



June 29, 2023

Delivered by Electronic Mail to: PearlRiverFRM@usace.army.mil

Colonel Christopher Klein
Vicksburg District Commander
U.S. Army Corps of Engineers, CEMVK-PMP
4155 Clay Street
Vicksburg, MS 39183-3435

Re: Scoping Comments on Pearl River Flood Risk Management Project, Pearl River Watershed, Rankin and Hinds Counties, MS, 88 Fed. Reg. 31738, May 18, 2023

Dear Colonel Klein,

On behalf of the National Audubon Society and our more than 1.6 million members, including nearly 38,000 members in our Audubon Delta region (AR, LA, MS), we urge the U.S. Army Corps of Engineers' (Corps) to reject the ecologically destructive, economic development proposal locally known as the "One Lake" project, and instead prioritize the development of an alternative that purposefully incorporates natural, nature-based, and nonstructural flood measures that can deliver effective, environmentally sensitive relief to those who need it in the Greater Jackson area while protecting the Pearl River Basin's ecology and wildlife, downstream communities, and regional economy.

For more than a century, Audubon has worked to protect birds and their habitats through the belief that where birds thrive people prosper. Our decades-long presence in the Mississippi River Flyway and Gulf of Mexico reflects their significance as rich ecosystems that annually support over 100 million migratory, nesting, and wintering birds. The Pearl River with its diversity of birds, wildlife, and their habitats, is a key environmental lynchpin, and is recognized by the U.S. Fish and Wildlife Service (FWS) as one of the most intact river systems in the southeast U.S. The Pearl also connects nearly 500 miles of communities across Mississippi and Louisiana, supporting the region's rich outdoors culture and serving as a major economic engine.

The One Lake project will be devastating to this exceptional resource through massive dredging and damming of almost 10 river miles to create a nearly 2,000-acre lake near Jackson, Mississippi. For many years, proponents have claimed One Lake is a flood control project, but this widely publicized real estate development scheme would only put more people and property in harm's way.

As discussed in detail below, the One Lake plan will destroy vital habitat for hundreds of species of birds and wildlife, exacerbate already significant water quality problems, alter freshwater flows all the way to the Gulf of Mexico, and damage the region's vital seafood and nature-based tourism economy. Critically, construction of One Lake will expose vulnerable communities in Jackson, as well as those located downstream, to extensive toxic contamination. At least three highly contaminated Hazardous-Toxic-Radiological Waste sites, two Superfund sites, and three Hazardous Waste sites are located directly within or adjacent to One Lake's dredging footprint.

Audubon's strong opposition to the One Lake project has been well documented in our letters submitted during the Rankin-Hinds Pearl River Flood and Drainage Control District's (Levee Board) 2018 Draft Environmental Impact Statement (DEIS) process, as well as through subsequent briefings and letters we have provided to the Assistant Secretary of the Army for Civil Works' (ASACW) office. Despite the serious environmental, public health and safety, and economic concerns that have been expressed for many years by Audubon—as well as hundreds of environmental/social justice/faith groups, business/industry sectors, elected and community leaders, and members of the public—we are deeply disappointed that the Corps is now considering One Lake as a top alternative (i.e., the Levee Board's 2018 DEIS preferred Alternative C). This decision is even more stunning given your agency's past rejection of the Levee Board's various lake plans, and concerning findings by the Corps' own technical reviewers and independent external peer reviews that identify major problems with One Lake.

One Lake was originally proposed by a local businessman and touted by economic development interests, so it is unsurprising that the Levee Board has refused to consider any other flood risk management alternatives that would provide environmentally sound flood damage reduction benefits.

However, the Corps is now responsible for this flood planning process. Thus, your agency must consider more effective, environmentally sustainable flood approaches that can be deployed to aid the local community as well as benefit the Pearl River watershed and downstream communities. As discussed below, these commonsense flood measures are used across the country as a way to holistically support communities, nature, and climate resilience. Additionally, due to the Corps' poorly coordinated, confusing manner in which this next phase of flood planning was initiated, moving forward we call on your agency to meet the spirit and letter of the law by using best practices for public engagement that are detailed below.

The Corps Should Reject One Lake, Initiate a New Flood Planning Process focused on Nature-Based and Nonstructural Solutions

Audubon urges the Corps to reject the current set of alternatives being considered, including the One Lake project. In its place, the Corps should immediately initiate a new process in order to develop a flood plan that emphasizes natural, nature-based, and nonstructural solutions to provide sustainable, environmentally sound flood mitigation for those who need it in the Greater Jackson area. Appendix A presents examples of how these approaches are being used across the country.

The good news is that there are significant opportunities to help Jackson metro residents and businesses get flood relief through a suite of already-existing federal programs, many of which are well funded. Some examples of these programs are:

- ◆ Federal Emergency Management Agency's (FEMA) Building Resilient Infrastructure and Communities Program, Flood Mitigation Assistance Program, and Hazard Mitigation Grant Program
- ◆ Housing & Urban Development's (HUD) Community Development Block Grants for Mitigation and Disaster Recovery
- ◆ U.S. Department of Agriculture's Emergency Watershed Protection Program
- ◆ Department of Transportation's Promoting Resilient Operations for Transformative,

Efficient, and Cost-saving Transportation (PROTECT) Program and Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grants

- ◆ Environmental Protection Agency's (EPA) Environmental Justice Small Grants Program and Sewer Overflow & Stormwater Reuse Municipal Grants Program

The Corps' new flood plan should include elements that prioritize:

- Restoring wetlands and green spaces in the Pearl River's floodplain, with particular emphasis given to all 12 of the Pearl's tributaries that flow through the Greater Jackson area where much of the documented flooding occurs
- Selectively elevating and/or flood-proofing existing homes and buildings with historical flooding problems.
 - Notably, the Corps' new proposed Alternative A1 appears to include non-structural measures such as elevations and flood-proofing but for "both residential and nonresidential structures receiving residual damages in the base year with the project in place". This proposal is significantly different from what Audubon is endorsing; instead, the Corps' objective should be to focus elevations, flood-proofing, and related measures on primary residences and structures that have a demonstrated history of flood issues.
- Carrying out targeted voluntary relocations or buy-outs of properties with historical flooding problems.
 - Importantly, Audubon denounces Alternative A that proposes outright purchase of more than 3,000 structures, including homes, businesses, government and public buildings, schools, and hospitals. This recommendation appears to be made on baseless, unrealistic assumptions (as in all 3,000 structures flood), which reflects faulty, biased information presented in the Levee Board's 2018 DEIS; A1 as currently presented is unacceptable and unrealistic.
 - The Independent External Peer Review (IEPR) panel's final assessment of the Levee Board's 2018 DEIS asserted, "Alternative A, the Buyout Plan, is impractical, and its inclusion in the final array of alternative plans precludes an efficient evaluation of the alternatives that best meet the planning objectives"; this was one of five "High Significance" comments in a report that identified 23 comments. ([Rankin-Hinds IEPR – Final Evaluator Responses and BackChecks](#), p. 7)
- Improving the existing levee system, with a critical goal of setting levees back farther from the Pearl River in order to allow the river more room to naturally move.
- Improving management of existing infrastructure, specifically the Ross Barnett Reservoir and Spillway.
 - Since the last major flood of the Greater Jackson area in 1983 (a 100-year flood event), management of the Ross Barnett Reservoir and Spillway has become an increasingly important flood risk reduction tool. During 2018, Mississippi's second wettest year on record, which included several flood stage events on the Pearl, the reservoir was effectively managed to minimize flood threats and help protect structures. These

benefits also were evident during the winter of 2020, which included the wettest January on record. As noted below, a Government Accounting Office (GAO) report on Jackson's 1979 Flood of Record, which was a 200-year event, found that although the reservoir was not built for flood control, it could be responsibly managed to help mitigate flooding for the Greater Jackson area.

One Lake is an Unacceptable, Environmentally Destructive Plan

Audubon reiterates that One Lake is a dangerous and environmentally unacceptable plan that is based on a fundamentally flawed planning process as demonstrated by the following:

- **One Lake will encourage new development in the floodway and floodplain of the Pearl River, resulting in placing more people and property in harm's way.**
 - The project involves digging up 25 million cubic yards of mostly floodplain and river habitat from nearly 10 miles of the Pearl River, installing a dam at the southern end to create a 1,900-acre impoundment, and disposing of the dredged material to fill along the "lake", which will create new developable waterfront property for homes, businesses, and other economic development.
 - The Corps' Agency Technical Review (ATR) team made it clear that One Lake will not reduce flood risks, "[The] lake does not create any additional flood storage capacity or conveyance capacity". ([ATR Report June 2020](#), p. 93)
 - Notably, a 1982 study by the FWS attributed much of the City of Jackson's damage from the 1979 Flood of Record to development within the floodplain.
 - The GAO's post-1979 Flood assessment, "Improvements Being Made In Flood Fighting Capabilities In The Jackson, Mississippi, Area", dated December 19, 1979, found that, "(e)fforts in fighting the April 1979 flood in Jackson, Mississippi, were hampered by a lack of coordination among Federal, State, and local agencies and inadequate flood preparation" (p. 1). Other observations the report highlighted include:
 - Not enough data was being collected from the Pearl River gages and from rainfall reports;
 - No attempts were made to fortify the lowest levee areas (i.e., sandbagging), so water moved around them;
 - Much of the floodwater that invaded the city came through the City of Jackson's own sewer system. In 1975, the city built a new, unpermitted 66-inch sewer pipe that passed through the Jackson levee. The city did not get a permit from the Levee Board ahead of installing the pipe; and
 - Although the Ross Barnett Reservoir was not built for flood control, it could be responsibly managed to help mitigate flooding for the Jackson metro area.
- **A major alternative in the Corps' scoping announcement, One Lake is based on the Levee Board's same flawed analysis.** Importantly, the ATR and IEPR panels' assessments of the Levee Board's 2018 DEIS identified many of the same flagrant concerns that Audubon has shared with the Corps, including that the project would expose communities to extensive toxic contaminations and that the few proposed alternatives did not adequately consider, nor thoroughly or practically evaluate, an array of structural and non-structural measures.

- **In its review of the Levee Board’s 2018 DEIS, the U.S. Fish and Wildlife Service concluded that One Lake “is the most environmentally damaging plan”** and that the local Levee Board should be required to produce a second draft environmental impact statement that would provide “greater details regarding plan formulation, design, operation, mitigation, and adaptive management” before the project advances.
- **One Lake will directly destroy at least 2,500 acres of wildlife habitat**, including at least 1,500 acres of vital floodplain and bottomland hardwood wetland habitat, much of which provides natural flood protection for local communities. An additional 1,900 acres of diverse in-stream riverine habitat and ecologically vital small streams will be destroyed and turned into an impoundment. Though not acknowledged by the 2018 DEIS, even more habitat will be lost as the fundamental changes to the form and function of the Pearl River system play out over time, including reduction and elimination of natural floodplain inundation. This includes impacts to basin habitats located below the proposed dam.
- **One Lake will adversely affect hundreds of species of fish and wildlife, due to the habitat losses and fundamental transformation of the Pearl River ecosystem.** Notable species include the Gulf Sturgeon and the Ringed Sawback turtle, both listed as threatened under the Endangered Species Act (ESA), as well as the Pearl Map turtle, proposed as federally-threatened. Both turtles are endemic to the Pearl.
 - As FWS has advised, “[w]ildlife resources within the Pearl River Basin are dependent upon the diverse floral composition of associated forested wetlands” and “a higher percentage” of vertebrate wildlife species in the basin “use bottomland hardwoods as primary habitat (habitat a species depends upon for reproduction and/or feeding during all or a portion of the year) than any other habitat type.”¹
 - The following section provides a more substantive discussion into the Pearl River’s importance for birds and wildlife.
- **One Lake will reduce vital freshwater flows all the way to the Gulf of Mexico**, reducing water levels in the lower Pearl River and jeopardizing water quality, seafood and tourism sectors, and hundreds of millions of dollars in coastal restoration projects underway—or planned—for Mississippi and Louisiana, such as a \$56 million marsh-oyster project in Hancock County, Mississippi, and several projects identified in Louisiana’s \$50 billion Coastal Master Plan. At risk is not only Mississippi and Louisiana’s combined \$14 billion-dollar-a year hunting-fishing culture, but vital freshwater that fuels the region’s multi-million dollar seafood and tourism industries that support thousands of jobs.
 - These downstream concerns have resulted in over 15 resolutions passed in opposition to One Lake, including one passed unanimously by both chambers of the Louisiana State Legislature.
 - The Levee Board’s 2018 DEIS hydrologic modeling was not comprehensive and rigorous enough to shed light on these downstream issues and only focused only on the project’s immediate footprint. Rather a destructive project of this magnitude warrants detailed

¹ U.S. Department of the Interior, Fish and Wildlife Service letter to Michael E. Goff at page 1 (August 16, 2018) (providing official comments on the 2018 DEIS).

study that would include the Ross Barnett Reservoir south to Mississippi Sound, the Pearl River Delta, and the Gulf of Mexico.

- **One Lake will further degrade the water quality in the Pearl River.** Pearl River water quality in the metro Jackson area suffers from egregious sewerage discharges. In 2012, the City of Jackson entered into a consent decree with the EPA and the Mississippi Department of Environmental Quality (MDEQ) regarding sewage overflows from its wastewater collection system. Ultimately in 2019, MDEQ issued a water contact advisory for 20 miles of the Pearl River, closing the reach to swimming, fishing, or wading—from its confluence with Hanging Moss Creek in Jackson to the Swinging Bridge at Byram—and 12 of its Jackson-area tributaries; this area would include the One Lake project. One Lake would only serve to amplify water quality degradation in the Pearl River by slowing and confining the flow of sewage and creating a eutrophic 1,900-acre impoundment that is unsuitable for aquatic life.
 - For years, water quality reports in the Jackson metropolitan area have documented egregious sewerage discharges. In the last five years, the sewage overflow amounts have increased exponentially. For example, the City of Jackson Sewer Consent Decree Quarterly Report for [April-June 2022](#) documented 77 Sanitary Sewer Overflow (SSO) events that released 67.5 million gallons of untreated sewage into Waters of the State. More sewage was released in those three months than the entire amount released in 2021. Fifty-four of the SSOs reported were listed as ongoing/unresolved. Eleven of the 77 SSOs released over one million gallons at a single location.
 - Also, MDEQ’s review of the Levee Board’s 2018 DEIS raised numerous questions about the project’s water quality modeling, and called for more analysis “to consider how [One Lake] would affect water quality downstream of the project area. . .”
- **One Lake project will worsen Jackson’s drinking water problems.** The J.H. Fewell drinking water plant draws directly from the area in the Pearl River that would be extensively dredged and ponded to build One Lake. Project construction would increase turbidity in the Pearl River to the point where this 100-year old facility will not be able to operate, as acknowledged in the 2018 Draft EIS. As a result, the City of Jackson would be required to somehow find a “temporary” water supply alternative for 30% of the City’s drinking water during project construction, which would take at least “three or four years” according to the local Levee Board.²
 - It is equally clear that the One Lake project would not have prevented Jackson’s most recent crisis, which was caused by the collapse of the city’s primary water treatment plant, the O.B. Curtis plant, which supplies up to 70% of Jackson’s drinking water supply. That collapse was caused by flood-induced high turbidity (and other polluted runoff) in the Ross Barnett Reservoir, which is the water source for the O.B. Curtis plant and is located seven miles upstream of the proposed One Lake project. The One Lake project has no ability to –and will not–alleviate flood-induced high turbidity in the Reservoir.

² Northside Sun, Moving Ahead: Final Public Comment Period For One Lake Coming Soon, 06/14/22 (available at <https://www.northsidesun.com/local-content-top-stories/moving-ahead-final-public-comment-period-one-lakecoming-soon#sthash.bggohcen.dpbs>) (“Keith Turner, attorney for the Rankin-Hinds Pearl River Flood & Drainage Control District said . . . After funding is secured, the project will require three or four years of construction, and then several more years for developers to produce plans for the economic development component.”)

- **One Lake will worsen environmental injustices by exacerbating flooding in underserved Jackson neighborhoods.** Many of the flooding woes experienced in the Greater Jackson area in recent years have been significantly attributed to rain-induced flash flooding that impacts urban neighborhoods located along the 12 creeks that flow into the Pearl River. These neighborhoods are predominantly low-income communities of color. The Levee Board's 2018 DEIS acknowledges that One Lake will not protect against local creek flooding, and in fact states that the One Lake impoundment will permanently elevate water levels in all 12 Pearl River tributaries.
 - This will further exacerbate localized flash flooding, increase underserved neighborhoods' vulnerability to backwater flooding from high river events, and magnify flood risk from rain events in the upper reaches of the tributaries that ultimately flow into the now-elevated creek channels. Affected tributaries include those that regularly experience flash flooding, run through environmental justice communities, and pass by public schools, museums, and other important community facilities and resources.
 - The elevated water levels and increased flooding will also add to the city's many stormwater permit violations. Urban stormwater flooding already affects mainly Black neighborhoods located along Town Creek and Lynch Creek, which are Pearl River tributaries that flow through majority Black census tracts in downtown Jackson. These two creeks run through Jackson Wards 3 and 5; according to data from EPA EJScreen tool, these Wards are in the nation's 95-100th percentile for a combination of percent low-income and percent minority population.

- **One Lake will expose vulnerable communities to extensive toxic contamination—thereby adding to the area's environmental injustices.** At least three highly contaminated Hazardous-Toxic-Radiological Waste sites, two Superfund sites, and three Hazardous Waste sites have been identified within or adjacent to One Lake's dredging footprint. Initial site assessments at these locations have found Polynuclear Aromatic Hydrocarbons (PAHs), benzene, cadmium, lead, nickel and creosote compounds, which were well above regulatory standards. The One Lake's extensive dredging activities will re-suspend the contaminated sediments at those sites and will expose Greater Jackson and downstream communities, fish, and wildlife to high levels of toxins.
 - During the Levee Board's 2018 DEIS, it was apparent that little additional sampling had been done, no remediation efforts were detailed, and no plan was proposed to protect the health of nearby and downstream communities from exposure to these toxins both during and after project construction. Although the true costs to clean up these sites are likely to be many tens of millions of dollars, the 2018 DEIS estimated only \$8 million for cleanup in the project's \$345 million estimated cost with no justification provided.

- In its 2018 DEIS comment letter, **the Mississippi Department of Transportation determined that One Lake's proposed dredging would result in "catastrophic failure" of critical infrastructure**, thereby requiring the replacement of nine bridges. Although this would add nearly \$110 million to the project's estimated \$345 million construction cost, no bridge repair or replacement costs were identified in the 2018 DEIS project budget.

- **One Lake will increase water treatment costs to nearly 100 downstream users and municipalities.** Reductions in downstream river flows are anticipated to increase costs to nearly 100 downstream Pearl River industrial users and municipalities that rely on stable freshwater flow and adequate

dilution of their discharges, such as International Paper, Georgia-Pacific, and the towns of Bogalusa and Pearl River.

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- **One Lake will install a dam, despite the project sponsors' claims it is just a weir. The Corps' ATR clarifies that the purported weir is in fact a dam due to its size—and dams require much more rigorous design standards and safety protocols to protect the public.** ([ATR Report](#) June 2020, p. 80)
- **The true dollar-costs of One Lake are vastly underestimated.** The Levee Board's 2018 DEIS acknowledges that One Lake's estimated \$345 million dollar construction cost and \$13.9 million annual operations cost are based on multiple assumptions and unknowns. (Levee Board 2018 DEIS, Appendix C at 220) Those budget projections do not include outlays to provide a "temporary" drinking water supply for 3+ years, remediation of eight toxic sites, and replacement nine bridges, nor the extra costs involved in building a dam instead of a weir.

One Lake Poses Serious, Irreparable Damage to the Pearl River's Birds and Wildlife

One Lake poses significant, irreversible damages – directly, indirectly, and cumulatively – to the Pearl River Basin, birds, wildlife, and their habitats. These ecological impacts are not only limited to the immediate project footprint, but also to the downstream resources that lie along the 200-mile stretch of the Pearl below the proposed dam as well as Mississippi Sound, Lake Borgne, and the Gulf of Mexico.

One Lake will directly destroy over 2,500 acres of habitat that supports Bald Eagles and several species of conservation priority songbirds and waterbirds, as well as a variety of fish and other wildlife such as the Gulf Sturgeon and the Ringed Sawback turtle, both listed as federally threatened, and the Pearl Map turtle, which has been federally proposed as a threatened species. These habitat impacts are unacceptable, and no possible mitigation exists to thoroughly address and compensate for them.

Of particular concern are potential impacts to conservation of priority bird species in the proposed project area and affected downstream areas in the Pearl River Basin, including Golden-winged Warbler, Prothonotary Warbler, Swainson's Warbler, and Rusty Blackbird. In addition, several State Listed Endangered Species regularly use the project area, including Swallow-tailed Kite and Wood Stork.³ Audubon has conducted an analysis of the central and lower Pearl River Basin's importance to migrating, resident, and overwintering birds, the findings of which are presented in the subsequent section.

³ Mississippi Museum of Natural Science (2014). *Endangered Species of Mississippi*. Mississippi Department of Wildlife, Fisheries, & Parks, Mississippi Museum of Natural Science, Jackson, MS (available at https://www.mdwfp.com/media/3231/endangered_species_of_mississippi.pdf) (visited June 22, 2023).

Audubon is also concerned about the impacts to Important Bird Areas (IBAs).⁴ For example, the Levee Board has made claims that the proposal has been modified in such a way that it will no longer affect LeFleur's Bluff State Park. LeFleur's Bluff State Park is recognized as an IBA due in large part to the 20-year-long effort by our local chapter, Jackson Audubon Society, to steward and manage the park's habitat as a premier nesting area for Prothonotary Warblers. Notably, the *State of North America's Birds 2022*⁵, a report developed by the North American Bird Conservation Initiative, of which Audubon is a partner, found the Prothonotary Warbler to be a species of high conservation concern. According to maps in the 2018 DEIS, however, dredging is still planned on park property. Other IBAs that are directly imperiled by One Lake include Hancock County Marsh Coastal Preserve (MS), East Delta Plain (LA), and Pearl River (LA, nominated). Audubon considers impacts to IBAs unacceptable.

The Pearl River is a key source of freshwater for Mississippi Sound, Lake Borgne, and the Gulf of Mexico. The preferred alternative poses significant alterations to downstream river flows, sediment transport, water quality, and the fresh-salt water interface critical to a productive estuary. We anticipate these significant changes to upstream flow will permanently alter downstream hydrology, resulting in substantial alterations to—and further loss of—habitats in the lower Pearl River basin, Mississippi Sound, and southeast Louisiana, including Biloxi Marsh. These wetland habitats provide communities crucial buffering protection from flood and storm events; the Corps also must assess this anticipated loss of functioning wetlands and floodplain habitats and the resulting increased storm surge and flooding in the Pearl River Delta and central Gulf Coast.

Other imperiled habitats and wildlife corridors from One Lake include over 125,000 acres of designated conservation lands such as Bogue Chitto National Wildlife Refuge, Hancock County Coastal Preserve, Pearl River Wildlife Management Area, Ben's Creek Wildlife Management Area, Marion County Wildlife Management Area, Old River Wildlife Management Area. Additional conservation lands include 2,200 acres protected by The Nature Conservancy and the 87-acre Fischer Wildlife Sanctuary that is owned and managed by Orleans Audubon Society, a local Audubon chapter. Many of these areas are comprised of vast stretches of bottomland hardwood forests and wetlands that require a specific and frequent hydrologic regime to provide the appropriate balance of nutrients, sediments, and freshwater to remain healthy and productive. Importantly, these investments in conservation also provide economic stimulus through consumptive and non-consumptive natural resource use (e.g., hunting, fishing, bird watching, etc.). A Draft EIS must assess the economic consequences to communities that currently benefit from these activities.

Our concerns about the altering or loss of downstream habitats includes consequences to foraging, nesting, and breeding habitats that birds depend on the Pearl River Basin. For example, the lower basin is recognized to provide important stopover habitat for Neotropical migratory birds as well as supporting valuable nesting and foraging habitat for an array of bird species. Along with Mississippi Sound, Breton Sound, and the central Gulf Coast, this region provides vital foraging habitat for birds by

⁴ An IBA is an area that has been identified using an internationally agreed to set of criteria as being globally important for the conservation of bird populations. National Audubon Society administers the program in the U.S.

⁵ See <https://www.stateofthebirds.org/2022/download-pdf-report/>

supporting oysters, fish, shrimp, crabs, insects, small mammals and other aquatic/terrestrial vertebrates and invertebrates as well as plants.

The potential for altered upstream flows to impact bird foraging habitat, as well as the broader food web, is demonstrated by a scientific paper that examined how droughts can alter river and tributary inputs into Mississippi Sound and result in dramatically changing the fish community structure.⁶ Of the eight species studied, researchers found “...the abundance of seven species significantly decreased while the abundance of one species significantly increased.” A Draft EIS must fully assess these consequences.

Audubon has had a long-standing involvement in efforts to restore the Mississippi River Delta and in guiding Gulf recovery efforts from the 2010 Deepwater Horizon oil disaster. The proposal jeopardizes the multi-billion dollar natural infrastructure investments and restoration projects planned or underway across the central Gulf Coast. Accordingly, a Draft EIS must include an assessment of impacts to these restoration projects.

Notably, the Pearl River has been recognized by the National Park Service for its scenic, recreational, fish and wildlife values, thereby being listed on the Nationwide Rivers Inventory (NRI) as a potential candidate for inclusion in the National Wild and Scenic River System.⁷ One Lake would impact all designated 151 River Miles (RM), namely RM 161 (above the City of Columbia, MS) to RM 312 (one mile south of Jackson, MS). Under the Wild and Scenic Rivers Act section 5(d)(1) and related guidance, all federal agencies must seek to avoid or mitigate actions that would adversely affect NRI river segments. Further, the proposal threatens several natural and scenic tributaries designated by the State of Louisiana that are located in the lower Pearl River Basin.

Finally, we are concerned about ecological and public health threats posed by numerous hazardous and/or contaminated sites that have been identified in the project area. Given the massive dredge and fill undertaking of One Lake or any earth movement being considered in the general vicinity, extensive local and downstream water and soil sampling is would be crucial to protect public and ecosystem health.

Importance of the Pearl River to Birds

Audubon completed an analysis that scientifically and unequivocally substantiates the importance of a healthy Pearl River to 220 breeding, wintering, and migrating bird species. Audubon developed this model analysis, which is described in DeLuca et al. (2021), and a summary of this peer-reviewed

⁶ Mickle, Paul F., J.L. Herbig, C.R. Somerset, B.T. Chudzik, K.L. Lucas, and M.E. Fleming. 2018. Effects of annual droughts on fish communities in Mississippi Sound estuaries. *Estuaries and Coasts* 41: 1475-1485.

⁷ According to the NRI (<http://www.nps.gov/ncrc/programs/rtca/nri/>) the Pearl River is cited for, “Numerous endangered, threatened and rare species; excellent example of large Gulf Coastal Plain river with extensive swamplands; upper reach very scenic.” The National Park Service provides instructions on the process of consulting on projects potentially affecting NRI segments. See <https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm>.

methodology is provided in Figure 1, below.⁸ Audubon's analysis focused on 220 bird species with a reasonable potential to use the selected study area and that were reasonably represented in the eBird database. Our analysis estimated that **a minimum of 32 million birds depend on the central-lower Pearl River Basin for nesting and migration.**

Specifically, our analysis found that over 17 million birds during spring migration and more than 28 million birds during fall migration use this region of the basin annually. Additionally, our analysis found over 4.3 million breeding birds use the area during the summer, and the area supports more than 13.2 million wintering birds. Generally, spring migration is April – May, breeding season is June – July, fall migration August – October, and nonbreeding season (i.e., wintering) is November – March.

The study area selected for this analysis is shown in Figure 2 and includes three HUC-8 watersheds with ID numbers 03180002, 03180003, and 03180004. These HUCs are a combined total of 3,212,612 acres and include the footprint of the proposed One Lake project and the 200-miles of river that would flow below the proposed dam. The total number of birds using this area during different seasons, along with standard errors of the estimates, are provided in Table 1 and depicted in Figure 3.

Audubon's findings substantially reinforce long-standing assessments made by natural resource agencies, scientists, conservation groups, and many others that the Pearl River is a major ecologic lynchpin of the Mississippi Flyway, providing hemispherically significant habitat for many migrating, overwintering, and resident birds.

⁸ DeLuca, W.V., Meehan, T., Seavy, N., Jones, A., Pitt, J., Deppe, J.L. and Wilsey, C.B., 2021. The Colorado River Delta and California's Central Valley are critical regions for many migrating North American landbirds. *Ornithological Applications*, 123(1).

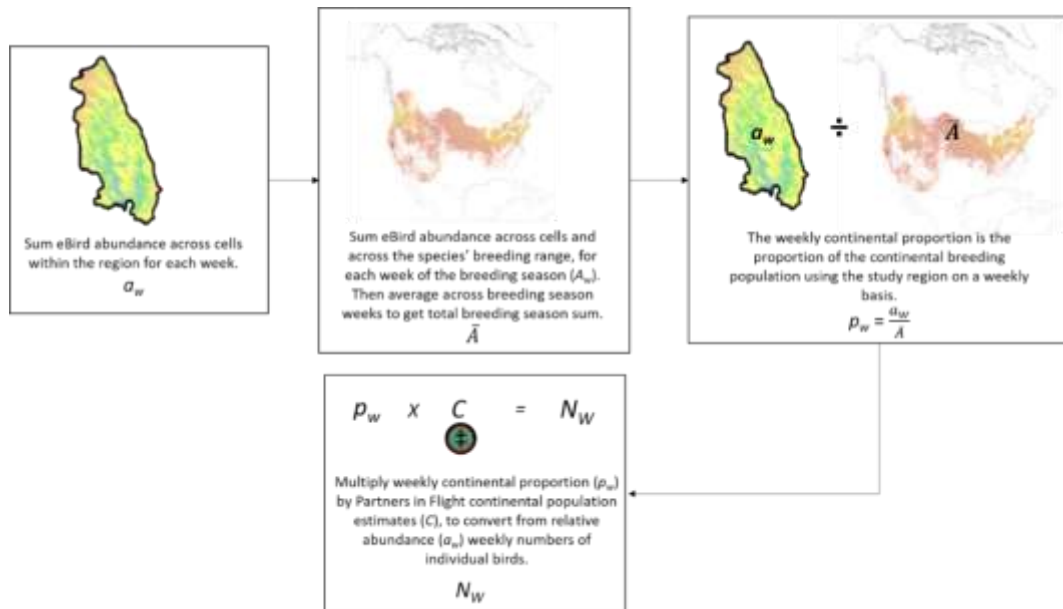


Figure 1. Illustration of the methodology developed by Audubon for its eBird abundance analysis, which was first completed for the Colorado River Delta and California’s Central Valley. This serves as a graphical and mathematical description of the process Audubon used to go from the weekly eBird abundance raster surface in the Sacramento study region to an estimate of total number of individual birds using the region for a given week.



Figure 2. The Pearl River Basin study area used in Audubon’s analysis (purple) includes three HUC-8 watersheds with ID numbers 03180002, 03180003, and 03180004.

Table 1: The number of individual birds using the Pearl River study area across the four seasons.

Season	Total Type	Estimated Number	Standard Error
Spring	Migrants only	17,030,639	396,597
Fall	Migrants only	28,037,479	774,366
Summer	Breeding birds	4,317,259	62,639
Winter	Wintering birds	13,276,935	202,754

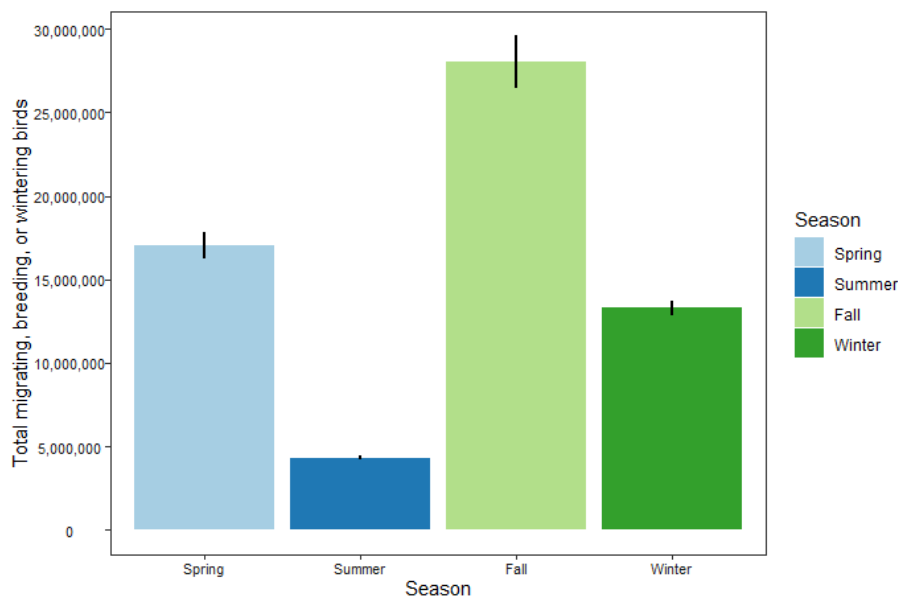


Figure 3. The total number of migrating, breeding, and wintering birds that annually use the Pearl River study area across the four seasons. Generally, spring migration is April – May, breeding season is June – July, fall migration is August – October, and nonbreeding season (i.e., wintering) is November – March.

Audubon evaluated population estimates of birds from the Pearl River Basin analysis in comparison to the United States and Canada (hereafter “North American”, for convenience) population for Species of Greatest Conservation Need (SGCN) identified in Mississippi’s State Wildlife Action Plan (SWAP), and noted that the Pearl River Basin supported >1% of the North American population during at least one season for 11 SGCN species (Table 2). Many of these species are sensitive to variations in water levels, such that altering natural hydrological cycles of the Pearl could have direct negative impacts to their populations. These species include Little Blue Heron, Snowy Egret, Tricolored Heron, Prothonotary Warbler, and Rusty Blackbird. The other species listed would be indirectly affected, through changes in forest stand composition and density driven by changes to the hydrologic regime of the watershed.

Table 2. Species of Greatest Conservation Need, identified by the 2014 Mississippi State Wildlife Action Plan (SWAP)⁹, their NatureServe S-Ranking (1 is higher conservation priority than 5), and the proportion of the North American (NA) population supported by the Pearl River Basin during the peak season.

Species	MS SWAP S-Rank	Proportion of NA Population and Season
Little Blue Heron	S2B, S2N	4.1% - Fall
Snowy Egret	S4B, S1N	1.8% - Fall
Tricolored Heron	S2B, S1N	2.3% - Fall
Chuck-will's-widow	S4B	3.4% - Spring
Wood Thrush	S5B	2.6% - Spring
Golden-winged Warbler	ESA Candidate	2.0% - Fall
Kentucky Warbler	S5B	4.1% - Spring
Worm-eating Warbler	S3B	9.7% - Spring
Swainson's Warbler	S3, S4B	2.9% - Summer
Prothonotary Warbler	S5B	1.6% - Summer
Rusty Blackbird	S2	1.3% - Winter

In addition to conservation priority species, our analysis demonstrates a disproportionate importance of the Pearl River Basin for six other native bird species, where at least 5% of their North American population is supported (Table 3).

Table 3. Species in which the Pearl River supports >5% of their North American (NA) population.

Species	Proportion of NA Population and Season
Broad-winged Hawk	15.7% - Fall
Tree Swallow	11.4% - Fall
Fish Crow	8.4% - Spring
Yellow-throated Vireo	6.4% - Spring
Summer Tanager	5.6% - Spring
Northern Parula	5.4% - Spring

In summary, Audubon’s findings demonstrate the population-level importance that central-lower Pearl River ecosystem has in supporting the health and survival of tens of millions of birds that annually use the area impacted by the One Lake proposal.

⁹ Mississippi Museum of Natural Science (2014). *Endangered Species of Mississippi*. Mississippi Department of Wildlife, Fisheries, & Parks, Mississippi Museum of Natural Science, Jackson, MS (available at https://www.mdwfp.com/media/3231/endangered_species_of_mississippi.pdf).

Improvements to Public Engagement are Needed

Audubon reiterates our concern about how the Corps' initiated this flood planning phase in a confusing and disjointed manner, including barely a week's advance notice of public meetings. We also are disturbed that the Corps' [project website](#) failed to provide all display boards and materials presented at the public meetings well in advance and that the agency has not been forthcoming to post information from those meetings. For example, transcripts from the public meetings that were held on May 24th in Jackson, Mississippi, and the two virtual meetings held on June 1st still have yet to be posted more than a month later, which we deem unacceptable. Moving forward we recommend the Corps adopt the following best practices as the public deserves more transparency and accountability for engagement opportunities.

1. Advertise public meetings and other engagement opportunities at least 2 weeks in advance;
2. Advertise public meetings and available information via a variety of formats and platforms, including earned and social media, direct mailers, utilizing community-based and neighborhood organizations, newspapers and online media platforms, etc.;
3. Include detailed information on the Corps' project website about the public meetings and post all meeting materials (i.e., handouts, poster boards, presentations) at the time when meetings are announced so that the materials can be reviewed two weeks prior to those events;
4. Post follow up meeting information (i.e., videos, transcripts) on the Corps' website no later than two weeks following each meeting so that the materials can be reviewed in a timely manner;
5. Extend future comment period deadlines to 90 days.

Finally, given the seriousness of this issue, Audubon is deeply concerned about the expedited timeline that the Corps has described for this flood planning process. We do not believe that the Corps' arbitrarily set 8-month window provides enough time for the Corps or other natural resource agencies involved in the regulatory process to thoroughly consider a full suite of environmentally sensitive flood mitigation alternatives nor to adequately comply with other federal laws such as ESA, the Fish & Wildlife Coordination Act, hazardous waste assessment, and coastal consistency review. We also question how the Corps' compressed process provides adequate time to authentically develop and shape a final flood plan that considers and appropriately reflects the input provided by state and federal resource agencies, stakeholders, and the public, including through this scoping process.

In conclusion, Audubon is wholly opposed to One Lake and respectfully asks the Corps to protect the Pearl River, its ecological resources, local and downstream communities, and the regional economy, by rejecting this ill-conceived, destructive proposal. In its place, we urge the Corps to adopt a new planning process that emphasizes natural, nature-based, and nonstructural approaches that can provide targeted, effective, and environmentally sustainable flood relief to those who need it in the Greater Jackson community while protecting downstream resources, communities, and the regional economy.

Please contact Jill Mastrototaro, Audubon Delta's Mississippi Policy Director at jill.mastrototaro@audubon.org or (504) 481-3659 with questions or for more information.

Sincerely,



Dawn O'Neal
Vice President, **National Audubon Society**
Executive Director, **Audubon Delta**



Brian Moore
Vice-President, Coast Policy
National Audubon Society

Attachment

Appendix A: NATURAL INFRASTRUCTURE SUCCESS STORIES

The projects highlighted below used natural infrastructure solutions—including ecosystem restoration, levee setbacks, and voluntary relocations—to protect communities and the environment.

Notably, wetlands prevented \$625 million in flood damages in the 12 coastal states affected by Hurricane Sandy and reduced damages by 20% to 30% in the four states with the greatest wetland coverage. During Hurricane Katrina, coastal wetlands reduced storm surge in some New Orleans neighborhoods by two to three feet, and levees with wetland buffers had a much greater chance of withstanding Katrina's fury than those levees without wetland buffers.

In the **Gulf Coast regions of Texas, Louisiana, Mississippi, and Florida**, nature-based solutions to reduce coastal flood risks are significantly more cost effective than structural solutions. A 2018 study shows that in this region, the average benefit-cost ratio for nature-based solutions is 3.5 while levees and dikes have a negative benefit-cost ratio of 0.26. Restoring wetlands could *prevent \$18.2 billion in losses* while costing just \$2 billion to carry out. Spending \$1.3 billion to restore oyster reefs could *prevent \$9.7 billion in losses*. Spending \$1.2 billion to restore barrier islands could *prevent \$5.9 billion in losses*.ⁱ

In **southern California**, the Surfers' Point Managed Shoreline Retreat Project will restore is restoring 1,800 feet of shoreline with cobble beach and vegetated sand dunes east of the mouth of the Ventura River to "provide resilience and offset risk from sea level rise and storms for 50 years" while maintaining beach access and other coastal resources. Since the project began, Surfers' Point has become Ventura County's most visited beach. Even with only one of two phases completed, the restored beach and dunes withstood 2015-2016 winter high wave conditions without damage, while other locations such as the Ventura Pier and promenade were damaged and the Pierpont neighborhood east of the project site was inundated.ⁱⁱ

In **northern California**, the Napa Valley Flood Control Project is using a community-developed "living river" plan to reduce flood damages along the flood-prone Napa River. This plan replaces the Corps' originally-proposed floodwalls and levees with terraced marshes, wider wetland barriers, and restored riparian zones. The Project will restore more than 650 acres of high-value tidal wetlands of the San Francisco Bay Estuary while protecting 2,700 homes, 350 businesses, and over 50 public properties from 100-year flood levels, saving \$26 million annually in flood damage costs.ⁱⁱⁱ Though only partially complete, the project was credited for lowering flood levels by about 2 to 3 feet during the 2006 New Year's Day flood.

In **Florida**, the Corps is using wetland restoration in the Upper St. John's River floodplain to provide important flood damage reduction benefits. The backbone of this project is restoration of 200,000 acres of floodplain, which will hold more than 500,000 acre-feet of water—enough to cover 86 square miles with 10 feet of water—and will accommodate surface water runoff from a more than 2,000 square mile area. The Corps predicts that this \$200 million project will reduce flood damages by \$215 million during a 100-year flood event, and provide average annual benefits of \$14 million. This project was authorized by Congress in 1986 to reduce flood damages along the river.

In **Illinois**, a 2014 study conducted for the Chicago Wilderness Green Infrastructure Vision, found that natural systems are the least costly and most efficient way to control flooding. Wetlands in the seven-county Chicago metropolitan area provide an average \$22,000 of benefits per acre each year in water flow regulation. This study also found that watersheds with 30 percent wetland or lake areas saw flood peaks that were 60 to 80 percent lower than watersheds without such coverage, and that preventing building in floodplain areas could save an average of \$900 per acre per year in flood damages.^{iv}

In **Iowa**, the purchase of 12,000 acres in easements along the 45-mile Iowa River corridor saved local communities an estimated \$7.6 million in flood damages as of 2009. The easement purchase effort began after the historic 1993 floods when river communities in east-central Iowa recognized the need for a more effective approach to reducing flood damages.

In **Massachusetts**, a 1972 Corps study showed that upstream wetlands were playing a critical role in reducing flooding in the middle and upper reaches of the Charles River by storing millions of gallons of water and preventing \$17 million each year in flood damages. This led the Corps to preserve 8,000 floodplain acres to ensure future flood storage, at a cost of just one-tenth of the structural project it had previously planned to build. Congress sanctioned this approach in 1974 when it authorized the Charles River Natural Valley Storage Area. These floodplain wetlands are credited with reducing major floods, including in 1979, 1982, and 2006. The Corps estimates that this project has prevented \$11.9 million in flood damages while providing recreational benefits valued at between \$3.2 and \$4.6 million.^v

In **New York**, restoration of wetlands and lands adjacent to 19 stream corridors in Staten Island “successfully removed the scourge of regular flooding from southeastern Staten Island, while saving the City \$300 million in costs of constructing storm water sewers.”^{vi} Some 400 acres of freshwater wetland and riparian stream habitat has been restored along 11 miles of stream corridors that collectively drain about one third of Staten Island’s land area. A 2018 study commissioned by the City of New York found that using “hybrid infrastructure” that combines nature, nature-based, and gray infrastructure together could save Howard Beach, Queens \$225 million in damages in a 100-year storm while also generating important ecosystem services.^{vii}

In **Oregon**, the Portland Bureau of Environmental Services restored 63 acres of wetland and floodplain habitat, restored 15 miles of Johnson Creek, and move structures out of high-risk areas to reduce flood damages in the Johnson Creek neighborhood. In January 2012, when heavy rainfall caused Johnson Creek to rise two feet above its historic flood stage, the restored site held the floodwaters, keeping nearby homes dry and local businesses open. An ecosystem services valuation of the restored area found that the project would provide \$30 million in benefits (in 2004 dollars) over 100 years through avoided property and utility damages, avoided traffic delays, improved water and air quality, increased recreational opportunities, and healthy fish and wildlife habitat.^{viii}

In **Texas**, restoration of a 178-acre urban wetland—formerly an abandoned golf course—acted as a sponge to store 100 million gallons of water during Hurricane Harvey, protecting 150 homes in Houston’s Clear Lake community from serious flooding. This project will store up to a half billion gallons of water and protect up to 3,000 homes when it is completed in 2021.^{ix}

In **Vermont**, a vast network of floodplains and wetlands, including those protected by 23 conservation easements protecting 2,148 acres of wetland along Otter Creek, saved Middlebury \$1.8 million in flood damages during Tropical Storm Irene, and between \$126,000 and \$450,000 during each of 10 other flood events. Just 30 miles upstream, in an area without such floodplain and wetland protections, Tropical Storm Irene caused extensive flooding to the city of Rutland. ^x

ⁱ Borja G. Reguero et al., "Comparing the Cost Effectiveness of Nature-Based and Coastal Adaptation: A Case Study from the Gulf Coast of the United States," PLoS ONE 13, no. 4 (April 11, 2018), <https://doi.org/10.1371/journal.pone.0192132>.

ⁱⁱ Jean Judge et al., "Surfers' Point Managed Shoreline Retreat Project," in *Case Studies of Natural Shoreline Infrastructure in Coastal California: A Component of Identification of Natural Infrastructure Options for Adapting to Sea Level Rise (California's Fourth Climate Change Assessment)*. (The Nature Conservancy, 2017), 9-15, https://scc.ca.gov/files/2017/11/tnc_Natural-Shoreline-Case-Study_hi.pdf.

ⁱⁱⁱ Napa County California website at <https://www.countyofnapa.org/1096/Creating-Flood-Protection>.

^{iv} Will Allen, Ted Weber, and Jazmin Varela, *Green Infrastructure Vision: Version 2.3: Ecosystem Service Valuation*. (The Conservation Fund: 2014), 13-15, <https://datahub.cmap.illinois.gov/dataset/c303fd2e-beaf-4a75-a9ec-b27c6da49b69/resource/028c9b69-bb19-425e-bb92-3d33656bea4c/download/tcfcmagiv23ecosystemservicesfinalreport201412v2.pdf>.

^v American Rivers, *Unnatural Disasters, Natural Solutions: Lessons From The Flooding Of New Orleans* (2006) (Charles River Valley Natural Storage Area case study); and <https://www.arcgis.com/apps/MapJournal/index.html?appid=0bf97d033a8642b18c2e8075d4b5ecfe>.

^{vi} Cooper Union, Institute for Sustainable Design, *The Staten Island Bluebelt: A Study In Sustainable Water Management* (<http://cooper.edu/isd/news/watch/statenisland>). This effort began in 1990.

^{vii} The Nature Conservancy, *Urban Coastal Resilience: Valuing Nature's Role*. (2015), <https://www.nature.org/content/dam/tnc/nature/en/documents/urban-coastal-resilience.pdf>.

^{viii} "Johnson Creek Restoration, Portland, Oregon," Naturally Resilient Communities, accessed November 12, 2019, <http://nrcsolutions.org/johnson-creek-restoration-portland-oregon/>.

^{ix} Exploration Green, 2018, <https://www.explorationgreen.org/>.

^x Keri B. Watson, Ricketts T., Galford G., Polasky S., O'Niel-Dunne J., [Quantifying flood mitigation services: The economic value of Otter Creek wetlands and floodplains to Middlebury](#), VT, Ecological Economics, Volume 130: 16-24 (2016), <https://doi.org/10.1016/j.ecolecon.2016.05.015>.