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Mr. Eric Williams
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August 6th, 2024

Attention: Eric Williams

By email: PearlRiverFRM@usace.army.mil

Comments: June 2024 Draft EIS, Pearl River FRM Project, Rankin and Hinds Counties Mississippi

Dear Col. Gipson and Mr. Williams:

Healthy Gulf was founded in 1994 as Gulf Restoration Network with a Mission to collaborate with and serve communities who love the Gulf of Mexico by providing the research, communications and coalition building tools needed to reverse the long pattern of over exploitation of the Gulf's resources. Healthy Gulf is concerned with the biological and physical health of the rivers and streams that drain into the Gulf of Mexico, including the Pearl River in Mississippi and Louisiana.

Healthy Gulf submits this comment letter in the hope that we will be responsive to the needs of the communities we serve, respecting the interests of marginalized and oppressed people in them. We acknowledge that many Gulf South residents are confronted every day with the legacy of historical injustices as well as current environmental issues that threaten their health and well-being. We believe that the experiences, perspectives, and leadership of low-income communities and communities of color must inform our collaborative service.

Healthy Gulf opposes plans to dredge the "overbanks" or impound the Pearl River's urban section in Alternatives C, CTO-D and CTO-E. We support non-structural Alternative "A-1" which can have other elements added to it that provide other, more robust flood risk mitigation features. In its discussions of the various suggested alternatives and opportunities in the DEIS document, the Corps has provided an

array of options for consideration and has offered the reader/commenter the chance to arrange these options in a way that will provide flood risk management while doing much less harm to the land, water and wildlife resources both in the project footprint and downstream in the middle and lower reaches of the Pearl River.

The Necessity of a Watershed Study

The Army Secretary for Civil Works **should not** move toward approving any of the channel altering projects without the benefit of reliable, current data provided by a comprehensive study of the river from headwaters to Lake Borgne. The need for this kind of study is listed in "Opportunities" (Section 3.1.2) of the DEIS main report and is again raised by Colonel Klein in the Vicksburg Commander's Report.

The Pearl River is a regulated stream with the following projects built along its channel: a low-head dam across it in Leake County, the sixty-three year old Ross Barnett Reservoir and dam for drinking water and recreation in Madison and Rankin Counties, a cross channel sill at the Jackson J.H. Fewell Water Treatment Facility in Hinds County, sills built to block its channel to fill the Pearl River Navigation Canal near Bogalusa in Washington Parish, and a failed structural River Diversion at Walkiah Bluff, straddling the Louisiana-Mississippi state boundary. In a recent flood the sheet pilings and limestone rock wing walls of the diversion have been undermined and flanked. The river has broken through the diversion structure and now almost the entire flow follows the West Pearl channel into Louisiana.

The DEIS proposes to further alter this river system. Three structural flood risk management alternatives, "C", "D" and "E" would dredge the river's overbanks and channel. Two of those alternatives, "C" and "D" also propose building a weir and recreational lake. One alternative "A-1" is a non-structural plan and would not physically alter the river or its floodplain. However, the "A-1" plan was dismissed as the National Economic Development (NED) plan by the Corps stating, without sound evidence, that many property owners may not accept the property-specific risk mitigation. Also, there was not a recognition by the DEIS writers that multi-agency "whole of government" efforts, perhaps led by Silver Jackets teams, could increase acceptance and aid implementation.

According to the "Opportunities" section of the 2024 Pearl River FRM Draft EIS:

> "A comprehensive study of the Pearl River is necessary to fully understand the basin's hydrology, hydrodynamics, and ecosystem. The scope of the study should be from the headwaters to the terminus at the Gulf of Mexico. A watershed study would inform disposition of legacy federal infrastructure, opportunities for sustaining and managing flowrates through the basin, and enhancement of habitat for the basin's wildlife, flora and fauna. Authorization via a Water Resources Development Act is required." (DEIS p. 91)

Unfortunately, the Pearl River Watershed Flood Risk Management project for Rankin and Hinds Counties DEIS does not heed the cautions contained in the DEIS author's and Commander's call for a comprehensive watershed study. Further alterations of the Pearl River channel from dredging and removing overbank as contemplated in alternatives "C", "D", and "E", or by the weir installation in alternatives "C" and "D" should only be carried out in the context of first performing a watershed study of the river as contemplated by the authors of the 2024 Draft EIS and Colonel Christopher Klein's 2024 Commander's Report. Any evaluation of these alternatives is pre-mature and absent a watershed study

cannot be properly evaluated using the Corps' own planning procedures. Only"A-1", a non-structural plan can proceed without a watershed study.

The Army Corps of Engineers in partnership with federal and state resource agencies should perform a scientific watershed study before deciding on approving any structural alternative. It should do so following its own guidelines and its new planning regulations. The need for a watershed study is reinforced by the U.S. Fish and Wildlife Service in its most recent Fish and Wildlife Coordination Act Report (FWCAR) from August 2023. The USFWS in point 14 of its FWCAR recommends "a watershed, sediment and water quality analysis within the Pearl River Basin, which may help identify and develop ecosystem restoration projects that could reduce flood risk throughout the basin." The USACE should fully concur and it should not move ahead with planning, or to PED for this Pearl River FRM DEIS until such a study happens.

Human impacts on a working river

The Pearl River basin has nearly 100 NPDES discharge permits granted under Clean Water Act authority by the LDEQ and MDEQ, and water is withdrawn from the Pearl River for municipal drinking water in Jackson and by industrial and agricultural users. The Pearl is a "working river" as well as a stream that supports remarkable biodiversity and the wide range of habitats that a large coastal plain river should support. Despite many impacts and stressors, the Pearl River is recognized as supporting important habitats and life-cycle requirements for a variety of birds, mammals, fish, reptiles, amphibians and invertebrate aquatic life. The lower Pearl supports an eco-tourism industry that has 250,000 people per year taking swamp tours in small boats to see the wildlife along the river. The Pearl River can still support this array of life and activity in spite of human impacts – we use the river to deposit treated sewage from every city and town along it. Partially treated industrial effluents enter the river as well. Storm drains send urban non-point source pollution to the river from several cities and towns - we flush spilled petrochemicals from parking lots, streets and roads, and pesticide and fertilizer enters the Pearl as agricultural runoff. There are many other harmful impacts that the river system assimilates every day.

Among the most basic data needs for the river is an updated water budget identifying contributions of water from tributaries and withdrawals of water for drinking, industrial and agricultural uses that must be developed to understand water quantity and water use needs on the river. No water budget appeared in the 2018 DEIS, and despite comments on that draft report asking for a water budget, none is offered in the 2024 DEIS either.

Benefits claimed for Alternatives "C", "D" or "E" violate Corps Policy

The underlying WRDA authorization (Section 3104 of WRDA 2007) modifies the Pearl River Basin project authorized by Section 401(e) (3) of WRDA 1986 to authorize the Secretary to implement a **flood damage reduction project**. The lake alternatives have strayed very far from the authorization of "flood damage reduction." The Corps does not have the authority under WRDA to authorize a project, or separable elements of a project that won't reduce flood damage.

ACOE Engineering Notebook ER-1105-2-100, one of the Corps policy authorities cited as governing many aspects of this project, **recommends against supporting land development** opportunities such as those described in Alternatives C, D, or E.

Appendix E of ER-1105-2-100 (2000) under Section III Flood Damage Reduction, subsection l, covers land development and provides in subsection l (1): “Projects or separable increments producing primarily land development opportunities do not reduce actual flood damages and therefore have low budget priority. Federal participation in these projects will not be recommended.”

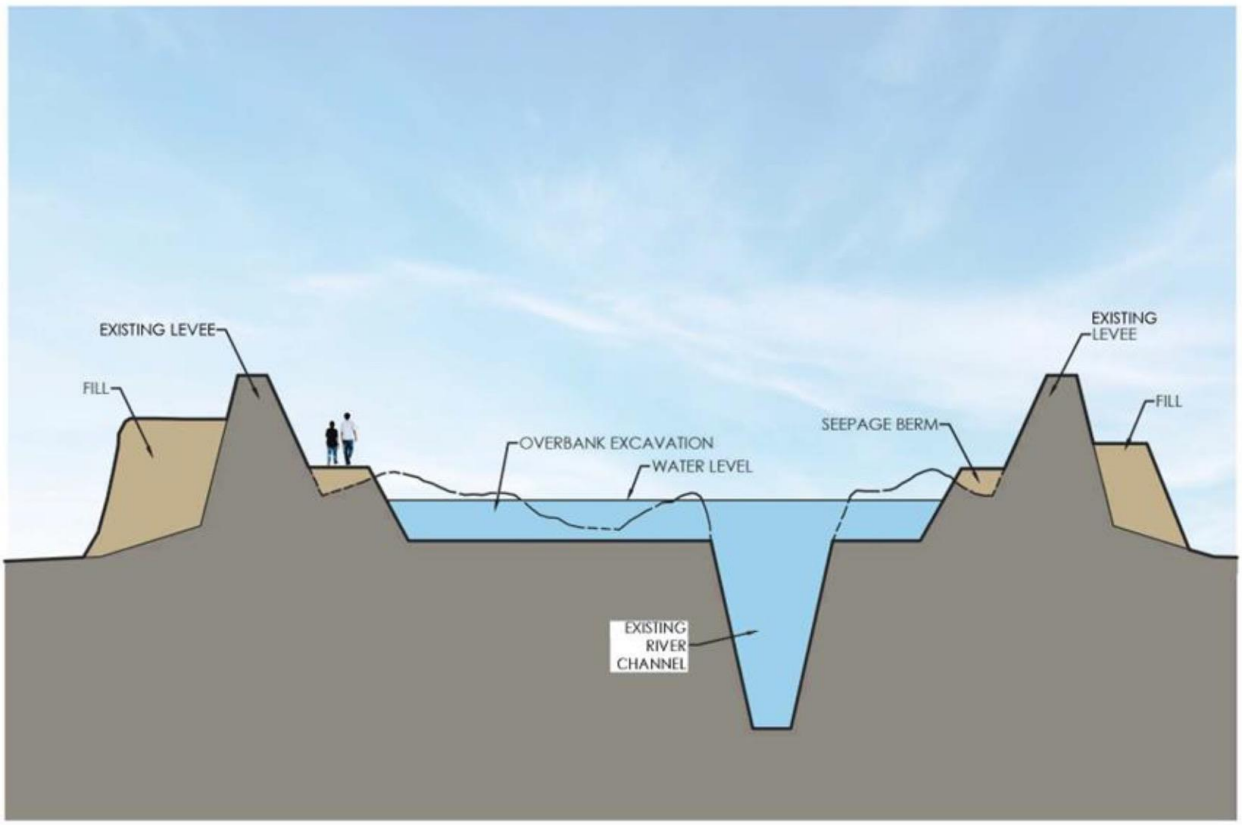

Figure 3-12 from Main Report p. 124

Main Report Figure 3-12 depicts channel improvements with a relocated weir. Seepage berms on the river side of levees and fill areas on the outside of levees are depicted. The main report states on page 125 about the CTO alternatives: “fill material placed behind levees would be graded to the same elevation or lower than existing levees, compacted for suitability for **future land development**.” Also from page 125: “Alternative CTO would upgrade the existing federal levees by placing excavated material on the protected side of the levees. Excavated material would also be placed in designated disposal areas in other locations within the flood plain. The disposal fill areas would impact approximately 485 acres (151 ha.)” There is not a description of the dimensions of the new land masses created in CTO-D, but the areas of these land masses are listed as ranging from 6.5 to 88 acres. (p. 125) For comparison, the width of the new land mass created behind the levees in Alternative C would range from 200 to over 1000 feet in width. (p. 109) The new land masses created in CTO-D would be similar in dimension.

The DEIS report states that the weir built in alternative "C" does not provide any flood control benefits (p. 113). Likewise, the proposed weir in alternative CTO-D "does not provide any flood control benefits" (p 128). Neither lake plan with weir provides any flood control benefits - the lakes are for recreation.

According to ER-1100-2-100 Appendix E, Section III, subsection l (1), future land development opportunities (such as building on compacted spoil behind levees) do not reduce actual flood damages and therefore have low budget priority and Federal participation in these projects will not be recommended. However, in this DEIS report it is clear that development is contemplated. Regarding CTO with weir, the following is found on page 128: "The weir does not provide any flood control benefits…However the weir provides a lake surface for future water supply concerns, as well as adding attractive locations for recreation and future economic development."

The DEIS, as it discusses alternative CTO-D, anticipates attractive locations for recreation and future economic development, all built on compacted spoil attached to the protected side of levees and on raised spoil disposal areas that are similarly compacted and prepared. The DEIS also admits that a lake does not provide any flood control benefits.

The lake and the augmented levees built with compacted soil, two of the main features anticipated by the DEIS document for either alternative C or CTO-D are hard to justify by Corps of Engineers Regulations and by the lack of any flood control benefit from building a weir and lake. Recreation benefits and land building do not reduce actual flood damages, and **this is exactly the type of project the federal government states in ER-1105-2-100 Appendix "E" that it will not recommend for federal participation because it has low budget priority.**

The Army Corp's own staff reviewers recognize that a lake on the Pearl River offers no flood storage capacity.

This same problem was identified four years ago during the Agency Technical Review (ATR) of the 2018 version of this draft EIS document. Army Corps technical reviewer Sara Schultz in the Plan Formulation section of review comments identified the fact that a lake does not create any additional flood storage capacity. (see below). That was true for a weir and a 1500-acre lake in 2020 and remains true for a weir and 1700-acre lake in 2024.

Comment 8285727 Planning - Plan Formulation (pdf page 92-94) ATR 2020.

"Concern: Incremental Analysis of the Final Array of Alternatives"

"Basis: ER 1105-2-100 specifies that the proposed project features must be shown to incrementally reduce the problem (i.e.. the flood risk). It is unclear how construction of the weir and impoundment of water reduces the flood risk to the adjacent communities. **The existence of the 1,500-acre lake does not create any additional flood storage capacity or conveyance capacity.** It could provide recreation benefits however these benefits could also be provided without the impoundment of water by improving access to the river. The new widened and taller levees would seem to be an impediment to recreational access and the trapezoidal channel would lose aesthetic quality compared to the current riparian corridor."

Violation of Executive Order 11988 (1977)

A long-standing Executive Order on Flood Plain Management (E.O. 11988) is violated by plans for building new land along the Pearl River.

Engineering Notebook ER-1100-2-100, Appendix E, Section III paragraph E-18 includes Executive Order 11988 from 1977 because it remains in effect:

> "The intent is to avoid floodplain development, reduce hazards and risk associated with floods, and restore and preserve natural flood plain values (ER 1165-2-26) in the event there is no alternative to construction in the flood plain, as is the case with flood control projects, the Corps is required to **minimize the adverse impacts** induced by construction of the project. In considering the adverse impacts the following should be addressed:
>
> 1) Induced new development in the flood plain or induced improvements to existing development in the flood plain that would increase potential flood damages; and
>
> 2) The detrimental effect of induced activities on natural floodplain values."

It is important to state that Alternative A-1 avoids development in the flood plain. As E.O. 11988 contemplates, A-1 is an alternative to C, CTO-D, and CTO-E that avoids or **minimizes** the conversion of flood plains to other uses.

The spoil material produced by dredging the overbanks of the river would be deposited in the flood plain, according to the DEIS at page 125: "Excavated fill material would also be placed in designated disposal areas in other locations within the flood plain… Clearing and grubbing of approximately 1501 acres would occur prior to placement of the excavated fill material from the channel lowering (dredging the overbanks)"

The Corps and the Rankin Hinds Pearl River Flood and Drainage Control District have collaborated to create a 2024 DEIS with alternatives C, CTO-D and CTO-E all relying on placing excavated material in the Pearl River flood plain, but the DEIS writers have not considered the adverse impacts of induced new development in the flood plain or the detrimental effects of induced activities on natural floodplain values. In this 2024 version of the DEIS, the future development is left open-ended and vague: "The newly created areas could allow for expanded riverfront access, natural areas, and commercial development along with recreational opportunities." (p.125). In 2018, the Rankin Hinds Drainage District went much farther in characterizing post project development in the DEIS, and calculated dollar amounts of annual "location benefits" created by filling floodplain lands and relied on those benefits for the economic justification of the locally preferred plan at the time, Alternative "C" from 2018. (See 2018 DEIS Appendix B page 28 Table B-16 Summary of Project Benefits October 2017 Price Levels that allocated damage reduction benefits of $10,221,521 for Location Benefits (Land New Use)

We don't see the Corps writers going that far in the 2024 DEIS. The Corps on page 249 discusses how it has responded to E.O. 11988: "Alternative C and CTO would also have features to promote future development (Land Creation) within the historic 1 percent AEP flood plain. However, those areas (are) designed such that they would no longer be located within the updated 1 percent AEP floodplain upon project completion." Land that was riparian floodplain wetlands pre-project will have excavated

floodplain soils mounded on top of it to achieve an elevation high enough to remove the land from the 100-year flood plain. In other words, when floodplain lands are elevated using soils excavated from other parts of the floodplain, they are no longer part of the 100-year floodplain and will have future development promoted on them. This sleight-of-hand logic has been repeated so many times with a straight face by the Rankin-Hinds Pearl River Flood and Drainage Control District representatives that they've convinced themselves that this strained interpretation is valid.

But this disturbance of the flood plain isn't something that is encouraged in ER-1105-2-100, rather it is proscribed by Executive orders 11988 and to some degree by E.O. 11990 (protection of wetlands) that both have been components of this Corps planning guidance document since before 2000.

Appendix E, Section III, Paragraph E-10 (planning setting) c(4) provides: "Executive Orders.. Compliance with E.O. 11988 Floodplain Management and E.O. 11990, Protection of Wetlands, is assumed." In this project, compliance with neither of these Executive Orders can be assumed. Without the overbank removal proposed in alternatives C, CTO-D and CTO-E, the floodplain lands and their associated wetlands along the Pearl River would not be disturbed or developed because most of them are now in a floodway, in the batture-lands on the unprotected side of the levees. Without this project, these lands would remain undeveloped. And if Corps guidance is applied correctly to protect wetlands, they should remain undeveloped.

In any case, most of the lands that will be removed in the excavation of the overbank are riparian wetlands -bottomland hardwoods, cypress/tupelo backwater sloughs, and other types of swamp forest and scrublands - all well within a floodplain that is not developed at this time. Because E.O. 11988 "assumes" that the Corps considers avoidance and minimization and induced development on potential damages from flooding, and natural floodplain values, the Corps needs to meaningfully show that it has considered these issues. The schematic drawings (below) that have been produced by the Great City Foundation, a Jackson, MS based nonprofit show the development its members and supporters hope to see along the Pearl River in Jackson in one place adjacent to the Belhaven Neighborhood between Fortification Street and Woodrow Wilson Avenue - at Belhaven Beach, a well-used location on the Pearl River. All of the development would be on compacted spoil in an area that would be denuded of riparian forest but is now replete with wetlands, and old river channel sloughs along Belhaven Creek.

Great City Foundation Jackson, MS 2024 promotional video (screenshot) of Belhaven Beach after weir/lake creation.

All of the lands that will be raised 12-18 feet with fill in the floodplain, ripe for development in the future, will exist along the riparian areas of the Pearl River, next to the river or the levee - no more than ten miles downstream of the Ross Barnett Reservoir. The design limitations of the dam at the Ross Barnett Reservoir don't change when new development eventually is placed downstream from it on elevated lands in the project area. The reservoir flood gates are operated to protect the dam from being overtopped at just over 300 feet above sea level and must release large amounts of water downstream to protect the dam from failure. The reservoir managers can raise the level of the tailwater by 8- 10 feet in 24 hours downstream of the dam's outfall. The normal pool of the reservoir is 297 feet above sea level, so only three feet of "freeboard" exist at the Barnett Reservoir Dam. Development placed on new land built in the floodplain in the project area, level with the tops of current levees, remains vulnerable to extreme high-water events on the Pearl River tailwater section during large water releases – the sort of releases needed to protect the 64-year-old dam's structural integrity. Development induced by Alternatives C, CTO-D or CTO-E is not certain to be completely out of harm's way, even if it is perched on mounds of new land in the floodplain or on "terraces" of new land built upon the backs of levees along the Pearl floodplain through Jackson, Flowood and Richland.

One of the reasons that "multipurpose levees" have broad, terraced flat tops is for resistance to crevasse formation when they are overtopped. So, the new lands built on the backs of levees along the Pearl River, styled as multipurpose levees, are not only platforms for development, they're designed to resist levee failure in large floods when levees overtop. It is important to emphasize that the main flooding threat along the Pearl River in Jackson comes from large releases of water from the Ross Barnett Reservoir, and none of the three alternatives "C", "CTO-D" or "CTO-E" has any component that addresses how the Reservoir releases or retains the water of the Pearl River. Development induced in

the floodplain by any of these three alternatives will always be within the zone of risk from an unprecedented water release from the Ross Barnett Reservoir.

Failure to address Congressional Directive in WRDA 2018 Section 1176

The responses to directives to the Army Secretary in WRDA 2018 Section 1176 to assess adverse downstream impacts and determine that the project is economically justified are not provided in this 2024 Draft EIS - these tasks assigned by Congress appear not to be completed.

During Scoping for the Pearl River FRM Project in 2023, WRDA 2018 Section 1176 was listed as one of the statutes controlling the writing of this draft document. The ACOE Guidance document from April 17, 2019, provided:

> "Section 1176 only applies to the project authorized under Section 3104 of the WRDA 2007, Pearl River Basin, Mississippi. Existing authorities will be used to conduct the review of the Pearl River project. The Secretary will review and determine whether the project is technically feasible, **economically justified**, and environmentally acceptable, will be consistent applicable policies, regulations, and federal laws. When reviewing the feasibility study and the environmental impact statement for the Pearl River project, the Assistant Secretary of the Army for Civil Works (ASA{CW)) **will assess potential adverse downstream impacts** to the Pearl River Basin resulting from the project."

This statute does not appear in the 2024 DEIS Section 7, listing relevant Environmental Laws and Regulations even though it was in force at the beginning of project scoping. WRDA 2018 Section 1176 was part of the directions to the Army Secretary at the beginning of scoping, and although the language had a sunset in October of 2023, some mention of how this language affected the development of the draft document after scoping should have been included in the DEIS. It was a direction from Congress and needed a response, especially since it was in force when scoping began and well into the writing of the new Draft DEIS by the Secretary and Corps District Staff. A separate assessment of adverse downstream impacts to the Pearl River Basin from the project was expected along with a determination of whether the project is economically justified. Those pieces of analysis were not provided in the DEIS.

Adverse impacts downstream from high flow seem to have been partially investigated for Alternatives C and CTO, but specific attention to low flow impacts from creating a new lake are not adequately analyzed. The low-flow floodgate built into the weir in either C or CTO is offered as a solution to assure that discharge from a lake in either Alternative C or CTO will be adequate to meet the minimum flows required to treat water at the Savanna Street WWTP. But no operation plan or modeling of its operation is provided. Nor is there even a design for the weir. Furthermore, the discharge measured at the Jackson gage on the Pearl River has fallen below the tenth percentile minimum flow value during ten percent 10% of observations between 1965 and 2017 – the period of time that includes the existence of the Ross Barnett Reservoir. The Savannah Street wastewater treatment permit's minimum flow is 227 cubic feet per second (cfs) and flow at this location has fallen below the tenth percentile minimum flow value 7% of the time in this same time period. This data demonstrates that drought conditions in the Pearl watershed already cause stress to downstream flows, which would be exacerbated by Alternatives C and D. Many commenters in 2018 pointed out that low flow investigations for the months of August-October were needed if another lake was created on the Pearl River. A discussion of the evaporation losses from

an additional lake, and a discussion of the frequency of occurrences of flows at or close to minimum flows at Jackson and Monticello are also needed. None of that is addressed in the DEIS.

The Savanna Street Waste Water Treatment Plant (WWTP) operates just downstream of the outfall of the weir in Alternative CTO. The wastewater discharge permit for the Savanna Street WWTP has a mixing zone at its outfall. There is also a 2015 Total Maximum Daily Load (TMDL) document for nutrients that applies to the Pearl River section from the Ross Barnett Reservoir all the way to Copiah County. Warm, well oxygenated water flowing over the top of the new weir will meet the effluent in the mixing zone for the Savanna Street WWTP. The findings of the 2015 TMDL were that the "critical cell" of the modeled chlorophyll "a" concentrations and dissolved oxygen "sag" or depression response were well downstream of Jackson. A new weir and lake in Alternative "C" or "CTO-D" and the warmer water released from the top layers of the impounded Pearl River could change the algae growth response, chlorophyll "a" concentration and cause the location of the "critical cell" in the Pearl River TMDL to move upstream or downstream. This is important information for any NPDES discharge permits for private or municipal permit holders on the Pearl River.

Incomplete Documentation of NED Benefits and Costs

In Section 3.3.2 on Economics Evaluation Tools and Modeling, the DEIS states that: "Annualized costs and benefits over a 50-year period of analysis will be compared to determine the net benefits and the BCR for each alternative. These benefits will be summarized, along with other comprehensive benefits and presented to USACE decisionmakers". If these comparisons of benefits and costs are not available to readers of the DEIS that was released in early June, readers don't have access to the same information that USACE decisionmakers do. What does this section mean?

In Section 4.2.1.1.65.14.3 (Main Report p. 217). it is stated: "For more information on the economics of Alt. C, see the Economics Section." There is no Economics section, and there is no Economics Appendix released with the Draft EIS which makes it hard to evaluate economics. This may be a typographical error or a piece of holdover language that was not removed in editing. Where is the Economics Section?

Inclusion of a lake for recreation in designs C and CTO-D raises cost contribution levels for the non-federal sponsor from a 35% cost share as contemplated in WRDA 2007 Sec. 3104 to a 50% cost share under the Corps regulations in ER-1105-2-100 (2000).

The way the federal government handles charging costs for "recreation" is that for purely recreational projects, the non-federal sponsor pays 100% because "recreation is a low priority output" (ER-1105-2-100 Appendix H Sec. VII para. E-47):

"For projects with other purposes, to which separable recreation is added, the statutory cost sharing requirement is just fifty percent…this is equivalent to saying the recreational benefits, which are required for justification must be less than an amount equal to 50% of project costs."

Army Corps guidance in ER-1105-2-100 Appendix E Section VII, paragraph E-49 a. (1) (Specific policies for lakes man-made p. E180), requires a 50% cost share from the non-federal sponsor.

"Lakes, or reservoirs, are impoundments created behind dams, or behind navigation locks and dams if lands not subject to navigation servitude are needed for water storage. Recreation policies applicable to

lakes are not applicable to dry dams, that is those dams not providing permanently impounded water. The Federal Government may participate in basic recreation facilities on project lands or separable recreation lands if a non-Federal sponsor will participate and cost share as outlined in paragraph E-51."

Army Corps Guidance ER-1105-2-100 Appendix H, Section VII (Recreation) paragraph E-51 a. (2) (Recreational Developments at Lakes, non-Federal) provides that there is a 50% cost share to a non-Federal sponsor for lakes:

"Non-Federal. The non-Federal entity must assume **at least one half of the separable first costs** of construction of recreation facilities, including project lands acquired specifically for recreation and access, and all cost and full responsibility for the operation, maintenance, replacement, and management of recreational lands, areas, and facilities.

A weir and lake provide no flood control on the Pearl River and therefore are only recreational in purpose. For a project that reports to be for flood risk reduction, the inclusion of a recreation purpose is by the Corps' own definition a "low priority output". In other words, the Corps has proposed to address the flooding problems in Jackson with a recreational solution that does not in fact address flooding. Also, the consequence of building a recreational lake in either Alternative C or CT0-D is the increase of the local sponsor's cost share from 35% to 50% - an additional 15%. The weir construction and the lands purchased in the project area are both highly likely to be recreational costs as the Corps defines them.

Alternatives A-1 and CTO-E would not be burdened with an additional 15% cost share. All of the Mississippi residents who voiced their opposition to a lake project for flood control on the Pearl River at the July 10-11 public meetings in Jackson and Monticello should know that the cost share portion that either the local sponsor or State of Mississippi will have to pay for a lake alternative will be greater due to the recreation purpose. Also, it needs to be stressed that the recreation alternatives are significantly more expensive to begin with, even before the added 15% financial responsibility.

The Corps' powerpoint slide on "Project History" that it showed in July 2024 at public meetings in Jackson, Slidell and Monticello failed to explain that after the 2007 (unpublished) Feasibility Study of the LeFleur's Lakes project was finished, the **Corps of Engineers refused to participate in or write another study to build a lake** for Pearl River flood control, instead taking on the role of monitoring the NEPA compliance of the non-federal sponsor as it (Rankin Hinds Pearl River Flood Control and Drainage District) proceeded to self-fund a DEIS/FS under WRDA 2007 Section 3104 – a WRDA Section 211 project led by a non-federal sponsor. This new direction began in 2008, Project Scoping was initiated in 2013 jointly by the Corps and the NFI, a Draft EIS was published by the NFI in 2018, and now the Vicksburg Corps is publishing a DEIS in which two of the leading alternatives involve lake-building. In a 17-year reversal, an example of "agency capture", the Corps in 2024 is publishing a document that promotes as the likely NED plan – Alternative CTO-D, a lake. The Corps is now doing what it said it would not do back in 2007.

The Corps selectively uses "uncertainty" to skew costs and benefits for NED purposes

Alternative A-1 is described by the DEIS writers as the likely NED plan, but for uncertainty about the participation rate by property owners. The DEIS writers state that **the benefits of this alternative are uncertain** - benefits may not be as great if a large enough number of the affected homeowners can't be convinced to participate in floodproofing, elevations or voluntary buyouts. (At least one homeowner from Northeast Jackson stated in a comment meeting that she would let the Corps buy her house

because she was tired of dealing with evacuating and replacing fixtures after several Pearl River floods.) The Non-Federal Interest Rankin Hinds Drainage District in the 2018 DEIS was able to describe the non-structural Alternative A from 2018 as much too costly for the benefits provided, and here again in 2024 the DEIS writers offer a non-structural alternative and then undermine its utility by predictions about its benefits being reduced by poor participation. Different assumptions are used in 2024 than in 2018, but the result is the same – a non-structural plan is undermined by unsupported assumptions.

Alternative CTO-D is described in the 2024 DEIS as the possible NED plan - but only if a 15% reduction of high costs for both CTO-D and CTO-E is employed to re-rank these two alternatives. The predicted result is that CTO-D (lake with weir) becomes more likely to be found as the NED plan after the 15% reduction of high costs. This method uses **assumptions about the uncertainty of costs** to make predictions about which alternative might rise up to be the likely NED plan.

It is important to note that costs for the weir in alternative "CTO-D" have not been calculated, and that since it only serves a recreation purpose, the cost share percentage for this element for the state of Mississippi will not be 65/35 but 50/50. The state of Mississippi and the NFI will pay 15% more because of the recreational nature of the weir so the NFI/state costs are both high and uncertain. **The weir's first costs could also contain uncertainty**. We don't yet know how robust a design may be needed for the weir or what costs that may entail. Benefits that would justify this weir are recreation, intensification and location benefits and these have some degree of uncertainty attached to them too especially when a weir is admitted by the Corps to offer no flood risk reduction benefits. **Uncertainty of benefits and costs can cut both ways**. The Corps has used uncertainty to deflate confidence in Alternative A-1 and to elevate the chances that "CTO-D" is the NED plan – but this lake with weir plan is not free from uncertainty about its costs and benefits.

There is very little discussed in the 2024 DEIS about mitigation – another source of uncertainty in assessing project costs. Mitigation costs will include addressing lost wetlands and restoring species habitats and could quickly become extremely expensive.

The DEIS Does Not Comply with the National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires that an environmental impact statement identify the full scope of direct, indirect, and cumulative impacts of a proposed action and determine whether there are less environmentally damaging ways to achieve the project purpose. As discussed throughout these comments, the DEIS fails to satisfy these fundamental requirements.

Purpose and need statements in the DEIS do not include the need for a weir, lake or recreation.

The purpose of the Pearl River FRM project is to "evaluate flood risk alternatives that could be implemented under Section 3104 of WRDA 2007".

The flood risk for commercial and residential structures needs a solution. Environmental Justice communities in Duttoville and Canton Club are cited as needing solutions for flooding, and the

transportation system and wastewater treatment system are also cited as needing protection from flooding.

Nothing in the Purpose and Need section on pages 9-10 contemplates a need for recreation benefits, the need for construction of a weir or lake, the need to secure a future drinking water supply, or the need for attractive locations for future economic development, yet later in the document, Alternatives C and CTO are stated to "provide a lake surface for future water supply concerns, as well as adding attractive locations for recreation and future economic development" (p. 128). It is not clear whether these are needs, wishes, or selling points for Alternatives C and CTO, but they don't reflect the basic stated needs given in DEIS section 1.4.

The three different lake/weir alternatives do not meet any of the primary purpose and needs established in the DEIS and instead address different needs, such as recreational opportunities on land and water.

The DEIS Alternatives Analysis Does Not Comply with NEPA

As discussed below, the DEIS alternatives analysis violates NEPA because it: (1) fails to evaluate highly reasonable alternatives; and (2) 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.

The DEIS also fails to identify the environmentally preferable alternative. Any Record of Decision for the final EIS for the Project would be required to identify the "environmentally preferable" alternative and agencies are encouraged to identify the environmentally preferable alternative in the EIS.

The environmentally preferable alternative is:

> "The alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources."

The environmentally preferrable alternative is A-1 which requires no mitigation because it does not disturb habitats.

The DEIS Impacts Analysis Does Not Comply With NEPA

Comparing and analyzing potential alternatives, the DEIS must examine 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. 40 C.F.R. § 1502.16. A robust analysis of project impacts is essential for determining whether less environmentally damaging alternatives are available.

Alternative C is described on page 3 of the Commander's Report as remaining unjustified by the traditional USACE benefit-cost analysis. In both the main body of the Pearl River FRM DEIS and in the Commander's Report, many impacts and costs of elements of Alternatives CTO-D and CTO-E are simply

missing or are identified for later analysis during pre-construction engineering and design (PED) **after** the Army Secretary makes his choice of alternatives in a Record of Decision. Deciding to approve an alternative first and then performing the necessary analyses to evaluate the appropriateness of the alternatives second is the wrong order for any decision and was described in one Slidell public meeting comment as "putting the cart before the horse".

The missing items that would be produced during PED include the habitat mitigation plan, a sediment study, a study of water velocities (needed to determine habitat impacts), and a Clean Water Act Section 404 b (1) analysis.

Other missing items include: an economics appendix that shows how the Corps arrived at its benefit and cost conclusions, an analysis of construction costs of countermeasures to protect bridges, costs of digging up, remediating or stabilizing toxic HTRW sites in the project area, an analysis of tributary back-flooding for CTO-D and CTO-E, impact of CTO-D weir at high flows, determination of whether the CTO weir is a high hazard dam, water quality impacts, water supply impacts, borrow area analysis for suitability, formal ESA consultation, and an updated set of recommendations from the US Fish and Wildlife Service on wildlife habitat and mitigation issues caused by CTO plans. The USFWS identified 26 recommendations in their 2020 Fish and Wildlife Coordination Act about Alternative C, so surely with a slightly smaller lake project in in 2024 contemplated in Alternative CTO-D, the Service will have suggestions about avoiding or compensating for the land lost to dredging and the changed riverine habitat function along the Pearl River.

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

> "The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7

On a river system that has been dammed for 63 years, having cross-channel weirs in three places, an abandoned barge canal project and a failed water diversion structure at Walkiah Bluff there is good reason to look at cumulative impacts and how placing a new weir and impoundment changes the Pearl River. Without information on the most basic of physical stream characteristics, such as: a sediment study, updated water quality information and a velocity study (all missing from this DEIS) the Corps cannot make predictions on the cumulative impact of further impounding of the Pearl River caused by CTO-D, or of the effects of dredging without creating a lake as in CTO-E. There is no mention, let alone analysis, of how construction of any of the alternatives will impact far downstream communities, such as Slidell. Acting to approve any structural alternative in the absence of this information is wrong because it goes against the intent and letter of NEPA. Readers of this 2024 document who expected to

be able to make insightful comments on a complete set of information have also been disappointed by the missing information – the aspects of this study that have been improperly left until the PED stage.

Also lacking is any comprehensive watershed study, as noted above, that the Corps itself recommends as a needed source of information but does not plan or mandate.

Inefficient approach to flood risk management

If the main purpose of the project is flood risk management, it is useful to compute the average local cost per structure of providing flood protection. The main report p. 116-117 contains some information about floodproofing costs for residential ($57-$140/sq ft) and nonresidential ($153,000 to $1.19 million/structure) structures. Although data on current real estate prices is limited, it seems that some of these costs are approaching or exceeding the value of the structures on the open market.
Data provided elsewhere allows comparison of structural and nonstructural plans. Considering only the local cost share and dividing by the number of structures that would no longer flood, the resulting values range from about $443,000/structure (Alt E, low cost) to $1.4 million/structure (Alt C, high cost). These values translate to $177/sq ft and $560/sq ft for a 2,500 sq ft home. We realize that the costs of some nonresidential structures are higher than for houses. Furthermore, the values listed do not consider the value of structure contents. However, the impact analysis should explore if participation rates in buyout or nonstructural alternatives would be higher if property owners were offered these levels of compensation instead of what they are offered. Otherwise, there is a structural bias towards structural alternatives.

If total project first costs (Main Report Table 3-8) are considered instead of only local costs, the average first cost of flood protection ranges from $1.3 million/structure to $2.1 million/structure for **Alternatives D and E.** Again, for a 2,500 sq ft house, this translates to $520/sq ft to $840/sq ft. we realize that costs for some nonresidential structures are higher than for houses. However, web searches indicate typical 2024 prices for single family homes in this part of Jackson are in the $40 sq/ft to $90/sq ft range. Redfin.com indicates the entire City of Jackson had a median sale price of $151,000 for single family homes in May 2024. **Why should taxpayers pay more than the value of a structure and its contents to protect it from floods? If the economic justification for the project is real estate development rather than FRM for existing structures, then the analysis and the DEIS should clearly state that.**

Excavation volume and area

Main report pp. 139 and 145 states that to 14.1 - 20 million yd3 will be excavated from the floodplains for Alternative C, D or E. Page 147 states that the material will be placed on the protected side of the levees and in "designated disposal areas" in "other locations." Disposal areas will require 485 acres (465.6 acres is given on p. 131). However, it also states that approximately 1,501 acres would be cleared and grubbed prior to placement of the excavated fill.

The next sentence states that the excavated fill will be used to “create” 6.5 to 88 acres of land within the Jackson MSA. Page 148 states that up to 1.6 million yd3 of material will be provided to the NFI "for additional usage within the project footprint."

Table 3-6, Main Report p. 141, indicates that Alternatives D and E will require 585 acres for fill.

None of these figures (either acreage or fill volumes) seem to add up.

It is not clear how the USACE intends to "create" land. Increasing the elevation of a floodplain does not create land. Further we note that even if the lower figure (11.3 million yd3) is used and if 1.6 million yd3 is provided to the NFI for some other location, the placement of material on 485 acres will be at an average depth of 12.4 ft. If the bulked fill volumes (12.5-16.2 million yd3) shown in Table 4-1 are used to estimate depth of fill on 485 acres, the average depth of fill is 14.0-18.7 ft. These values suggest that the project is predicated on significant land use change (commercial development) within the river corridor.

Much more attention must be paid to designing interior drainage facilities. Will placement of this fill exacerbate interior flooding?

Hydrology and hydraulics (Appendix E)

Additional analyses needed

The summary presented on p. 136-137 concludes with a list of 12 topics requiring additional study. These are listed below verbatim with my comments in italics:

1.Sediment analysis to determine potential sediment volume and impacts to proposed lake

2. Water quality sampling and analysis to better understand characteristics of tributary contributions to the project area (*Tributary impacts on lake water quality under Alternatives C and D are highlighted by findings 7 and 16, pp. 131 and 133 and by key recommendation no. 2, p. 134. The DEIS is inadequate in its provision for water quality in the proposed lake during extreme hot, dry periods and when such periods coincide with storm inflows from tributaries*.)

3. Temporary gage features to further refine calibration near key design features (*How will gage records obtained under existing conditions allow refinement of key design feature simulations?*),

4. Overtopping assurance levels of proposed and existing features within the project area,

5. Interior drainage of existing levees to determine mitigation for loss of drainage structure operability (*The potential for major impacts on B/C ratio as well as social factors such as disparate project impacts on flood risk management in marginalized communities indicates that more study of this topic is needed prior to alternative selection.*),

6. Redesign of the proposed weir to meet USACE and State standards (*Will the NFI pay for the weir design*?),

7. Further coordination and analysis of bridge impacts (*The potential for major impacts on B/C ratio indicates that more study of this topic is needed prior to alternative selection*),

8. Updated surveys of key levee and tributary features (*Is a bathymetric survey of the river channel needed? We did not see evidence of a channel survey. Flood and habitat modeling require accurate and detailed channel surveys*),

9. Determination of operation and maintenance plans for all proposed features.

10. Further analysis of the proposed weir tie in features (*What is a weir tie in feature*?),

11. Analysis of required seepage protection for existing levees *(If these seepage protection features are necessitated by the lake impounded by the weir, will the NFI pay for them*?)

12. If tributary features are selected as part of alternative CTO, further refinement of the modeling along the tributary reaches would be necessary (*It is not clear what tributary features are referenced here. How can Alternatives D and E be evaluated if key aspects of the Alternatives have not been determined? See below for comments on tributary flooding*).

Tributary flooding

The main limitation of the hydraulic analysis appears to be the lack of a full assessment of existing and with-project flooding along Pearl River tributaries. Main Report, Section 3, pp. 63-64 highlights the importance of tributary flooding. Although p. 63 is hard to follow, it does note that frequent flash flooding in excess of FEMA predictions has been a recent problem along many of the tributaries. We note that calibration of the HEC RAS model for the gages on Hanging Moss and Lynch Creeks was very poor relative to other gages (p. 144). Is this because there are no HEC RAS cross sections along these tributaries, and that the tributary bridges and other structures are not represented in the model?

The Commander's report (11 June 2024) noted that induced flooding is a problem with Alternatives C, D and E and that all of the impacted structures are in areas of environmental justice concern. The Appendix E summary states that Alternatives "C", "D" and "E" will induce flooding "along some tributaries" as well as just upstream of the weir and downstream of the weir. It is a struggle to obtain information about flooding along specific reaches of the tributaries from the report. Place a map showing overlays for floods of specific frequencies and with specific lake elevations online in an ESRI interface such as the USACE Flood Inundation Map so readers can examine them at various zoom levels. Water surface profiles for all simulated reaches (mainstem and tributaries) with and without project are also needed.

Above: Eubanks Creek flooding at Choctaw Road at N. State Street, Jackson MS. Scott Crawford in a wheelchair, unable to use ramp. A neighbor wades to a flooded vehicle on Choctaw Road.

Main Report Section 3 later explains that much additional work remains to be done to examine interior drainage and the required interior drainage structures and pumping stations. Since these structures are likely to be costly and have major implications for potential disparate impacts of the FRM project, they should be addressed in greater detail prior to PED.

Community and Environmental Justice Impacts

Community cohesion, general happiness, and freedom from fear of flooding are as important along the Lower Pearl River as they are in Jackson or any other community along the Pearl River. Having a river with caving banks, and a channel that cannot move its sediment load in low flow conditions doesn't make riverside landowners and residents happy or support community cohesion. Landowners downstream of Jackson in several Counties and Parishes are being charged property tax on more land than they possess due to streambank failure and land loss because of reservoir operations upstream.

Riparian landowners are accustomed to the loss of land and timber in the lower Pearl Basin. And when Jackson is releasing water from the Ross Barnett dam in anticipation of heavy rains from tropical storms and hurricanes two or three days away from a storm's impact in central Mississippi, Washington and St. Tammany Parish and Hancock County face storm surges from the Gulf combined with a rising Pearl River. The anxiety caused by a rising river and back-flooding along urban tributaries in Hinds and Rankin Counties is real, but residents along the lower Pearl River must face a storm surge on top of a river flooded by pre-storm water releases from the Ross Barnett 180 miles upstream – a situation out of their control and about which their Parish and the State of Louisiana have no voice. This creates short term anxiety and long-term resentment as community impacts.

The decreases in flood elevation at different river mile points in the project area in Jackson were mapped using the data provided by the non-federal sponsor in the 2018 Draft EIS to give a visual depiction of the modeled flood height reductions. The most disadvantaged communities won't receive a meaningful benefit from this project. For instance, the modeled flood height reductions from the 2018 DEIS give an eight-foot flood height reduction to an area along the river that had three feet of flood water in the 1979 flood of record, while an area that received 8 feet of water in 1979 will receive a three-foot flood reduction from Alternative "C" according to the 2018 modeling.

The 2024 DEIS is predicting even smaller amounts of flood relief at the various points along the Pearl River – about half of what was predicted in 2018. Even so, the relative water levels represented in the 2018 quantiles shown in the map below still hold true in 2024 – and reveal that different locations along the river receive varying amounts of flood relief. What was predicted and mapped for Alternative "C" in 2018 will also happen to a slightly lesser degree in Alternatives "D" and "E" in 2024.

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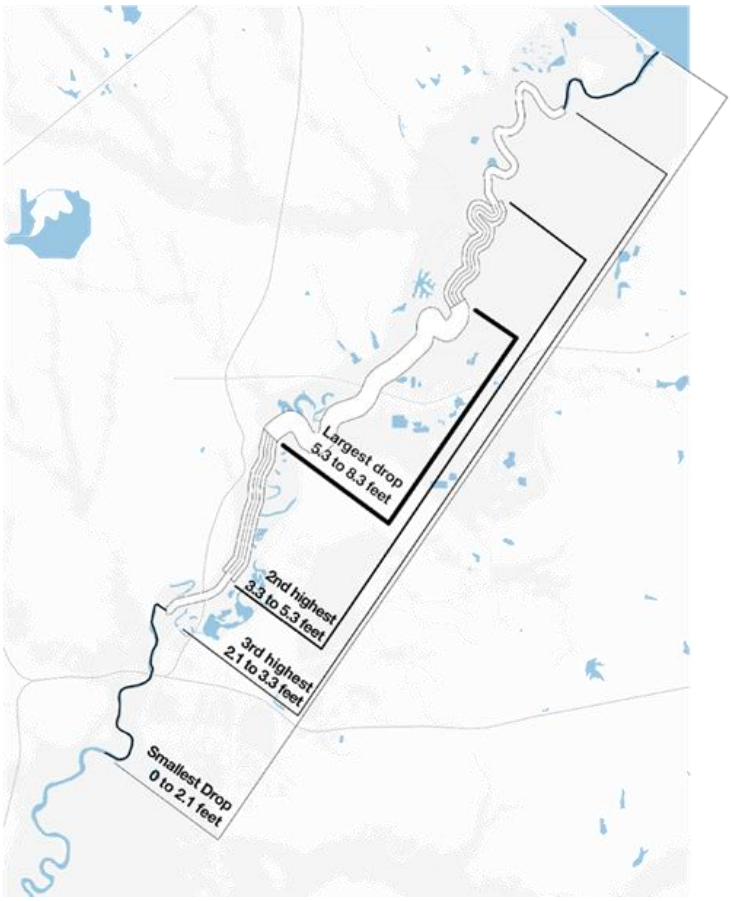


Quantile map showing a graphic depiction of Alternative "C" modeled flood height reductions for a 100- year flood from Table 3-3 from 2018 DEIS for Federal Flood Risk Management Project Pearl River Basin, Rankin, Hinds Counties, MS. The greatest reductions in flood elevation occur in the highest income neighborhood. Affluent neighborhoods benefit more, and poor neighborhoods benefit less which should not be the result of a federally funded public works project in 2024. Credit: Mapping flood height reductions and CEJST burdens, Juan D. Fernandez.

As the Army Corps and Army Assistant Secretary for Civil Works have appended and blended their recent work with the DEIS work already done by the Rankin Hinds Pearl River Flood and Drainage Control District, then the 2024 DEIS document's authors inherit these inequities. Overall, the major benefits in flood height reduction go to higher income communities, while lower income communities may take on a few inches less of flood water, but homes there still flood. This is a distinction that makes no difference to the people whose homes take on water when the river rises and backs water into creeks and neighborhoods – they still get wet, only with fewer feet or inches of water in their houses.

Alternatives "C", "D" and "E" don't solve all the flooding, nor do they remedy inequities among the flooded communities. And Alternative "C" and "D" with their weir/lake plans do next to nothing for the low-income communities along Eubanks Creek, Town Creek, Lynch Creek and others west of Interstate 55 - West Jackson. Low income, majority black communities along most of Jackson's Pearl River tributaries (Eubanks Creek, Town Creek, Lynch Creek) are considered burdened by multiple social, health, employment and educational problems according to the Climate, Social and Economic Justice Screening Tool (CEJST) developed by the White House Council on Environmental Quality. The overbank removal and channel modifications in Alternatives "C", "D" and "E" on the main stem of the Pearl River

happen too far downstream from most of these burdened communities to make any difference at all when flash floods happen in the upper and middle sections of creeks that function as drainage ditches.

Also, flash floods due to inadequate gravity drainage in upstream areas of the tributary creek watersheds happen more frequently during most years than Pearl River headwater flooding caused by reservoir water releases. The headwater areas and the mouths of these creeks both have flooding problems, often from different sources - and Alternatives “C”, “D” and “E” address only the mouths where they join the Pearl River. Headwater flooding in these urban watersheds will continue to be a problem.

In 2017, the Mississippi Legislature passed and the Governor enacted House Bill 1585 which broadened the taxing authority for flood control districts operating anywhere in Mississippi. The law applies to all districts, but it will support the Rankin Hinds Pearl River Flood and Drainage Control District’s taxing power and its ambitions to create a lake on the Pearl River. It allows a flood control district to tax a property owner who benefits “directly or indirectly” from a project. The passage of HB 1585 has the effect of widening the potential pool of property owners within a flood control district’s jurisdiction or service area who can be taxed to service bond debt or to pay for construction, operation, and maintenance for a flood control project. There are issues of equity and fairness in letting a flood control district decide who the indirect beneficiaries might be for a flood control project -when it intends to levy taxes on these property owners to help pay for annual costs of flood control. As described above on the quantile map, the affluent neighborhoods of northeast Jackson gain more flood protection than the less affluent neighborhoods downriver and upriver from them. There may be property owners paying for Alternatives “C”, “D” and “E” who gain no flood protection at all from constructing a project but are deemed to be indirect beneficiaries. The effect of this expanded taxing authority for the Rankin Hinds Flood and Drainage Control District could be very inequitable, depending on how it is administered.

Erosion and sedimentation (missing from DEIS, to be completed during PED)

We noted the lack of information about impacts on erosion and sedimentation in our 2018 comments to the Rankin Hinds Drainage District. The lack of sediment data and geomorphic analysis for the proposed Alternatives C, D and E is a glaring oversight. River response or other sediment issues may significantly impact the project B/C ratio. The current DEIS acknowledges the need for further study of sediment issues but defers all of that effort to PED.

Geotechnical analysis of the banks upstream from the proposed weir would be needed for Alternatives C and D since elevated and fluctuating water levels may induce instability.

The lack of emphasis on sediment issues is inappropriate and risky. The main report (p. 102) notes that similar flows in 1983 and 2020 produced stages that were 2.9 ft lower in 2020. Appendix E, Figure E 2-10, p. 24 indicates that flood discharges were passing the USGS Jackson gage at lower stages. Possible reasons, as noted in the text, include erosion of the riverbed. We created some rough specific gage plots using the USGS measurements data file for this gage, and, like Figure E 2-10, they indicate 1-2 ft of bed degradation since closure of Ross Barnett Dam. Bed degradation like this is indicative of channel instability and should be fully addressed with a geomorphic assessment of the river and sediment transport and bank erosion modeling.

We note that the DEIS includes provision of hard points in tributary channels to prevent incision - this is an improvement over the 2018 DEIS/FR.

RAS model

Model construction and inputs

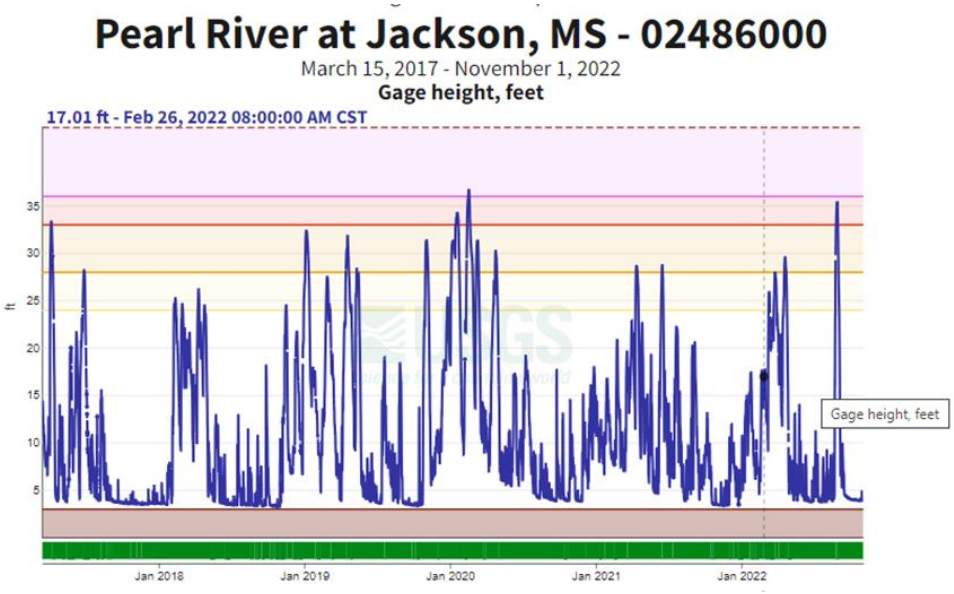
Main Report p. 76, LiDAR data sets were used for digital terrain models of the overbank areas, but what data were used for river channel bathymetry? We did not see this anywhere. How can you build a hydrodynamic model without a good current representation of the channel? How are tributary channels represented in the model? Are they represented?

Main Report p.76, Land Cover Datasets. The model description should include specification of post project land cover on terrestrial areas within the project footprint. Will there be any woody vegetation within the leveed floodway? On project areas below the weir? What type of vegetation will be in these areas under Alternative E?

Appendix E, p. 86. There seems to be a problem with flow rates here. The inflow from Richland Creek is set at 27,300 cubic feet per second (cfs) for an event that produces 100,000 cfs on the Pearl. The drainage area for the Pearl at this point is 3,210 sq mi and for Richland Creek 130 sq mi. The ratio of drainage areas is about 25 and the ratio of discharges is 3.7. This does not seem right. Further, the appendix states that 100,000 cfs represents a 500-yr discharge. The Streamstats estimate of the 500-yr discharge at this location is 293,000 cfs. The 100-yr discharge is 212,000 cfs.

Model calibration

Main Report p. 65 states that the peak flow was routed using a scaled February 2022 event. Main Report pp. 66 and 75 mention the April 2017, Jan 2020, Feb 2020 and August 2022 events. Is the mention of the Feb 2022 event an error? We do not see a large event in Feb 2022 on the hydrograph. (See below)



Climate change

Appendix E, p. 126 presents a plot of historical and simulated future annual mean 1-day streamflow and states that, "As shown in Figure E7-2 from the Modeled Time Series Trend Analysis Plot, there is not expected to be negative impact due to climate change in the projected timeframe." Climate change impacts are usually described as greater extreme conditions such as increasing high flows and decreasing low flows. How does the simulated mean daily flow prove the lack of impact? Furthermore, the linear regression of the RCP8.5 simulation has a pronounced negative slope. The figure does not seem to support the statement of no impact. The statement seems to focus on high flow frequency. What about low flows? The Main Report, p. 44 notes, "According to USACE CHAT analyzing the data between 1950 to 2023, between 2023 to 2100, the annual-accumulated precipitation shows a steady decrease of annual precipitation while the Drought Indicator: Annual-Maximum of Number of Consecutive Dry Days shows a steady increase of drought like conditions within the study area." Despite this statement, the DEIS does not present analysis of drought and low flow conditions under the structural alternatives relative to no action. The word, "evaporation" appears once in the Main Report and not at all in Appendix E.

Impacts of the proposed lake on downstream water temperature and low flows are not analyzed in the DEIS. Evaporation was discussed in our 2018 comments to the Rankin Hinds Drainage District. We noted then that summer evaporation from the lake under Alternative C would be about 10 cfs, which could exacerbate low flow conditions and waste assimilative capacity below the Savanna Street sewage treatment plant. Although the smaller lake under Alternative D would reduce evaporative losses by about 15% relative to Alternative C (based on its reduced surface area) under climate change, evaporation from Ross Barnett and the proposed lake would be greater and low flows lower.

Water quality analysis (Missing and deferred until PED)

The 2018 DEIS was inadequate with respect to water quality impacts, both with respect to water quality within the new lake and downstream. The current DEIS highlights the need for more water quality study but defers that effort to PED. Potential negative effects of the Alternative C or D weir on upstream and downstream water quality must be assessed as part of the EIS process. As stated in the Commander's report:

> "The impacts to water quality … are inconclusive due to the lack of data, and modeling efforts within the project area. … To determine if impacts are acceptable, additional analysis is needed. Verification would be needed to demonstrate that adding a large weir slowing velocities would not induce sediment loads to alter the incoming chemistry in such a way to induce failure at the existing J.H. Fewell Plant or any other proposed structure along the newly ponded area. Additional analysis is needed to make a determination of Sediment Oxygen Demand (SOD) for Pearl River sediments that would lie under the preferred project's lake. Impoundment would increase the depth over the sediments potentially decreasing DO in water column immediately adjacent to sediments. Deeper waters when combined with SOD could possibly result in bottom water hypoxia and anoxia."

Model results for the lake (Appendix E, pp. 132-133) state that the diurnal variation of temperature and DO were muted under Alternative C relative to existing conditions. However, the 1D model used for simulation cannot simulate thermal stratification, which may occur in the lake during low flow and hot weather. Even regions within the lake too shallow to stratify, if enriched with nutrients, may exhibit extreme water quality degradation and diurnal variations. Shallow lakes in the Mississippi Delta exhibit extreme diurnal variation in DO during summer, often ranging from supersaturation during the daytime to anoxic conditions at night.

Appendix E, pp. 131 and 133 emphasize the importance of sewer overflows on conditions within the proposed lake. We commented on this in 2018 and in our 2023 scoping comments. The related issue of impacts of tributary inflows during summer thunderstorms is in our 2018 comments to the Rankin Hinds Drainage District.

Appendix E, p. 134 echoes previously reviewed water quality model results for the downstream reaches of the Pearl which indicate little to negligible impact of Alternative C. The proposed lake potentially will decrease flow during critical low flow periods due to increased evaporation. Water temperatures will increase. The magnitude and significance of the downstream water flow and temperature effects, with consideration of effects of climate change, should be determined.

The Main Report, p. 177 refers to water quality modeling studies:

“Water quality modeling conducted for temperature and DO indicate post-project levels would have a slight but not significant difference from the pre-project levels.”

Where are these model studies presented? Is this based on Tetra Tech studies in 2018 and 2019?

Hazardous, toxic and radioactive waste (Further studies needed)

The DEIS does not adequately characterize known HTRW sites and contains contradictory statements about potential impacts. The IEPR of the 2018 DEIS (Battelle 2018) noted that the three HTRW sites identified in the Draft FS/EIS are not sufficiently characterized to determine the adverse impacts on the Pearl River and on the overall project cost. The 2020 ATR also noted this issue. The 2024 DEIS Main Report does not present any data or analysis additional to that in the 2018 DEIS. Alternative C directly impacts the Gallatin Street, Jefferson Street and Gulf States Creosoting sites (Figure 3), while

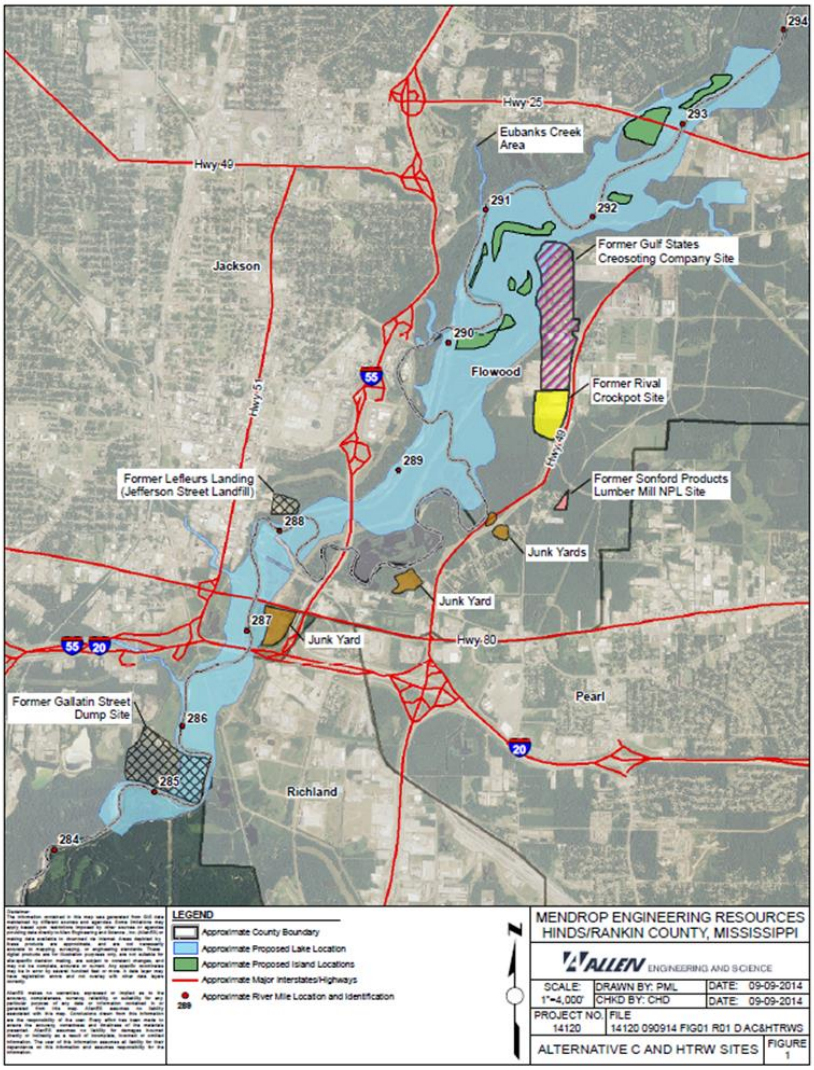


Figure 3. Alternative C footprint and known HTRW sites.

Alternatives D and E have reduced impacts on the Gallatin Street site. Impacts on Gulf States Creosoting seem indeterminate. The summary impact table (Table 4-2, Main Report, p. 166-167) indicates that impacts due to Alternatives D and E are unknown, stating, "Incomplete information to assess. HTRW Phase I was not conducted." However, the documents provided in the back of Appendix H create a different impression. An August 2021 reassessment study (J5 GBL, LLC 2021) and a December 2023 Technical Memo (PPM Consultants 2023) provide considerably more information about potentially impacted HTRW sites than the Main Report. J5 GBL, LLC (2021) assumes that the FRM project will be based on Alternative C. However, it finds that the Gallatin Street site does not contain HTRW and that construction impacts to the Jefferson Street site would be minimal. These documents present somewhat scant data that support the idea that the waste volume, location and quantity do not present serious problems in conjunction with implementation of either Alternative D or E. PPM Consultants (2023) provides conceptual designs (capping and erosion controls) and institutional measures (i.e., environmental covenants) for stabilizing each of the three main sites: Gallatin Landfill, LeFleur's Bluff Landfill and the Gulf States Creosoting Site.

The Main Report summarizes contents of available studies (including the 2021 and 2023 documents mentioned above) regarding HTRW site characteristics and then states (Main Report, p. 95):

"A HTRW Phase I & a limited Phase II Environmental Site Assessment was conducted by the Non-Federal Interest in September 2014 and updated in August 2021. A technical memorandum was conducted by the NFI in December 2023 for the project area. …Though analysis was conducted by the NFI, additional investigation and site visits are recommended."

Main Report, p. 226 notes

"Due to the discovery of the RECs [recognized environmental conditions] within the project area, there is a high probability of encountering HTRW during the construction of the project. If this project is approved and funded, a full Phase 1 and Phase 2 Environmental Site Assessment would need to be conducted prior to any reconnaissance, acquisition, and construction. … During construction of each site, ongoing sampling would have to be done to ensure that all contaminated material would be removed from the site before finalizing the project. Coordination with EPA and Local regulating agencies would have to be done to ensure regulations are followed."

Consistent with these recommendations, PPM Consultants (2023) states with respect to each of the three HTRW sties of concern,

"Prior to implementation of any remedial activities, further assessment activities, including delineation and analytical sampling will be conducted to adequately characterize site conditions."

Appendix E, p. 132 notes the potential for water quality impacts from the HTRW sites and says that "legacy contamination from these sites is a concern that should be addressed prior to construction or inundation." Project features to prevent such contamination are called for on p. 134.

The DEIS provides no cost estimates for cleanup of these sites. Since HTRW site cleanup costs can be significant, HTRW has potential to reduce the B/C ratio. Furthermore, depending on the nature of the HTRW and how it is handled, this issue may adversely impact the net environmental impact of the project. The DEIS is deficient in its treatment of this issue. Too many unknowns remain. Additional quality control of existing information is needed. Simply stating that the NFI will cover the cost of cleanup does not address potential B/C depression.

Aesthetics

The DEIS does not provide an adequate description of conditions along the channel for Alternatives C, D or E. Visual resources assessment is deferred to PED (Main Report, p. 218). How will vegetation along the river channel be maintained? Will the excavated floodplains be grassed and regularly mowed or treated with herbicide? Will there be any woody plants along the river channel? Will the view be one of a wide, shadeless canal with grass or weeds on level floodplains on either side? How inviting will that be for future recreational use of the corridor? How much of an amenity will a nearly straight, featureless channel with bare, eroding banks and grassed floodplains (I-55 bridge view below) provide to users and residents of the areas slated for development on landside of the levees?

Pearl River viewed from Interstate 55 bridge northbound lane, looking upstream.

Ecological impacts

Mitigation

The assessment of mitigation for ecological impacts is incomplete at present.

No definite plan for mitigation is presented. Cost data obtained via FOIA show a budget of $116.4 million for terrestrial habitat mitigation, but no descriptive information is provided. The mitigation items listed in Table 4-1 (pp. 165-167) are vague at best. This Table (and Table 3-5, p. 125-126; Table 3-6, pp. 141-142) includes a row for "riverbank preservation," but this term is not defined in the Report. The repeated statement in response to USFWS recommendations, "The Corps is working closely with the Service to develop a mitigation plan," is inadequate. Costs for mitigation could be substantial and have a significant impact on B/C analysis. It is not clear that full mitigation of habitat and function will be practical or possible. It is inappropriate for the Corps to select a project design without this information.

Ecosystem/Environmental Impacts

Rankin and Hinds Counties

The habitat damage that would happen in the Jackson reach of the Pearl River in Rankin and Hinds Counties includes a footprint of disturbance of up to 2750 acres. Up to 20 million cubic yards of riverbank and bed soils and alluvium along 8 miles of river will be dredged and moved to fill what are now all floodplain and batture – lands on the river side of existing levees. Wetlands make up 1374 acres of this total. Critical habitat for the Ringed sawback turtle, protected with "Threatened" status by the

Endangered Species Act (ESA), would be destroyed in Jackson as basking logs and snags would be removed and sandbars used for nesting areas would be dredged or submerged in the project footprint as the river's bed and banks are cleared and excavated to widen and deepen the river.

Also, we know the threatened Gulf sturgeon, also protected by ESA migrates through the urban reach of the Pearl River described as the "study area" in Rankin and Hinds Counties – radio tagged sturgeon have been recorded since 2018 swimming past monitoring receivers in LeFleur's Bluff State Park, upstream of the weir at the JH Fewell drinking water treatment plant. Mitigation for the sturgeon in the form of a fish ladder or fish passage device has been proposed, but the environmental conditions in the lake itself may be unacceptable for the sturgeon.

Gulf sturgeon captured in the Pearl River in 2018 near the mouth of the Strong River by catfish hoop nets, and subsequently released.

Adult Ringed sawback turtles, with a juvenile basking on a log in LeFleur's Bluff S.P. Credit: Wesley Shoop, Ph.D.

An updated Biological Opinion (B.O.) from the U.S. Fish and Wildlife Service (USFWS) is one of the documents that is missing and promised for later publication. The last version of a B.O. was published in October 2019 before a new turtle species, the Pearl River Map turtle, was designated as a threatened species under the Endangered Species Act, joining the Gulf Sturgeon and the Ringed Sawback Turtle.

Some observations on the 2019 Biological Opinion's characterization of the status of the Ringed Sawback Turtle were about reproduction and survival of turtles and assumptions made about survival at age in a lentic vs a lotic habitat. In particular, we have questions about the assumptions on nesting success (x number of nests produce x number of juvenile turtles with x rate of mortality from predators) on sandbars in the project area We have questions that remain from 2019 on these subjects and will have to wait on the 2024 B.O. to see if more information is available. This subject may have a better treatment and discussion in the 2024 version of the B.O., that hasn't been published yet, but Healthy Gulf has questions about any claimed increased survival rate in a lake project area after disturbance from dredging and impoundment, an assumption that has very little explanation. The presence or absence of sandbars in the lake created by weir in Alternatives "C" or "D", and the slow velocity of an impoundment will need better investigation as they relate to affinity of adults for habitat in the project area, and the reproductive success of both species of protected turtles, the Sawback and the Pearl River map turtle.

A velocity study or modeling is missing from the 2024 DEIS and promised later during pre-construction engineering and design (PED). About the attenuation of river flow caused by an impoundment, the 2019 B.O. stated that flow would be normal for six months out of the year and would be low for six months but stated that this was nonsignificant for the purposes of its turtle habitat and population health analysis. Flow velocity has implications for turtle feeding, and for the animals' preference for lotic habitats. The velocity study, promised later in PED, is necessary to clarify these 2019 statements.

The 2018 Draft EIS reported poor water quality in the Pearl River after heavy summer rainstorms when urban creeks had their stagnant water flushed suddenly into the Pearl River. This condition was discovered during actual sampling. Hot water and low dissolved oxygen conditions were found after these rainstorms in both the tributaries and the river itself, yet the Biological Opinion predicted no effect from these low oxygen conditions on the turtle's prey items. More data on this subject is needed. The 2024 DEIS makes predictions about possible stratification and anoxic conditions, and sediment oxygen demand at the bottom of the impoundment created by a weir in Alternatives "C" or "D" – if stratification separates the water column into a top layer, (epilimnion) with adequate dissolved oxygen and a bottom layer, (hypoliminion) with very low dissolved oxygen levels. This is a new insight, that seems to update and contradict the discussion of the 2019 Biological Opinion. The velocity study that comes later in PED can possibly offer clarification on the extent of stratification likely in an impoundment here.

Without an updated B.O. and the lack of a Pearl River velocity study in the 2024 DEIS, many aspects of biology for both the threatened Ringed sawback turtle and the newly protected (ESA threatened status) Pearl River map turtle are difficult to comment on.

Eight miles of the river will be changed from lotic habitat to lentic habitat which will affect the sturgeon and a suite of other river-dependent fish species – those that need flowing water for either their feeding or reproductive or life-cycle requirements. Because all the riparian vegetation that currently shades the Pearl River for parts of the day will be removed, the surface water temperature in the dredged section of the river can be expected to rise, compared to pre-project conditions. Lining the shores of the lake with limestone rock or concrete bulkhead will likely be required for soil stability during high flow events. Engineered shorelines like these absorb solar energy and radiate it into water, which will also make the temperature of lake water warmer than the river's current conditions.

The 1374 acres of wetlands that would be removed along the riparian areas in Jackson contain mature hardwood bottomland forest, which is very good habitat for wildlife, particularly for birds. LeFleur's Bluff State Park has been designated as an Important Bird Area by the National Audubon Society and its birdwatching checklist has 211 species with 75 that breed in the park. Beyond the 392-acre state park, the floodplain forests on both sides of the Pearl River on private and public land make a corridor through which birds and wildlife can move, feed, migrate and use for nesting.

This habitat corridor has remained largely intact in the years since the building of the Ross Barnett Reservoir because it is a floodway. There is a lot to be said for cities that have mature forests with good wildlife habitat within them. Evapotranspiration by trees processes stormwater, and carbon is stored in tree trunks. Wetland soils allow percolation of water into shallow groundwater which provides a source of flow to streams - these are ecological services provided in an urban space and their value can be quantified. Trees moderate climate and cycle moisture from the ground into the atmosphere during the growing season. Trading a portion of this green corridor through Jackson for a developed urban riverfront hardened landscape with many acres of impervious concrete would mean the loss of well used habitat and environmental services for both wildlife and people.

Prothonotary warbler, LeFleur's Bluff State Park. Credit: Wesley Shoop Ph.D.

The Jackson Audubon Society has maintained nest boxes for Prothonotary warblers in the park for 28 years and has monitored nesting success for the last 8 years.

Downstream environmental/ecological issues

On river systems with decades-long reductions in flow, the health of floodplain forests has declined. This has happened in the Flint/Chattahoochee/Apalachicola system, and it can happen on the Pearl River system too. Dr. Helen Light, a USGS research scientist, documented a long-term decline in forest health correlated with declines in river discharge in that river system in Alabama, Georgia and Florida. Since Dr. Light's work was first published, a decline in the number of Tupelo gum trees in floodplain forests

and a corresponding decrease in “Tupelo honey” production based on this tree species were reported as being tied to long term reductions in the amount of fresh water. Apalachicola Bay’ s oyster population is so unhealthy now that this fishery was closed to commercial harvest. Mississippi’s ambitions to create more dams and lakes on the Pearl River can lead it down this same path. The oyster harvest in both Louisiana and Mississippi is tied to the freshwater discharge of the Pearl River. The health of the hardwood forests of the Honey Island Swamp and Pearl River National Wildlife Refuge along the Lower Pearl River in Louisiana are also vulnerable to changing flow conditions.

The swamp eco-tourism businesses in St. Tammany Parish host 250,000 annual customers annually providing boat tours of the Pearl River’s Honey Island Swamp and its habitats, with direct economic impact of over $8,500,000 annually without counting induced economic benefits – the money tourists spend on hotels, food and fuel. Low water levels in the lower Pearl River hinder the swamp eco-tourism businesses because the shallow-draft, flat-bottomed skiffs used by the tour businesses cannot safely operate during extreme low water periods on the Pearl River. The skiffs’ outboard motors constantly hit bottom and their propellers strike sunken logs and stumps. Revenues decrease when tour boats cannot navigate to reach the preferred swamp tour areas.

The Pearl River provides fresh water to the estuary end of the system at the Rigolets tidal pass and Lake Borgne. The Hancock County Marshes just east of the Pearl River’s mouth and the Biloxi Marsh Complex of St. Bernard Parish are both showing signs of erosion are in need of land-building sediment. The Pearl River’s discharge delivers fresh water to these marshes and provides sediment to them. There aren’t very many good sources of sediment for land-building in these estuarine areas, other than the Pearl River, so sediment entrainment by another impoundment upstream is not good for the coastal marshes.

The oyster growing areas in the western Mississippi Sound St. Bernard Parish have historically been very productive and have suffered repeated recent ecological disasters: Hurricane Katrina, The BP Deepwater Horizon spill, and repeated openings of the Bonnet Carre Spillway. The oyster beds in both Mississippi and Louisiana waters are in a state of rebuilding and restoration and need the moderate salinities that are created when the Pearl River’s discharge meets saltier Gulf waters in the Mississippi Sound and the Rigolets tide pass.

Pearl River Hancock County Marsh view looking south toward the Rigolets and Lake Borgne from the Hwy 90 Bridge at Pearlington, MS.

The following landings and values of oysters provided by trip-ticket data from the Louisiana Department of Wildlife and Fisheries for St. Bernard Parish oyster growing areas predate the 2019-2020 extended opening of the Bonnet Carre Spillway opening. Mississippi River flood water, shunted through Lake Pontchartrain into the Rigolets and Lake Borgne, lowered salinities to near zero parts per thousand (ppt), created harmful algae blooms and low dissolved oxygen conditions that caused almost complete mortality to oyster reefs in affected areas of southeast Louisiana and the nearby western Mississippi Sound. Oysters have been slowly recovering since 2020, but recovery could be slowed, and harvests reduced if the Pearl River's freshwater flow to coastal estuaries decreases, causing unseasonably high salinities and an influx of oyster predators. High salinities cause oyster mortality due to increased numbers of oyster drill snails, and other marine oyster predators.

12,481,594 (meat pounds) of oysters were landed during 2012-2017 in fishing areas of Southeast Louisiana influenced by the freshwater inflow from the Pearl River. An average of 2,080,594 meat lbs. per year were harvested over 6 years. The weight (meat pound) trend was stable and above 2,000,000 lbs. annually 2015-2017.

$92,701,373 (dollar value) of oyster harvest 2012-2017 in fishing areas of Southeast Louisiana influenced by the freshwater inflow from the Pearl River. Average value of $15,450,229 per year over 6 yrs. Harvest dollar value trend was above $12,000,000 annually.

Velocity analysis

Main report, p. 177 (and at other locations):

"4.2.1.1.17.4.2 Alternative CTO with Weir (Alt D, Preliminary NED Plan):

It is assumed that, like Alternative C, construction of the CTO with weir would likely eliminate riverine habitat that the Gulf Sturgeon depends on. For this draft a conservative approach is being taken and therefore this alternative would have the same direct, indirect, and cumulative impacts as well as determination as Alternative C if a weir is included. Velocity analysis, like that conducted for Alternative C, is being conducted to better understand the potential impact of the CTO on the riverine system. This data will be included in the final EIS."

This implies that the velocity analysis for Alternative C has already been promulgated. We have not seen it. Elsewhere the assessment of the effects of the proposed weir on river velocities is described as a future analysis.

River corridor habitats

Floodplain excavation associated with Alternatives C, D and E would have significant impacts on river corridor habitats. Assessing the impacts based on changes in the areal extent of high-water inundation, water depths, and water velocities fails to acknowledge the function of complex heterogeneous biological and physical features of floodplains as they interact with water flows. The DEIS does not provide an adequate description of conditions along the river channel for Alternative C or either CTO alternative. The most recent assessment of existing aquatic community and habitat conditions was performed in the summer of 2005 (Killgore et al. 2006).

The report does not adequately characterize project conditions in impacted areas that will not normally be inundated, both inside and outside the proposed levees. How will vegetation along the channel be maintained? Will the excavated floodplains be grassed and regularly mowed or treated with herbicide? Will there be any woody plants along the river channel? In discussing impacts of Alternative E on habitats, the Main Report, p. 152 notes that "the excavated and fill areas would not be revegetated." Similar statements are made regarding Alternatives C (p. 146) and D (p. 169). However, the USFWS recommendation 19, Main Report, p. 258, suggests "creation and reforestation of a riparian zone along the toe of the levee," and the Corps concurs and agrees to consider such a feature during mitigation planning. A minimum desired width of 300 ft is proposed.

The reach of the Pearl River between Ross Barnett Dam and the upper end of the proposed project offers an example of a natural, spatially heterogeneous forested floodplain with abundant natural vegetation, wetlands, floodplain backwaters, ridges and swales, large wood and other habitat features that are key components of a riverine ecosystem. High levels of temporal heterogeneity occur as the floodplains cycle through periods of connection and isolation as the river rises and falls. Under Alternative C, or CTO-D conditions along the river would become more homogeneous as terrestrial vegetation and topographically complex floodplains would be replaced with the excavated area that would be permanently inundated. High water would no longer create flooded forest habitat and rejuvenate floodplain backwaters that would cycle through wet and dry periods.

For Alternative E (and the area to be excavated under Alternative D downstream from the weir), if the project area where floodplain excavation is proposed is maintained in a similar fashion to the existing channelized reach downstream from the water treatment plant weir, this area will be characterized by relatively homogeneous, denuded banks and level, grassed berms that extend from levee to levee. In discussing impacts of Alternative E on habitats, the Main Report, p. 152 notes that "the excavated and fill areas would not be revegetated."

Formulating a better alternative

The 2024 Draft Environmental Impact Statement contains the seeds of its own demise: the Corps of Engineers authors of the DEIS and Vicksburg Commander Klein both write in their respective reports that what the Pearl River needs is a **comprehensive watershed study** so the system can be better understood before more alterations are made to its channel. Many reviewers of these documents have recognized that the Corps is "putting the cart before the horse" if it carries out a structural project first and later undertakes a study to understand how the Pearl River is functioning. A study should happen first.

It has been recognized for decades now that the operation of the floodgates of the Ross Barnett Reservoir Dam has caused accelerated erosion of riverbanks in the downstream reaches of the Pearl River. When the lower Pearl River in Marion County was nominated for inclusion in Mississippi's Scenic Streams Stewardship Program in 2002, the review committee declined to present it to the state Legislature for eligibility. The consensus of the review committee sponsored by the Mississippi Department of Wildlife Fisheries and Parks was that the river needed restoration before its channel could be considered in good enough physical condition to warrant eligibility.

The Pearl River has many positive features such as: supporting biodiversity, being home to migratory fish and birds, providing an intact hardwood corridor used by wildlife, providing a drinking water source, and providing recreation etc., but it also has many identifiable stressors that need to be better managed. Dredging away ten miles of riverbank (overbanks) to remove sources of friction through the urban reach of the river in Jackson as contemplated in Alternatives "C", "D", and "E" is a bad idea when the effects of this action on induced flooding, sediment transport and bank stability downstream and other factors are not well understood. Going one step further to impound a new lake in Alternatives C or D will change the character of the river from lotic to almost completely lentic and usher in an additional set of problems for wildlife, sediment retention, water quality and water users downstream.

The 2024 Draft Environmental Impact Statement contains a number of alternatives and a number of opportunities. The Corps of Engineers own Agency Technical Reviewers (ATR) of essentially similar projects (Alternatives "C" (2018), "C" (2020), "C" (2024) and "D" (2024)) in both 2018 and 2020 cautioned that Army Planning Guidance calls for an incremental approach to plan formulation. Plan Formulation Reviewer Sara Schultz described how an incremental approach would work for this project, writing:

> "This type of analysis specifies that the proposed project features must be shown to incrementally reduce the problem (flood risk). It is unclear how construction of a weir and impoundment of water reduce the flood risk to the adjacent communities. The existence of

the 1500-acre lake does not create any additional flood storage capacity or conveyance capacity."

Ms. Schultz instead suggested starting with the feature that gives the greatest risk reduction and then adding incremental features while documenting the incremental benefits. (Source 2020 ATR Review p. 93.)

Finding elements that offer great flood risk reduction while at the same time pose the least threat to the aquatic and terrestrial habitats along the Pearl River calls for a renewed evaluation of non-structural flood control options for Jackson. Healthy Gulf supports non-structural options for Pearl River flood risk management and asks that the Corps reject Alternatives "C" and "CTO" in both of its forms, "D" (weir and lake) and "E" (excavation of overbanks but no weir). We would like to see the Corps re-arrange some of the elements it has considered both in its August 2023 plan formulations (that it abandoned) and in its formulations for the June 2024 DEIS. Five of these elements are discussed below.

Expanded Alternative A-1, Plus useful incremental benefits.

The Corps could expand its 2024 Alternative A-1 to the dimensions it had in August 2023 when the Corps formulated a plan with non-structural measures that protected 600 structures at a cost of $198 million, yielding a benefit cost ratio 2.7:1, a greater B:C ratio than any of the plans published in 2024.

An expanded Canton Club subdivision levee that could protect the two other neighborhoods adjacent to it on the west bank of the river could also be offered to residents. The three neighborhoods, Canton, Club, Parkway and McLeod that lie east of Old Canton Road and are very close to the Pearl River took the worst of the flood events of 2020 and 2022. An expanded Canton Club levee makes sense, particularly in combination with the A-1 nonstructural protections.

Addressing constrictions at bridges and other narrow channel areas between Levees

The major and minor bridges on the Pearl River in Jackson have been identified as flow constrictions either because of their elevated roadbeds or trackbeds or because the bridge openings are not wide or deep enough and function to elevate water levels at the upstream sides of these bridges.

A very narrow area of the Pearl River adjacent to the interstate-55 bridge, upstream of Crystal Lake is caused by the proximity of the levees to the channel on both sides of the river. Some room to perform levee setbacks on the east side of the Pearl River exists here. Such a narrows, or pinch point could be opened and the trackbed/trestles of the abandoned railroad that crosses the Pearl River near the J.H. Fewell Waterworks could be removed and graded down to a lower elevation to remove a physical feature that constricts the floodplain and causes elevated water levels during large reservoir water releases.

Tributary restoration

A well-funded and ambitious project to make the gravity drainage system in Jackson function better would address the problems of some of the nine tributaries that must convey water to the Pearl River in its urban section. Many of the problems stem from lack of maintenance by the City of Jackson. The tributaries have incised channels and are causing bank failures and property loss in addition to overtopping their banks and flooding streets, yards, homes and schools. Headwater flooding from

stormwater upstream in creek drainages is certainly an important element of Jacksons flood problems – estimated at about 1/3 of the problem. (The back-flooding of the Pearl up tributaries and into neighborhoods during large reservoir releases accounts for 2/3 of the problem.) The tributaries need maintenance and restoration and some areas along them may be good places for stormwater detention.

Changing Ross Barnett Operations

The Ross Barnett Reservoir flood gates are operated to reduce peaks of floods in Jackson by as much as 28%. The Reservoir managers and the National Weather Service work with the available river gauges and storm prediction models throughout the year to try and anticipate large rainfalls over the upper Pearl River basin and act accordingly to pre-release water from 3-5 days ahead of storm systems. The 2024 DEIS suggests that "state and local entities may consider operational changes at the Ross Barnett Reservoir and revising the Control Manual for this lake to formalize continued flood reduction capacity and inform future discharge operations". (Main Report, 2024 DEIS p. 112)

Floodplain Ordinances

The 2024 DEIS states that "Updated ordinances should be considered and consistent throughout the area. They can help lead to a better public awareness and increase education about the hazards of building in flood prone areas." The time to do this was in the 1960s, but local governments could still implement helpful ordinances to try and require designs for land development that do a much better job of handling stormwater runoff in the Pearl River's watershed.

Benefits gained by discarding both CTO plans and creating an Expanded A-1 Alternative

- The 52 structures that would receive induced flooding because of CTO moving water downstream faster or at a higher elevation due to a weir will not flood. There will be no need to offer these property owners compensation for the Corps causing more flooding.
- Water quality: The J.H. Fewell drinking water plant in the Belhaven section of Jackson will not have to process water laden with sediment and toxic substances stirred up by overbank dredging for either CTO alternative.
- An expanded A-1 plan would avoid other induced flooding now predicted for the 32 miles downstream from the weir outfall to the confluence of Copiah Creek. A comprehensive watershed study could offer restoration to hundreds of landowners who have lost land to the Pearl River's rapidly changing water levels during and after floods.
- There would be no need to install engineered countermeasures at bridges to protect their footings and land abutments from scour induced by dredging in the Pearl River. No slurry walls or protection berms would need to be installed along existing levees to protect them from seepage caused by a permanent pool of water against the levee.
- Avoiding the disturbance of landfills and toxic disposal sites by avoiding dredging the river's overbanks would ensure that sediment contaminated by toxins and leachate won't be introduced into the Pearl River's water.
- Additional money from Congress will not need to be sought if this project stays within acceptable budget limits.

- The nonstructural plan Alternative A-1 may be executed immediately under the current Section 3104 Authority once the EIS is finalized. Based on current cost estimates, the non-structural plan could be implemented in its entirety and would require minimal additional analysis during the PED phase." (p.5 of the 2024 Commander's Report)
- Avoids harm to habitat for fish and turtle species protected by the Endangered Species Act.
- Sixty-three acres of LeFleur's Bluff State Park will not be submerged after dredging, and one of the most beautiful places in the park – the cypress-tupelo gum pond at Trail Stop 16 on the Mississippi Museum of Natural Science river (purple) trail will be spared destruction.
- No new weir/dam on the river.
- Greatly reduced habitat mitigation required. Some mitigation for levee segments will be needed but not nearly as much as for dredging away 8 miles of riverbanks.
- A water management agreement between agencies managing the Ross Barnett Reservoir and dam and the lake formed by a new weir will not be needed. Competing governing boards and stakeholder constituencies, both wanting predictable pool levels and aesthetics for their respective impoundments, will not enter into resource conflicts.

Healthy Gulf urges the Army Corps of Engineers and Army Secretary Connor to reject Alternatives "C", "CTO-E" and lastly "CTO-D", which seems to be the preferred project of the Non-federal sponsor, Rankin Hinds Pearl River Flood and Drainage Control District. We hope that the Corps will re-evaluate this project with regard for serving the people and communities who have been flooded most frequently, while causing the least environmental damage and taking into consideration the needs and opinions of the people and communities living along the Pearl River downstream of Jackson who stated their opposition to a new Jackson, Mississippi impoundment in public meetings in 2013, 2018, 2023 and 2024 held in Slidell, LA, Bay St. Louis, MS, Picayune, MS, Monticello, MS., and Jackson, MS.

Healthy Gulf incorporates by reference the comments of the Pearl Riverkeeper, the Center for Biological Diversity, National Wildlife Federation, Audubon Delta, St. Tammany Parish Government, Louisiana agencies: LDWF, CPRA, LDEQ, the Mississippi Department of Wildlife, Fisheries and Parks, and Dr. Will Selman professor of Biology at Millsaps College.

Healthy Gulf appreciates the opportunity to provide comments on the Pearl River FRM project.

Sincerely,

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