in detail below, the Corps' O&M activities are causing significant harm to the environment, increasing flood risks for communities, and undermining the work carried out under the Corps' restoration and flood damage reduction authorities. For example, while the Corps is authorized to reduce flood damages along the river, extensive peer-reviewed science demonstrates that river training structures constructed under the Regulating Works Project have increased flood levels by up to 15 feet

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in some locations and 10 feet in broad stretches of the Mississippi River where these structures are prevalent.[1] The Corps, however, continues to deny the validity of this science.

To comply fully with NEPA and to ensure the highest level of protection to the public, the League urges the Corps to:

I. Expand the SEIS to evaluate the full suite of O&M activities for the Upper Mississippi River – Illinois Waterway navigation system. As the Corps is well aware, the Regulating Works Project is just one of a number of activities carried out by the Corps to maintain navigation on the UMR-IWW. Other O&M activities include water level regulation, dredging and disposal of dredged material, construction of revetment, and operation and maintenance of the system's 37 locks and dams. Since all O&M activities are designed to maintain a single project, individual activities may not be evaluated in isolation. A supplemental EIS for the full suite of O&M activities would help ensure that future O&M activities comply with current law, planning criteria and policies, including the requirements established by the Clean Water Act, the Endangered Species Act, the Water Resources Development Act of 2007, and the Fish and Wildlife Coordination Act.

II. Initiate a National Academy of Sciences study on the effect of river training structures on flood heights to inform development of the SEIS. A National Academy of Sciences review is critical for ensuring that: (a) the SEIS is based on the best possible scientific understanding of the role of river training structures on increasing flood heights; (b) the SEIS produces recommendations that will provide the highest possible protection to the public; and (c) the public will have confidence in this aspect of the evaluation and recommendations contained in the final SEIS.

III. Impose a moratorium on the construction of new river training structures pending completion of the National Academy of Sciences Study and the SEIS. As discussed below, extensive peer-reviewed science demonstrates that river training structures have increased flood levels by up to 15 feet in some locations and 10 feet in broad stretches of the Mississippi River where these structures are prevalent. In light of these findings, it is critical that additional river training structures not be built unless, and until, the National Academy of Sciences study and comprehensive SEIS establish that such construction will not contribute to increased flood risks to communities.

IV. Fully evaluate the impacts of all reasonable alternatives and select an alternative that protects and restores the Mississippi River. To comply with NEPA, the SEIS must (among other things) properly define the project purpose, fully evaluate project impacts, and fully review all reasonable alternatives. The project purpose is most properly defined as maintaining navigation. Impacts that must be examined include, direct, indirect, and cumulative impacts (including the cumulative impacts of climate change) of all O&M activities on the UMR-IWW

[1] 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. There is also a global consensus that river training structures can and do increase flood heights as evidenced by actions being carried out by the government of the Netherlands to modify hundreds of river training structures "as part of a nationwide effort to reduce flood risk in [the Rhine River] floodplain" at significant cost. Government Accountability Office, GAO-12-41, Mississippi River, Actions Are Needed to Help Resolve Environmental and Flooding Concerns about the Use of River Training Structures (December 2011) (GAO Study on River Training Structures) (concluding that the Corps is out of compliance with both the National Environmental Policy Act and the Clean Water Act).

ecosystems; the effect of those activities on flood heights and public safety; alternatives to those activities that could cause less harm to the environment, including alternative water level management regimes and removal and/or modification of river training structures; and mitigation for those impacts that cannot be avoided. To comply with the National Water Policy and the Corps' civil works mitigation requirements, the SEIS must ultimately select an alternative that will protect and restore the natural functions of the Mississippi River system and mitigate any unavoidable damage.

The independent external peer review that is clearly required for the SEIS should be conducted by the National Academy of Sciences, and the panel's task should explicitly include a charge to evaluate: the appropriateness of the alternative recommended by the Corps; whether the selected alternative will in fact protect and restore the functions of the Mississippi River system; whether the selected alternative includes a mitigation plan that is likely to produce ecologically successful mitigation; and whether the selected alternative includes appropriate and meaningful criteria for determining project success.

Specific Comments

I. The Corps Should Expand the SEIS to Evaluate the Full Suite of O&M Activities

The UMR-IWW navigation system includes 1,200 miles of 9-foot navigation channel, 37 lock and dam sites, and thousands of river training structures. This system requires "continuous regular operations and maintenance" at a cost of more than $120 million each year.[2] These operations and maintenance (O&M) activities include: dredging and disposal of dredged material, water level regulation, construction of river training structures (wing dikes, bendway weirs, chevrons), construction of revetment, and operation and maintenance of the system's 37 locks and dams.

These actions must be examined in a single environmental impact statement because they are "connected actions."[3] Actions are connected if they:

(i) Automatically trigger other actions which may require environmental impact statements.
(ii) Cannot or will not proceed unless other actions are taken previously or simultaneously
(iii) Are interdependent parts of a larger action and depend on the larger action for their justification.[4]

Under these standards, the full suite of O&M activities are clearly "connected actions" that must be evaluated in a single environmental impact statement (EIS). Each O&M activity is an interdependent part of a larger action – maintaining the UMR-IWW navigation system – and will not proceed unless other actions that independently would require an environmental impact statement are undertaken (for example, dredging the Mississippi River, controlling water levels in the Mississippi River). There is no

[2] USACE Brochure, Upper Mississippi River – Illinois Waterway System Locks and Dams (September 2009) available at http://www.mvr.usace.army.mil/brochures/documents/UMRSLocksandDams.pdf; Congressional Research Service, *Inland Waterways: Recent Proposals and Issues for Congress* (July 14, 2011) at 15.
[3] 40 C.F.R. § 1508.25; *e.g., Thomas v. Peterson*, 753 F.2d 754, 758 (9th Cir. 1985).
[4] 40 C.F.R. § 1508.25(a).

independent utility for constructing river training structures for navigation purposes absent the full suite of O&M activities that are required to maintain the UMR-IWW navigation system.[5]

All O&M activities must be reviewed under a comprehensive supplemental environmental impact statement for the same reasons that mandate preparation of the SEIS for the Regulating Works Project. A supplemental EIS must be prepared where, as here, there "are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts" or when the agency makes "substantial changes in the proposed action that are relevant to environmental concerns." 40 C.F.R. § 1502.9(c); 33 C.F.R. § 230.13(b).

The Supreme Court has ruled that:

> If there remains 'major Federal actio[n]' to occur, and if the new information is sufficient to show that the remaining action will 'affec[t] the quality of the human environment' in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared.[6]

New information requires preparation of a supplemental EIS if the information "'presents a picture of the likely environmental consequences associated with the proposed action not envisioned by the original EIS'" and "'raises new concerns of sufficient gravity such that another, formal in-depth look at the environmental consequences of the proposed action is necessary.'"[7]

The Corps is not free to ignore the possible significance of new information. The Corps must "take a hard look" at any new information (*i.e.*, information that did not exist when the original environmental impact statement was prepared) to determine whether a supplemental environmental impact statement is required.[8] Where, as here, an EIS is "more than 5 years old," it should be "carefully reexamined" to determine if a supplement is required.[9]

Despite the significant changed circumstances discussed below, the Corps continues to rely on a series of five outdated and piecemeal environmental impact statements that do not satisfy the requirements of NEPA. Four of these EISs are more than 35 years old – two were written in 1974, one in 1975, and one in 1976.[10] Another assessment that reviews only a portion of O&M activities carried out in one Corps District was written in 1997, but that 17-year old EIS itself acknowledged a major shortcoming:

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[5] *See Save the Yaak Committee v. Block*, 840 F.2d 714, 720 (9th Cir. 1988) (agency must consider both the logging road project and timber sale together because they road would not proceed absent the timber sale); *Thomas v. Peterson*, 753 F.2d 754, 757 (9th Cir. 1985) (same).

[6] *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989) (emphasis added).

[7] *Louisiana Wildlife Federation v. York*, 761 F.2d 1044, 1051 (5th Cir. 1985) (quoting *Wisconsin v. Weinberger*, 745 F.2d 412, 418 (7th Cir. 1984) (a supplemental EIS must be prepared when "new information provides a *seriously* different picture of the environmental landscape such that another hard look is necessary")).

[8] *Marsh*, 490 U.S. at 385.

[9] 46 Fed Reg. 18026 (March 23, 1981), as amended, 51 Fed. Reg. 15618 (April 25, 1986), Question 32; *see also Oregon Natural Resources Council v. U.S. Forest Serv.*, 445 F. Supp. 2d 1211, 1232 (D. Or. 2006) (recognizing passage of time likely warrants supplemental NEPA analysis).

[10] The St. Paul District prepared an EIS in 1974 for the operation and maintenance of a 9-foot channel on the Upper Mississippi River from the head of navigation to Guttenberg, Iowa. The Rock Island District prepared an EIS in 1974 for the operation and maintenance of a 9-foot navigation channel on the Upper Mississippi River. The St. Louis District prepared an EIS in 1975 and 1976 for the operation and maintenance of pools on the Mississippi and Illinois Rivers and the regulating works for the Mississippi River between the Ohio and Missouri River.

"The major unresolved issue is the *cumulative impacts* of the continued operations and maintenance of the 9-foot navigation channel."[11]

None of these O&M EISs evaluate the cumulative impact of the more than 1,375 river training structures[12] constructed by the Corps in the middle Mississippi River on flood heights or on the safety of river communities.[13] The Corps has never prepared a single, comprehensive environmental impact statement evaluating the full range of impacts, including the cumulative impacts, of O&M activities on the UMR-IWW system.[14]

The failure to supplement the out of date and piecemeal environmental reviews and to develop less environmentally damaging alternatives violates the clear requirements of NEPA. The failure to examine and adopt less damaging alternatives is extremely troubling since the Corps has long been aware that alternative methods exist for maintaining the system's navigational capacity while also improving the system's ecological health.[15]

A. Dramatic Decline in the Ecological Health of the System

Since the O&M EISs were completed there has been a dramatic decline in the ecological health of the UMR-IWW that triggers the need to prepare a supplemental EIS for all O&M activities. Moreover, it is well recognized – including by the Corps itself – that the Corps' O&M activities have completely altered the natural processes of the Upper Mississippi River and have played a major role in the dramatic decline in the ecological health of the Mississippi and Illinois Rivers and the species that rely on them.[16] Construction of river training structures has also resulted in significant increases in flood heights along the Mississippi River. These adverse impacts also undermine the effectiveness of work carried out under the Corps' restoration and flood protection authorities for the Mississippi River

For example, in December 1997, the Corps issued a report to Congress which concludes that "conditions at even the most healthy sites within the [Upper Mississippi River System] are at least partially artificial, non-sustainable, and in a recognized state of degradation."[17]

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[11] The St. Paul District issued a fifth EIS in 1997 that evaluated navigation maintenance activities within that district. 1997 EIS at 1-4 (emphasis added). The 1997 EIS acknowledged that the document did not evaluate "operations" and did not examine cumulative impacts.
[12] GAO Study on River Training Structures.
[13] GAO Study on River Training Structures.
[14] The duty to discuss cumulative impacts in an EIS is mandatory and not within the agency's discretion. 40 C.F.R. §§ 1502.16, 1508.7; *see also Oregon Natural Resources Council v. Marsh*, 52 F.3d 1485 (9th Cir. 1995) (holding that the Corps violated NEPA by narrowly limiting the scope of the discussion of cumulative impacts).
[15] For example, in 1997, the Donald J. Barry, Deputy Assistant Secretary for Fish and Wildlife and Parks, U.S. Department of Interior wrote a letter to the Martin Lancaster, Assistant Secretary of the Army for Civil Works advising the Corps of the new information that has been developed by the Corps and FWS regarding the impacts of the Corps' O&M activities on the Upper Mississippi River System and that the Corps' activities "can be managed to achieve the goals of navigation and a healthy river system." (Letter dated April 12, 1997). Similarly, the Upper Mississippi Water Level Management Task Force advised the Corps in 1996 that "[w]ater level management experiences from around the world amply demonstrate that opportunity exists for improving the ecological conditions of the Upper Mississippi River." Upper Mississippi Water Level Management Task Force, Problem Appraisal Report for Water Level Management (1996) at 3-3.
[16] U.S. Geological Survey, Ecological Status and Trends of the Upper Mississippi River System 1998: A Report of the Long Term Resource Monitoring Program (April 1999) (1999 Status and Trends Report).
[17] Rock Island District, U.S. Army Corps of Engineers, *Report to Congress, An Evaluation of the Upper Mississippi River System Environmental Management Program* (December 1997) at 2-3.

In a 1999 report on the Status and Trends of the Upper Mississippi River System, the U.S. Geological Survey concluded that the Corps' O&M activities in the UMR-IWW system were: destroying critical habitats including the rivers' backwaters, side channels and wetlands; altering water depth; destroying bathymetric diversity; causing nonnative species to proliferate; and severely impacting native species.[18]

The 1999 Status and Trends Report also rated the health of the Mississippi River System as follows:

1. The Lower Reach of the Illinois River is degraded for all 6 criteria of ecosystem health evaluated by the report.[19]
2. The Unimpounded Reach of the Mississippi River is degraded for 3 criteria, heavily impacted for 2 criteria, and moderately impacted for 1 criterion.
3. The Lower Impounded Reach of the Mississippi River (Pools 14-26) is degraded for 2 criteria, heavily impacted for 3 criteria, and moderately impacted for 1 criterion.
4. The Upper Impounded Reach of the Mississippi River (Pools 1-13) is degraded for 1 criterion and moderately impacted for 5 criteria.

The 1999 Status and Trends report further concluded that no segment of the Upper Mississippi River system was unchanged from historic conditions, or deemed to require no management action to maintain, restore or improve conditions. Equally important, no segment of the system was improving in quality.[20]

In May 2000, the U.S. Fish and Wildlife Service issued a Final Biological Opinion on the Corps' O&M activities which concludes that the "continued operation and maintenance of the 9-foot Navigation project will jeopardize the continued existence of the Higgins eye pearly mussel (*Lampsilis higginsi*) and the pallid sturgeon (*Sacphirhynchus albus*)."[21] The Biological Opinion also concludes that the Project will result in the incidental take of the least tern (*Sterna antillarum*) and winged mapleleaf mussel (*Quadrula fragosa*). The Biological Opinion also concludes that the Project will likely adversely affect the bald eagle (*Haliaeetus leucocephalus)*, the Indiana bat (*Myotis sodalis*), and the decurrent false aster (*Boltonia decurrens*).[22]

In December 2008, the U.S. Geological Survey issued a second report on the status and trends of selected resources in the Upper Mississippi River system which also found that the Corps' O&M activities were causing significant adverse impacts.[23] For example:

> The current condition of the UMRS is heavily influenced by its agriculture-dominated basin and by the dams, channel training structures, dredging, and levees that regulate flow distribution during most of the year. Although substantial improvements in some conditions have occurred since the 1960s because of improvements in sewage treatment and land use practices, the UMRS still faces substantial challenges including

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[18] *Id*.
[19] "Degraded" is the lowest possible grade issued by the report and is defined as a condition where the factors associated with the criteria "are now below ecologically acceptable levels" and where "[m]ultiple management actions are required to raise these conditions to acceptable levels." 1999 Status and *Trends Report* at 16-2.
[20] 1999 Status *and Trends Report at* 16-1 to 16.-2.
[21] U.S. Fish and Wildlife Service, Biological Opinion for the Operation and Maintenance of the 9-Foot Navigation Channel on the Upper Mississippi River System at 1.
[22] *Id*.
[23] Johnson, B. L., and K. H. Hagerty, editors. 2008. U.S. Geological Survey, *Status and Trends of Selected Resources of the Upper Mississippi River System,* December 2008, Technical Report LTRMP 2008-T002. 102 pp + Appendixes A–B (Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin) (2008 Status and Trends Report).

1. High sedimentation rates in some backwaters and side channels;
2. An altered hydrologic regime resulting from modifications of river channels, the floodplain, and land use within the basin, and from dams and their operation;
3. Loss of connection between the floodplain and the river, particularly in the southern reaches of the UMRS;
4. Nonnative species (e.g., common carp [*Cyprinus carpio*], Asian carps [*Hypophtalmichthys* spp.], zebra mussels [*Dreissena polymorpha*]);
5. High levels of nutrients and suspended sediments; and
6. Degradation of floodplain forests.[24]

The 2008 Status and Trends report also recognized that there has been "a substantial loss of habitat diversity"[25] in the system over the past 50 years due in large part to excessive sedimentation and erosion:

> In all reaches, sedimentation has filled-in many backwaters, channels, and deep holes. In the lower reaches, sediments have completely filled the area between many wing dikes producing a narrower channel and new terrestrial habitat. Erosion has eliminated many islands, especially in impounded zones.[26]

These changed conditions, and the role of all the O&M practices in these changes, mandates preparation of a supplemental EIS that comprehensively examines all O&M activities.

[24] *Id*. at 3.
[25] *Id*. at 6.
[26] *Id*. at 6.

B. Significant New Scientific Information

Since the O&M EISs were completed there has been a deluge of new scientific studies that bear directly on the environmental impacts of the Corps' O&M activities and that trigger the need to prepare a supplemental EIS for all O&M activities.

For example, since 1976, hundreds of studies have been published addressing large river sediment transport and deposition.[27] As discussed above, sedimentation in the navigation pools, side channels, and backwater areas is well recognized as one of the most critical ecological problems affecting the Upper Mississippi River ecosystem.

Since 1986, at least 51 scientific studies have been published linking the construction of river training structures to increased flood heights. More than 15 studies published from 2000-2010 demonstrate the role of river training structures on flood heights in the Mississippi River. These studies show that river training structures constructed by the Corps to reduce navigation dredging costs have increased flood levels by 10 to 15 feet and more in some locations of the Mississippi River during large floods. A list of the 51 studies assessing the role of instream structures on increasing flood heights is attached to these comments at Attachment A.

Indeed, there is a global consensus that river training structures can and do increase flood heights. For example, the government of the Netherlands is expending a significant amount of resources to modify hundreds of river training structures to reduce flood risks.[28]

As discussed below, new science also shows significant changes in precipitation in the Mississippi River basin triggered by climate change. New science also shows that climate change may significantly exacerbate the impacts on the many migratory species that utilize the Mississippi River, Mississippi River Flyway, and the project area. As recognized by the United Nations Environment Program and the Convention on the Conservation of Migratory Species of Wild Animals, migratory wildlife is particularly vulnerable to the impacts of climate change:

> "As a group, migratory wildlife appears to be particularly vulnerable to the impacts of Climate Change because it uses multiple habitats and sites and use a wide range of resources at different points of their migratory cycle. They are also subject to a wide range of physical conditions and often rely on predictable weather patterns, such as winds and ocean currents, which might change under the influence of Climate Change. Finally, they face a wide range of biological influences, such as predators, competitors and diseases that could be affected by Climate Change. While some of this is also true for more sedentary species, migrants have the potential to be affected by Climate Change not only on their breeding and non-breeding grounds but also while on migration."
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> "Apart from such direct impacts, factors that affect the migratory journey itself may affect other parts of a species' life cycle. Changes in the timing of migration may affect

[27] E.g., DeHaan, H.C. 1998, *Large River Sediment Transport and Deposition: An Annotated Bibliography,* U.S. Geological Survey, Environmental Management Technical Center, Onalaska, Wisconsin, April 1998, LTRMP 98-T002. 85 pp. (identifying more than 250 scientific studies addressing large river sediment transport and deposition published since 1976): Pierre Y. Julien and Chad W. Vensel, Department of Civil and Environmental Engineering Colorado State University, *Review of Sedimentation Issues on the Mississippi River*, DRAFT Report Presented to the UNESCO: ISI, November 2005 (referencing more than 100 studies published between 1979 and 2005).
[28] GAO Study on River Training Structures at 41.

> breeding or hibernation, for example if a species has to take longer than normal on migration, due to changes in conditions *en route*, then it may arrive late, obtain poorer quality breeding resources (such as territory) and be less productive as a result. If migration consumes more resources than normal, then individuals may have fewer resources to put into breeding . . . ."
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> "Key factors that are likely to affect all species, regardless of migratory tendency, are changes in prey distributions and changes or loss of habitat. Changes in prey may occur in terms of their distributions or in timing. The latter may occur though differential changes in developmental rates and can lead to a mismatch in timing between predators and prey ("phenological disjunction"). Changes in habitat quality (leading ultimately to habitat loss) may be important for migratory species that need a coherent network of sites to facilitate their migratory journeys. Habitat quality is especially important on staging or stop-over sites, as individuals need to consume large amounts of resource rapidly to continue their onward journey. Such high quality sites may [be] crucial to allow migrants to cross large ecological barriers, such as oceans or deserts."[29]

Migratory birds are at particular risk from climate change. Migratory birds are affected by changes in water regime, mismatches with food supply, sea level rise, and habitat shifts, changes in prey range, and increased storm frequency.[30]

This new scientific information mandates preparation of a supplemental EIS that comprehensively examines all O&M activities.

C. Significant Changes in Precipitation and Stream Flow

Since the O&M EISs were completed there have been documented changes in precipitation and stream flow within the Mississippi River basin that trigger the need to prepare a supplemental EIS for all O&M activities.[31] For example:

- In March 2005, the U.S. Geological Survey released a study showing upward trends in rainfall and stream flow for the Mississippi River.[32]

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[29] UNEP/CMS Secretariat, Bonn, Germany, *Migratory Species and Climate Change: Impacts of a Changing Environment on Wild Animals* (2006) at 40-41 (available at http://www.cms.int/publications/pdf/CMS_CimateChange.pdf).
[30] *Id*. at 42-43.
[31] The Corps is required as a matter of law to evaluate the cumulative impacts of climate change. *See Center for Biological Diversity v. Nat'l Hwy Traffic Safety Administration*, 538 F.3d 1172, 1217 (9th Cir. 2008) (holding that analyzing the impacts of climate change is "precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct" and that NEPA requires analysis of the cumulative impact of greenhouse gas emissions when deciding not to set certain CAFE standards); *Center for Biological Diversity v. Kempthorne*, 588 F.3d 701, 711 (9th Cir. 2009) (NEPA analysis properly included analysis of the effects of climate change on polar bears, including "increased use of coastal environments, increased bear/human encounters, changes in polar bear body condition, decline in cub survival, and increased potential for stress and mortality, and energetic needs in hunting for seals, as well as traveling and swimming to denning sites and feeding areas.").
[32] USGS Fact Sheet 2005-3020, Trends in the Water Budget of the Mississippi River Basin, 1949-1997.

- In 2009, the U.S. Global Change Research Program issued a report showing that the Midwest experienced a 31% increase in very heavy precipitation events (defined as the heaviest 1% of all daily events) between 1958 and 2007.[33] That study also reports that during the past 50 years, "the greatest increases in heavy precipitation occurred in the Northeast and the Midwest."[34] Models predict that heavy downfalls will continue to increase:

> Climate models project continued increases in the heaviest downpours during this century, while the lightest precipitation is projected to decrease. Heavy downpours that are now 1-in-20-year occurrences are projected to occur about every 4 to 15 years by the end of this century, depending on location, and the intensity of heavy downpours is also expected to increase. The 1-in-20-year heavy downpour is expected to be between 10 and 25 percent heavier by the end of the century than it is now. . . . Changes in these kinds of extreme weather and climate events are among the most serious challenges to our nation in coping with a changing climate.[35]

- In March 2012, Midwest regional assessments were issued that provide important technical input into the National Climate Assessment.[36]

- In 2013, Regional Climate Trends and Scenarios were issued for the Midwest U.S. showing that for the Midwest region, annual and summer trends for precipitation in the 20th century are upward and statistically significant; the frequency and intensity of extreme precipitation in the region has increased, as indicated by multiple metrics; and models predict increases in the number of wet days (defined as precipitation exceeding 1 inch) for the entire Midwest region, with increases of up to 60%.[37]

Notably, climate change could significantly exacerbate the public safety impacts of O&M activities because climate change-induced variability in the Upper Mississippi River Basin will likely lead to more extreme weather and higher flows than have been experienced in the past.

These documented changes in precipitation and stream flow trigger the need to prepare a supplemental EIS for all O&M activities.

D. Significant Changes in Applicable Law and Policy

Since the O&M EISs were completed there have been significant changes to the laws and policies applicable to the Corps' O&M practices that trigger the need to prepare a supplemental EIS for all O&M activities. For example:

(1) New Executive Orders: Executive Orders issued in 1977 direct agencies to protect wetlands and floodplains. Executive Order 11990 (Protection of Wetlands) directs each federal agency to

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[33] Global Climate Change Impacts in the United States, Thomas R. Karl, Jerry M. Melillo, and Thomas C. Peterson, (eds.). Cambridge University Press, 2009, at page 32 (available at http://nca2009.globalchange.gov/).
[34] *Id.*
[35] *Id.*
[36] The Midwest regional assessment can be accessed at http://glisa.msu.edu/great_lakes_climate/nca.php (visited January 22, 2014).
[37] Kunkel, K.E, L.E. Stevens, S.E. Stevens, L. Sun, E. Janssen, D. Wuebbles, S.D. Hilberg, M.S. Timlin, L. Stoecker, N.E. Westcott, and J.G. Dobson, 2013: Regional Climate Trends and Scenarios for the U.S. National Climate Assessment. Part 3. Climate of the Midwest U.S., NOAA Technical Report NESDIS 142-3, 95 pp. (available at http://scenarios.globalchange.gov/regions/midwest).

provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values in carrying out agency policy. Executive Order 11988 (Floodplain Management) directs each federal agency to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of floodplains; to avoid direct and indirect support of floodplain development wherever there is a practicable alternative; and "to restore and preserve the natural and beneficial values served by flood plains in carrying out its responsibilities."

(2) NEPA Implementing Regulations: In 1978, the Council on Environmental Quality promulgated regulations for implementing NEPA. The Corps' own regulations implementing NEPA were promulgated in 1988.

(3) Clean Water Act Regulations: In 1980, the Clean Water Act's Section 404(b)(1) guidelines were promulgated. These guidelines must be followed for the Corps' civil works activities. In 1990 the Corps and EPA signed a Memorandum of Agreement on mitigation that establishes priorities and procedures to be used in implementing mitigation under the Clean Water Act § 404. In 2008, the Corps and EPA issued new mitigation requirements applicable to the Clean Water Act § 404 program. Corps civil works projects are subject to these new mitigation requirements (and to the mitigation requirements established by the Water Resources Development Act of 2007, discussed below). 33 U.S.C. § 2283(d). These mitigation requirements must be satisfied for both new projects and existing projects that are reevaluated under NEPA. *Id.*

(4) Water Resources Development Acts: The Water Resources Development Act (WRDA) of 1986 authorizes the Corps to modify existing water resources projects and operations to improve the quality of the environment. WRDA 1990 changed the Corps' fundamental mission to "include environmental protection as one of the primary missions of the Corps of Engineers in planning, designing, constructing, operating, and maintaining water resources projects." 33 U.S.C. § 2316. WRDA 2007 created a new federal water policy that requires all Corps projects to protect and restore the environment and imposes new and important mitigation requirements for Corps projects, including existing projects that are re-evaluated through an EIS or supplemental EIS. 33 U.S.C. § 2283(d).

These significant changes in law and policy trigger the need to prepare a supplemental EIS for all O&M activities.

II. The Corps Should Initiate A National Academy of Sciences Study on the Effect of River Training Structures on Flood Heights to Inform Development of the SEIS

The League calls on the Corps to initiate a National Academy of Sciences study on the effect of river training structures on flood heights to inform development of the SEIS. A National Academy of Sciences study is needed to provide important guidance on this significant public safety issue, and to ensure that that the Corps fully accounts for the flood height inducing effects of river training structures when planning and carrying out future O&M activities. To date, the Corps has denied the existence of this flood-height inducing effect, ignoring extensive peer-reviewed science and global recognition of this impact.

As discussed in Section I.B. above, an extensive body of peer-reviewed scientific literature demonstrates that river training structures constructed by the Corps to help maintain the 9 foot navigation channel are

significantly increasing the risks of floods for riverside communities and floodplain lands.[38] These structures, constructed by the Corps to reduce navigation dredging costs, have increased flood levels by up to 15 feet in some locations and 10 feet in broad stretches of the river where these structures are prevalent.[39] Independent scientists have determined that the more than 40,000 feet of "wing dikes" and "bendway weirs" constructed by the Corps in the Mississippi during the 3 years prior to the great flood of 1993 contributed to record crests in 1993, 1995, 2008, and again in 2011. Indeed, there is a global consensus that river training structures increase flood risks as evidenced by the costly work being carried out by the government of the Netherlands to modify hundreds of river training structures to reduce flood risks.[40]

In the face of the overwhelming scientific consensus on the role of river training structures in increasing flood levels and the resulting significant risks to public safety, the Corps should not construct new structures without a detailed and comprehensive analysis of this issue by the National Academy of Sciences. The costs associated with a National Academy study are far outweighed by the public benefits, including public confidence in a final decision regarding construction of new river training structures.

III. The Corps Should Impose A Moratorium on the Construction of New River Training Structures

In light of the public safety implications discussed above, and the fact that navigation can in fact continue without the construction of new river training structures, the League urges the Corps to impose a moratorium on the construction of new river training structures pending completion of the requested National Academy of Sciences study and the SEIS. New river training structures should not be built unless the National Academy of Sciences study and a comprehensive and legally adequate SEIS establish that such construction will **not** contribute to increased flood risks to communities.

The moratorium should apply to all new river training structures in the Mississippi River, whether they are for navigation or other purposes, including the extensive field of chevrons proposed as a restoration project for the Herculaneum Reach of the Mississippi River. Absent such a moratorium, construction of new river training structures will certainly continue without the much-needed comprehensive assessment of public safety and environmental impacts. For example, the Corps is currently seeking approval for at least the following additional projects that would add a significant number of new training structures to the river:

- The Grand Tower project which would add 2 new chevrons, 3 new S-dikes, 3 new weirs, 1 dike extension, and additional new revetment.
- The Dogtooth Bend project would add 8 new bendway weirs and 1 new dike.
- The Eliza Point project which would add 4 new bendway weirs and 1 new rootless dike.
- The Moosenthein Ivory project which would add 1 new rootles dike and 2.2 miles of new revetment.
- The Herculaneum Reach project which would add 12 new chevrons in a narrow, 3.5 mile stretch of the Mississippi River (creating the River's largest concentration of chevrons).

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[38] See Attachment A listing 51 peer reviewed studies linking instream structures to increased flood heights.
[39] 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.
[40] GAO Study on River Training Structures at 41.

These, and any other structures constructed by the Corps during the SEIS review period, would add to the more than 1,375 wing dikes, bendway weirs, chevrons, and similar structures already in the 195 miles that constitute the Middle Mississippi River.[41] Independent scientists who have studied the effects of river training structures report that as of 2001, the Corps had constructed 1.5 miles of river training structures for each mile of the Middle Mississippi River (river miles 180 to 37). The League understands that between 1980 and 2009, the Corps built at least 380 new river training structures in the Middle Mississippi, including 40,000 feet of wing dikes and bendway weirs between 1990 and 1993. The Corps built at least 23 chevrons between 2003 and 2010.

The potentially significant risks to public safety, the fact that navigation can in fact continue without the construction of new river training structures, and the current lack of a legally adequate environmental review, warrant the adoption of a moratorium on the construction of new river training structures pending completion of the requested National Academy of Sciences study and the SEIS.

IV. The SEIS Must Fully Evaluate the Impacts of All Reasonable Alternatives and Select an Alternative that Protects and Restores the Mississippi River

To comply with NEPA, the SEIS must properly define the project purpose, fully evaluate project impacts, and fully review all reasonable alternatives. To comply with the National Water Policy and the Corps' civil works mitigation requirements, the SEIS must select an alternative that protects and restores the natural functions of the Mississippi River system and that mitigates any unavoidable damage.

The independent external peer review that is clearly required for the SEIS should be conducted by the National Academy of Sciences, and the panel's task should explicitly include a charge to evaluate: the appropriateness of the alternative recommended by the Corps; whether the selected alternative will in fact protect and restore the functions of the Mississippi River system; whether the selected alternative includes a mitigation plan that is likely to produce ecologically successful mitigation; and whether the selected alternative includes appropriate and meaningful criteria for determining project success.

A. Properly Define Project Purpose

It is critical that the SEIS properly define the purpose and need for the proposed project as this determines the universe of reasonable alternatives that must be evaluated.[42] The project purpose drives the evaluation of alternatives because all reasonable alternatives that accomplish the project purpose must be examined in an environmental impact statement, while alternatives that are not reasonably related to the project purpose do not have to be examined.[43]

Because the evaluation of alternatives is "the heart of the environmental impact statement,"[44] an overly narrow project purpose defeats the very purpose of NEPA:

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[41] GAO Study on River Training Structures at 9-10.
[42] *Citizens Against Burlington v. Busey*, 938 F.2d 190, 195 (D.C. Cir. 1991) (the project purpose and need "delimit[s] the universe of the action's reasonable alternatives.") *See also Wyoming v. U.S. Dep't of Agric.*, 661 F.3d 1209, 1244 (10th Cir. 2011) ("how the agency defines the purpose of the proposed action sets the contours for its exploration of available alternatives.").
[43] Methow Valley Citizens Council v. Regional Forester, 833 F.2d 810, 815-16 (9th Cir. 1987).
[44] 40 C.F.R. § 1502.14.

> "One obvious way for an agency to slip past the strictures of NEPA is to contrive a purpose so slender as to define competing "reasonable alternatives" out of consideration (and even out of existence). . . . If the agency constricts the definition of the project's purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role. Nor can the agency satisfy the Act. 42 U.S.C. § 4332(2)(E)."[45]

As a result, the courts have made it clear that an agency may not define a project so narrowly that it "forecloses a reasonable consideration of alternatives."[46] An agency also may not define the project's purpose so narrowly that it makes the final EIS "'a foreordained formality.'"[47]

According to the Public Notice (Public Notice 2013-744), the long-term goal of the Regulating Works Project "is to reduce or eliminate the amount of annual maintenance dredging and the occurrence of vessel accidents through the construction of river training structures to provide a sustainable navigation channel and reduce federal expenditures." Public Notice at 2. If the Corps were to adopt this stated goal as the project purpose, it would be too narrow to allow consideration of reasonable alternatives as it would preclude consideration of measures for maintaining channel depth that did not include additional river training structures. A more appropriate project purpose would be **"to maintain navigation in the Middle Mississippi River"** or for the expanded SEIS requested by the League **"to maintain navigation in the UMR-IWW."** The League urges the Corps to adopt this as the project purpose for the SEIS.

The SEIS should also evaluate, and demonstrate in the purpose and need statement, that there is in fact a need for new navigation structures (*e.g.*, dikes, weirs, chevrons, and revetment). This is critically important because the current O&M regime is clearly able to maintain a reliable navigation channel while projects constructed under the Regulating Works Project have been implicated in significant increases in flood risks for communities and floodplain lands.

The SEIS should also clearly document whether any actions proposed in the SEIS can be carried out under the existing authorization, or whether new authorization from Congress would be required. According to the 1976 EIS for the "Mississippi River Between the Ohio and Missouri Rivers (Regulating Works)", prepared by the Corps' St. Louis District, the Regulating Works Project is authorized by the Rivers and Harbors Act of 1910, the Rivers and Harbors Act of 1927 and the Rivers and Harbors Act of 1930. Each of these Acts authorizes activities recommended in a Chief of Engineers Report prepared

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[45] *Simmons v. United States Army Corps of Eng'rs*, 120 F.3d 664, 666 (7th Cir. 1997); *City of Carmel-by-the-Sea v. United States Dep't of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997) ("an agency cannot define its objectives in unreasonably narrow terms"); *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 195-96 (D.C. Cir. 1991), *cert. denied*, 502 U.S. 994 (1991) ("an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action"); *City of New York v. United States Dep't of Transp.*, 715 F.2d 732, 743 (2d Cir. 1983), *cert. denied*, 456 U.S. 1005 (1984) ("an agency will not be permitted to narrow the objective of its action artificially and thereby circumvent the requirement that relevant alternatives be considered").

[46] *Fuel Safe Washington v. Fed. Energy Regulatory Comm'n*, 389 F.3d 1313, 1324 (10th Cir. 2004) (quoting *Davis v. Mineta*, 302 F.3d 1104, 1119 (10th Cir. 2002); *Citizens' Comm. To Save Our Canyons v. U.S. Forest Serv.*, 297 F.3d 1012, 1030 (10th Cir. 2002); *Simmons v. United States Army Corps of Eng'rs*, 120 F.3d 664, 666 (7th Cir. 1997); *City of New York v. United States Dep't of Transp.*, 715 F.2d 732, 743 (2d Cir. 1983), *cert. denied*, 456 U.S. 1005 (1984) ((holding that "an agency may not narrow the objective of its action artificially and thereby circumvent the requirement that relevant alternatives be considered); *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991), *cert. denied* 502 U.S. 994 (1991).

[47] *City of Bridgeton v. FAA*, 212 F.3d 448, 458 (8th Cir. 2000) (quoting *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991), *cert. denied* 502 U.S. 994 (1991); citing *Simmons v. U.S. Army Corps of Eng'rs*, 120 F.3d 664, 666 (7th Cir. 1997)).

prior to enactment of each Act. These Chief of Engineers Reports, however, are not readily accessible to the public and the text of the reports was not provided in the 1976 EIS.

It is of course possible that these Chief of Engineers reports recommend an ongoing program of river training structure construction, or authorize construction for a more than 100 year period. However if, as is more likely, these reports recommend a more limited scope of construction, new Congressional authorization would likely be required to carry out any additional construction of river training structures that might be recommended in the final SEIS.[48] The public and decision makers should have a clear understanding of the precise activities currently authorized (including any limitations on those activities) and whether new authorization would be required.

B. Rigorously Evaluate All Reasonable Alternatives and Ultimately Select an Alternative that Protects and Restores the Mississippi River

The consideration of alternatives is "the heart of the environmental impact statement" and to satisfy the requirements of NEPA, the SEIS must "[r]igorously explore and objectively evaluate all reasonable alternatives." 40 C.F.R. § 1502.14. "[T]he existence of reasonable but unexamined alternatives renders an EIS inadequate."[49] "Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant."[50]

The National Water Policy established by Congress in 2007 requires the Corps to operate and maintain the UMR-IWW navigation system to protect the Mississippi River and its floodplain. That policy states that "all water resources projects" shall "protect[] and restor[e] the functions of natural systems and mitigat[e] any unavoidable damage to natural systems." 33 U.S.C 1962-3 (established by § 2031(a) of the Water Resources Development Act of 2007, and immediately applicable to all water resources projects).[51] As a result, the SEIS must evaluate alternatives that would protect and restore the natural functions of the Mississippi River, and must ultimately select an alternative that achieves these objectives.

Critically, the alternative ultimately recommended by the SEIS must also comply with the full suite of federal laws and policies designed to protect the environment. These include, the Endangered Species Act, the Clean Water Act, the Migratory Bird Treaty Act, and the mitigation requirements applicable to

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[48] It is also possible that the numerous river training structure projects currently being proposed by the Corps also exceed the existing authorization, and thus cannot be constructed without new Congressional authorization.

[49] Ctr. for Biological Diversity v. United States Dep't of the Interior, 623 F.3d 633, 642 (9th Cir. 2010); Westlands Water Dist. v. U.S. Dep't of Interior, 376 F.3d 853, 868 (9th Cir. 2004); Morongo Band of Mission Indians v. Fed. Aviation Admin., 161 F.3d 569, 575 (9th Cir. 1998); Oregon Natural Desert Ass'n v. Bureau of Land Management, 531 F.3d 1114, 1121 (9th Cir. 2008).

[50] Forty Most asked Questions Concerning CEQ's NEPA Regulations, 46 Fed. Reg. 18,026 (March 23, 1981).

[51] Enhancement of the environment has been an important federal objective for water resources programs for decades. Corps regulations in place since 1980 state that: "Laws, executive orders, and national policies promulgated in the past decade require that the quality of the environment be protected and, where possible, enhanced as the nation grows. . . . Enhancement of the environment is an objective of Federal water resource programs to be considered in the planning, design, construction, and **operation and maintenance of projects**. Opportunities for enhancement of the environment are sought through each of the above phases of project development. Specific considerations may include, but are not limited to, **actions to preserve or enhance critical habitat for fish and wildlife; maintain or enhance water quality; improve streamflow**; preservation and restoration of certain cultural resources, **and the preservation or creation of wetlands."** 33 C.F.R. § 236.4. (emphasis added).

Corps civil works projects that were established by § 2036(a) of the Water Resources Development Act of 2007. These mitigation requirements must be satisfied, among other times, whenever the Corps will be recommending a project alternative in an EIS. 33 U.S.C. § 2283(d). The alternative ultimately recommend by the SEIS must also obtain a Clean Water Act water quality certification from the appropriate Mississippi River states.

The Public Notice proposes the consideration of only two alternatives: (1) continuing with the Regulating Works Project at the current pace; and (2) not building new dikes, weirs, or revetments but maintaining existing structures. While we agree that these two alternatives should be evaluated, such a truncated alternatives analysis would violate the Corps' duty under NEPA to fully review "all reasonable alternatives."[52]

Additional alternatives that should be examined include, but are by no means limited to:

- Removing and/or modifying existing river training structures to reduce flood risks and restore backwater, side channel, and braided habitat.

- Maintaining the authorized navigation channel through alternative approaches, including such things as alternative water level management regimes, alternative dredging strategies, and/or removing sediment dredged from the river rather than pumping dredged sediment back into the river adjacent to the main channel through a program such as the Dredged Materials Management Program implemented in the Rock Island and St. Paul Districts.

- Minimizing the use of new structures, including by placing restrictions on the number and/or types of structures that can be utilized in a given reach based on a robust scientific assessment of the cumulative impacts of the various types of river training structures.

Each alternative **must** include mitigation for any unavoidable adverse impacts as required by 33 U.S.C. § 2283(d) and the Clean Water Act.

The SEIS should also provide the construction and full life cycle maintenance costs of each alternative to assist the public and decision makers in assessing the full impact of each alternative.

C. Fully Analyze Direct, Indirect, and Cumulative Impacts

In comparing and analyzing potential alternatives, the SEIS must examine, among other things, the direct, indirect, and cumulative environmental impacts of alternatives, the conservation potential of those alternatives, and the means to mitigate adverse environmental impacts that cannot be avoided. 40 C.F.R. § 1502.16. This assessment is essential for determining whether less environmentally damaging alternatives are available.

Direct impacts are caused by the action and occur at the same time and place as the action. Indirect impacts are also caused by the action, but are later in time or farther removed from the location of the action. 40 C.F.R. § 1508.8. Cumulative impacts are:

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[52] Evaluations of alternative configurations of river training structures cannot satisfy the requirement to evaluate all reasonable alternatives because each alternative would have the same end result – construction of river training structures in the project area. *State of California v. Block*, 690 F.2d 753, 767 (9th Cir. 1982) (holding that an inadequate range of alternatives was considered where the end result of all eight alternatives evaluated was development of a substantial portion of wilderness).

> "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

40 C.F.R. § 1508.7. The cumulative impacts analysis ensures that the agency will not "treat the identified environmental concern in a vacuum."[53]

The cumulative impacts analysis must examine the cumulative effects of federal, state, and private projects and actions.[54] The cumulative impacts analysis must also evaluate the cumulative impacts of climate change.[55] This evaluation is extremely important as:

> "Climate change can increase the vulnerability of a resource, ecosystem, or human community, causing a proposed action to result in consequences that are more damaging than prior experience with environmental impacts analysis might indicate . . . . [and] climate change can magnify the damaging strength of certain effects of a proposed action."
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> "Agencies should consider the specific effects of the proposed action (including the proposed action's effect on the vulnerability of affected ecosystems), the nexus of those effects with projected climate change effects on the same aspects of our environment, and the implications for the environment to adapt to the projected effects of climate change."[56]

Notably, climate change could significantly exacerbate the public safety impacts of the Regulating Works Project because climate change-induced variability in the Upper Mississippi River Basin will likely lead to more extreme weather and higher flows than have been experienced in the past. The League urges the Corps to **begin** its assessment of climate change impacts by evaluating the studies and analyses referred to in Section I.C. above.

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[53] *Grand Canyon Trust v. FAA*, 290 F.3d 339, 346 (D.C. Cir. 2002).

[54] The requirement to assess non-Federal actions is not "impossible to implement, unreasonable or oppressive: one does not need control over private land to be able to assess the impact that activities on private land may have" on the project area. *Resources Ltd., Inc. v. Robertson*, 35 F.3d 1300, 1306 (9th Cir. 1993).

[55] *See Center for Biological Diversity v. Nat'l Hwy Traffic Safety Administration*, 538 F.3d 1172, 1217 (9th Cir. 2008) (holding that analyzing the impacts of climate change is "precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct" and that NEPA requires analysis of the cumulative impact of greenhouse gas emissions when deciding not to set certain CAFE standards); *Center for Biological Diversity v. Kempthorne*, 588 F.3d 701, 711 (9th Cir. 2009) (NEPA analysis properly included analysis of the effects of climate change on polar bears, including "increased use of coastal environments, increased bear/human encounters, changes in polar bear body condition, decline in cub survival, and increased potential for stress and mortality, and energetic needs in hunting for seals, as well as traveling and swimming to denning sites and feeding areas.").

[56] Council on Environmental Quality, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions* (February 18, 2010). The CEQ guidance makes it clear that analyzing the impacts of climate change is not restricted to evaluating whether a project could itself exacerbate global warming. The magnifying and additive effects of global warming also must be evaluated.

The SEIS must provide "quantified or detailed information" on the impacts, including the cumulative impacts, so that the courts and the public can be assured that the Corps has taken the mandated hard look at the environmental consequences of the Project.[57] **If information that is essential for making a reasoned choice among alternatives is not available, the Corps must obtain that information unless the costs of doing so would be "exorbitant."** 40 C.F.R. § 1502.22 (emphasis added).

Importantly, as CEQ has made clear, in situations like those in the Mississippi River where the environment has already been greatly modified by human activities, it is **not** sufficient to compare the impacts of the proposed alternative against the current conditions. Instead, the baseline must include a clear description of how the health of the resource has changed over time to determine whether additional stresses will push it over the edge.[58]

D. Types of Impacts That Must Be Examined

The SEIS should examine the direct, indirect, and cumulative impacts of all reasonable alternatives on at least the impacts discussed below. Importantly, the SEIS should also carefully examine such impacts for each different type (e.g., bendway weir, chevron, wing dike, S-dike, rootless dike) and configuration of structures that would be utilized in each alternative since different types and configurations of river training structures have different impacts on the environment.

- **Impacts on hydrology, including the impacts on flood heights; impacts on channel morphology; and impacts on stream flow (including deviations from the historical water levels and natural flood pulse).**

  As part of this analysis, the SEIS must review and incorporate the findings of the extensive body of peer-reviewed science demonstrating that river training structures are causing significant increases in flood heights in the Middle Mississippi River. As noted above, the League urges the Corps to initiate a National Academy of Sciences study to evaluate this issue.

  Since 1986, at least 51 scientific studies have been published linking the construction of river training structures to increased flood heights. More than 15 studies published from 2000-2010 demonstrate the role of river training structures on flood heights in the Mississippi River. These studies show that river training structures constructed by the Corps to reduce navigation dredging costs have increased flood levels by 10 to 15 feet and more in some locations of the Mississippi River during large floods. Independent scientists have also determined that the more than 40,000 feet of "wing dikes" and "bendway weirs" constructed by the Corps in the Mississippi during the 3 years prior to the great flood of 1993 contributed to record crests in 1993, 1995, 2008, and again in 2011. A list of the 51 studies assessing the role of instream structures on increasing flood heights is attached to these comments at Attachment A. We request that these studies be included in the record for this project.

  The SEIS should also evaluate and incorporate the global consensus that river training structures can and do increase flood heights. For example, the government of the Netherlands is expending a significant amount of resources to modify hundreds of river training structures to

[57] Neighbors of Cuddy Mountain v. U. S. Forest Service, 137 F.3d 1372, 1379 (9th Cir. 1998); Natural Resources Defense Council v. Callaway, 524 F.2d 79, 87 (2d Cir. 1975).
[58] Council on Environmental Quality, Considering Cumulative Effects Under the National Environmental Policy Act at 41 (January 1997).

reduce flood risks.[59] In light of this global consensus on the potentially deadly impacts of river training structures, the Corps should be required to prove that such structures are safe and effective *before* building any additional structures.

As part of this analysis, the Corps should also analyze the potential increased risk of levee failures due to higher flood levels (both in terms of general risks due to overall higher flood levels, and in terms of risks to individual levees upstream or nearby specific fields of river training structure), including the cumulative impacts on such risks from climate-change induced increases in precipitation and extreme weather events.

In carrying out its hydrologic analysis the Corps must utilize the most up-to-date modeling to evaluate the potential impacts of each alternative such as by using state of the art two-dimensional and three-dimensional hydrodynamic models with inputs that recognize the current conditions in the river system. The Corps should abandon its use of micro models to evaluate the impacts of river training structures (including the Corps' Hydraulic Sediment Response or HSR model which is a small-scale physical sediment transport model used by the St. Louis District) as such models cannot be relied upon to provide accurate planning information as they lack "predictive capability".[60] A study published in the Journal of Hydraulic Engineering concludes that because of the "lack of predictive evidence, the micromodel should be limited to demonstration, education, and communication." A copy of this study is attached to these comments at Attachment B.

- **Impacts on fish and wildlife.** The SEIS must examine the impacts of the alternatives on the species that utilize the Mississippi River, including the impacts to fish, waterfowl, birds, mammals, reptiles, amphibians, and mussels. The Mississippi River is used by an astounding array of wildlife, including 360 species of birds, 260 species of fish, 145 species of amphibians and reptiles, 98 species of mussels, and 50 species of mammals.

  Forty percent of North America's waterfowl migrate through the Mississippi River flyway. The impacts on the critical array of migratory species that utilize the Mississippi River and Mississippi River flyway must also be analyzed, including the cumulative impacts of climate change on these species. As discussed in Section I.B. above, migratory wildlife is particularly vulnerable to the impacts of climate change.

  An accurate assessment of fish and wildlife impacts will require an accurate assessment of impacts to the full range of habitats that these species rely on. A meaningful assessment would also include an evaluation of the impacts of each alternative on the ability of the fish and wildlife that utilize the river and flyway to withstand the adverse impacts of climate change (*i.e.*, the species' resiliency to climate change).

- **Impacts on endangered species.** The SEIS should pay particular attention to the impacts on threatened and endangered species and any critical habitat. This should include an analysis of impacts to recently listed species (for which there currently is no biological opinion) and to species covered by the "Tier 1 Biological Opinion for the Operation and Maintenance of the 9-Foot Navigation Channel in the Upper Mississippi River System." The League urges the Corps to reinitiate formal consultation under the Endangered Species Act and demonstrate full

[59] GAO Study on River Training Structures at 41.
[60] Stephen T. Maynord, Journal of Hydraulic Engineering, Evaluation of the Micromodel: An Extremely Small-Scale Movable Bed Model (April 2006).

compliance with all conditions established in the Tier I biological opinion.

- **Impacts on key habitats – including backwater, side channel, mid-channel bars, braided river habitat, riverine wetlands, and floodplain wetlands.** The large-scale loss of backwater and side channel habitat is one of the most significant problems caused by the O&M activities. The Mississippi River and its floodplain have also suffered astounding wetland losses. The loss of these vital habitats has cascading negative impacts on fish and wildlife, public safety, recreation, and economies that rely on healthy river and floodplain systems. The SEIS must carefully evaluate and quantify the potential for additional losses – or gains – of backwater areas, natural side channels, crossover habitat, mid-channel bars, riverine wetlands and floodplain wetlands. The cumulative impacts of historical losses to these key habitats must also be fully evaluated and accounted for in any final recommended alternative.

- **Impacts on sedimentation.** Sedimentation is one of the most significant problems caused by O&M activities. The SEIS must carefully evaluate and quantify the impacts of each alternative on: increasing sedimentation in vital habitats; relocating sedimentation problems (*i.e.*, shifting the loci of sedimentation which could eventually lead to even more river training structure construction and dredging); and altering sediment transport downstream, including any resulting impacts on coastal wetland losses and/or coastal wetland restoration.

- **Impacts on water quality, including nutrient composition.** The Mississippi River remains plagued by water quality problems, including excess nutrients that have both local and ecosystem wide impacts (including, for example, yearly development of the Gulf of Mexico dead zone). The SEIS must carefully evaluate and quantify the impacts of each alternative on water quality in the river, including the potential water quality impacts caused by loss of backwater habitats and wetlands and increased sedimentation.

- **Cumulative impacts of climate change.** As discussed above, the SEIS must assess the cumulative impacts of climate change, including climate-change induced increases in precipitation and extreme weather events, on the direct and indirect impacts of each alternative. Of critical concern are the additive and magnifying effect of climate change on increased flood risks and on harm to migratory species.

- **Impacts on restoration and flood damage reduction efforts.** The Corps, other federal agencies, states, non-governmental organizations, and members of the public are engaged in significant efforts to restore the Mississippi River and its floodplain and to reduce flood damages to communities and floodplain lands. The Regulating Works Project and many of the Corps' other O&M activities work against these efforts, including through increasing flood levels and destroying vital habitats. The SEIS should carefully assess the impacts of each alternative on these other vital efforts. The SEIS should also evaluate the ability of each alternative to comply with the National Water Policy which requires that all water resources projects protect and restore the functions of natural systems and mitigate any unavoidable damage to natural systems. 33 U.S.C 1962-3.

- **Impacts on ecosystem services provided by a healthy Mississippi River and floodplain.** "Ecosystem services" are the goods and services produced by ecosystems that benefit humankind. These services include (but are by no means limited to) such things as carbon sequestration, wildlife habitat, nutrient retention, and erosion reduction. While these services have traditionally been undervalued because they often fall outside of conventional markets

and pricing, society is increasingly recognizing the essential link between healthy ecosystems and human welfare and significant progress has been made in the science of ecosystem services evaluation. The SEIS should carefully assess the impacts of each alternative on ecosystem services. The League refers the Corps to the three ecosystem services valuations attached at Attachment C of these comments for information on preparing a meaningful ecosystem services valuation and for examples of ecosystem services valuations carried out in the Mississippi River Valley.

- **Impacts on recreational fishing and tourism industries that rely on a healthy Mississippi River and floodplain.** Mississippi River tourism generates approximately $2 billion annually. Recreational opportunities, including recreational fishing, are vitally important to the public. The SEIS should fully evaluate the impacts of each alternative on these important activities.

- **Impacts on navigation.** The League has been advised that river training structures can create difficulties for safe navigation. The SEIS should examine the impacts of each alternative on the ability of barges to safely navigate the Mississippi River and reaches within the Mississippi River that are particularly dangerous or that have large concentrations of river training structures.

E. Actions that Must be Evaluated in the Cumulative Impacts Analysis

The SEIS must meaningfully evaluate the cumulative impacts of past, present, and reasonably foreseeable future actions that affect the Mississippi River on each alternative evaluated in the SEIS. The actions that must be examined include those carried out by the Corps, other federal agencies, state agencies, and members of the public.

With respect to the Corps' activities, it is critical that the Corps evaluate the cumulative impacts of the full suite of past, present, and reasonably foreseeable future O&M activities for the Mississippi River navigation system. As the Corps is of course aware, O&M activities carried out by the Corps to maintain navigation on the 1,200 miles of the UMR-IWW, including dredging and disposal of dredged material, water level regulation, construction of revetment, construction of river training structures, and operation and maintenance of the system's 37 locks and dams. Impacts from major rehabilitation efforts and reasonably foreseeable new construction must also be evaluated.

As discussed above, the Corps has already constructed more than 1,375 wing dikes, bendway weirs, chevrons, and similar structures in the 195 miles that constitute the Middle Mississippi River. The Corps constructed at least 150 of the bendway weirs between 1990 and 2000, and constructed 23 chevrons in this portion of the river between 2003 and 2010.[61] Reasonably foreseeable future projects[62] include at least the following:

- The Grand Tower project which would add 2 new chevrons, 3 new S-dikes, 3 new weirs, 1 dike extension, and additional new revetment.
- The Eliza Point project which would add 4 new bendway weirs and 1 new rootless dike.
- The Moosenthein Ivory project which would add 1 new rootles dike and 2.2 miles of new revetment.
- The Herculaneum Reach project which would add 12 new chevrons in a narrow, 3.5 mile stretch

[61] GAO Study on River Training Structures at 9-10.
[62] These projects should not be constructed unless (and until) the SEIS and the requested National Academy of Sciences study demonstrate that they will not pose a threat to public safety and that they are otherwise in the public interest and appropriate for construction.

of the Mississippi River (creating the River's largest concentration of chevrons).

The cumulative impacts analysis should incorporate the significant body of scientific evidence, much of which was prepared with the Corps' input, which demonstrates that the Corps' O&M activities are a significant cause of the severe decline in the ecological health of the UMR-IWW system and have completely altered the natural processes in the Upper Mississippi River. A number of these studies are discussed in Sections I.A. and I.B. above.

In addition, the cumulative impacts analysis must evaluate the cumulative impacts of work carried out by the Corps under its flood damage reduction authority, including the construction and maintenance of Mississippi River levees and reasonably foreseeable future flood damage reduction projects. The cumulative impacts analysis should also evaluate such things as past, present, and reasonably foreseeable future: (a) lock and dam construction; pool, reservoir and dam operations that affect the Mississippi River and its floodplain – including for such facilities located in areas outside of the Mississippi River; (b) residential and commercial development, including road construction, that affects the Mississippi River and its floodplain; and (c) agricultural practices that have affected and will continue to affect floodplain wetlands and Mississippi River water quality.

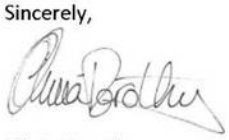
In analyzing the cumulative effects of the activities discussed above, the Corps must compare the impacts to the historical, non-disturbed, Mississippi River and not compare the impacts to the current condition of the river. This includes both the historic ecological condition and the historical flow and flood level conditions. If this information is not currently available, the Corps must obtain this information unless the costs of doing so would be "exorbitant." 40 C.F.R. § 1502.22. To establish the proper baseline, the SEIS should document and evaluate the historical changes in the Mississippi River with respect to at least the following indicators:

- Historical flows and flood levels;
- Acres of river and floodplain wetlands lost;
- Acres of native upland habitats lost;
- Miles of streambed lost or modified;
- Changes in stream flows;
- Changes in ground water elevations;
- Changes in the concentrations of indicator water quality constituents;
- Changes in the abundance, distribution, and diversity of indicator fish, waterfowl, bird, mammal, reptile, amphibian, and mussel communities;
- Changes in rainfall, and reasonably foreseeable future changes.

Conclusion

The League appreciates the opportunity to provide these comments and look forward to working with the Corps to ensure that the SEIS fully evaluates environmental impacts, complies with NEPA and the nation's other vitally important environmental laws, and identifies and selects an alternative that will protect and help restore the Mississippi River.

Sincerely,



Olivia Dorothy
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Izaak Walton League of America
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Attachments

Appendix D:
National Wildlife Federation Action Alert System Email

Dear Jasen Brown,

Thank you for providing this opportunity to comment on the scoping process for the supplemental environmental impact statement (SEIS) on the Middle Mississippi River Regulating Works Project (Project). In 2011, the Government Accountability Office (GAO) found the St. Louis District (District) to be in violation of the National Environmental Policy Act. To rectify this violation, the District conducted an environmental assessment to determine if the 1976 environmental impact statement should be supplemented. I agree with the District that a SEIS for the project is necessary.

Between 1980 and 2009, the Corps built at least 380 new river training structures in the Middle Mississippi, including 40,000 feet of wing dikes and bendway weirs between 1990 and 1993. This dramatic expansion of construction in the river is concerning. The impacts of these structures on fish, wildlife, and river stage have not been properly examined. Since 1986, at least 51 peer-reviewed scientific studies have linked river training structures to increased flood heights. These studies show that river training structures constructed by the Corps to reduce navigation dredging costs have increased flood levels on the Mississippi by 10 to 15 feet (and, in some places, even more) during large floods.

In order to adequately evaluate the environmental and human impacts and risks of the Project, I recommend the Corps incorporate the following suggestions into the SEIS.

1. Expand the SEIS to evaluate the full suite of navigation operations and maintenance (O&M) activities for the Upper Mississippi River – Illinois Waterway (UMR-IWW). The Project is just part of a number of activities carried out to maintain navigation on the UMR-IWW. In addition to construction of river training structures, which the Project SEIS evaluates, other O&M activities include water level regulation, dredging and disposal of dredged material, construction of revetment, and O&M of the system's 37 locks and dams. Since all O&M activities are designed to maintain a single project – the UMR-IWW navigation channel – individual activities should not be evaluated in isolation.

2. Initiate a National Academy of Sciences study on the effect of river training structures on flood heights to inform development of the SEIS. A National Academy of Sciences review is necessary to ensure that: (a) the SEIS is based on the best possible scientific understanding of the role of river training structures on increasing flood heights; (b) the SEIS produces recommendations that will provide the public with the highest possible level of food safety; and (c) the public will have confidence in the public safety aspects of the analysis and recommendations contained in the final SEIS.

3. Impose a moratorium on the construction of new river training structures pending completion of the SEIS. Extensive peer-reviewed science demonstrates that river training structures have increased flood levels. In light of these findings, it is critical that additional river training structures not be built unless and until a comprehensive SEIS establishes that such construction will not contribute to increased flood risks to communities.

Sincerely,

Appendix E:
Izaak Walton League of America Congress Web Email

Dear Mr. Jasen Brown:

Thank you for taking comments on the US Army Corps of Engineers National Environmental Policy Act (NEPA) review on the St. Louis District's river training structures (RTS). NEPA is the foundation for natural resource protection; ensuring oversight of federal activities that may harm habitat and people. In 2011, the District was found in violation of NEPA due to a 37 year lapse in environmental analyses. Since the last NEPA review, the District built over 380 RTSs to redirect the river for navigation, including 40,000 feet of wing dikes and bendway weirs. The impacts of the RTSs on fish and wildlife have not been properly examined and over 50 studies link RTSs to flooding. So, please review the following during the NEPA process:

1. Evaluate all navigation activities for the Upper Mississippi River - Illinois Waterway (UMR-IWW). The District's activities are just part of many carried out to maintain navigation on the UMR-IWW. Since all of these activities are designed to maintain a single project - the UMR-IWW navigation channel - they should be evaluated collectively.

2. Initiate an independent study on the effect of RTSs on flood heights. A National Academy of Sciences review is critical for ensuring that decisions are based on the best possible scientific understanding of the role of RTSs on flood heights and recommendations will provide the highest possible protection to the public.

3. Impose a moratorium on the construction of new RTSs pending completion of the NEPA review. Extensive peer-reviewed science shows that RTSs increase flood levels. So, it is critical that additional RTSs not be built unless a comprehensive NEPA review establishes that such construction will not increase flood risks to communities.

Sincerely,

Appendix F:
Traditional Mail Comments

Rose and Mike Schulte
2842 Chadwick Dr.
Bel Nor, MO 63121
Jan 21, 2014

US Army Corps of Engineers
CEMVS-EC-H
1222 Spruce Street
St. Louis, MO 63103-2833

Sirs:

This is a response to Public Notice 2013-744, a notice to prepare a supplemental EIS for the USACOE Middle Mississippi River Regulating Works Project.

We are in favor of continuing the Regulating Works Project. Properly designed, the installed dikes, weirs, and revetments would certainly trap much of the sediment in the river, resulting in much less need to dredge. Dredging is an expensive proposition, interferes with the barge traffic in the channel, and results in environmental problem both with the stirring up of the bottom while dredging and with the problems of the disposal of the dredge material. As such dredging should be replaced when possible with other solutions to channel maintenance.

The installation of controlling structures is done close to the banks of the river. They are outside the river channel, so the construction and maintenance of the structures will not interfere with the barge traffic and it will provide shore access as needed for construction and maintenance. Properly constructed, these controlling structures will provide pools, similar to the pools that formed behind the historic sand bars, to provide habitat for the aquatic life in the river. This could also improve the amount of recreational fishing done from the banks.

We feel that the Regulating Works Projects' continuation has more benefits than relying on dredging. We support the continuation of the Regulating Works Project.

Sincerely,

Rose and Mike Schulte