

Enclosure
EPA Comments on the Draft Supplement No. 2
to the 1982 Yazoo Area Pumps Project
Final Environmental Impact Statement

The 2020 DSEIS provides information and analysis regarding a similar but different Yazoo Pumps project than that previously analyzed and vetoed pursuant to the Clean Water Act 404(c).¹ It also provides new information on potential environmental impacts to wetlands, endangered species, fish and wildlife, water quality, downstream areas, and environmental justice populations. The new project includes the following changes: (1) the 14,000 cfs pump will now be located near Deer Creek, approximately eight miles east of the Steele Bayou site at issue in the 2007 FSEIS; (2) the Steele Bayou flood control gate operations will maintain water levels between 68.5 and 70 feet; (3) the pump facility will use natural gas instead of diesel power and add a pump station and appurtenances; (4) the plan will involve the installation of thirty-four low flow wells adding 0.1-0.2 cfs to augment stream flows in multiple stream systems within the Big Sunflower-Steele Bayou watershed; and (5) a new adaptive management plan is included. In addition to the low flow wells and new adaptive management plan, the Corps also proposes to acquire perpetual conservation easements of up to 2,700 acres and to acquire 2,405 acres in fee for reforestation for mitigation.

EPA appreciates the USACE's coordination efforts on the proposed project and we offer the following comments and recommendations on the 2020 DSEIS for your consideration.

I. Clean Water Act Section 404(b)(1) Evaluation:

The Clean Water Act (CWA) Section 404(b)(1) Evaluation specifies whether a proposed project that involves the discharge of dredged or fill material into waters of the United States complies with the CWA Section 404(b)(1) Guidelines (Guidelines).² The Guidelines are the substantive environmental criteria used to evaluate proposed discharges of dredged or fill material and consider the potential short-term and long-term effects of a proposed discharge on the physical, chemical, and biological components of the aquatic environment.³ EPA recognizes that the 2020 DSEIS is a supplemental evaluation with a limited scope. The DSEIS evaluates a no-action alternative and a structural alternative with non-structural features. A 404(b)(1) Evaluation relies on a determination of the scope of waters of the U.S. potentially affected by the proposed project. Based upon our review of the DSEIS, it appears that the USACE has not completed a jurisdictional determination for the areas of project impact within the Yazoo Backwater Area (YBA) consistent with current regulations.

A. Section 230.10(c) – Evaluation of Significant Degradation

¹ The EPA found the statement “The proposed plan is Plan 5 from the 2007 FEIS” (Appendix G, pg 123) to be extremely confusing since the proposed project, given the relocation of the pumps, changes in the mitigation plan and many other project changes, while within the scope of the Yazoo Pump Project's authorization, clearly reflect a new project for purposes of EPA review. The Corps has informed us that this statement, which is incongruous in relation to the remainder of the document, was made in error.

² 40 C.F.R. § 230.12(a).

³ 40 C.F.R. § 230.11.

The Guidelines prohibit authorization of a proposed discharge that causes or contributes to significant degradation of the aquatic ecosystem.⁴ The evaluation of the potential for significant degradation “shall be based upon appropriate factual determinations, evaluations, and tests” as described in 40 C.F.R. § 230.11 after consideration of potential impacts and effects identified in the Guidelines “with special emphasis on the persistence and permanence of the effects.”⁵ Of particular importance in this case for determining compliance with the Guidelines is the evaluation of the potential direct, secondary, and cumulative effects of the proposed discharges on wetlands,⁶ fish and other aquatic organisms,⁷ and water quality.⁸

1. **Wetlands:** Construction of the proposed pumping station would directly impact 193.52 acres of wetlands and other waters (2020 DSEIS, Appendix L). Operation of the proposed pumping station will also result in secondary effects on wetlands from changes in the frequency and duration of flood events experienced by these wetlands in the YBA.⁹ These effects will alter the ecological functions provided by affected wetlands. The interagency field-based Environmental Monitoring and Assessment Program (EMAP) effort determined that there are approximately 216,000 acres of wetlands in the YBA (2007 FSEIS, Main Report) and this estimate has not changed in the 2020 DSEIS.¹⁰

Recommendation:

Based on the above assessment, EPA recommends that the USACE incorporate the following information in the FSEIS and final 404(b)(1) Evaluation:

- That the Corps complete a full delineation of the scope of the impacts to Waters of the United States under existing regulations.
- That the wetland impact analysis evaluates the proposed project’s potential effects on wetlands based on expected changes in flood duration and frequency.¹¹ This analysis should also identify the scope of wetlands and other waters of the U.S. that will experience direct, secondary, and cumulative effects.
- That the FSEIS evaluate how the pumps project would impact wetlands that currently experience ≥ 7 days of flood inundation.¹²

⁴ 40 C.F.R. § 230.10(c).

⁵ *Id.*

⁶ 40 C.F.R. § 230.41.

⁷ 40 C.F.R. § 230.31.

⁸ 40 C.F.R. § 230.22.

⁹ For the purposes of NEPA, these effects are reasonably foreseeable and have a close causal relationship to the proposed action.

¹⁰ As previously noted, a 404(b)(1) Evaluation relies on a determination of the scope of waters of the U.S. potentially affected by the proposed project; the USACE has not completed a jurisdictional determination for the areas of project impact consistent with current regulations.

¹¹ The kinds of anticipated changes in flood duration and frequency associated with the proposed pumps project would result in impacts to the type of functions currently performed by potentially affected wetlands and the degree to which those functions are performed and therefore, we recommend that these impacts be evaluated as they can be large even when a wetland persists (i.e., continues to meet the minimum federal criteria for wetland hydrology).

¹² This analysis is important because there is a large body of scientific information that describes how shorter duration flooding events are integral to a number of the ecologically important functions provided by potentially affected wetlands (e.g., fish spawning, pollutant removal, organic carbon export); these changes are not captured in the 2020 DSEIS. We recommend this analysis identify how many of these wetlands would no longer experience ≥ 7 days of flooding and how many of these wetlands would experience a decrease in flood duration but continue to experience ≥ 7 days of flooding.

- That the wetland impact analysis evaluate all flooded wetlands that are in the 5-year floodplain.
- That the FSEIS evaluate how many wetlands would no longer be within the 2-year and 5-year floodplains with the pumps project implemented.
- That the Hydrogeomorphic (HGM) assessment classify wetlands in the YBA according to Smith and Klimas (2002), evaluate the anticipated functional impacts to these wetlands, including when impacts convert wetlands from one subclass to another, and ensure that proposed compensatory mitigation addresses the specific functional losses of impacted wetlands.

If the USACE believes that the current information in the DSEIS is sufficient to address the above, we request that the FSEIS include rationale as to why the existing documentation adequately addresses the requirements of the Guidelines.

2. Fish and Other Aquatic Organisms: As part of evaluating the project’s likely impacts on fish and other aquatic organisms, the 2020 DSEIS estimates impacts on fish spawning and rearing habitat (Appendix F-8). Table 1 summarizes the findings from this evaluation. However, limited information is provided explaining how key values, including the spawning and rearing habitat assessment areas, were generated. It is not clear why the spawning and rearing impact assessment areas in the 2020 DSEIS (i.e., 10,521 acres and 18,053 acres, respectively) which are related to the wetland impact assessment area (i.e., 82,774 acres) are significantly smaller than the wetland impact assessment area.¹³ This is an important clarification because prior data also indicate that between 2007 and 2020 there has been a 30% decrease in the size of the spawning habitat impact assessment area and a 133% decrease in the size of the rearing habitat impact assessment area (2007 FSEIS, Appendix 11 and 2020 DSEIS, Appendix F-8). For these reasons it is unclear whether the pumps project’s potential impacts to fish and other aquatics have been fully assessed.

Table 1. Summary of spawning and rearing habitat impact assessment in 2020 DSEIS

Impact Type	2020 DSEIS
Spawning Habitat	Assessment Area: 10,521 acres
	Baseline Average Annual Habitat Units (AAHUs): 10,344
	Affected Acres: 2,404
	Estimates loss of 2,838 AAHUs and indicates this loss could be addressed by 3,998 acres of compensatory mitigation (reforestation)
Rearing Habitat	Assessment Area: 18,053 acres
	Baseline AAHUs: 16,269
	Affected Acres: 3,861
	Estimates loss of 3,232 AAHUs and indicates this loss could be addressed by 4,553 acres of compensatory mitigation (reforestation)
	Devaluation of lost AAHUs: The 2020 DSEIS indicates that due to hypoxia the value of the lost spawning and rearing habitat

¹³ We have also already raised concerns that the assessment area used to evaluate the secondary (indirect) impacts to wetlands in the 2020 DSEIS may not reflect the full geographic scope of wetland areas potentially impacted by the pumps project (see Wetlands discussion above).

	should be devalued. A weighting factor of 0.6 is applied that reduces the lost spawning AAHUs from 2,828 to 1,703 and the lost rearing AAHUs from 3,232 to 1,939. This reduces the compensation acreage to 2,399 to address spawning losses and 2,732 to address rearing losses.
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Recommendation:

Based on the above assessment, EPA recommends the FSEIS and final 404(b)(1) Evaluation:

- Provide a full description of the analysis of impacts on fish and other aquatic organisms and clarify how the values in the spawning and rearing habitat assessment were determined, including the methodology, assumptions, calculations, and uncertainties.
- Identify where values changed between 2007 and 2020 analyses and clearly explain to what extent and why these changes are the result of the application of new data/analysis, changes in the assumptions or framework of the assessment, changes in conditions on the ground, and/or other factors.
- Clarify the assumptions and use of the weighting factor to reduce the loss of AAHUs in the 2020 spawning and rearing habitat impact analysis.

3. **Water Quality:** The 2020 DSEIS includes a large amount of baseline water quality data from the Yazoo River Basin. Analysis of this water quality data focuses on current trends in low dissolved oxygen and high nutrient concentrations observed in the main stems of Steele Bayou and Big Sunflower Basins. This data has raised concerns regarding the degradation of water quality in the YBA. Previously, USACE recommended reforestation of up to 40,000 acres and maintaining higher minimum ponding levels of up to 3 feet behind the flood gates during low flow periods to address these water quality issues and provide benefits to fish and other aquatic organisms. However, portions of the 2020 DSEIS (Appendix F-8) now indicate that reforestation is not likely to improve water quality in ways that would improve support for fish and other aquatic organisms while other portions continue to indicate that wetland reforestation/restoration will “provide significant long-term benefits to water quality” (see Appendix L). The 2020 DSEIS also now indicates that maintaining higher ponding levels would be detrimental to fish and other aquatic organisms because of concerns regarding low dissolved oxygen. Statements about the water quality effects of reforestation and minimum ponding levels appear to reflect different views about strategies for addressing water quality concerns. The 2020 DSEIS also makes conflicting statements regarding whether the operation of the pumps would affect water quality, with some parts of the document indicating that construction and operation of the pumps “are not anticipated to cause long-term changes in the existing water quality within the study area” (Appendix L), while others state that operation of the pumps would improve current conditions regarding dissolved oxygen (e.g., Appendix I). These statements regarding water quality benefits from the operation of the pumps, are not supported by data to quantify beneficial or adverse effects.

In addition, the USACE has observed declining river low flow stages, in the late summer or early autumn, over the last 90 years in the Yazoo Basin. According to the USACE, these reduced stages result from the completion of flood control projects and agricultural practices. USACE indicates that healthy baseline water quality standards cannot be maintained without adequate year-round flow in the aquatic systems. In response, the 2020 DSEIS proposes a series of groundwater wells along the Mainline Levee to supply water to streams in the YBA during low flow periods (see discussion in Mitigation section

below). While the 2020 DSEIS includes qualitative statements indicating that the proposed wells will improve flow, water quality, and biological conditions, as discussed in the Mitigation section below, no data or quantitative estimates are included to support these statements.

Recommendation:

Based on the above assessment, EPA recommends that the USACE incorporate the following information in the FSEIS:

- Include additional information describing the extent to which the pumps project and the wells would impact water quality. Evaluate whether operation of the pumps will adversely affect the existing low-flow problems (e.g., whether pumps may remove water at a faster rate than groundwater recharge).

4. Cumulative and Secondary Effects: Cumulative effects are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material; although the impact of a particular discharge may constitute a minor change in itself, “the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems.”¹⁴ Secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material.¹⁵

Recommendation:

EPA recommends that the USACE incorporate the following information in the FSEIS and final 404(b)(1) Evaluation:

- The cumulative effects analysis considers the historic wetland losses/degradation in the Lower Mississippi River Valley, which has already lost over 80 percent of its bottomland forested wetlands (DOI 1988) and in the Mississippi Delta region in particular. For instance, the 2020 DSEIS finds that the completion of numerous flood control projects in the YBA has already lowered the median $\geq 5.0\%$ flood duration elevation by approximately one to three feet resulting in impacts to the hydrology of tens of thousands of acres of wetlands in the YBA and the pumps project would result in additional impacts to tens of thousands of acres of wetlands in the YBA (2020 DSEIS, Appendix F-5). These effects contribute to habitat changes for a range of wildlife species (e.g., waterfowl, shorebirds, and/or aquatic dependent mammals) which have contributed to population declines and may impact the ability of some species to successfully migrate. We recommend that the cumulative effects analysis also consider these kinds of impacts on the productivity of the aquatic ecosystem.
- The secondary effects analysis includes consideration of the effects on wetlands and other aquatic resources associated with the operation of the pumps project. Such effects can also cause changes to the availability of wildlife food resources (e.g., plant material, insects, amphibians), in addition to other wetland functional changes, and should be considered.

¹⁴ 40 C.F.R. § 230.11(g).

¹⁵ 40 C.F.R. § 230.11(h).

- Additional analysis consistent with 40 C.F.R. § 230.11(b) should be included in the FSEIS to evaluate the potential effects of the pumps project on water levels in the Yazoo River. According to Appendix L of the 2020 DSEIS, water levels on the Yazoo River side of the Deer Creek Pump site would be impacted by approximately 0.25 foot during pump operation, however Appendix G indicates the estimate was made on the Yazoo River side of the Steele Bayou site. We recommend that this be clarified.
 - EPA recommends this analysis evaluate the effects of discharging water from the YBA into the Yazoo River on homes, communities, and/or infrastructure along the Yazoo River, particularly in areas downstream of the Deer Creek site’s pump discharge point (e.g., Vicksburg).

B. Section 230.10(d) – Evaluation of Minimization and Compensation Measures

The Guidelines prohibit discharges that do not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem.¹⁶ This requirement includes appropriate and practicable compensatory mitigation to offset unavoidable environmental impacts associated with discharges permitted under CWA Section 404.¹⁷

1. Compensatory Mitigation: The Guidelines require appropriate and practicable compensatory mitigation to offset unavoidable impacts to waters of the U.S. and require that mitigation plans, such as the plan proposed in the 2020 DSEIS, be based on actual proposed mitigation sites. The USACE should provide a mitigation plan that is as detailed and specific as would be required by a private party applying to the USACE for a Section 404 permit.¹⁸ As discussed below, the compensatory mitigation plan described in the 2020 DSEIS includes a number of deficiencies that would preclude a private party from receiving a Section 404 permit. The compensatory mitigation plan proposed in the 2020 DSEIS¹⁹ includes two components:²⁰

- 1) Reforestation/restoration of 2,405 acres of agricultural lands to wetlands to offset approximately 38,774 acres of wetland impacts as well as impacts to terrestrial resources, wildlife, waterfowl, and a portion of the impacts to fish and other aquatic organisms; and
- 2) Installation of up to 34 wells to irrigate streams during low-flow periods to offset the remaining impacts to fish and other aquatic organisms.

According to the 2020 DSEIS, specific compensation sites for reforestation have not been identified. The proposal relies on the ability to secure sites in the future from willing landowners in locations where flood frequency and duration will be unaffected by the pumps project. There is also uncertainty

¹⁶ 40 C.F.R. §§ 230.10(d); 230.12(a)(3)(iii).

¹⁷ 40 C.F.R. § 230.12(a).

¹⁸ Pursuant to Section 2036 of the Water Resources Development Act (WRDA) of 2007, “the Secretary shall ensure that the mitigation plan for each water resources project complies with the mitigation standards and policies established pursuant to the regulatory programs administered by the Secretary.” 33 U.S.C. § 2283(d)(3)(A). We recommend the EIS also describe how the proposed compensatory mitigation for the pumps project is consistent with the other requirements of Section 2036, including those related to mitigation site identification, acquisition, monitoring, and contingency planning. 33 U.S.C. § 2283(d)(3)-(5).

¹⁹ There are still 1,490 acres of reforestation yet to be acquired to offset the impacts of other past discharges (2020 DSEIS, Main Report).

²⁰ As discussed above, these mitigation requirements appear to be based on an incomplete assessment of likely impacts. Mitigation requirements should be based upon the full scope of likely impacts, to include any changes resulting from the analyses requested above.

regarding the number of wells to be installed and if the potential sites can be secured from willing landowners.²¹ Due to the lack of site-specific mitigation plans, it is unclear to what extent these mitigation measures would offset potential adverse impacts.

Regarding the proposed reforestation, regulations require that mitigation plans be based on actual mitigation sites.²² The projected benefits of the reforestation are based largely on assumptions about the location and condition of unidentified mitigation sites (e.g., the 2020 DSEIS does not include data and information based on an HGM assessment of specific proposed compensation sites to support estimation of benefits). The proposed reforestation also does not ensure that specific functions will be adequately replaced because all functions are lumped together in the Average Annual Functional Capacity Unit calculation and hydrologic source and periodicity are uncertain. The 2020 DSEIS indicates that reforestation would not effectively offset impacts to fish and other aquatic organisms. Other areas of concern associated with the proposed reforestation are its reliance on land acquired via purchase of conservation easements from willing landowners. The plan also does not demonstrate that there is sufficient suitable acreage to restore to adequately offset the impacts of the pumps project.

The 2020 DSEIS also includes a conceptual proposal to install wells along the Mainline Levee inside the YBA to irrigate streams in the YBA during low-flow periods. According to the 2020 DSEIS, this effort would be designed to address declining river stages observed over the last 90 years in the Yazoo Basin due to the completion of flood control projects and agricultural practices. There are no mechanisms identified in the DSEIS to ensure that any water from the wells is not also diverted for agricultural or other purposes. There is also no data to support that use of the wells will result in the water quality or biological benefits ascribed in the 2020 DSEIS.

Recommendation:

Based on the above assessment, EPA recommends that the USACE incorporate the following information in the FSEIS:

- Develop a compensatory mitigation plan based on specific compensation sites to determine compliance with Section 230.10(d) which addresses the following elements: compensatory mitigation project objectives, site selection factors, site protection instrument, baseline information at the impact site(s) and specific proposed compensation site(s), credit determination, work plan, maintenance plan, performance standards, monitoring requirements, long-term management plan, adaptive management plan, and financial assurances.²³
- EPA recommends that the compensatory mitigation plan be appropriately sized to offset aquatic resource functional losses.
- That site-specific mitigation plans for the proposed reforestation include HGM assessments of actual mitigation sites, and that specific functional losses be identified and offset (i.e., versus being combined in the Average Annual Functional Capacity Unit calculation).

²¹ Some portions of the 2020 DSEIS (e.g., Appendix L) state that “no more than” 34 wells will be installed, so the actual number of proposed wells is unclear. The 2020 DSEIS also notes that there is “uncertainty associated with the availability of land for the identified well field sites from willing landowners” (Appendix L), thus detailed plans have not yet been developed.

²² Mitigation standards for the regulatory program do not allow such mitigation plans to be based on hypothetical mitigation sites; this is not permitted in the CWA Section 404 Regulatory Program (40 C.F.R. § 230.91 – § 230.98).

²³ 40 C.F.R. § 230.94(c).

- That mitigation plans for the proposed wells include data and analysis that demonstrates the potential effectiveness of proposed mitigation in addressing water quality and biological impacts, including estimates regarding the quantity of water to be delivered to streams and the fate of water once it reaches the streams; operation and sustainability mechanisms to ensure that any water from the wells is not diverted for other purposes; and information regarding how well operation would be coordinated with the operation of the pumping station and flood gates.
- As this proposal is out-of-kind mitigation to offset a portion of the pumps project’s estimated impacts to fish spawning and rearing habitat, we recommend the FSEIS demonstrate “using the watershed approach described in the rule (see § 332.3(c) [§ 230.93(c)]) that out-of-kind compensatory mitigation will better serve the aquatic resource needs of the watershed.”²⁴
- The Section 404(b)(1) Evaluation in the FSEIS should include the above referenced information as it is necessary to determine compliance with 40 C.F.R. § 230.10(d).

2. **Monitoring and Adaptive Management:** Sections 2031, 2036(a), and 2039 of WRDA 2007 require the USACE to develop a monitoring and adaptive management plan for its restoration activities²⁵ and this complements requirements in the Guidelines.²⁶ The 2020 DSEIS describes an approach to monitoring various resources in the YBA; it is unclear in the 2020 DSEIS if and how the results of this monitoring would be used to inform specific adaptive management actions.

Recommendation:

EPA recommends that the USACE incorporate the following information in the FSEIS:

- Consistent with current applications of adaptive management planning, we recommend that the adaptive management approach involve the collection of scientific data on various resources within the YBA, including aquatic biology, water quality, and wetlands, and the use of that information to inform ongoing management of the project. Such a monitoring and adaptive management approach would evaluate both the effects and management of the pumps, as well as the proposed well fields.
- EPA recommends the FSEIS include a detailed monitoring and adaptive management plan that is based on a clearly defined pump operation and mitigation plan. The pump operation and mitigation plan will help inform ecological metrics that should be evaluated, identify desired target values for these metrics, and present additional management actions (e.g., regarding the pumps, well fields) that should be taken based on the monitoring results.

II. Other Issues

A. **Environmental Justice (EJ):** EPA recognizes the importance of flood risk reduction for vulnerable communities, and the DSEIS indicates that the YBA has a high minority and low-income population. The EJ analysis focuses on two counties, Issaquena County and Sharkey County and two cities, Hollandale and Rolling Fork. However, it is unclear why the EJ analysis was limited to the two counties. The EJ analysis (Main Report and Appendix F-1) indicates that there are lower risks of flooding associated with the Proposed Plan for these populations. According to Table 4 (Appendix F-1),

²⁴ 73 FR 19601 (Preamble to the 2008 Mitigation Rule).
²⁵ 42 U.S.C § 1962-3; 33 U.S.C. § 2283(d); 33 U.S.C. § 2330a.
²⁶ 40 C.F.R. § 230.91 – § 230.98.

approximately 436 residential structures will no longer flood as a result of the 100-year flood event with the Proposed Plan. In addition, the analysis suggests that EJ communities are expected to benefit from reduced damages to agricultural crops. The DSEIS appears to attribute all the benefits from reduced flood loss and reduced agricultural crop loss to low-income and minority populations. This may overestimate potential benefits to EJ communities. The DSEIS also suggests that operating 34 groundwater wells will result in more subsistence fishing and hunting opportunities. However, as discussed above (see Wetlands, Fish and other Aquatic Organisms, Water Quality, and Compensatory Mitigation discussions) the extent of this is unclear. Furthermore, the FSEIS should evaluate whether there are EJ communities downstream of the pump site and, if so, whether they would be impacted by floodwater discharged from the YBA via the pumps.

Recommendation:

EPA recommends the EJ analysis clarify information regarding the scope of the study area, project benefits, and impacts in the FSEIS.

- For the study area, include a rationale for limiting the assessment to Issaquena and Sharkey Counties.
- For project benefits, clarify information regarding the magnitude and extent of the agricultural benefits to EJ communities and clarify the benefits groundwater wells will provide to subsistence fishing and hunting; and
- Discuss any potential impacts to EJ communities downstream of the pump site receiving flood water discharges.