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MG Scott A. Spellmon
Northwestern Division Commander
U.S. Army Corps of Engineers
ATTN: CENWO-PM-AC-Management Plan Comments
1616 Capitol Avenue
Omaha, Nebraska 68102

RE: Missouri River Recovery
Management Plan Draft
Environmental Impact Statement

Dear Major General Spellmon:

On behalf of the American Waterways Operators (AWO), the national trade association for the tugboat, towboat and barge industry, thank you for the opportunity to comment on the *Missouri River Recovery Management Plan (MRRMP) Draft Environmental Impact Statement (DEIS*). The U.S. tugboat, towboat and barge industry is a vital segment of America's transportation system. The industry safely and efficiently moves 763 million tons of cargo each year, including more than 60 percent of U.S. export grain, energy sources such as coal and petroleum and other bulk commodities that are the building blocks of the U.S. economy. The fleet consists of nearly 5,500 tugboats and towboats, and over 31,000 barges. These vessels transit 25,000 miles of inland and intracoastal waterways, the Great Lakes and the Atlantic, Pacific and Gulf coasts.

The tugboat, towboat and barge industry is not only an integral part of the U.S. intermodal transportation system, but also the safest, most affordable and most fuel-efficient, with the smallest carbon footprint of any surface transportation mode. Actions that adversely impact the efficiency of waterborne commerce, or that result in the diversion of cargo to other modes of transportation negatively impact the U.S. economy, public safety and the environment.

AWO has represented navigation stakeholders on the Missouri River Recovery Implementation Committee (MRRIC) since its inception in the fall of 2008. Authorized by Congress in Section 5018 of the 2007 Water Resources Development Act, MRRIC is comprised of nearly 70 representatives of tribes, stakeholder groups, states, and federal agencies. The Committee has the following purposes:

- Providing guidance to federal agencies on the existing Missouri River recovery plan, including priorities for recovery work and implementing changes based on the results of adaptive management.
- Developing recommendations that recognize the social, economic and cultural interests of stakeholders, mitigate the impacts on those interests and advance the multiple uses of the river.

Two panels were created by MRRIC to peer review the work of the Corps and other federal agencies and advise MRRIC on the agencies' products, The Independent Science Advisory Panel (ISAP) and the Independent Social Economic Technical Review (ISETR) Panel evaluated the agencies' work on science and technical matters related to the recovery of the endangered pallid sturgeon and the threatened least tern and piping plover and on the social and economic impacts of species recovery actions on stakeholders, respectively. The work of ISAP and ISETR are heavily relied upon in the following comments.

AWO cautiously supports mechanical emergent sandbar habitat construction in the preferred alternative, Alternative 3. AWO does not support any flow changes including the potential one-time test flow in Alternative 3. Draconian flow changes in alternatives 2, 4, 5, and 6 are not acceptable options. There is no credible science that supports flow changes for the recovery of the threatened and endangered species. And, the flow changes would negatively impact the economy of the entire Missouri River Basin. In alignment with the bi-partisan, basin-wide Congressional letter sent to the Corps on December 17, 2015, AWO strongly opposes any flow changes. Under current law, any alternative including 2,4,5, and 6 that would change the Master Manual for the recovery of the species cannot be considered without a separate NEPA process. Finally, AWO has concerns with the described *Adaptive Management (AM)* plan.

Importance of Inland Waterways to the Nation

The Missouri River is part of the economically vital 12,000-mile marine highway system that efficiently delivers agricultural and petroleum products, coal, sand, gravel, chemicals, cement, steel, mulch, and other basic materials. The list of barge cargo is extensive, and includes the building blocks of the nation. Over 600 million tons of waterborne cargo, valued at nearly $232 billion, transited the inland waterways in 2014.[1]

Moving goods on the water is the safest, most efficient and most environmentally responsible mode of transportation. A typical inland barge has a capacity fifteen times greater than one rail car and sixty times greater than one tractor trailer truck, and one 15-barge tow can move the equivalent of 216 rail cars or 1,050 tractor trailer trucks. Inland barge transportation not only provides significant savings to consumers, but also has a significantly smaller carbon footprint than rail or truck. In a study conducted by the Texas A&M Transportation Institute, researchers calculated that transport by truck emits 371% more carbon dioxide per ton-mile than transport by inland barge. The same study also found that for every barge-related fatality, there are 21.9 fatalities on the railways and 79 fatalities caused by trucks.

[1] Waterways System. An "Inland Marine Highway for Freight." Waterways Council, Inc.

According to the Missouri Department of Natural Resources, the Missouri River supplies over 40% of the flows to the middle Mississippi River during normal conditions and provided more than 70% during the 2012 drought. During severe drought years, such as the late 1980's, more than 80% of the water flowing by the St. Louis Arch comes from the Missouri River. These flows are critical to keep the Mississippi River, America's commercial superhighway and third coast, open for business.

The Western River system has and continues to improve the economic prosperity of the nation. In 2014, 718 million short tons of freight were transported on the Mississippi River by barge.[2] According to Corps data, there are nearly 600 manufacturing facilities, docks, terminals, and grain elevators that ship and receive tonnage from and to the Upper Mississippi River alone. Approximately 60 percent of all agricultural products and 20 percent of coal and petroleum products are moved on the Mississippi River annually. The Mississippi River transports between 40 and 60 percent of total corn exports and 30 to 45 percent of total soybean exports, a major U.S. export markets. Without the world-class transportation system, the country would not be competitive in the world grain market. Agricultural exports are one of the few sectors that provides the country with a positive trade balance. The system supports more than $200 billion in economic output annually and more than one million jobs.[3]

The 2012-13 severe drought in both the Missouri and Upper Mississippi rivers seriously threatened the continuity of waterborne commerce, especially once the Missouri River navigation flows were severely decreased after December 1. Due to the critical impacts that Missouri River flows have on the Mississippi River, any future flow change would negatively impact the commerce on the nation's marine superhighway and the nation's economy.

Before flows were severely disrupted in the late 1990s and early 2000's, towing companies working exclusively on the Missouri River signed five-year contracts with shippers. The disastrous and unreliable flow changes devastated the towing industry, putting all line haul companies working exclusively on the Missouri River out of business.

According to the Missouri Department of Transportation, barge traffic on the Missouri River has been increasing over the last five years since reliable flows have returned. In September 2014, the first barge shipments in eleven years traveled north to Sioux City, Iowa carrying hundreds of thousands of pounds of equipment to an expanding fertilizer plant in Nebraska. The existence of these reliable flows allowed robust barge traffic to continue through December with vessels moving as far north as Mile Marker 660.

The 2015-16 navigation season was also a productive year for barge traffic on the Missouri River. In 2015, the Missouri River saw an increase in barge traffic volume due to reliable flows along with a well-maintained navigation channel. During the record 2015 harvest, the system relieved the roads of 190,000 trucks, reducing traffic on the heavily congested Interstate 70.The Port of Kansas City experienced an increase in barge traffic volume in 2016 to roughly 45,000 tons, more than three times the amount of tonnage shipped to and from the port during 2015. In

[2] Economic Contributions of the US Tugboat, Towboat, and Barge Industry. PricewaterhouseCoopers. 2017.
[3] The Economic Profile of the Lower Mississippi River. Lower Mississippi Economic Conservation Committee, February 2014.

addition to this amount, an additional 60,000 tons moved from private terminals through the Kansas City area for a total of over 100,000 tons of freight. The Port of Kansas City expects an increase in 2017 of at least 20%.

At the Inland Rivers Ports and Terminals meeting in February of 2017, a representative from Archer Daniels Midland (ADM) announced that ADM loaded barges on the Missouri River [in 2016] for the first time in 15 years, transporting 50,000 tons. During the same convention, Missouri Farmers' Association Cooperative (MFA) officials indicated the company loaded barges at Booneville in 2014 for the first time in 14 years leading the company representative to say, "MFA is back in the water big-time."

With continued reliable flows, operators and stakeholders expect the increase during the last five plus years to continue. The Corps, unlike the early 2000s, has not changed the flows in recent years. *A return to scientifically unjustified changes in flows to allegedly recover endangered and threatened species is untenable.*

AWO Supports Emergent Sandbar Habitat Construction

Recovery of the endangered and threatened species can be accomplished without changes to the Master Manual or major flow modifications. Of the six alternatives, AWO supports mechanical emergent sandbar habitat construction contained in each of the alternatives, including Alternative 3, the preferred alternative. Alternative 3 strikes the best balance between species recovery and stakeholder interests. This alternative meets the species targets for the birds at a much lower federal cost than Alternative 2 and at a comparable cost to Alternatives 5 and 6, with significantly less impacts to industry stakeholders.

AWO strongly opposes the various flow modifications common to alternatives 2, 4, 5, and 6 or the one-time flow test in Alternative 3. The flow changes in these alternatives would negatively impact navigation on the Missouri and Mississippi rivers and negatively impact agriculture, a major customer of the towing industry.

Low summer flow provisions in Alternative 2 *(USFWS 2003 Amended BiOp Projected Actions)* will cause irreparable harm to the navigation industry by creating a split-navigation season on the Missouri River, severely impacting navigation. The low summer flows in Alternative 2 will also have severe negative impacts on navigation on the Mississippi River from Saint Louis to Cairo, Illinois during the height of export season. While the negative impacts to navigation are severe, the DEIS acknowledges uncertainty on whether the low summer flows under Alternative 2 would benefit the endangered pallid sturgeon. The DEIS states:

> "*It **is highly uncertain** whether or not low summer flows would directly contribute to increased survival of age-0 pallid sturgeon* (Jacobson et al., 2016b). *Based on theoretical evidence described in Jacobson et al.* (2016b), *this management action is expected to*

> *result in some level of benefit to the pallid sturgeon; however, the level of benefit, **if any**, to the pallid sturgeon cannot be confirmed or quantified."* [4]

With a price tag of a staggering $15.75 billion, or almost five times more expensive than the preferred alternative, Alternative 2 is an unacceptable gamble for the recovery of pallid sturgeon and for the continuity of navigation on the Missouri and Mississippi rivers. [5]

The navigation industry opposes massive spring and fall releases and bi-modal spring pulses in alternatives 2, 3, 4, 5, and 6. The releases in these alternatives have severe negative impacts on flood control and commercial navigation. Scientific data indicates that previous spring releases have been ineffective as a spawning cue for the pallid sturgeon. The ISAP's 2011 *Final Report on Spring Pulses and Adaptive Management* indicates that spring pulses, as currently implemented, are not accomplishing their intended outcomes. Specifically, the ISAP Report concludes that the "spring pulse management action, as currently designed, is unnecessary to serve as a cue for spawning pallid sturgeon." The more recent *ISAP Evaluation of MRRMP v3 AM Plan and Pallid Level 3 Action*, released in November 2015, states that the "flow needs of the pallid sturgeon are imprecisely known at all life stages, therefore considerations of flow manipulations to benefit pallid sturgeon are now based on imprecise knowledge." This document further confirms that "the Spawning Cue Flows action presents a hypothesis without compelling technical support. The Action Description of bi-pulse flows and frequency is very detailed, but without scientific justification." In addition, the Corps acknowledges in the DEIS that "the exact characteristics of a spawning cue pulse that would elicit a spawning response are not known."[6] AWO is opposed to any future spring or fall pulse/release that threatens navigation without scientific foundation.

The DEIS states the following regarding the one-time spawning cue test:

> *"The one-time spawning cue test (level 2) release that might be implemented under Alternatives 3,4, and 5 was not included in the hydrological modeling for these alternatives because of the uncertainty of the hydrological conditions that would be present if implemented. Hydrologic modeling for Alternative 6 simulates reoccurring implementation (level 3) of this spawning cue over a wide range of hydrological conditions in the period of record. Therefore, the impacts from the potential implementation of a one-time spawning cue test would be bound by the range of impacts described for individual releases under Alternative 6."* [7]

If a one-time flow test is eventually implemented in the future, this federal action must undergo comprehensive economic and hydrological modeling to assess its impacts on Congressionally-authorized purposes of the system, especially the primary purposes, navigation and flood control.

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[4] Draft Missouri River Recovery Management Plan and Environmental Impact Statement. Affected Environmental Consequences – 3.3.2.5 – Alternative 2 – US Bi-OP Projected Actions – Low Summer Flow. Page 3-73. December 2016.

[5] Draft Missouri River Recovery Management Plan and Environmental Impact Statement. Hanscomb Consulting. EIS Alternatives-Cost Estimates. Volume 4. Pages 8 of 45. December 2016

[6] Draft Missouri River Recovery Management Plan and Environmental Impact Statement. Volume 1. Page 2-30. December 2016.

[7] MRRMP DEIS Section 3.24.1—Mississippi River Impacts—Affected Environment

The modeling for this release over the range of hydrological conditions for Alternative 6 is not sufficient to address future hydrological conditions, weather patterns and the possible impacts of climate change.

Impacts to the Missouri and Mississippi Rivers

It is highly likely that the decreasing releases from the Gavins Point Dam in Alternative 2 during the summer months would drop flows below the Construction Reference Plane levels and halt navigation. Navigation would once again become unreliable and the users of the commercial navigation system would suffer severe negative economic consequences.

The DEIS Section 3.15—Navigation concludes the following regarding Alternative 2:

> *"Although split navigation seasons would adversely affect navigation NED [National Economic Development], RED [Regional Economic Development], and OSE [Other Social Effects] under Alternative 2, the impacts would not be significant because the* ***NED decreases in magnitude and percentage change is small; RED impacts would be negligible*** *in the regional context; and air quality impacts for nitrogen oxide would not occur in non-attainment areas."*[8]

This contradictory and flawed conclusion demonstrates a fundamental ignorance of Missouri River navigation and the navigation industry. To thrive all businesses require regulatory certainty, for the towing industry that includes reliable flows.

Perhaps the most interesting component of the DEIS conclusions on the impacts of Alternative 2 on Missouri River navigation is that these conclusions are contradictory. The passage above from section 3.15.2.5 states that the impacts of Alternative 2 would not be significant because *the NED decreases in magnitude and percentage change is small; RED impacts would be negligible…*

However, Section 3.15.2.11—Cumulative Impacts-Missouri River Navigation concludes that navigation could experience adverse impacts from low-summer flows. This section of the DEIS states the following:

> *"Adverse impacts could result in the reduction of the navigation season length for years with the low summer flow, and the potential reduction in service level provided that could occur in the years with the spawning cue pulse. When combined with other past, present and reasonably foreseeable future actions, the cumulative impacts on navigation associated with Alternative 2 would result in a large reduction in navigation benefits. The majority of the relatively large, long-term adverse impacts would be caused by the low summer flow which would shorten the navigation season and prohibit navigation during the important months of the year. While shippers may be able to plan around the low summer flow period, the reliability of the of the Missouri River would be reduced and shippers would begin to transition to other modes of transportation. Over time as more shippers switch to other modes, the overall navigation benefits on the Missouri River would be largely reduced.:*[9]

[8]MRRMP DEIS Section 3.15.2.5—Alternative 2—Conclusion, page 3-401
[9] MRRMP DEIS Section 3.15.2.11—Cumulative Impacts—Missouri River Navigation, page 3-420

The conclusions in the DEIS on the cumulative impacts of Alternative 2 on Missouri River navigation are severe and not one bit "negligible" contrary to the earlier conclusions in Section 3.15.2.5 on the impacts of Alternative 2 on Missouri River navigation. Why does the DEIS include contradictory conclusions regarding the impacts of Alternative 2 on Missouri River navigation? Why are these contradictory conclusions not explained in the DEIS? The potential negative impacts of Alternatives 4, 5 and 6 on Missouri River navigation are grave.

Alternatives 4 and 5 create problems for navigation by doubling the releases from Gavins Point for a period of 35 days. Alternative 4 would implement a flow release of up to 60,000 cfs out of the Gavins Point Dam on April 1 as often as every four years. Alternative 6 would implement a bimodal pulse (release) in March and May. Based on the Corps' modeling, the Gavins Point releases during the March release would be between 39-61,000 cfs. Gavins Point releases during the May release would range from 50–67,000 cfs. These excessive flows would increase safety risks for crews, forcing towing companies to decrease tow sizes, travel only during daylight hours or completely stop. These safety actions would vastly increase costs to the nation's transportation system.

Alternative 2 would also implement a bi-modal spring release from Gavins Point. In Alternative 2, the first pulse would begin on March 15 and would be as high as 31,000 cfs and the second pulse would start on May 1 and would be as high as 60,000 cfs. Both spring pulses would negatively impact navigation for roughly four weeks. Alternative 5 takes a different approach by mandating a flow release of up to 60,000 cfs out of Gavins Point in the fall [in the middle of harvest season] as often as every four years.

If the river is already at high levels, which is often the case in the spring months, **any** increase in flows could cause negative impacts to navigation, agricultural, land owners, industries, and communities along the river. Releases in the 60,000 cfs range would most likely halt navigation due to high velocities. Towing companies operating on the Missouri River are concerned about releases from Gavins Point in May that exceed 50,000 cfs because they believe this amount of extra water has the potential to stop navigation on the Missouri River and cause elevated navigational risks on the mid-Mississippi River. The month of May is typically a time of high water on both the Missouri and Mississippi rivers **without** the addition of a spring pulse. If the May release is implemented without taking into consideration the natural flows, it would be a significant problem for navigation and other stakeholders in the entire region, including the farming community. Since the Missouri River often floods in the spring months, why would the Corps release more water and make the flooding worse?

Finally, a fall release of 60,000 cfs out of Gavins Point during the middle of the busy navigation harvest season—when farmers and other stakeholders are attempting to transport their commodities—also jeopardizes navigation on the river as flooding in the fall has increased and weather patterns have become more unpredictable.

The DEIS assessment of the proposed alternatives impacts on the Mississippi River is flawed, insufficient and inaccurate for several reasons:

- An implementation period of 15 years was chosen for the planning process and this DEIS. However, according to the DEIS, "the geographical scope of this federal action

includes the Missouri River within its meander belt from Fort Peck Dam in Montana to its confluence with the Mississippi River near St. Louis, Missouri, and the Yellowstone River from Intake Dam at Intake, Montana to the confluence with the Missouri River."[10] *It is very important to note that the geographic scope of this DEIS does not include the Middle Mississippi River from St. Louis, Missouri downstream to Cairo, Illinois.* The failure to include the middle Mississippi River in the geographic scope of the DEIS calls into doubt the Corps ability to analyze the impacts of the proposed alternatives on the Mississippi River in a thorough and accurate manner.

- The Corps informed MRRIC that it did not model the economic, hydrological or environmental impacts of the alternatives to Mississippi River navigation in its human considerations analysis on navigation. [11] Instead, the Corps stated that the impacts of the alternatives on Mississippi River navigation would be addressed in the DEIS. The failure to address the impacts of the alternatives on Mississippi River navigation in the human consideration report calls into question the Corps' ability to perform a comprehensive and accurate assessment of the impacts of the alternatives on Mississippi River navigation. This fact is confirmed by the numerous omissions of key data and false assumptions in the DEIS section on Mississippi River Impacts.
- The DEIS indicates that the impacts to flood risk management in Section 3.24 were evaluated using two of the four economic account models: NED and OSE. By only using these two accounts to evaluate the impacts to flood risk management, the DEIS has omitted key data points resulting in a major understatement of the costs and impacts to Mississippi River flood control interests. The failure to perform a comprehensive RED analysis to measure the impacts to flood risk management on the Mississippi River is very concerning. In addition to this, the DEIS does not indicate the reason an RED impact analysis was not performed. A comprehensive RED analysis for the Mississippi River, if done properly, would illustrate the negative impacts of these alternatives on local and regional economic conditions, such as employment, income, sales, sales tax revenue, flood damages, and other potential costs.
- In terms of the impacts of the alternatives on Mississippi River navigation, the DEIS evaluation does not use **any** of the four accounts: Environmental Quality Methodology (EC), NED, RED, or OSE. Instead, the Corps measures the impacts of the alternatives on Mississippi River navigation by analyzing commodity movement data from the Waterborne Commerce Statistics Center daily stage level data for the St. Louis gauge from the Hydrologic Engineering Center-River Analysis System (HEC-RAS) Model for the entire period-of-record for each alternative. [12] So, the Corps used four accounts (EC, NED, RED, OSE) throughout the DEIS, and then utilizes a completely different methodology to measure the alternatives' impacts on Mississippi River navigation. The DEIS fails to explain the reason for this abrupt change. The failure to perform a comprehensive RED analysis to measure the alternatives' impacts on Mississippi River navigation is inexcusable and

[10] MRRMP DEIS Executive Summary, page vii
[11] MRRIC Plenary Meeting, 11/14/2016
[12] MRRMP DEIS Section 3.24.5.2, Impacts Methodology, Page 3-614).

unacceptable. A comprehensive RED analysis for navigation would illustrate the negative impacts of the alternatives on the aforementioned local and regional economic conditions.

- Finally, the failure to perform a comprehensive NED analysis on the impacts to the Mississippi River is also inexcusable and unacceptable given the Mississippi River's major contribution to the national economy. By failing to conduct and NED, RED, OSE, and EQ analysis in its modeling, the DEIS significantly understates the economic, environmental and social impacts of the alternatives on Mississippi River navigation.

One of the major flaws in the DEIS is its failure to appropriately evaluate the proven economic principle of water-compelled rates for both the Missouri and Mississippi rivers. The DEIS defines water-compelled rate benefits as a reduction in the cost for land transportation (particularly railroads) due to competition from the towing industry. [13] There is no question that the mere presence of barge transportation as a viable alternative mode of transportation keeps railroad rates lower and more competitive. According to a 2015 Transportation Research Board Special Report entitled *Funding and Managing the U.S. Inland Waterways System: What Policy Makers Need to Know:*

> *"Shippers of bulk commodities contend that without barge transportation there is insufficient competition for transportation of their commodities to ensure efficient resource allocation. Specifically, many coal and agricultural shippers and receivers assert that they are "captive" to a single railroad that can exercise market power in the setting of rates and that a water alternative is needed to protect them from monopoly rates."*[14]

For example, a president of one of the shipping companies operating on the Missouri River recently stated, "The Missouri River helps keep transportation rates competitive between all modes of transportation. This benefits the shipper."[15]

The DEIS failed to perform an independent comprehensive analysis of water-compelled rates on either the Missouri or Mississippi rivers. There is no mention of water-compelled rates in either Sections 3.15 Navigation—Affected Environments et al., nor is there any analysis of water-compelled rates in Section 3.24 Mississippi River Impacts. Instead, the Corps devotes roughly one-half of one page to this critical concept in the Navigation Environmental Consequences Analysis Technical Report to the DEIS.

In the navigation technical report analysis of water-compelled rates, the Corps relies on outdated data from almost 20 years ago from the same single academic resource that the Corps has been consistently using on this topic for many years. The navigation technical report states the following on water-compelled rates:

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[13] MRRMP DEIS Section 2.4.1—Water Compelled Rates, page 17—Navigation Environmental Consequences Analysis Technical Report

[14] Funding and Managing the U.S Inland Waterways System: What Policymakers Need to Know—Box 3-2-The Issue of Water Compelled Rates, page 89. National Academies Press 2015

[15] Missouri Levee and Drainage District Association Meeting and Dinner, February 11, 2016, Columbia, Missouri.

> "*To determine the measurability of water-compelled railroad benefits, the USACE contacted Dr. Mark Burton and Dr. Larry Bray with the University of Tennessee Center for Transportation Research (UT-CTR). The UTCTR was chosen for the analysis because Dr. Burton has conducted several previous analyses of Missouri River water -compelled rate benefits and Dr. Bray is an expert in the economics of transportation. To generate a conclusion, Dr. Burton and Dr. Bray conducted literature research and analyzed current Missouri River waterway and railroad. "*[16]

Dr. Bray and Dr. Burton concluded that "there is not enough waterway traffic on the on the Missouri River to capture, and therefore, measurable water-compelled railroad rates attributable to the Missouri River commercial navigation seems improbable."[17] This conclusion ignores the fundamental principle of water-compelled rates and does not account for the recent increase and continued growth of navigation on the Missouri River.

The failure to include an independent comprehensive analysis of water compelled-rates in the DEIS is inappropriate and unacceptable. By not including this analysis, the Corps has drastically understated both the economic benefits of navigation and the impacts of these alternatives on both Missouri and Mississippi River navigation.

Flaws in DEIS Economic and Hydrological Models

The DEIS has numerous flaws in the economic and hydrological models rendering the overall economic impacts of the proposed alternatives significantly understated. And, the limitations of the modeling are not defined. One of the major deficiencies in the economic modeling is it relies too heavily on averages when more detailed information is available and already documented. The ISETR panel stated that the documentation for these models is in need of improvement.[18] The economic impacts of the proposed alternatives on human considerations are measured over an 82-year period-of-record.[19] Likewise, measurements of impacts to resources were based on an 82-year hydrologic period-of-record.[20] The 82-year period-of-record does not properly represent the true impacts of the proposed alternatives on the various stakeholders because it skews the effects of major high- and low-water events, such as the great floods of 1993 and 2011, as well as the severe droughts of 1988, 1989 and 2012. Under this 82-year period-of-record, the negative impacts of these alternatives are significantly understated. This is particularly the case regarding the navigation industry, which was almost decimated by the drought of the late 1980's.

Another example of the problems with the over reliance on averages and the use of the 82-year period-of-record in the models are the years 2011 and 2012. In 2011, the Missouri River experienced one of the worst flood events in its history, and this event was followed by a severe drought in 2012. Both the flood of 2011 and the severe drought of 2012 caused massive damages to the navigation and agriculture communities, with impacts still seen. There was nothing

[16] MRRMP DEIS Section 2.4.1—Water Compelled Rates, page 17—Navigation Environmental Consequences Analysis Technical Report
[17] Ibid.
[18] Missouri River Recovery Implementation Committee Plenary Meeting, November 16, 2016.
[19] Ibid.
[20] MRRMP DEIS, page vii—Executive Summary

average about 2011 and 2012, but the use of the 82-year period-of record minimizes the massive damages.

Finally, the use of the 82-year period-of-record is flawed because it includes years when the federal government mandated artificial regulatory actions that greatly diminished the presence of navigation on the Missouri River. This, in turn, results in a significant understatement of the navigation benefits on the Missouri River. As stated previously, the low summer flows on the Missouri River in the early 2000's caused navigation to virtually disappear. Several towing companies went out of business during this time due to the lack of consistent reliable flows on the Missouri River. A few years later, the Corps implemented a large spring rise to serve as a spawning cue for the pallid sturgeon. This second artificial federal action further discouraged navigation on the river due to reliability concerns. In fact, navigation on the Missouri River did not begin to recover until recent years when the Corps provided reliable flows. Yet, despite these artificial government actions that negatively impacted navigation during these years, the DEIS still includes these years in the period-of-record for the modeling. *These years should be excluded from the modeling, otherwise the benefits of navigation are substantially understated in the DEIS.*

Another problem with the Corps economic modeling used in the DEIS is that it consistently relies on old, outdated and inaccurate information to calculate the impacts. For example, to estimate the impacts in the NED[21] account for navigation, the variables to estimate changes in transportation saving and repair, replacement and rehabilitation costs (R, R, & R) were based on data from the *Master Water Control Manual Missouri River Review and Update Study, Volume 6A-R: Economic Studies Navigation Economics (Revised) (1998).*[22] This study is almost twenty years old and does not reflect the recent increase in barge activity on the Missouri River. In addition to relying on this outdated study, the Corps did not consult with members of the towing industry or its customers to obtain feedback on how to calculate transportation savings and R, R, & R costs in its NED analysis. Furthermore, the RED[23] evaluation also appears to be insufficient and lacking in data from the tugboat, towboat and barge industry.[24]

In several sections, the Corps' models include faulty assumptions and omit critical data that cause the output results to be misleading and inaccurate. For example, the modeling does not account for the impacts of navigation on transportation costs and agricultural profitability. Low summer flows and flood events intensified by unreliable releases from Gavins Point can have serious negative impacts on transportation. Since these interconnected economic impacts are not addressed, the overall economic impacts of the management actions for all alternatives are substantially understated.

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[21] Section 1.2 – USACE Planning Accounts, Navigation Environmental Consequences Analysis Technical Report, pages 2-3. The NED account displays changes in the economic value of the national output of goods and services expressed in monetary units. Contributions to NED are the direct net benefits that accrue in the planning area and the rest of the nation.

[22] Section 3.15.2.1—National Economic Development, Page 3-391

[23] Section 1.2 – USACE Planning Accounts, Navigation Environmental Consequences Analysis Technical Report, pages 2-3. The RED account registers changes in the distribution of regional economic activity (i.e., jobs and income). The EQ displays non-monetary effects of significant natural and cultural resources.

[24] Section 3.15.2.1 – Regional Economic Development, Page 3-391

Table 3-173 shows that for Alternative 5, years with full or partial releases do not have an impact on navigation benefits.[25] The DEIS indicates that this makes sense since the releases would be in the fall when the navigation season is almost complete.[26] This is a false assumption because it does not account for the harvest season and the increased export market on both the Missouri and Mississippi rivers during the fall. This flawed assumption results in inaccurate and understated impacts of Alternative 5 on navigation.

The conclusion illustrated in Table 3-173 also falsely assumes that navigation on the Missouri River ceases when the navigation season (flow support) officially ends. This is not the case as navigation continues on the river after the end of the navigation season as long as there is a reliable channel and weather conditions permit. In fact, several barge companies were operating on the Missouri River in February of 2017 due to favorable weather and reliable flows. Once again, this false assumption results in understated impacts of Alternative 5 on navigation as well as understated total economic benefits of Missouri River navigation.

It should also be noted that only five economic models on human considerations were presented to the ISETR for review and evaluation. The ISETR is still waiting on eight other sets of economic models on human considerations. When pressed by MRRIC members for the impacts and outcomes of the human consideration navigation model, the ISETR panel admitted that they do not have the expertise to understand how this model affects transportation costs, rail loads, infrastructure impacts, and water-compelled rates. The expert panel admitted that the navigation model was too technical for them to understand.[27] In response to a question as to whether the ISETR was comfortable with the analysis of water-compelled rates in the navigation model, the leader of the ISETR said, "We don't know what these terms mean—water-compelled rates, transportation savings—these terms are very confusing to us. We are not transportation economists."[28] The leader of the ISETR panel stated in November 2016, "We are going to have to punt on the navigation model." This answer was in response to a question of whether the ISETR was confident in the Corps navigation model regarding the impacts of the alternatives on Mississippi River navigation.[29] The ISETR stated that that the Technical Report on navigation accompanying the DEIS will be much easier to understand.[30] Despite professional concerns, the ISETR recommended that the Corps proceed with these models for use in the DEIS. *AWO strongly recommends that the review team that conducts the comprehensive Independent Peer Review of the DEIS include professionals that have a firm and comprehensive understanding of the navigation economic model.*

The DEIS analysis on OSE impacts on navigation is also incomplete and inadequate. Once again, this has resulted in the economic costs, human impacts and social consequences of these alternatives to be grossly understated. The navigation analysis for OSE in the DEIS only considers changes in air quality if commodities moving on the waterway "potentially shift to

[25] Transportation Savings; R, R, & R Costs, and NET NED for Alternative 5-page 3-409
[26] MMRMP DEIS, page 3-409.
[27] MRRIC Plenary Meeting, 11/16/2016.
[28] Ibid.
[29] Ibid.
[30] MRRIC Ad Hoc call, 12/7/2016

land because of any of the alternatives. "[31] In fact, air quality is the only OSE considered in the DEIS for any of the alternatives. The DEIS makes no mention of increased fatalities, or congestion if goods move to truck and/or rail. It also fails to account for revenue diversions from federal and state budgets to repair roads and bridges. The OSE does not account for lost time and productivity due to the increased amount of time spent in traffic due to modal shifts. By failing to include these social effects and costs, the DEIS grossly understates impacts. In fact, the evaluation is inaccurate.

It is important to note that all the economic models used to assess the impacts of the proposed alternatives on navigation and flood control have yet to be approved Corps' Headquarters. MRRIC members have been told that, while these models have yet to be approved by headquarters, getting them approved is just a "formality."[32]

Why would any respectable organization proceed with a major study examining the economic impacts of a proposed action(s) when the economic models have not been reviewed or given final approval for use? This fact is incomprehensible to most stakeholders. *Until the final models have been adequately reviewed and commented on by stakeholders and MRRIC, no alternative should be chosen.*

The hydrological impacts of the proposed alternatives on Mississippi River navigation and stage levels are also significantly understated. The methodology used for the analysis of the impacts on the hydrology in the middle Mississippi River is similar to the methodology used for analyzing the impacts for the Missouri River. Regarding the methodology used for the analysis on the Mississippi River, the DEIS states the following:

> *"Specifically, the analysis of the flow alterations under the six alternatives was largely based on the HEC-Reservoir Simulation (ResSim)and HEC-RAS Modeling for the 82-year period-of-record."*[33]

The DEIS concludes that, despite the massive spring and fall releases from the Gavins Point Dam in Alternatives 2, 4, 5, and 6, there would be no significant impacts to middle Mississippi River navigation from any of these alternatives. Likewise, the DEIS concludes that there would be no significant impact to middle Mississippi River navigation from the significantly lower summer flows contained in Alternative 2. These conclusions are hard to justify given the fact that the DEIS also states that the Missouri River contributes almost half the flow in the middle Mississippi River. [34] The DEIS also claims that the spring and fall flow releases in Alternatives 2, 4, 5, and 6 would be "partially to largely attenuated by the time they reach Hermann, Missouri."[35] However, the DEIS does not provide any detailed analysis as to why this would be the case. Does the Corps just expect the large amount of extra water released from Gavins Point to stay in the Missouri River and not flow downstream into the Mississippi River?

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[31] MRRMP DEIS. 3.15.2—Impacts Methodology—Other Social Effects, page 3-392
[32] MRRIC Plenary Meeting, 11/16/2016
[33] MRRMP DEIS POR—1931—2012) (Section 3.24.2.2—Environmental Consequences—Impact Assessment Methodology—Mississippi River Impacts, p 3-589
[34] MRRMP DEIS Section 3.24.2.1. —Affected Environment—Mississippi River Impacts, Page 3-585
[35] MRRMP DEIS Section 3.24—Hydrology—Mississippi River Impacts, pages 3-591-592

This question seems to be answered later under the Subsection *Impact from Management Actions Common to All Alternatives* where it states the following:

> *"It is anticipated that there will be no impacts to biological resources in the middle Mississippi River from the management actions common to all alternatives. The listed activities would occur on the Missouri River and would not impact the stage or flow on the middle Mississippi River."*[36]

Once again, it is hard to understand how the DEIS can draw this conclusion when it states in two different subsections of Section 3.24-Mississippi River Impacts that the Missouri River contributes almost half of the flow to the middle Mississippi River.[37] The conclusions are illogical.

Section 3.24 further states that the impacts of Alternatives 2, 4, 5 and 6 on stage and flow in the middle Mississippi River would be "small or negligible."[38] This section also concludes that the "impacts to flood risk management in the middle Mississippi River are not anticipated to be significant under Alternatives 3 through 6."[39] Finally, this section claims that the impacts to navigation in the middle Mississippi River "would not be significant" under Alternatives 2 through 6.[40]

AWO strongly disagrees with these conclusions in Section 3.24. We believe that the impacts to stage, flood control and navigation on the middle Mississippi River are significantly understated due to the flaws in the hydrological and economic models.

However, while the DEIS claims that these impacts on the middle Mississippi River will be small to negligible, the Corps' data concludes that the lower summer flows in Alternative 2 would result in a lower stage of approximately two feet in July and August.[41] This two-foot reduction in stage on the middle Mississippi in the busy summer months is not a "small to negligible" impact, especially during times of drought. This two-foot reduction would have severe impacts on shipping costs. The DEIS further concludes that the massive spring and fall releases in Alternatives 2, 4, 5, and 6 would increase the stage and flow on the middle Mississippi by one to three feet.[42] Once again, these increases are not small or negligible, especially when they occur during peak flood season.

Even the minimum low flow of 25,000 cfs for several weeks would have significant effects on navigation on the Mississippi River. These impacts would come in the form of reduced draft and tow sizes. Reduced draft or tow size out of St. Louis to the Gulf because of insufficient flows would cost to the nation, at a minimum, millions. In periods of high water on the Mississippi River, increasing the amount of water flowing in from the Missouri River and raising the stage

[36] MRRMP DEIS page 3-597
[37] MRRMP DEIS pages 3-585 and 3-630
[38] MRRMP DEIS pages 3-591-3592
[39] MRRMP DEIS page 3-608
[40] MRRMP DEIS pages 3-618-623
[41] MRRMP DEIS page 3-591
[42] MRRMP DEIS pages 3-590-2593

by two to three feet would have grave impacts to the shippers, farmers, consumers, and communities along the river.

Adaptive Management Plan

The lack of oversight for administrative decisions in the *Adaptive Management (AM) Plan* permits the Corps to take actions not presently authorized by the Record of Decision (ROD) without first satisfying additional NEPA requirements. AWO understands the Corps stated concerns that balancing the preservation of endangered species with the needs of navigation and flood control is no small task. However, the difficulty of the task does not justify the boundless flexibility the DEIS affords the AM plan for implementing alternative strategies without additional oversight. The Corps does not have organic or independent authority to proceed on flow changes without Congressional authorization and utilization of the NEPA process.

In its present state, the DEIS allows the Corps unchecked authority by permitting a broad application of adaptive management that goes beyond the authority established by other previous AM Plans. Though the DEIS states there is a governance structure for the AM Plan, it simultaneously permits actions that are "not part of the preferred alternative,"[43] if those options are "warranted and feasible."[44] Yet, the DEIS fails to clarify what constitutes warranted and feasible, beyond that which yet-unknown science deems necessary. As a result, the DEIS and the AM Plan open the door to actions that go beyond the established ROD without automatically triggering a full NEPA process to produce a supplemental EIS, as required by law.

The DEIS admits "a supplemental NEPA process may be necessary prior to the end of the 15-year period."[45] Yet, it then fails to clarify the kind of action which would trigger this requirement, such as going beyond the dictates of the Master Manual. Instead, the DEIS permits the Corps to take actions that have not been fully vetted or even proposed, without a supplemental EIS and input from stakeholders. Though scientific monitoring requires a flexible approach, AWO is concerned the present plan goes well beyond reasonable flexibility and that it fails to adhere to legislative requirements clearly established under NEPA and reaffirmed by the courts. Under the guise of scientific necessity, the DEIS proposes that the Corps have unfettered ability to go beyond limitations of the ROD or Master Manual without the accountability of a supplemental EIS.

Upon closer examination of the case law, it is clear the courts have a history of reiterating the need to initiate the NEPA process for substantial changes. In *Operation of the Mo River Sys. Litig., Mo. v. U.S. Army Corps of Eng'rs*, the Eighth Circuit clarified substantial changes are those that are not qualitatively within the spectrum of alternatives that were discussed in a prior EIS.[46] The DEIS is presently a perfect example of permitting substantial changes without fully satisfying NEPA requirements. A mere mention of an alternative is clearly insufficient to satisfy the requirements of NEPA as reaffirmed in the courts.

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[43] MRRMP DEIS Section 4.2—Overview and Context of Missouri River Recovery Program Science and Adaptive Management Plan
[44] MRRMP DEIS Section 4.3—Description of Preferred Alternative
[45] MRRMP DEIS Section 4.3—Description of Preferred Alternative
[46] *See In re Operation of the Mo. River Sys. Litig., Mo. v. U.S. Army Corps of Eng'rs*, 516 F.3d 688 (8th Cir. 2008)

Additionally, the courts have a history of reminding the Corps of its legislative obligation to treat flood control and navigation as the primary purposes of the system.[47] While the courts understand and sympathize with the complexity of balancing multiple and varied interests, it has been made clear that the Corps cannot sacrifice flood control and navigation for endangered species. Thus, drastically altering an established course of action from a published EIS, has been soundly rebuked by the courts.

Conclusion

Under the Flood Control Act of 1944, Congress authorized the Corps to govern the U.S. waterways. Additionally, this act required the Corps to prioritize flood control and navigation as dominant functions of its authority.[48] Though the responsibilities of the Corps have increased over time with additional directives from Congress, namely those to assist in protecting endangered species, the new obligations have not diminished the original priorities. While the courts have noted the difficulty in balancing these varied interests, case law is clear that endangered species do not get to take precedence to the detriment of flood control and navigation.[49] Thus, while it is a painstaking task, it is nonetheless imperative the Corps find a fair balance for these complex issues. AWO understands the difficult nature of this endeavor and is confident the recovery of the pallid sturgeon, least tern and piping plover can be achieved without negatively impacting the efficient movement of commerce on the Missouri and Mississippi rivers.

In closing, AWO supports mechanical emergent sandbar habitat construction common to all alternatives including Alternative 3, the preferred alternative. We believe the preferred alternative strikes the best balance, but are concerned that the one-time flow test would negatively impact commercial navigation. AWO opposes alternatives 2,4,5, and 6 and any alternative or action that would modify the flows of the river and require a change to the Missouri River Master Manual.

Thank you again for allowing AWO the opportunity to comment on the MRRMP DEIS. The Corps' commitment to address these concerns is greatly appreciated. AWO looks forward to working together with the Corps to support a Missouri River system that balances the needs of both humans and our ecosystem while providing reliable navigation flows.

Sincerely,

Thomas M. Horgan
Manager – Midcontinent Office

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[47] *See In re Operation of the Mo. River Sys. Litig., Mo. v. U.S. Army Corps of Eng'rs*, 421 F.3d 618 (8th Cir. 2005). *See also South Dakota v. Ubbelohde*, 330 F.3d 1014 (8th Cir. 2003).
[48] 421 F.3d 618 (8th Cir. 2005), see footnote 9.
[49] *In re Operation of the Mo. River Sys. Litig., Mo. v. U.S. Army Corps of Eng'rs*, 421 F.3d 618 (8th Cir. 2005), see footnote 7. *See also South Dakota v. Ubbelohde*, 330 F.3d 1014 (8th Cir. 2003).