Comments On The

Draft Supplement II (SEIS II) to the Final Environmental Impact Statement, Mississippi River and Tributaries (MR&T) Project, Mississippi River Mainline Levees and Channel Improvement of 1976 (1976 EIS), as updated and supplemented by Supplement No. 1, Mississippi River and Tributaries Project, Mississippi River Mainline Levee Enlargement and Seepage Control of 1998 (1998 SEIS)

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The National Wildlife Federation appreciates the opportunity to comment on the Draft Supplement II (SEIS II) to the Final Environmental Impact Statement, Mississippi River and Tributaries (MR&T) Project, Mississippi River Mainline Levees and Channel Improvement of 1976 (1976 EIS), as updated and supplemented by Supplement No. 1, Mississippi River and Tributaries Project, Mississippi River Mainline Levee Enlargement and Seepage Control of 1998 (1998 SEIS)

The SEIS II provides a critical opportunity for developing meaningful, comprehensive long-term flood damage reduction solutions that can both protect Mississippi River communities and restore vital wildlife habitat. However, instead of examining such opportunities, the Draft SEIS II rubber stamps an approach to the Mississippi River Mainline Levee project that fails to comply with basic legal requirements and rolls back protections that have been in place since 1998. The National Wildlife Federation urges the U.S. Army Corps of Engineers (Corps) to go back to the drawing board and develop a comprehensive approach to reducing flood damages along the Mississippi River through an SEIS II that complies with the nation's vitally important environmental laws.

The National Wildlife Federation is the nation's largest conservation education and advocacy organization with six million members and supporters and affiliate conservation organizations in 52 states and territories. The Federation has a long history of working to protect and restore the Mississippi River and its floodplain and delta wetlands, and the rich array of fish and wildlife that depend on those vital resources.

General Comments

The National Wildlife Federation recognizes the importance of the Mississippi River Mainline Levee system and the need to address deficiencies in that system. However, providing meaningful, long-term flood damage reduction requires modern solutions that address the underlying causes of flood risks.

To develop these solutions—and comply with the National Environmental Policy Act—the SEIS II should carefully analyze the underlying causes of increased flood risks, including the role of the full suite of Corps activities that have fundamentally changed the form and function of the Mississippi River and its floodplain and coastal wetlands; the extensive body of science and data developed since the 1998 SEIS I; and the significant implications of our rapidly changing climate. The Corps should then consider a full array of solutions to address those underlying causes, including a combination of natural and nature-based flood damage reduction measures, levee setbacks, ecosystem restoration actions, and improved navigation management actions—virtually of all which can be carried out under existing Congressional authorities. Regrettably, the Draft SEIS II does none of these things.

Instead of a supplemental environmental impact statement that carefully assesses underlying causes and meaningful flood damage reduction solutions, the Corps has produced a Draft SEIS II that does not comply with the National Environmental Policy Act, does not comply with the Clean Water Act, does not comply with the mitigation requirements for civil works projects, does not comply with the Independent External Peer Review requirements, and does not comply with the longstanding National Water Resources Planning Policy. That policy requires that all water resources projects protect and restore the environment, including by protecting and restoring the functions of natural systems. 42 USC 1962–3.

Detailed Comments

A. The Corps Should Go Back To The Drawing Board And Develop And Adopt A Fundamentally New Approach To Sustainably Reducing Flood Risks Along The Mississippi River

As highlighted above, providing meaningful, long-term flood damage reduction requires use of modern solutions that address the underlying causes of flood risks. To develop these solutions—and comply with the National Environmental Policy Act—the SEIS II should carefully analyze the underlying causes of increased flood risks, including the role of the full suite of Corps activities that have fundamentally changed the form and function of the Mississippi River, its floodplain, and its coastal wetlands; the extensive body of science and data developed since completion of the 1998 SEIS I; and the significant implications of our rapidly changing climate.

The Corps should then carefully consider a full array of solutions to address those underlying causes, including a combination of at least the following measures (in addition to addressing critical levee deficiencies)—virtually of all which can be carried out under existing Congressional authorities:

(1) Obtaining all levee and berm construction material from non-wetland locations. Wetlands are a vital national resource that provide multiple benefits to people and wildlife, including reducing flood damages. Wetlands should not be destroyed for use as construction material, and obtaining construction material from non-wetland sources should be mandatory for this project.

(2) Realigning segments of the levee system farther away from the river and using other natural infrastructure approaches wherever possible. Levee setbacks give a river more room to spread out during flood events. Such setbacks have been used along the Mississippi River to reconnect at least 50,000 acres of land to the River.[1] The Corps should assess these and other natural infrastructure approaches, including restoring floodplain and coastal wetlands to protect vulnerable communities, and expanding and restoring wetland buffers on the riverside of the levees to improve the integrity and effectiveness of the levee system.

(3) Modifying management of the Mississippi River & Tributaries floodways to reduce flood risks. The MR&T floodways are designed to be used during large flood events to reduce flood risks and flood damages. The SEIS II should examine whether the MR&T floodways can be operated more regularly to reduce flood risks and restore fish and wildlife habitat, and should examine whether an alternative approach to the current 70/30 split of flow between the Mississippi and Atchafalaya Rivers could assist in reducing flood risks associated with increased sedimentation below the Old River Control Structure.

[1] "Numerous levee setbacks have been required through the years because of the evermoving Mississippi River. Since 1915, levee setbacks have continually increased acreages to lands between the Mississippi River mainline levees. To date, the approximate cumulative total is 50,000 acres of land added between the levees. A 1996 study of levees in the Vicksburg District indicated that 17 major levee setbacks since 1915 have resulted in 43,000 acres being added to the riverside flood plain." Mississippi River Mainline Levees Enlargement and Seepage Control Supplement No. 1 to the Final Environmental Impact Statement Mississippi River and Tributaries Project Mississippi River Levees And Channel Improvement, Final July 1998, Project Report at 10 (available at https://www.mvk.usace.army.mil/Portals/58/docs/PP/MRL_SEIS/1998_MRL_SEIS_Volume1.pdf).

(4) Utilizing sediment diversions to reduce flood risks and advance coastal wetland restoration. Sediment and freshwater diversions can reduce flood risks and are an important tool for restoring coastal wetlands. The SEIS II should examine whether new sediment and freshwater diversions could be implemented in the future, and whether existing and planned structures could be better utilized to reduce flood risks and advance coastal wetland restoration. The SEIS II should also examine options for transporting sediment from the stretch below the Old River Control Structure to use in rebuilding coastal wetlands.

(5) Modifying and/or removing targeted river training structures to reduce flood risks. River training structures (wing dikes, bendway weirs, and chevrons constructed to reduce navigation dredging costs) have significantly increased flood heights in broad stretches of the Mississippi River while also destroying important fish and wildlife habitat. The SEIS II should evaluate options for removing and modifying some of these structures to reduce flood risks, which the Corps has acknowledged could be done at some locations without impacting navigation.

Given the significance of the SEIS II to public safety and the environment, the Corps should engage the National Academy of Sciences to carry out the independent external peer review required by 33 U.S.C. § 2343. This peer review should include an evaluation of the long-term effectiveness of the alternative recommended by the Corps; whether the selected alternative will protect and restore the functions of the Mississippi River and its floodplain and coastal wetlands; and whether the proffered skeleton mitigation plan will be ecologically successful.

B. The Recommended Alternative Is Prohibited By The Clean Water Act

The recommended alternative in the Draft SEIS II is prohibited under Section 404 of the Clean Water Act because the Corps: (1) has not clearly demonstrated that there is no "practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem"; and (2) has not taken "appropriate and practicable" steps to minimize potential adverse impacts on the aquatic ecosystem.[2] 40 C.F.R. §§ 230.10(a) and (d). This is due in part to the lack of information provided in the Draft SEIS II, and this lack of information also precludes an assessment of whether the recommended alternative would violate the other prohibitions established by the 404(b)(1) Guidelines.[3]

The Clean Water Act 404(b)(1) Guidelines prohibit the Corps from discharging dredged or fill material into any regulated "waters of the United States," including wetlands, unless the Corps has clearly demonstrated that there is no "practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem."[4] Under the Guidelines:

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[2] The Clean Water Act 404(b)(1) Guidelines, which establish these requirements and prohibitions, unquestionably apply to this project. 33 CFR § 336.1(a)("Section 404 of the CWA governs the discharge of dredged or fill material into waters of the U.S. Although the Corps does not process and issue permits for its own activities, the Corps authorizes its own discharges of dredged or fill material by applying all applicable substantive legal requirements, including public notice, opportunity for public hearing, and application of the section 404(b)(1) guidelines.")

[3] The 404(b)(1) Guidelines also prohibit discharges of dredge or fill material that: (1) "will cause or contribute to significant degradation of the waters of the United States"; (2) violate applicable toxic effluent standards or prohibition under Clean Water Act § 307 and cause or contribute to violations of state water quality standards; or (3) result in a likelihood of the destruction or adverse modification of formally designated critical habitat. 40 C.F.R. § 230.10(b) and (c).

[4] 40 C.F.R. § 230.10(a).

> "An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered.[5]

Practicable alternatives include "activities which do not involve a discharge of dredged or fill material," as well as "discharges of dredged or fill material at other locations" where such discharges would result in fewer impacts to the aquatic environment.[6] An alternative that is not the least costly alternative may very well be the least environmentally damaging alternative (the "LEDPA").[7]

The 404(b)(1) Guidelines create a strong presumption that less environmentally damaging alternatives exist for non-water-dependent activities that involve a discharge into wetlands and other "special aquatic sites":[8]

> "Where the activity associated with a discharge which is proposed for a special aquatic site (as defined in subpart E) does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not ''water dependent''), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise."[9]

The Clean Water Act 404(b)(1) Guidelines also require that the Corps take "appropriate and practicable" steps to minimize potential adverse impacts on the aquatic ecosystem and establish a sequence of steps that the Corps must take to achieve this goal.[10] The Corps must first demonstrate that it has done everything possible to avoid adverse impacts in the first instance. The Corps must then demonstrate that it has taken specific steps to minimize adverse impacts that could not be avoided. Finally, the Corps must demonstrate that it has developed—and will carry out—compensatory mitigation to replace the functions and values of aquatic habitat impacts that cannot be avoided or minimized.[11]

The Corps has not demonstrated that the recommended alternative is the LEDPA alternative, including by failing to demonstrate by "detailed, clear, and convincing information" that it is not practicable to

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[5] 40 C.F.R. § 230.10(a)(2).
[6] 40 C.F.R. § 230.10(a)(1).
[7] Louisiana Wildlife Federation, Inc. v. York. 761 F.2d 1044, 1048 (5th Cir. 1985) (noting that the Corps had properly chosen "alternatives that reduced both the applicants' profit and the economic efficiency of their proposed operations in order to preserve other environmental values.").
[8] Special aquatic sites include wetlands, mud flats, and riffle and pool complexes that are deemed to be so ecologically valuable that their degradation or destruction may represent an irreversible loss of valuable aquatic resources. 40 C.F.R. § 230.1(d).
[9] 40 C.F.R. § 230.10(a)(3).
[10] 40 C.F.R. § 230.10(d).
[11] These sequencing requirements were reconfirmed in the 1990 Mitigation Memorandum of Agreement between EPA and the Corps: "The Corps . . . first makes a determination that potential impact[s] have been avoided to the maximum extent practicable; remaining unavoidable impacts will then be mitigated to the extent appropriate and practicable by requiring steps to minimize impacts; and, finally, compensate for aquatic resource values." 1990 Memorandum of Agreement between EPA and the Corps, The Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines, at II.C.

obtain construction material from non-wetland areas.[12] The National Wildlife Federation stresses that borrow pits are not water dependent because access or proximity to a special aquatic site is not needed to fulfill that activity's basic purpose—which is to obtain construction material. As such, the Corps must overcome the strong presumption that practicable alternatives exist for locating borrow pits in non-wetland areas. The Corps also has not demonstrated that it has taken "appropriate and practicable" steps to minimize potential adverse impacts on the aquatic ecosystem.

These failures derive from the many problems with the Draft SEIS II and the preliminary 404(b)(1) evaluation that are discussed throughout these comments. For example:

(1) The Draft SEIS II clearly lacks "sufficient information"[13] to make a reasonable judgment that the recommended alternative is in fact the LEDPA because the Draft SEIS II fails to evaluate a full range of reasonable alternatives and fails to identify the full extent of adverse impacts. Moreover, neither the Draft SEIS II nor the preliminary 404(b)(1) evaluation demonstrate that:

   a. Less damaging alternative locations for obtaining construction material are not available or are impracticable;
   b. Less damaging alternative locations for obtaining construction material are prohibitively expensive;
   c. Less damaging practicable borrow pit configurations are not available;
   d. Less damaging levee configurations are not available;
   e. Less damaging alternatives, including some or all of the components highlighted in Section A of these comments are not available; or
   f. Additional practicable steps cannot be taken to further minimize adverse impacts.

(2) The Draft SEIS II provides little to no information on the steps taken to avoid adverse impacts in the first instance, as clearly required by the Clean Water Act. Indeed, the Corps appears to have done little more than propose a set of non-mandatory criteria for ranking possible locations for obtaining construction material—criteria that in fact prioritize destruction of ecologically significant wetlands in direct violation of the Clean Water Act404(b)(1) Guidelines.

   The Draft SEIS II borrow pit criteria prioritize locating borrow pits in ecologically valuable riverside wetlands over less ecologically valuable, non-wetland locations: **4 of the top 5** priority borrow pit location criteria target riverside wetlands (as discussed below, prior-converted croplands can retain vital wetland functions); and **5 of the total 8** priority locations target riverside wetlands. These non-mandatory ranking criteria are also less protective of wetlands than the ranking criteria adopted by the Corps in the 1998 SEIS I. *See* Table 1.

[12] Greater Yellowstone Coalition v. Flowers, 359 F.3d 1257, 1269 (10th Cir. 2004) (internal quotations and citation omitted); Utahns for Better Transp. v. DOT, 305 F. 3d 1152, 1186-87 (10th Cir. 2002). See also Sierra Club v. Flowers, 423 F. Supp. 2d 1273, 1352 (S.D. Fla. 2006), vacated on other grounds, Antwerp, 526 F.3d 1353, 1363-64, n.8, 1365-69 (dissenting) (would affirm CWA violation for failure to apply the presumption and independently verify alternatives analysis).

[13] 40 C.F.R. § 230.6(c).

Indeed, the Draft SEIS II criteria establish the "most preferable" location for borrow pits in ecologically valuable riverside lands described as "Riverside prior-converted cropland" despite the clear acknowledgement in the Draft SEIS II that riverside lands are riverside lands are far more likely to be of high ecological value due to their connection to the river. Draft SEIS II at 19, 102. As recognized in the Draft SEIS II: "Areas subject to Mississippi River flooding or those that receive a seasonal flood pulse are inherently more valuable than those that are not (Junk et al. 1989)" while "the ecological resources landside of the MRL are in sub-optimal condition due to the general loss of BLH habitat and connection with the Mississippi River, with the exception of a few isolated, relatively small patches of BLH." Draft SEIS II at 142. The Draft SEIS II also recognizes the higher ecological value of riverside lands by prioritizing those lands for mitigation.[14] Draft SEIS II at 143.

Prior converted cropland can retain vitally important wetland characteristics, as acknowledged in the Corps' Regulatory Guidance Letter 90-07:

> "Prior converted cropland" is defined by the SCS (Section 512.15 of the National Food Security Act Manual, August 1988) as wetlands which were both manipulated (drained or otherwise physically altered to remove excess water from the land) and cropped before 23 December 1985, to the extent that they no longer exhibit important wetland values. Specifically, prior converted cropland is inundated for no more than 14 consecutive days during the growing season. Prior converted cropland generally does not include pothole or playa wetlands. In addition, wetlands that are seasonally flooded or ponded for 15 or more consecutive days during the growing season are not considered prior converted cropland.[15]

Making riverside prior-converted cropland the top priority for the location of borrow pits is also a significant rollback to the borrow pit ranking priority adopted by the Corps in the 1998 SEIS I, which recommended riverside prior-converted cropland only if "landside cropland from willing sellers" and "landside cropland when riverside locations were unavailable" could not be utilized. The remainder of the 1998 SEIS I borrow pit location ranking criteria are also more protective of wetland resources than the criteria provided in the Draft SEIS II. *See* Table 1, below.

[14] "Therefore, compensatory mitigation would focus on areas that remain connected to the Mississippi River (*e.g.*, batture land or hydrologically connected areas) and on areas in watershed basins that continue to experience seasonal flood pulses (*e.g.*, frequently flooded and impounded/backwater areas)." Draft SEIS II at 142. "Mitigation Zone 1: Riverside frequently flooded Mississippi River connected lands (*e.g.*, batture lands)". Draft SEIS II at 143.
[15] U.S. Army Corps of Engineers Regulatory Guidance Letter 90-07 (available at https://www.nap.usace.army.mil/Portals/39/docs/regulatory/rgls/rgl90-07.pdf).

Table 1. Borrow Pit Location Prioritization Criteria 2020 Draft SEIS II and 1998 SEIS I

Priority Rank	2020 Draft SEIS II Borrow Pit Prioritization[16]	1998 Final SEIS I Borrow Pit Prioritization[17]
1	**Riverside prior-converted cropland**	Landside cropland from willing sellers
2	Landside cropland from willing sellers	Landside cropland when riverside locations were unavailable
3	**Riverside farmed wetlands (cropland)**	Riverside prior-converted cropland
4	**Riverside farmed wetlands (pasture)**	Riverside tree plantations
5	**Riverside herbaceous wetlands** not in federal conservation programs	Riverside farmed wetlands (cropland)
6	Riverside forested non-wetlands not in federal conservation programs	Riverside farmed wetlands (pasture)
7	**Riverside forested wetland** not in federal conservation programs	Riverside herbaceous wetlands
8	Landside/Riverside cropland condemnation	Riverside forested nonwetland
9		Riverside forested wetland.
10		Landside and riverside bottom-land hardwoods with black bear presence.
11		Landside cropland condemnation

(3) The Draft SEIS II fails to provide information on the acreage extent of wetland impacts, making it extremely difficult for the public to understand the true scope of the impacts to these critical aquatic resources. The acreage information that is provided is buried in the Draft SEIS II, with for example, the first reference to the total number of forested wetland acres impacted by the project not mentioned until page 150 of the Main Report.[18]

[16] The Draft SEIS II criteria that prioritize locating borrow pits in wetland areas are highlighted in bold.
[17] Mississippi River Mainline Levees Enlargement and Seepage Control Supplement No. 1 to the Final Environmental Impact Statement Mississippi River and Tributaries Project Mississippi River Levees And Channel Improvement, Final July 1998, Volume II, Appendix 5, Attachment B at 3 (available at https://www.mvk.usace.army.mil/Portals/58/docs/PP/MRL_SEIS/1998_MRL_SEIS_Volume2.pdf).
[18] While the Draft SEIS II does provide acreage impacts to BLH and forested lands earlier in the document, those land use classifications include both wetland and non-wetland habitats. E.g., Allen, J.A., Keeland, B.D., Stanturf, J.A., Clewell, A.F., and Kennedy, H.E., Jr., 2001 (revised 2004), A guide to bottomland hardwood restoration: U.S. Geological Survey, Biological Resources Division Information and Technology Report USGS/BRD/ITR–2000-0011, U.S. Department of Agriculture, Forest Service, Southern Research Station, General Technical Report SRS–40, 132 p. at 2 (available at https://www.srs.fs.usda.gov/pubs/gtr/gtr_srs040.pdf) ("Under the wetlands classification system used by the U.S. Fish and Wildlife Service (Cowardin and others, 1979), bottomland hardwoods are in the palustrine system, forested wetland class, and primarily either in the broad-leaved deciduous or needle-leaved deciduous subclasses. It is recognized, however, that not all bottomland hardwoods may be classified as

(4) The lack of wetland acreage information makes it impossible to verify whether or not the functional assessments in the Draft SEIS II account for all wetland impacts from the project. This is highly problematic, including because the Draft SEIS II functional assessments require acreage inputs in the calculation process. For example, many of the acres deemed unsuitable for inclusion in the DUD analysis likely provide significant habitat and other values but it is not possible to determine whether those impacts were in fact accounted for in the functional assessments. According to the Draft SEIS II, more than 90% of the proposed Work Item footprints (6,762 of 7,283 acres of Alternative 3 construction footprints) were deemed to be unsuitable habitat for foraging waterfowl because "they lacked flooded conditions or were flooded for more than 18 inches in depth." Draft SEIS at 28.

(5) The limited acreage information that is provided is presented in a confusing manner and the partial acreage impact numbers provided in one section of the Draft SEIS II often cannot be reconciled with numbers provided in a different section. For example, the Draft SEIS II states that the "preferred alternative would impact 655 acres of riverside forested wetlands and 351 acres of landside forested wetlands, primarily through borrow source acquisition and levee improvement features," for a total of 1,006 acres of forested wetland impacts (no information is provided in this section regarding non-forested wetland acre impacts, so total wetland acre impacts could be higher). Draft SEIS II at 150. However, the preliminary 404(b)(1) evaluation, which according to the Corps does not include borrow pit impacts, identifies 871.9 acres of wetland impacts (and 4.1 acres of open waters). Draft SEIS II, Appendix 3 at 3. A comparison of these numbers would suggest that borrow pits would impact 134 acres of wetlands. However, this number cannot be reconciled with the fact that the project will include at least 292 acres of borrow pits in riverside wetlands that provide "suitable" duck habitat; and that the entire project is projected to require 1,402 acres of borrow pits, the vast majority of which will be located on the riverside of the levee where wetlands are prevalent.[19] Draft SEIS at 102 and 83 at Table 4-5.

(6) The recommended alternative includes 110 more acres of riverside borrow pits than the traditional construction alternative, even though riverside lands are far more likely to be of high ecological value due to their connection to the river.[20] Draft SEIS II at 102. The higher ecological value of riverside lands is clearly acknowledged in the Draft SEIS II: "Areas subject to Mississippi River flooding or those that receive a seasonal flood pulse are inherently more valuable than those that are not (Junk et al. 1989)" while "the

jurisdictional wetlands under the jurisdiction of section 404 of the Clean Water Act (U.S. Army Corps of Engineers, 1987), as there are several methodologies for identifying wetlands.")

[19] Draft SEIS II at 102 ("Construction of levee enlargements, haul roads, seepage berms, and slope flattening requires borrow material. Excavation of borrow material creates depressions that typically fill with water for part or all of the year. Total acres created are almost identical between the two alternatives: 1,403.3 for Alternative 2 and 1,402 acres for Alternative 3 (Table 4-21). However, Alternative 2 has 525.6 acres landside compared to 414.3 landside for Alternative 3. Conversely, Alternative 3 has 987.7 acres riverside compared to 877.7 riverside for Alternative 2. In addition to new open water habitats being created from borrow areas, other types of work (e.g., construction of haul roads, levee enlargements, installation of relief wells etc.) would result in either fill or deepening of minor (<4 acres) amounts of existing open water habitats (Table 4-21).")

[20] Id.

ecological resources landside of the MRL are in sub-optimal condition due to the general loss of BLH habitat and connection with the Mississippi River, with the exception of a few isolated, relatively small patches of BLH." Draft SEIS II at 142. The Draft SEIS II also recognizes the higher ecological value of riverside lands by prioritizing those lands for mitigation.[21] Draft SEIS II at 143.

(7) The recommended alternative fails to demonstrate that there are no alternatives to the extensive use of ecologically significant wetlands for borrow pits in the portion of the state of Louisiana located in the Vicksburg District. This area, Concordia Parish Louisiana, is the location of the overwhelming majority of duck habitat lost to borrow pits for the entire project, despite the fact that just 12 of the 143 Work Items are located in Concordia Parish. Draft SEIS II, Appendix 4 at 36. The borrow pits in Concordia Parish Louisiana account for 94.7% of the acres of suitable duck habitat and 81.8% of the total DUD values that will be lost to borrow pits for the entire project.[22] Draft SEIS II at 84. The Draft SEIS II fails to explain why it is not practicable to impact fewer acres of wetland habitat critical to waterfowl for these 12 work items.

(8) The Draft SEIS II appears to have ignored potential locations for borrow pits that were more than ½ mile distance from either side of the existing levee. Non-wetland and/or non-forested areas may well be available for use as borrow pits in landside areas outside the ½ mile buffer zone evaluated in the Draft SEIS II, but no effort was made to locate any such sites.

(9) The Draft SEIS II provides virtually no information on actions that will be taken to minimize impacts that cannot be avoided (other than a general discussion of basic best management practices for construction and acknowledging that the Corps could work with landowners to attempt to improve the ecological value of individual borrow pits).

(10) The Draft SEIS II also does not—and cannot—properly assess the extent to which adverse impacts can be avoided through mitigation because it does not meaningfully evaluate the full range and extent of direct, indirect, and cumulative adverse environmental impacts that will result from the project.[23] Moreover, while the National Wildlife Federation appreciates the work that has gone into developing a mitigation framework for the project, this framework does not satisfy the mitigation requirements established by the Clean Water Act or the mitigation requirements applicable to civil works projects, as discussed in detail in Section D of these comments.

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[21] "Therefore, compensatory mitigation would focus on areas that remain connected to the Mississippi River (*e.g.*, batture land or hydrologically connected areas) and on areas in watershed basins that continue to experience seasonal flood pulses (*e.g.*, frequently flooded and impounded/backwater areas)." Draft SEIS II at 142. "Mitigation Zone 1: Riverside frequently flooded Mississippi River connected lands (*e.g.*, batture lands)". Draft SEIS II at 143.

[22] Project-required borrow pits in Concordia Parish account for: 371.7 acres of lost duck habitat out of a total of 392.4 acres of duck habitat lost to borrow pits for the entire project; and 542,614 lost DUD out of a total of 662,951 DUD lost to borrow pits for the entire project. Draft SEIS II at 84.

[23] A legally adequate NEPA mitigation analysis is essential for ensuring that the Corps can meet Clean Water Act 404 requirements because, as the Corps and EPA have made clear, it is essential to understand the full extent of the impacts to be able to develop compensatory mitigation that is capable of compensating for aquatic resource functions lost to a project. See, e.g., 33 CFR § 332.3(a)(1) and 40 CFR § 230.93(a)(1).

Importantly, the preliminary 404(b)(1) evaluation also clearly fails to comply with the Clean Water Act. Among other problems, that evaluation completely fails to consider the impacts resulting from the digging up of vital wetlands so that the wetland soil can be used for construction material. As noted above, the project will destroy extensive areas of wetlands in this manner. Obtaining construction material from wetlands unquestionably triggers the requirements of Clean Water Act Section 404, as it requires extensive actions, including the use of heavy equipment, that will result in the discharge of dredged material within the wetlands being dug up. The Corps' limitation of the 404(b)(1) evaluation to the discharge of dredged material "at levee enlargement, slope flattening, and berm construction sites" demonstrates a fundamental misunderstanding of the Clean Water Act and the 404(b)(1) Guidelines. Draft SEIS II, Appendix 3 at 3.

The Draft SEIS II also appears to suggest that the 14-page 404(b)(1) evaluation can somehow satisfy the Clean Water Act Section 404 review requirements for each of the 143 work items that will be carried out across portions of seven states over at least the next 50 years.[24] Such an approach, however, would violate the Clean Water Act because absent a Section 404 (and a Section 401) review for each work item, the Corps cannot demonstrate that the site-specific action is the LEDPA alternative, that the site-specific action has properly employed required avoid-and-minimize techniques, or that the site-specific action meets the other requirements established by the 404(b)(1) Guidelines.

C. The Draft SEIS II Does Not Comply With NEPA

The National Wildlife Federation notes that all references to the Council on Environmental Quality (CEQ) NEPA regulations in these comments refer to the CEQ NEPA regulations issued in 1978—as these are the regulations that properly apply to this NEPA process. While the Council on Environmental Quality recently issued new NEPA regulations, those new regulations are facially invalid and under legal challenge (including by the National Wildlife Federation) in multiple courts.[25]

The 1978 CEQ regulations, which were issued with the benefit of extensive public outreach and significant public input, carefully follow the clear and unambiguous language of NEPA, explicitly stated Congressional intent, and case law that was well-established at the time they were written.[26] The Corps' agency-specific NEPA regulations also refer directly to, and incorporate the 1978 CEQ NEPA regulations.

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[24] The Draft SEIS II also appears to suggest that only a single programmatic Section 401 review will be carried out for each state, which would not meet the requirements of the Clean Water Act. See Draft SEIS II at 168 (emphasis added)("As previously discussed, Section 401 State water quality certifications **would be pursued programmatically** with each Work Item, as scheduled according to annual Congressional appropriation funding, during the detailed design and construction of each Work Item, to account for the exact timing and relevant site-specific information.") The SEIS II should clarify that Clean Water Act Section 401 State Water Quality Certification reviews will be carried out for <u>each</u> work item.

[25] Legal challenges to the new CEQ NEPA regulations include: Alaska Community Action on Toxics v. CEQ, 3:20-cv-05199 (N.D. Cal.); State of California v. CEQ, 3:20-cv-06057 (N.D. Cal.); Envtl. Justice Health All. v. CEQ, 1:20-cv-06143 (S.D.N.Y); Wild Virginia v. CEQ, No. 3:20-cv-00045 (W.D. Va.); and Citizens for Community Improvement v. CEQ, 1:20-cv-02715-TJK (D.D.C.).

[26] 43 Fed. Reg. 55990 (November 22, 1978); *see e.g.*, 38 Fed. Reg. 10856, 10865 (CEQ "adds additional language to former section 4 to emphasize that NEPA expands the traditional mandates of agencies covered by the Act" to comport with both "legislative history of the Act, see, e.g., Hearings on S. 1075, S. 237, and S. 1752 Before Senate Committee on Interior and Insular Affairs, 91st Cong., 1st Sess. 206 (1969); 115 Cong. Rec. (part 30) 40416 (1969) (remarks of Senator Jackson), *and by early and consistent judicial opinion*. See, e.g., Calvert Cliffs v. Atomic Energy Commission, 2 ERC 1779, 1780–81 (D.C. Cir. 1971); Zabel v. Tabb, 1 ERC 1449, 1457-59 (5th Cir. 1970)); *see also*, Jamison E. Colburn, *Administering the National Environmental Policy Act*, 45 ENVTL. L. REP. NEWS & ANALYSIS 10287,

We also note that the SEIS II NEPA process should follow the 1978 CEQ NEPA regulations because the scoping process was initiated years before either the issuance or the effective date of the new CEQ NEPA Regulations; the Draft SEIS II was well underway before the issuance or effective date of the new CEQ NEPA Regulations; and the Draft SEIS II was released for public comment before the effective date of the new CEQ NEPA Regulations.[27] Under these circumstances, it would be both unfair to the public and inappropriate to claim reliance on the new CEQ regulations even if those regulations were not facially invalid (as noted above, these new CEQ regulations are not facially valid).

NEPA requires that each EIS "[r]igorously explore and objectively evaluate all reasonable alternatives."[28] This requires a "**thorough consideration of all appropriate methods of accomplishing the aim of the action**" and an "**intense consideration of other more ecologically sound courses of action**."[29] Importantly, "the discussion of alternatives must be undertaken in good faith; it is not to be employed to justify a decision already reached."[30] The analysis of alternatives is the "heart of the environmental impact statement."[31]

While an EIS need not explore every conceivable alternative, it must rigorously explore all reasonable alternatives that are consistent with its basic policy objective and that are not remote or speculative. A viable but unexamined alternative renders an EIS inadequate.[32] An alternative may not be disregarded merely because it does not offer a complete solution to the problem.[33] An alternative also may not be disregarded because it would require additional Congressional authorization. To the contrary, the alternatives analysis must "[i]nclude reasonable alternatives not within the jurisdiction of the lead agency."[34]

10308 (2015); Council on Environmental Quality: Statements on Proposed Federal Actions Affecting the Environment; Interim Guidelines, April 30, 1970, Sections 5(b) and 7(a) (filed with Fed. Reg. May 11, 1970), available in *Environmental Quality*, The First Annual Report of the Council on Environmental Quality, Transmitted to Congress, August, 1970, p. 288 (available at https://www.slideshare.net/whitehouse/august-1970-environmental-quality-the-first-annual-report-of); Council on Environmental Quality, Guidelines, Preparation of Environmental Impact Statements, 38 Fed. Reg. 20550, 20551 (August 1, 1973).

[27] As the Corps is aware, the scoping process for the Draft SEIS II was initiated on July 13, 2018 and a Notice of Availability for the Draft SEIS II was published in the Federal Register on August 28, 2020. The new CEQ NEPA regulations were not issued until July 16, 2020, with an effective date of September 14. 85 Fed. Reg. 43304 (July 16, 2020).

[28] 40 C.F.R. § 1502.14.

[29] Environmental Defense Fund, Inc. v. Corps of Engineers of U.S. Army, 492 F.2d 1123, 1135 (5th Cir. 1974) (emphasis added).

[30] Citizens Against Toxic Sprays, Inc. v. Bergland, 428 F.Supp. 908, 933 (D.Or. 1977).

[31] 40 C.F.R § 1502.14.

[32] E.g. Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 810, 814 (9th Cir. 1999).

[33] Natural Resources Defense Council, Inc. v. Morton, 458 F.2d 827, 836 (D.C. Cir. 1972).

[34] 40 C.F.R. § 1502.14(c); Natural Resources Defense Council v. Morton, 458 F.2d 827, 834-36 (D.C. Cir. 1972) (alternative sources of energy had to be discussed, despite federal legislation indicating an urgent need for offshore leasing and mandating import quotas; Department of Interior had to consider reasonable alternatives to offshore oil lease which would reduce or eliminate the need for offshore exploration, such as increased nuclear energy development and changing natural gas pricing, even though that would require Congressional action); Environmental Defense Fund v. Froehlke, 473 F.2d 346 (8th Cir. 1974) (acquisition of land to mitigate loss of land from river channel project must be considered even though it would require legislative action).

In comparing and analyzing potential alternatives, the Draft SEIS II must examine, among other things, the direct, indirect, and cumulative environmental impacts of the different alternatives, the conservation potential of those alternatives, and the means to mitigate adverse environmental impacts.[35] A robust analysis of project impacts 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.[36] 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."[37]

A cumulative impact analysis ensures that the agency will not "treat the identified environmental concern in a vacuum."[38] All "reasonably foreseeable" direct, indirect and cumulative environmental impacts must be analyzed.[39] "If it is reasonably possible to analyze the environmental consequences in an EIS...the agency is required to perform that analysis."[40]

Notably, an EIS must evaluate "reasonably foreseeable" site-specific impacts even if an EIS is being carried out at the programmatic level or where environmental assessments may be carried out in the future to advance individual project components.[41] The Corps may not evade this requirement by saying these impacts will be examined through later environmental reviews.[42]

An EIS must utilize "quantified or detailed information" when analyzing impacts.[43] The DEIS may not rely "on conclusory statements unsupported by data, authorities, or explanatory information."[44] This is because:

> "A conclusory statement unsupported by empirical or experimental data, scientific authorities, or explanatory information of any kind not only fails to crystalize the issues, but affords no basis

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[35] 40 C.F.R. § 1502.16.
[36] 40 C.F.R. § 1508.8.
[37] 40 C.F.R. § 1508.7.
[38] Grand Canyon Trust v. FAA, 290 F.3d 339, 346 (D.C. Cir. 2002).
[39] 40 C.F.R. § 1508.8.
[40] Kern v. U.S. Bureau of Land Mgmt., 284 F.3d 1062, 1072 (9thCir.2002).
[41] *Colorado Environmental Coalition v. Office of Legacy Management*, 819 F. Supp. 2d. 1193, 1209 (D. Colo. 2011), reconsideration granted in part on other grounds, 2012 U.S. Dist. LEXIS 24126 (D. Colo. Feb. 27, 2012) (concluding that future site-specific mining activity was reasonably foreseeable at the lease stage because mining had previously taken place on the same public lands and thus must be reviewed at the programmatic leasing stage.)
[42] Kern v. U.S. Bureau of Land Mgmt., 284 F.3d at 1072.
[43] Neighbors of Cuddy Mountain v. U. S. Forest Service, 137 F.3d 1372, 1379 (9th Cir. 1998); Ecology Center v. Castaneda, 574 F.3d 652, 666 (9th Cir. 2009) (requiring "quantified or detailed data"); Natural Resources Defense Council v. Callaway, 524 F.2d 79, 87 (2d Cir. 1975).
[44] Id.

> for a comparison of the problems involved with the proposed project and the difficulties involved in the alternatives."[45]

Accordingly, the DEIS must supply supporting data and authorities, and explain how and why it has drawn the conclusion it has reached. "General discussion of an environmental problem over a large area" also is not sufficient and cannot satisfy NEPA.[46]

An EIS also must be based on "high quality" science and information and the agency preparing the EIS must "insure professional integrity, including scientific integrity, of the discussions and analysis in environmental impact statements."[47] Importantly, if information that is essential for making a reasoned choice among alternatives is not available, the agency **must** obtain that information unless the costs of doing so would be "exorbitant."[48]

The Corps must also candidly disclose the risks of its proposed action and respond to adverse opinions held by respected scientists:[49]

> "'Where scientists disagree about possible adverse environmental effect, the EIS must inform decision-makers of the full range of responsible opinion on the environmental effects.' Where the agency fails to acknowledge the opinions held by well respected scientists concerning the hazards of the proposed action, the EIS is fatally deficient."[50]

These steps are critical for ensuring that that an EIS conducts an "informed and meaningful" consideration of the alternatives, as required by law:

> "NEPA's requirement that alternatives be studied, developed, and described both guides the substance of environmental decisionmaking and provides evidence that the mandated decisionmaking process has actually taken place. "Informed and meaningful consideration of alternatives – including the no action alternative – is . . . an integral part of the statutory scheme.[51]

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[45] Seattle Audubon Society v. Moseley, 798 F. Supp. 1473, 1479 (W.D. Wash. 1992), aff'd 998 F.2d (9th Cir. 1993); see also, e.g., Klamath-Siskiyou Wildlands Ctr. v. BLM, 387 F.3d 989,995-996 (9th Cir. 2004) ("generalized or conclusory statements" in cumulative effects analyses do not satisfy NEPA); Friends of the Earth v. Army Corps of Engineers, 109 F. Supp. 2d 30, 38 (D.D.C. 2000) (ruling that the Corps must "provide further analysis" to satisfy NEPA because the Corps did not provide "the basis for any" of its claims that the project would have an insignificant impact or that fish and other organisms would simply move to other areas); Sierra Club v. Norton, 207 F. Supp. 2d 1310, 1335 (S.D. Ala. 2002) (stating "Defendant's argument in this case would turn NEPA on its head, making ignorance into a powerful factor in favor of immediate action where the agency lacks sufficient data to conclusively show not only that proposed action would harm an endangered species, but that the harm would prove to be 'significant'").

[46] South Fork Band Council v. U.S. Dept. of Interior, 588 F.3d 718 (9th Cir. 2009); Neighbors of Cuddy Mountain v. U.S. Forest Service, 137 F.3d 1372, 1379-80 (9th Cir. 1998).

[47] 40 C.F.R. § 1502.24 ("Agencies shall insure professional integrity, including scientific integrity, of the discussions and analysis in environmental impact statements"); Earth Island Inst. v. U.S. Forest Service, 442 F.3d 1147, 1159-60 (9th Cir. 2006) (quoting 40 CFR §1502.24).

[48] 40 C.F.R. § 1502.22.

[49] Seattle Audubon Soc'y v. Mosely, 798 F.Supp. 1473, 1482 (W.D. Wash. 1992) (citing Friends of the Earth v. Hall, 693 F.Supp. 904, 934, 937 (W.D.Wash. 1988).

[50] Friends of the Earth v. Hall, 693 F. Supp. 904, 934 (W.D. Wash. 1988) (citations omitted).

[51] Bob Marshall Alliance v Hodel, 852 F.2d 1223, 1228 (9th Cir. 1988) (internal citations omitted).

1. The Analysis Of Alternatives Does Not Comply With NEPA

The Draft SEIS II violates NEPA because it fails to evaluate highly reasonable alternatives and fails to evaluate an appropriate range of alternatives. As discussed in Section C.2. of these comments, the Draft SEIS II also fails to provide an informed and meaningful consideration of the alternatives that it does evaluate, including by failing to meaningfully evaluate the alternatives' direct, indirect, and cumulative impacts.

As noted above, the SEIS II provides a critical opportunity for developing meaningful, comprehensive long-term flood damage reduction solutions that can both protect Mississippi River communities and restore vital wildlife habitat. However, instead of examining such opportunities, the draft SEIS II rubber stamps an approach to the Mississippi River Mainline Levee project that fails to comply with basic legal requirements and rolls back protections that have been in place since 1998.

Despite the extensive reach of the project, and the significant implications for public safety and the health of the environment, the Draft SEIS II examines only two alternatives in any level of detail:

(1) The "avoid and minimize" alternative, which establishes criteria for ranking potential locations that will be dug up so the soil can be used for construction material, based on land use and locations; and

(2) The "traditional construction" alternative, which includes the exact same work items as the "avoid and minimize" alternative, but would obtain construction material from the nearest possible location, regardless of impacts to wetland resources.

Each of the other alternatives mentioned in the Draft SEIS II were dismissed out of hand, based in part on an inappropriate consideration of each of those alternatives as an all-or-nothing approach to reducing flood risks.

As discussed in Section B of these comments, both the "avoid and minimize" and "traditional construction" alternatives are prohibited by the Clean Water Act 404(b)(1) Guidelines. The "avoid and minimize" alternative prioritizes obtaining construction material from ecologically valuable riverside wetlands over less ecologically valuable, non-wetland locations; and relies on non-mandatory borrow pit ranking criteria that are less protective of wetlands than the ranking criteria adopted by the Corps in the 1998 SEIS I. *See* Section B and Table 1 of these comments.

The "traditional construction" alternative makes no effort at all to avoid impacts to wetlands and other aquatic sites as required by law. To the contrary, it is based on obtaining construction material from the nearest possible location, regardless of impacts to wetland and other aquatic resources. Notably, this traditional construction approach was rejected in the 1998 SEIS I. Indeed, it appears that this alternative was considered for the sole purpose of justifying selection of the recommended "avoid and minimize" alternative in direct violation of the longstanding NEPA mandate that "the discussion of alternatives must be undertaken in good faith; it is not to be employed to justify a decision already reached."[52]

[52] Citizens Against Toxic Sprays, Inc. v. Bergland, 428 F.Supp. 908, 933 (D.Or. 1977).

The National Wildlife Federation urges the Corps to comprehensively examine and adopt the alternative outlined in Section A of these comments to provide comprehensive long-term flood damage reduction solutions that can both protect Mississippi River communities and restore vital wildlife habitat.

As noted in Section A of these comments, evaluating and developing these alternatives requires a careful assessment of the underlying causes of increased flooding along the Mississippi River. Without understanding the causes, it is not possible to develop solutions that can produce long-term and sustainable flood damage reduction benefits. The National Wildlife Federation refers the Corps to the scoping comments that we submitted in connection with the SEIS II for information on some of the critical issues to analyze in connection with assessing these underlying causes.[53] These scoping comments are incorporated by reference as though fully set forth herein.

2. The Analysis Of Impacts Does Not Comply With NEPA

The Draft SEIS II fails to meaningfully evaluate the direct, indirect, and cumulative impacts of this extensive project. It provides only the most general discussions of potential impacts to a limited number of resources and fails to evaluate "reasonably foreseeable" site-specific impacts despite having identified the locations of every work item and the likely locations of every borrow pit.

The following are some of the many problems with the analyses of adverse impacts in the Draft SEIS II.

(a) Wetlands

Impacts to wetlands, including complete destruction of many hundreds of acres and changes to the extent and duration of inundation on many more acres, are a major impact from the project. Such losses and impacts will also result in significant adverse impacts to fish and wildlife species—and indeed, such losses are the primary drivers of the functional losses identified in the Draft SEIS II functional assessments.

Despite the importance of properly assessing impacts to wetlands—including site-specific impacts—the Draft SEIS II provides only the most general information on wetland impacts and the information that is provided is both confusing and contradictory, as discussed in Section B of these comments. The Draft SEIS II also fails to take into consideration the many changes that have impacted the hydrology, ecology, flow patterns, and uses of the Mississippi River and its floodplain and coastal wetlands since the 1998 SEIS I. Each of these changes can result in significant direct, indirect, and cumulative impacts to wetlands and other special aquatic sites and as a result, should be analyzed in the Draft SEIS II.

The failure to fully evaluate impacts to wetlands and other aquatic resources fundamentally taints all other impact analyses in the Draft SEIS II.

(b) Waterfowl and Birds

The Mississippi River is a vital migration corridor for "40 percent of the Mississippi Flyway's waterfowl and 60 percent of all U.S. bird species." Draft SEIS II at 26. Despite the significance of the Mississippi

[53] National Wildlife Federation Scoping Comments on Supplement II to the Final Environmental Impact Statement, Mississippi River and Tributaries Project, Mississippi River Mainline Levees and Channel Improvement, October 15, 2018. These comments are incorporated by reference as those fully set forth herein.

River migration corridor and the vital importance of wetlands and forested habitats to the multitude of waterfowl species that rely on this corridor, the Draft SEIS II bases its entire assessment of waterfowl impacts on just one species of waterfowl—the mallard. SEIS II at 36, 80, and Appendix 2. The analysis of Impacts to bird species is also severely limited—considering the impacts to only 8 species.[54] Draft SEIS II at 92. Just 4 avian species were considered in the assessment of impacts to terrestrial habitats. Draft SEIS II at 30.

Failure to look at a truly representative sampling of waterfowl and bird species prevents assessment of impacts to species that have different life-cycles, habitat needs, and food source needs. The food source, breeding, resting, migratory, and other patterns of many waterfowl and bird species are entirely different, which can cause species to react to impacts in fundamentally different ways. For example, species that eat fish will respond differently to a loss of wetlands that provide critical fish habitat than species that do not eat fish. Hawks and raptors have fundamentally different food source, breeding, and other life cycle needs than waterfowl and songbirds. And the list of differences goes on and on.

The aggressively limited number of species considered in the waterfowl and bird analyses render the Draft SEIS II inadequate. These problems are greatly amplified by the many problems with the wetland analysis discussed throughout these comments.

(c) Mammals

Like the assessments of impacts to waterfowl and birds, the assessment of impacts to mammals is far too limited to meaningfully account for impacts to mammal species. While the Draft SEIS II does examine impacts to numerous species of bats, just two mammal species were considered in connection with the evaluation of impacts to terrestrial habitat (mink and fox squirrels). Draft SEIS II at 30. It is not clear whether mammal species were considered in connection with the assessment of impacts to wetlands.

(d) Amphibians and Reptiles

Despite the importance of wetlands to amphibian and reptile populations, the Draft SEIS II does not assess the project's impacts to those species. Indeed, the Draft SEIS II does not mention amphibian species and references only one reptile species (the Alligator Snapping Turtle). It is critical that the SEIS II analyze impacts to amphibians and reptiles given the dire conditions of many of these species.

For example, amphibians in general are at critical risk worldwide. In the United States, the IUCN Red List of Threatened Species lists 56 amphibian species and 37 reptile species as known to be critically endangered, endangered, or vulnerable.[55] Worldwide, at least 1,950 species of amphibians are threatened with extinction of which 520 species are critically endangered, 783 are endangered, and 647

[54] The Draft SEIS II does provide a highly limited discussion of some additional at-risk species and does provide a limited assessment of listed species.

[55] IUCN Red List version 2013:2, Table 5: Threatened species in each country (totals by taxonomic group), available at http://cmsdocs.s3.amazonaws.com/summarystats/2013_2_RL_Stats_Table5.pdf (visited on November 24, 2013.)

species are vulnerable. This represents 30 percent of all known amphibian species.[56] In 2004, scientists estimated that most of 1,300 other amphibian species are also threatened though sufficient data are currently lacking to be able to accurately assess the status of those species.[57]

A recent study demonstrates the increasingly dire conditions of amphibians worldwide:

> "Current extinction rates are most likely 136–2707 times greater than the background amphibian extinction rate. These are staggering rates of extinction that are difficult to explain via natural processes. No previous extinction event approaches the rate since 1980 (Benton and King, 1989).
>
> Despite the catastrophic rates at which amphibians are currently going extinct, these are dwarfed by expectations for the next 50 yr (Fig. 1). If the figure provided by Stuart et al. (2004) is true (but see Pimenta et al., 2005; Stuart et al., 2005), one-third of the extant amphibians are in danger of extinction. This portends an extinction rate of 25,000–45,000 times the expected background rate. Episodes of this stature are unprecedented. Four previous mass extinctions could be tied to catastrophic events such as super volcanoes and extraterrestrial impacts that occur every 10 million to 100 million years (Wilson, 1992). The other mass extinction seems to be tied to continental drift of Pangea into polar regions leading to mass glaciation, reduced sea levels, and lower global temperatures (Wilson, 1992). The current event far exceeds these earlier extinction rates suggesting a global stressor(s), with possible human ties."[58]

Recent studies also point to the role of global climate change in promoting potentially catastrophic impacts to amphibian populations. For example:

- Global climate change will result in changes to weather and rainfall patterns that can have significant adverse effects on amphibians. Drought can lead to localized extirpation. Cold can induce winterkill in torpid amphibians. It is possible that the additional stress of climate change, on top of the stresses already created by severe loss of habitat and habitat fragmentation may jeopardize many amphibian species.[59]

- Recent studies suggest that climate change may be causing global mass extinctions of amphibian populations. Particularly alarming is the fact that many of these disappearances are occurring in relatively pristine area such as wilderness areas and national parks.[60] One recent study suggests

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[56] IUCN Red List version 2013:2, Table 3a: Status category summary by major taxonomic group (animals), available at http://cmsdocs.s3.amazonaws.com/summarystats/2013_2_RL_Stats_Table3a.pdf (visited on November 24, 2013).

[57] Science Daily, Amphibians In Dramatic Decline; Study Finds Nearly One-Third Of Species Threatened With Extinction (October 15, 2004), available at http://www.sciencedaily.com/releases/2004/10/041015103700.htm (visited on November 24, 2013).

[58] McCallum, M. L. (2007). "Amphibian Decline or Extinction? Current Declines Dwarf Background Extinction Rate. *Journal of Herpetology* 41 (3): 483–491. doi:10.1670/0022-1511(2007)41[483:ADOECD]2.0.CO;2.

[59] Sjogren, P. 1993a. Metapopulation dynamics and extinction in pristine habitats: A demographic explanation. Abstracts, Second World Congress of Herpetology, Adelaide, Australia, p. 244; Sjogren, P. 1993b. Applying metapopulation theory to amphibian conservation. Abstracts, Second World Congress of Herpetology, Adelaide, Australia, p. 244-245.

[60] Pounds, J. A., and M. L. Crump. 1994. Amphibian declines and climate disturbance: The case of the golden toad and the harlequin frog. Conservation Biology 8:72-85; Lips, K. R. 1998. Decline of a Tropical Montane Amphibian

that climate change has allowed the spread of a disease known as chytridiomycosis which has led to extinctions and declines in amphibians. Climate change has allowed this disease to spread by tempering the climate extremes that previously kept the disease in check.[61] About two-thirds of the 110 known harlequin frog species are believed to have vanished during the 1980s and 1990s because of the chytrid fungus *Batrachochytrium dendrobatidis.* Other studies indicate that amphibians may be particularly sensitive to changes in temperature, humidity, and air and water quality because they have permeable skins, biphasic life cycles, and unshelled eggs.[62]

- Climate change may also affect amphibian breeding patterns.[63] Amphibians spend a significant part of the year protecting themselves from cold or shielding themselves from heat. They receive cues to emerge from their shelters and to migrate to ponds or streams to breed from subtle increases in temperature or moisture. As the earth warms, one potential effect on amphibians is a trend towards early breeding, which makes them more vulnerable to snowmelt-induced floods and freezes common in early springs. Some studies already indicate a trend towards earlier breeding in certain amphibian species.[64]

- Increases in UV-B radiation in the northern hemisphere due to ozone depletion is also having an adverse impact on amphibians.[65] One study suggests that ultraviolet-B (UV-B) radiation adversely affects the hatching success of amphibian larvae.[66] High levels of UV-B also induced higher rates of developmental abnormalities and increased mortality in certain species (*Rana clamitans* and *R. sylvatica*) than others that were shielded from UV-B.[67] UV-B also can have detrimental effects on embryo growth.

The failure of the Draft SEIS II to evaluate impacts to amphibians and reptiles renders the Draft SEIS II inadequate.

Fauna. Conservation Biology 12:106-117; Lips, K., F.Brem, R. Brenes, J.D. Reeve, R.A. Alford, J. Voyles, C. Carey, L. Livo, A. P. Pessier, and J.P. Collins 2006. Emerging infectious disease and the loss of biodiversity. Proceedings of the National Academy of Sciences 103:3165-3170.

[61] Pounds, J.A., M.P.L. Fogden, J.H. Campbell. 2006. Biological response to climate change on a tropical mountain. Nature 398, 611-615.

[62] Carey, C., and M. A. Alexander. 2003. Climate change and amphibian declines: is there a link? Diversity and Distributions 9:111-121.

[63] Carey, C., and M. A. Alexander. 2003. Climate change and amphibian declines: is there a link? Diversity and Distributions 9:111-121.

[64] Beebee, T. J. C. 1995. Amphibian Breeding and Climate. Nature 374:219-220; Blaustein, A. R., L. K. Belden, D. H. Olson, D. M. Green, T. L. Root, and J. M. Kiesecker. 2001. Amphibian breeding and climate change. Conservation Biology 15:1804-1809; Gibbs, J. P., and A. R. Breisch. 2001. Climate warming and calling phenology of frogs near Ithaca, New York, 1900-1999. Conservation Biology 15:1175-1178.

[65] Blumthaler, M., and W. Ambach. 1990. Indication of increasing solar ultraviolet-B radiation flux in alpine regions. Science 248:206-208; Kerr, J. B., and C. T. McElroy. 1993. Evidence for large upward trends of ultraviolet-B radiation linked to ozone depletion. Science 262:1032-1034.

[66] Blaustein, A. R., P. D. Hoffman, D. G. Hokit, J. M. Kiesecker, S. C. Walls, and J. B. Hays. 1994a. UV repair and resistance to solar UV-B in amphibian eggs: A link to population declines? *Proceedings of the National Academy of Science* 91:1791-1795.

[67] Grant, K. P., and L. E. Licht. 1993. Effects of ultraviolet radiation on life history parameters of frogs from Ontario, Canada. Abstracts, Second World Congress of Herpetology, Adelaide, Australia, p. 101.

(e) Cumulative Impacts, Including the Impacts of Climate Change

An extensive body of science demonstrates that the earth's climate is changing and that this change is causing significant increases in sea level rise and more frequent and extreme weather events. The Draft SEIS II should fully analyze and account for this information and changed conditions that have significant implications for the long-term effectiveness of flood damage reduction measures and the long term health and viability of coastal and riverine wetlands and the fish and wildlife that rely on those resources.

For example, climate change is implicated in significant changes in precipitation in the Mississippi River basin. In March 2005, the U.S. Geological Survey reported upward trends in rainfall and stream flow for the Mississippi River.[68] 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.[69] That study also reports that during the past 50 years, "the greatest increases in heavy precipitation occurred in the Northeast and the Midwest." [70] 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.[71]

In March 2012, Midwest regional assessments were issued that provide important technical input into the National Climate Assessment.[72] 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%.[73] In March 2019, the Corps issued a report pointing to increasing precipitation trends in the Mississippi River Valley and a subsequent increase in river flood frequency and magnitude over the last few decades.[74]

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[68] USGS Fact Sheet 2005-3020, Trends in the Water Budget of the Mississippi River Basin, 1949-1997.
[69] 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/).
[70] *Id*.
[71] *Id*.
[72] The Midwest regional assessment can be accessed at http://glisa.msu.edu/great_lakes_climate/nca.php (visited January 22, 2014).
[73] 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).
[74] Bill Frederick Senior National Weather Service Meteorologist & NWS Liaison at the Mississippi Valley Division, Precipitation Trends in the Mississippi River Watershed (March 2019) (available at https://www.mvd.usace.army.mil/Portals/52/docs/Precipitation%20Trends.pdf).

The impacts of climate change are also particularly significant for migratory birds, which are affected across their migratory routes by changes in water regime, mismatches with food supply, sea level rise, and habitat shifts, changes in prey range, and increased storm frequency.[75] 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.
>
> 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.[76]

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[75] UNEP/CMS Secretariat, Bonn, Germany, Migratory Species and Climate Change: Impacts of a Changing Environment on Wild Animals (2006) at 42-43 (available at http://www.cms.int/publications/pdf/CMS_CimateChange.pdf).

[76] 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).

Despite the highly significant implications of climate change on the Mississippi River and the fish and wildlife that rely on it, the Draft SEIS II includes only one paragraph that discusses climate change, which it does only by referencing a 2018 assessment by the Corps:

> The assessment (USACE 2018a) also evaluated climate change and sea level rise (SLR). In terms of climate change, after conducting a regional literature review and evaluating the currently available data for the Mississippi River basin, the assessment found that "the meteorological and hydrological underpinnings of the MR&T PDF are found to be adequate" (USACE 2018a). The assessment evaluated the sensitivity to SLR through the simulation of the "high" SLR scenario following the guidance of ER 1100-2-8162. The assessment demonstrated that the maximum expected influence of SLR under the "high" scenario would range from 0.1 feet at Baton Rouge to 1.1 feet at Venice. Additional information associated with SLR can be found in the results of the assessment (USACE 2018a)."

Draft SEIS II at 14. This single paragraph does not satisfy the clear requirements of NEPA.

Many other significant cumulative impacts must be evaluated in the Draft SEIS II, including the cumulative impact of the vast numbers of Corps-built river training structures on increasing flood heights in portions of the Mississippi River.

As the Corps is aware,[77] extensive peer-reviewed science demonstrates that river training structures have increased flood levels by up to 15 feet in some locations and 6 to 10 feet in broad stretches of the Middle Mississippi River where these structures are prevalent.[78] The impacts of river training structures are cumulative; the more structures placed in the river, the higher the flood stages. Flood stages increase more than 4 inches for each 3,281 feet of wing dike built within 20 river miles downstream:

> [O]ur analyses demonstrate that wing dikes constructed downstream of a location were associated with increases in flood height ("stage"), consistent with backwater effects upstream of these structures. Backwater effects are the rise in surface elevation of flowing water upstream from, and as a result of, an obstruction to water flow. These backwater effects were clearly distinguishable from the effects of upstream dikes, which triggered simultaneous incision and conveyance loss at sites downstream. On the Upper Mississippi River, for example, stages increased more than four inches for each 3,281 feet of wing dike built within 20 RM (river miles) downstream. These values represent parameter estimates and associated uncertainties for relationships significant at the 95 percent confidence level in each reach-scale model. The 95-percent level indicates at least a 95% level of certainty in correlation or other statistical

[77] The National Wildlife Federation recognizes that the Corps disagrees with these findings. However, the Corps' conclusion that river training structures do not affect flood heights has been conclusively disproved by research led by Nicholas Pinter, Ph.D., currently the Shlemon Chair in Applied Geology at the University of California Davis. Dr. Pinter has specifically rebutted the arguments used by the Corps to reject these findings in a series of exchanges published in the Journal of Hydraulic Engineering and in sworn affidavits submitted to the District Court for the Southern District of Illinois. These materials are provided at Attachment B to the National Wildlife Federation Scoping Comments on the SEIS II.

[78] See, e.g., Pinter, N., A.A. Jemberie, J.W.F. Remo, R.A. Heine, and B.A. Ickes, 2010. Empirical modeling of hydrologic response to river engineering, Mississippi and Lower Missouri Rivers. River Research and Applications, 26: 546-571; Remo, J.W.F., N. Pinter, and R.A. Heine, 2009. The use of retro- and scenario- modeling to assess effects of 100+ years river engineering and land cover change on Middle and Lower Mississippi River flood stages. Journal of Hydrology, 376: 403-416.

> benchmark presented, and is considered by scientists to represent a statistically verified standard. Our study demonstrated that the presence of river training structures can cause large increases in flood stage. For example, at Dubuque, Iowa, roughly 8.7 linear miles of downstream wing dikes were constructed between 1892 and 1928, and were associated with a nearly five-foot increase in stage. In the area affected by the 2008 Upper Mississippi flood, more than six feet of the flood crest is linked to navigational and flood-control engineering.[79]

Additional science shows that the Middle Mississippi River has been so constricted by river training structures and levees that it is now exhibiting "the flashy response" to flooding "typical of a much smaller river,"[80] with extremely troubling implications for public safety. In recent comments submitted on the Corps' Regulating Works Project Grand Tower Amended Environmental Assessment, Robert E. Criss, Ph.D., a professor in the Department of Earth and Planetary Sciences at Washington University in St. Louis, concludes:

> The consequences of current management strategy on floodwater levels are clearly shown by data from multiple gauging stations on the Middle Mississippi River (Figures). The Chester and Thebes stations were selected as they are the closest stations to the project area that have long, readily available historical records (USGS, 2016). **These figures conclusively document that floodwater levels have been greatly magnified along the Middle Mississippi River, in the timeframe when most of the in-channel navigational structures were constructed. If these structures are not the cause, then we are left with no explanation for this profound, predictable effect.** That USACE proposes more in-channel construction activities only two months after another "200-year" flood (as defined by USACE, 2004, 2016) occurred in this area proves that their structures and opinions are not beneficial, but harmful.

Dr. Criss also notes that measurements at the Mississippi River at St. Louis and the Missouri River at Herman "document similar damaging and incontestable trends for other river reaches managed in the same manner," in his comments on the Grand Tower Amended Environmental Assessment.

A 2016 Journal of Earth Science study co-authored by Dr. Criss ("Criss and Luo 2016") highlights the cumulative impact of the Corps' excessive channelization of the Middle Mississippi River. As noted above, that study concludes that the Middle Mississippi River has been so constricted by river training structures and levees that it is now exhibiting "the flashy response" to flooding "typical of a much smaller river":[81]

> Ehlmann and Criss (2006) proved that the lower Missouri and middle Mississippi Rivers are becoming more chaotic and unpredictable in their time of flooding, height of flooding, and

[79] Reply Declaration of Nicholas Pinter, Ph.D. in Support of Plaintiffs' Motion for Preliminary Injunction, NWF et al v. Corps of Engineers, Case No. 14-00590-DRH-DGW, (S.D. ILL), 2014; Declaration of Nicholas Pinter, Ph.D. in Support of Plaintiffs' Motion for Preliminary Injunction, Case No. 14-00590-DRH-DGW, (S.D. ILL), 2014. These materials are provided as Attachment B to the National Wildlife Federation Scoping Comments on the SEIS II.

[80] Robert E. Criss, Mingming Luo, River Management and Flooding: The Lesson of December 2015–January 2016, Central USA, Journal of Earth Science, Vol. 27, No. 1, p. 117–122, February 2016 ISSN 1674-487X (DOI: 10.1007/s12583-016-0639-y).

[81] Robert E. Criss, Mingming Luo, River Management and Flooding: The Lesson of December 2015–January 2016, Central USA, Journal of Earth Science, Vol. 27, No. 1, p. 117–122, February 2016 ISSN 1674-487X (DOI: 10.1007/s12583-016-0639-y). A copy of this study is provided as Attachment C to the National Wildlife Federation Scoping comments on the Draft SEIS II.

magnitude of their daily changes in stage. This chaotic behavior is primarily the result of extreme channelization of the river, and its isolation from its floodplain by levees (e.g., Criss and Shock, 2001; GAO, 1995; Belt, 1975). The channels of the lower Missouri and middle Mississippi Rivers are only half as wide as they were historically, along a combined reach exceeding 1 500 km, as clearly shown by comparison of modern and historical maps (e.g., Funk and Robinson, 1974).

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The aftermath of storm Goliath [which led to the December 2015 floods] provides another example in an accelerating succession of record floods, whose tragic effects have been greatly magnified by man. The heavy rainfall was probably related to El Nino, and possibly intensified by global warming. . . . The Mississippi River flood at St. Louis was the third highest ever, yet it occurred at the wrong time of year, and its brief, 11-day duration was truly anomalous. Basically, this great but highly channelized and leveed river exhibited the flashy response of a small river, and indeed resembled the response of Meramec River, whose watershed is smaller by 160×. Yet, only a few percent of the watershed above St. Louis received truly heavy rainfall during this event; the river rose sharply because the water simply had nowhere else to go.

Further downstream, new record stages on the middle Mississippi River were set. Those record stages would have been even higher, probably by as much as 0.25 m, had levees not failed and been overtopped. The sudden drop of the water level near the flood crest at Thebes clearly demonstrates how levees magnify floodwater levels. In this vein, it is very significant that the water levels on the lower Meramec River were highest, relative to prior floods, proximal to a new levee and other recent developments.

Forthcoming calls for more river management, including higher levees and other structures, must be rejected. Additional "remediations" to this overbuilt system will only aggravate flooding in the middle Mississippi Valley (see Walker, 2016).

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In contrast, Goliath's extraordinary rainfall impacted only a tiny fraction of the huge, 1.8 million km2 Mississippi River Basin above St. Louis, yet flooding occurred which was truly remarkable for the high water level, time of year, and brief duration.

This continental-scale river exhibited the flashy response typical of a much smaller river such as the Meramec. This unnatural response is clearly consistent with the dramatic channelization of the middle Mississippi River and its isolation from its floodplain by levees, as clearly pointed out by Charles Belt more than 40 years ago. It is time for this effect to be accepted and for flood risk and river management to be reassessed.[82]

Cumulative impacts, including the cumulative impacts of climate change, must be fully evaluated in the Draft SEIS II.

[82] Id.

3. The Timeline For Finalizing The SEIS II Precludes Consideration Of Public Comments

The Corps has established a timeline for finalizing the SEIS II that precludes a legitimate consideration of comments on the draft submitted by Federal and State agencies, Tribes, and members of the public. At the October 1, 2020 virtual public hearing on the draft SEIS II, the Corps announced that the final SEIS II would be released on or about October 30—just 13 working days after the close of the public comment period on October 13. It is not possible to consider public comments and make necessary changes to the draft SEIS II under this timeline.

NEPA requires a meaningful consideration of public comments that cannot be carried out under the Corps' accelerated timeline.

D. The Draft SEIS II Does Not Comply With Federal Mitigation Requirements

While the National Wildlife Federation appreciates the work that went into developing the conceptual mitigation plan provided in the Draft SEIS II, that conceptual plan does not—and cannot—comply with the mandatory mitigation requirements applicable to civil works projects. To satisfy these requirements, the SEIS II must include a "specific plan to mitigate fish and wildlife losses" that complies with the civil works mitigation requirements established through numerous Water Resources Development Acts and "the mitigation standards and policies established pursuant to the regulatory programs" administered by the Corps.[83]

All losses to fish and wildlife created by a federal water resources project must be mitigated unless the Secretary of the Army determines that the adverse impacts to fish and wildlife would be "negligible."[84] To ensure that this happens, the Corps is prohibited from selecting a "project alternative in any report" unless that report includes a "specific plan to mitigate fish and wildlife losses" that ensures that "impacts to bottomland hardwood forests are mitigated in-kind and harm to other habitat types are mitigated to not less than in-kind conditions, to the extent possible."[85]

Corps mitigation must be monitored until the monitoring demonstrates that the ecological success criteria established in the mitigation plan have been met. The Corps is also required to consult yearly on each project with the appropriate Federal agencies and the states on the status of the mitigation efforts. The consultation must address the status of ecological success on the date of the consultation, the likelihood that the ecological success criteria will be met, the projected timeline for achieving that success, and any recommendations for improving the likelihood of success.[86]

In addition, mitigation lands for Corps civil works projects must be purchased before any construction begins.[87] Any physical construction required for purposes of mitigation should also be undertaken prior to project construction but must, at the latest, be undertaken "concurrently with the physical construction of such project."[88]

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[83] 33 U.S.C. § 2283(d).
[84] 33 U.S.C. § 2283(d)(1).
[85] Id.
[86] 33 U.S.C. § 2283(d).
[87] 33 U.S.C. § 2283(a).
[88] Id.

Mitigation plans for water resources projects constructed by the Corps "shall include, at a minimum":

(1) The type, amount, and characteristics of the habitat being restored, a description of the physical actions to be taken to carry out the restoration, and the functions and values that will be achieved;

(2) The ecological success criteria, based on replacement of lost functions and values, that will be evaluated and used to determine mitigation success;

(3) A description of the lands and interest in lands to be acquired for mitigation, and the basis for determining that those lands will be available;

(4) A mitigation monitoring plan that includes the cost and duration of monitoring, and identifies the entities responsible for monitoring if it is practicable to do so (if the responsible entity is not identified in the monitoring plan it must be identified in the project partnership agreement that is required for all Corps projects). Corps mitigation must be monitored until the monitoring demonstrates that the ecological success criteria established in the mitigation plan have been met; and

(5) A contingency plan for taking corrective action in cases where monitoring shows that mitigation is not achieving ecological success as defined in the plan.[89]

To comply with the Clean Water Act section 404 mitigation requirements, Corps mitigation plans also:

(1) Must include a level of detail that is "commensurate with the scale and scope of the impacts."[90]

(2) Must describe "the resource type(s) and amount(s) that will be provided, the method of ecoregion, physiographic province, or other geographic area of interest."[91]

(3) Must describe "the factors considered during the site selection process. This should include consideration of watershed needs, onsite alternatives where applicable, and the practicability of accomplishing ecologically self-sustaining aquatic resource restoration, establishment, enhancement, and/or preservation at the compensatory mitigation project site."[92]

(4) Must describe "the legal arrangements and instrument, including site ownership, that will be used to ensure the long-term protection of the compensatory mitigation project site."[93]

(5) Must describe "the ecological characteristics of the proposed compensatory mitigation project site . . . . This may include descriptions of historic and existing plant communities,

[89] 33 U.S.C. § 2283(d) (establishing all the civil works plan mitigation requirements).
[90] 33 C.F.R. 332.4(c)
[91] 33 C.F.R. § 332.4(c)(2).
[92] 33 C.F.R. § 332.4(c)(3).
[93] 33 C.F.R. § 332.4(c)(4).

historic and existing hydrology, soil conditions, a map showing the locations of the impact and mitigation site(s) or the geographic coordinates for those site(s), and other site characteristics appropriate to the type of resource proposed as compensation. The baseline information should also include a delineation of waters of the United States on the proposed compensatory mitigation project site."[94]

(6) Must "describe the number of credits to be provided, including a brief explanation of the rationale for this determination," including "an explanation of how the compensatory mitigation project will provide the required compensation for unavoidable impacts to aquatic resources resulting from the permitted activity."[95]

(7) Must provide "[d]etailed written specifications and work descriptions for the compensatory mitigation project, including, but not limited to**,** the geographic boundaries of the project; construction methods, timing, and sequence; source(s) of water, including connections to existing waters and uplands; methods for establishing the desired plant community; plans to control invasive plant species; the proposed grading plan, including elevations and slopes of the substrate; soil management; and erosion control measures."[96]

(8) Must include "[a] description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed."[97]

(9) Must include "[e]cologically-based standards that will be used to determine whether the compensatory mitigation project is achieving its objectives."[98] Ecological performance standards for assessing whether the mitigation is achieving its objectives is a key element of a legally adequate mitigation plan:

> "Performance standards should relate to the objectives of the compensatory mitigation project, so that the project can be objectively evaluated to determine if it is developing into the desired resource type, providing the expected functions, and attaining any other applicable metrics (e.g., acres)."[99]
>
> "Performance standards must be based on attributes that are objective and verifiable. Ecological performance standards must be based on the best available science that can be measured or assessed in a practicable manner. Performance standards may be based on variables or measures of functional capacity described in functional assessment methodologies, measurements of hydrology or other aquatic resource characteristics, and/or comparisons to reference aquatic resources of similar type and landscape position. The use of reference aquatic resources to establish performance standards will help ensure that those performance standards are reasonably achievable, by reflecting the range of variability exhibited by the regional class of

[94] 33 C.F.R. § 332.4(c)(5).
[95] 33 C.F.R. § 332.4(c)(6).
[96] 33 C.F.R. § 332.4(c)(7).
[97] 33 C.F.R. § 332.4(c)(8).
[98] 33 C.F.R. § 332.4(c)(9).
[99] 33 C.F.R. § 332.5(a).

aquatic resources as a result of natural processes and anthropogenic disturbances. Performance standards based on measurements of hydrology should take into consideration the hydrologic variability exhibited by reference aquatic resources, especially wetlands. Where practicable, performance standards should take into account the expected stages of the aquatic resource development process, in order to allow early identification of potential problems and appropriate adaptive management."[100]

(10) Must describe the "parameters to be monitored in order to determine if the compensatory mitigation project is on track to meet performance standards and if adaptive management is needed. A schedule for monitoring and reporting on monitoring results to the district engineer must be included."[101] The mitigation plan must provide for a monitoring period that is sufficient to demonstrate that the compensatory mitigation project has met performance standards, but not less than five years. A longer monitoring period must be required for aquatic resources with slow development rates (e.g., forested wetlands, bogs).[102]

(11) Must describe "how the compensatory mitigation project will be managed after performance standards have been achieved to ensure the long-term sustainability of the resource, including long-term financing mechanisms and the party responsible for long-term management."[103]

(12) Must include a "management strategy to address unforeseen changes in site conditions or other components of the compensatory mitigation project, including the party or parties responsible for implementing adaptive management measures. The adaptive management plan will guide decisions for revising compensatory mitigation plans and implementing measures to address both foreseeable and unforeseen circumstances that adversely affect compensatory mitigation success."[104]

(13) Must describe the "financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with its performance standards."[105]

(14) Must provide for a monitoring period that is sufficient to demonstrate that the compensatory mitigation project has met performance standards, but not less than five years. A longer monitoring period must be required for aquatic resources with slow development rates (e.g., forested wetlands, bogs).[106]

(15) Must include a clear description of compensatory mitigation requirements and include special conditions that "must be enforceable." The special conditions must: "(i) Identify

[100] 33 C.F.R. § 332.5(b).
[101] 33 C.F.R. § 332.4(c)(10).
[102] 33 C.F.R. § 332.6.
[103] 33 C.F.R. § 332.4(c)(11).
[104] 33 C.F.R. § 332.4(c)(12).
[105] 33 C.F.R. § 332.4(c)(13).
[106] 33 C.F.R. § 332.6.

the party responsible for providing the compensatory mitigation; (ii) Incorporate, by reference, the final mitigation plan approved by the district engineer; (iii) State the objectives, performance standards, and monitoring required for the compensatory mitigation project, unless they are provided in the approved final mitigation plan; and (iv) Describe any required financial assurances or long-term management provisions for the compensatory mitigation project, unless they are specified in the approved final mitigation plan. . . . "[107] The "special conditions must clearly indicate the party or parties responsible for the implementation, performance, and longterm management of the compensatory mitigation project."[108]

(16) Must include a "real estate instrument, management plan, or other mechanism providing long-term protection of the compensatory mitigation site must, to the extent appropriate and practicable, prohibit incompatible uses (e.g., clear cutting or mineral extraction) that might otherwise jeopardize the objectives of the compensatory mitigation project."[109]

The Clean Water Act mitigation rule also requires that the mitigation plan for this project ensure that:

(1) Mitigation compensates for the aquatic resource functions that will be lost to the project, and "must be commensurate with the amount and type of impact" caused by the project.[110] Where practicable, mitigation is to compensate for "the suite of functions typically provided by the affected aquatic resource."[111]

(2) The mitigation "project site must be ecologically suitable for providing the desired aquatic resource functions." In determining the ecological suitability of the compensatory mitigation site, the Corps "must consider, to the extent practicable": the hydrological conditions, soil characteristics, and other physical and chemical characteristics; watershed-scale features including aquatic habitat diversity and habitat connectivity; and the size and location of the compensatory mitigation site relative to hydrologic sources (including the availability of water rights) and other ecological features.[112]

(3) Mitigation should be in kind if possible and where out of kind mitigation is utilized, the record must explain why.[113]

(4) Off-site and/or out-of-kind mitigation is appropriate only if on-site/in-kind compensatory mitigation opportunities "are not practicable, are unlikely to compensate for the permitted impacts, or will be incompatible with the proposed project, and an alternative, practicable off-site and/or out-of-kind mitigation opportunity is identified that has a greater likelihood of offsetting the permitted impacts or is environmentally preferable to on-site or in-kind mitigation."[114]

[107] 33 C.F.R. § 332.3(k).
[108] 33 C.F.R. § 332.3(l).
[109] 33 C.F.R. § 332.7(a).
[110] 33 C.F.R. § 332.3(a).
[111] 33 C.F.R. § 332.3(c).
[112] 33 C.F.R. § 332.3(d).
[113] 33 C.F.R. § 332.3(e).
[114] 33 CFR § 332.3(6).

(5) A "mitigation ratio greater than one-to-one" is required "where necessary to account for the method of compensatory mitigation (e.g., preservation), the likelihood of success, differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, temporal losses of aquatic resource functions, the difficulty of restoring or establishing the desired aquatic resource type and functions, and/or the distance between the affected aquatic resource and the compensation site. The rationale for the required replacement ratio must be documented in the administrative record for the permit action."[115]

(6) Preservation can only be used to provide compensatory mitigation when all the following criteria are met: "(i) The resources to be preserved provide important physical, chemical, or biological functions for the watershed; (ii) The resources to be preserved contribute significantly to the ecological sustainability of the watershed. In determining the contribution of those resources to the ecological sustainability of the watershed, the district engineer must use appropriate quantitative assessment tools, where available; (iii) Preservation is determined by the district engineer to be appropriate and practicable; (iv) The resources are under threat of destruction or adverse modifications; and (v) The preserved site will be permanently protected through an appropriate real estate or other legal instrument (e.g., easement, title transfer to state resource agency or land trust)."[116]

(7) "The aquatic habitats, riparian areas, buffers, and uplands that comprise the overall compensatory mitigation project must be provided long-term protection through real estate instruments or other available mechanisms, as appropriate."[117]

(8) The compensatory mitigation requirements must be clearly stated and include special conditions that "must be enforceable." The special conditions must: "(i) Identify the party responsible for providing the compensatory mitigation; (ii) Incorporate, by reference, the final mitigation plan approved by the district engineer; (iii) State the objectives, performance standards, and monitoring required for the compensatory mitigation project, unless they are provided in the approved final mitigation plan; and (iv) Describe any required financial assurances or long-term management provisions for the compensatory mitigation project, unless they are specified in the approved final mitigation plan…."[118] The "special conditions must clearly indicate the party or parties responsible for the implementation, performance, and longterm management of the compensatory mitigation project."[119]

(9) To the maximum extent practicable, compensatory mitigation must be implemented "in advance of or concurrent with the activity" causing the impacts. "The district engineer shall require, to the extent appropriate and practicable, additional compensatory

[115] 33 C.F.R. § 332.3(f).
[116] 33 C.F.R. § 332.3(h).
[117] 33 C.F.R. § 332.7(a).
[118] 33 C.F.R. § 332.3(k).
[119] 33 C.F.R. § 332.3(l).

mitigation to offset temporal losses of aquatic functions that will result from the permitted activity."[120]

(10) "The district engineer shall require sufficient financial assurances to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with applicable performance standards."[121]

(11) "For compensatory mitigation projects on public lands, where federal facility management plans or integrated natural resources management plans are used to provide long-term protection, and changes in statute, regulation, or agency needs or mission results in an incompatible use on public lands originally set aside for compensatory mitigation, the public agency authorizing the incompatible use is responsible for providing alternative compensatory mitigation that is acceptable to the district engineer for any loss in functions resulting from the incompatible use."[122]

(12) "Compensatory mitigation projects shall be designed, to the maximum extent practicable, to be self-sustaining once performance standards have been achieved. This includes minimization of active engineering features (e.g., pumps) and appropriate siting to ensure that natural hydrology and landscape context will support long-term sustainability. Where active long-term management and maintenance are necessary to ensure long-term sustainability (e.g., prescribed burning, invasive species control, maintenance of water control structures, easement enforcement), the responsible party must provide for such management and maintenance. This includes the provision of long-term financing mechanisms where necessary."[123]

The SEIS II must include a specific and detailed mitigation plan that satisfies the requirements outlined in this section.

E. The SEIS II Must Be Reviewed By An Independent External Peer Review Panel

The draft SEIS II proposes 143 work items across portions of seven states that will be carried out over the next 50 years at a cost to taxpayers of at least $2.08 billion. SEIS II at iv, 21. The cost, scope, and controversy surrounding this project mandate review of the Draft SEIS II by an Independent External Peer Review (IEPR) panel pursuant to the requirements established by the Water Resources Development Act of 2007.[124]

Independent external peer review is mandatory for all project studies—which specifically include environmental impact statements—that evaluate projects costing more than $200 million, including mitigation costs. 33 U.S.C. §§ 2343(a)(3), 2343(l)(1). The Chief of Engineers must provide information to the public regarding the timing of an IEPR, the entity that has the contract for the IEPR review, and the

[120] 33 C.F.R. § 332.3(m).
[121] 33 C.F.R. § 332.3(n).
[122] 33 C.F.R. § 332.7(a).
[123] 33 C.F.R. § 332.7(b).
[124] 33 USC § 2343.

names and qualifications of the IEPR panel members "not later than 7 days after the date on which the Chief of Engineers determines to conduct a review."[125]

An IEPR must be finalized within 60 days of the close of the public comment period on a draft environmental impact statement.[126] Ideally, a draft IEPR would be provided prior to or concurrently with the release of a draft environmental impact statement to assist the public in identifying areas where the draft could be improved.

Despite the fact that the Draft SEIS II clearly triggers "mandatory" IEPR because it vastly exceeds the $200 million cost trigger for mandatory IEPR review,[127] the National Wildlife Federation has been unable to locate any reference to an independent external peer review being carried out for the SEIS II. Such information should be readily available since as noted above, the Corps must notify the public about the parameters of the IEPR within 7 days of determining that an IEPR is needed and because the IEPR must be finalized within 60 days of the close of the public comment period on the Draft SEIS II.

It is critical that the SEIS II and its recommended alternative be carefully and comprehensively reviewed by an independent external peer review panel before being finalized. Given the significance of the SEIS II to public safety and the environment, the Corps should engage the National Academy of Sciences to carry out the independent external peer review required by 33 U.S.C. § 2343. This peer review should include an evaluation of the long-term effectiveness of the alternative recommended by the Corps; whether the recommended alternative will protect and restore the functions of the Mississippi River and its floodplain and coastal wetlands; and whether the proffered skeleton mitigation plan can ensure implementation of ecologically successful mitigation.

Conclusion

The National Wildlife Federation urges the Corps to go back to the drawing board and develop a comprehensive approach to reducing flood damages along the Mississippi River based on an SEIS II that complies with the nation's critically important environmental laws.

Respectfully submitted,

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[125] 33 USC § 2343(c).
[126] 33 USC § 2343.
[127] This project also requires IEPR because the Corps' proposal for this project is highly controversial.