DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS
DISTRICT 7400 LEAKE AVE
NEW ORLEANS LA 70118-3651

REPLY TO
ATIENTION OF

Regional Planning and Environment
Division South
Environmental Planning Branch

DRAFT

FINDING OF NO SIGNIFICANT IMPACTS (FONSI)

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT # 498b WEST BANK AND VICINITY HURRICANE PROTECTION PROJECT UPDATED BOTTOMLAND HARDWOODS MITIGATION PLAN

BARATARIA RIVER BASIN, LOUISIANA

The U.S. Army Corps of Engineers (USACE), Mississippi Valley Division, New Orleans District (CEMVN), has prepared Supplemental Environmental Assessment (SEA) # 498b, incorporated by reference herein, to evaluate alternatives to compensate for impacts to bottomland hardwood forest (BLH) that occurred in 2003 due to construction of the West Bank and Vicinity (WBV) Hurricane Protection Project. In addition to the proposed action, the no action alternative was also considered.

Description of the Proposed Action: Pursuant to the Water Resources Development Act of 1986, Section 906 (33 U.S.C. 2283), as amended, CEMVN is required to mitigate impacts to BLH both in kind (i.e., with the same type habitat) and in basin (within the same watershed) to the extent possible. To partially offset the 2003 BLH impacts, CEMVN previously implemented 125 acres of BLH enhancement (EA #498) but that project has not succeeded due to changed project site conditions. To implement the replacement compensatory mitigation as quickly as possible and to avoid the uncertainty whether it would achieve success, the proposed action is to purchase BLH mitigation bank credits from CEMVN-approved mitigation bank(s) to offset the outstanding BLH mitigation requirement, including an additional amount intended to compensate for the temporal lag between the 2003 impacts and implementation of mitigation for those impacts in 2024. In total, CEMVN proposes to purchase 52 Average Annual Habitat Units (AAHUs) of BLH mitigation bank credits in the watershed where the impacts occurred, the Barataria Basin.

Factors Considered in Determination: The CEMVN has assessed the impacts of the "no action" alternative and the proposed action on important resources in the project area. For the proposed action, the CEMVN would purchase sufficient BLH mitigation credits from a bank within the Barataria Basin to mitigate up to 52 AAHUs to offset the original 2003 BLH impacts and to account for the time delay between those impacts and the purchase of credits. Any CEMVN-approved bank with available BLH credits in the Barataria Basin would be eligible to submit a competitive bid. CEMVN may purchase credits from one or more banks if cost-effective for the Government. The particular bank(s) to be utilized is unknown at this time. Because mitigation banks are required by their Mitigation Banking Instruments (MBIs) to meet success criteria according to schedules set forth in those documents, operations at such banks (such as hydrological modifications or planting) are not affected by the sale of credits. As approved mitigation banks already exist on the landscape, no new direct, indirect, or cumulative impacts to any resources would be incurred due to the purchase of bank credits. Likewise, there are no significant adverse impacts associated with the proposed action.

Under the no action alternative, CEMVN would not meet its obligation under 33 U.S.C. 2283 to offset impacted BLH habitat with new BLH habitat in the Barataria Basin. The permanent loss of BLH habitat would cumulatively contribute to overall BLH and wetland losses in the Basin caused by development, which would result in the loss of habitat for terrestrial and aquatic species and may diminish the basin's capacity to store and filter floodwaters.

CEMVN has concluded that purchase of mitigation bank credits could occur on a faster schedule than developing and implementing a new plan for CEMVN to construct replacement BLH habitat and that the use of credits would avoid the risk that a habitat creation or enhancement project may fail due to factors not controlled by CEMVN, which in turn would cause further delay in satisfying the mitigation requirement.

Environmental Compliance: By communication dated April 19, 2024 the U.S. Fish and Wildlife Service submitted a letter of no objection to the project. [ADD RECEIPT OF ADDITIONAL DOCUMENTATION AFTER PUBLIC REVIEW]

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, CEMVN determined that the recommended plan will have no effect on federally listed species or their designated critical habitat.

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, CEMVN determined that the recommended plan has no effect on historic properties.

Public Involvement: Draft SEA # 498b was published for a 30-day public review and comment period from XX through XX 2024. Public review of the draft EA and FONSI was completed on **DATE REVIEW PERIOD ENDED**. All comments submitted during the public review period were considered in the Final EA and FONSI.

Decision: The proposed action would satisfy requirements to mitigate for 52 AAHUs of BLH impacts. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives and the proposed action complies with relevant environmental statutes. All practicable means to avoid and minimize environmental harm have been incorporated. Based on the assessment conducted in SEA # 498b, I have determined that the proposed action would have no significant impact on the human and natural environment and therefore that preparation of an Environmental Impact Statement is not required.

_____ _____

Date

Cullen A. Jones
Colonel, U.S. Army
District Commander

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

WEST BANK AND VICINITY
HURRICANE PROTECTION PROJECT
UPDATED BOTTOMLAND HARDWOODS MITIGATION PLAN

BARATARIA RIVER BASIN, LOUISIANA

SEA # 498b

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SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

WEST BANK AND VICINITY
HURRICANE PROTECTION PROJECT
UPDATED MITIGATION PLANS

BARATARIA RIVER BASIN, LOUSIANA

SEA # 498b

1 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Mississippi River Valley Division, New Orleans District (CEMVN), has prepared this Supplemental Environmental Assessment (SEA # 498b) to evaluate a new alternative to mitigate for outstanding impacts to bottomland hardwood (BLH) habitat resulting from construction of the previously authorized West Bank and Vicinity (WBV) Hurricane Protection Project. The impacts and alternatives previously proposed as mitigation were described in the U.S. Army Corps of Engineers West Bank & Vicinity Hurricane Protection Project Implementation of Previously Authorized Mitigation Plans, Environmental Assessment EA # 498 2011and SEA #4982011.

The WBV Hurricane Protection Project (HPS) was originally three separate projects identified in 1) the 1986 West Bank of the Mississippi River in the Vicinity of New Orleans, LA Environmental Impact Statement:, New Orleans, LA; 2) the 1994 West Bank of the Mississippi River in the Vicinity of New Orleans, LA (East of the Harvey Canal): Environmental Impact Statement, New Orleans, LA, and 3) the 1996 Westwego to Harvey Canal, Louisiana Hurricane Protection Project, Lake Cataouatche Area: Environmental Impact Statement, New Orleans, LA. The Water Resource Development Act (WRDA) of 1999 combined these three projects into a single project under the name, the West Bank and Vicinity, New Orleans, Louisiana Hurricane Protection Project.

The mitigation requirements, plans, and designs were originally defined in the three WBV FEISs issued in 1986, 1994, and 1996. Details regarding these FEISs are contained in SEA #498 and in subsequent project reports. The original WBV marsh mitigation requirement and part of the swamp mitigation requirement were addressed by the construction of a tire/timber breakwater and preservation of wetlands within the Salvador Wildlife Management Area at a location known as the Netherlands (completed in 1991). The remaining mitigation requirement, described in EA #498, addressed impacts to wet bottomland hardwood (BLH-Wet), dry bottomland hardwood (BLH-Dry), and swamp habitats. The original mitigation plans to address these requirements included mitigation features adjacent to Bayou Segnette State Park, the Bayou Segnette Enhancement Area (BAS) and near the Salvador Wildlife Management Area, the St.Charles Acquisition Area (STC). Completion of the mitigation requirement at STC is ongoing. The proposed enhancement of low quality BLH habitats at the BAS site was implemented beginning in 2016 but has not been successful. As such SEA # 498b identifies a new alternative consisting of the purchase of BLH mitigation bank credits to satisfy the outstanding mitigation requirement.

Since the impacts being mitigated under the proposed action were assessed under the 1996 Westwego to Harvey Canal, Louisiana Hurricane Protection Project, Lake Cataouatche Area EIS, only that document and subsequent supplemental documents to that main document, including SEA #498, are incorporated into this document by reference. Section 1.4 briefly summarizes these documents. The WBV HPS project is distinct from the Post- Katrina 100 year West Bank and Vicinity, New Orleans, LA Hurricane and Storm Damage Risk Reduction System (WBV-HSDRRS) project.

The BAS mitigation effort attempted to restore approximately 125 acres of Bottomland Hardwood –Wet (BLH-Wet) habitat on lands adjacent to Bayou Segnette State Park within the HPS levee system. Water levels within the levee system were controlled at the time of land purchase by two existing pump stations, one small pump station maintained by Louisiana State Parks on Bayou Segnette State Park and one large pump station (Cataouatchee) maintained by Jefferson Parish. The site was initially dominated by the invasive Chinese Tallow (*Triadica sebifera*) tree. The mitigation platform was cleared and planted in 2016. The project originally included construction of a water retention dike due to dry conditions on site; however, ponding on site once trees were cleared resulted in a modification of the mitigation project plan to remove construction of the water retention dike and to install ditches to better connect the site to the inner Cataouatchee pump station canal. Additionally, during this time it was discovered that the Bayou Segnette State Park pump station had gone offline.

Two months after completion of the initial eradication of invasive and nuisance plants, native canopy and midstory species were planted. Canopy species included hard mast and soft mast producing trees. Subsequent monitoring of the site in 2016 and 2017 indicated poor survival of canopy species and an insufficient quantity of hard mast producing species necessary to achieve the target hard mast to soft mast ratios. Based on these findings, replanting of the mitigation site was recommended, which was achieved over the course of two events. The first replant was performed in 2017 within the southwest portion of the project area only, while the second replant was performed in 2018 throughout the entirety of the project area. Herbicidal treatment and mowing were deemed necessary to reduce competition for the newly planted species.

Following implementation of the previously authorized mitigation strategy, monitoring efforts of planted canopy and midstory species in 2020 indicated hard mast to soft mast ratios below success requirements described in the originally authorized mitigation plan (60% hard mast to 40% soft mast), significant losses of trees to windthrow, and further losses due to long-term saturation and flooding within the project area. Additional losses likely occurred as a result of Hurricane Ida in 2021, with the long-term flooding likely resulting in increased losses. Prolonged flood durations were documented during multiple site visits, with the most recent site visit in 2023 noting standing water and saturated soils within much of the project area. The flood duration appears to exceed the flooding tolerance of many of the planted species within the project area. Among the canopy species planted within the project area, a higher survival rate of bald cypress (Taxodium distichum) was documented during monitoring events, providing further evidence of increased inundation as this species is most tolerant of increased flooding among the species planted.

A determination was made in 2023 by the Regional Planning and Environment Division, South (RPEDS) Environmental Branch that the water table must be lowered to achieve the target elevation needed for tree survival and planting diversity. The project site was evaluated by the USACE Hydraulics Branch to determine courses of action to reduce the water table at the site,

and it was determined that this could only be achieved by driving sheet piles along the perimeter of the footprint. Rainfall and any seepage that may occur following installation of the sheet piles would require pumping of the water out of the project are. The required pumping operations would result in the need for regular staffing at the project area. Staffing would require additional costs associated with manpower, equipment, fuel, and other standard pumping operation costs. Cost estimates associated with this initiative, combined with schedule constraints and the risk of possible continued site issues, indicated the need to pursue an alternative mitigation strategy. Since it was determined that correcting the hydrology within the project site was not feasible, the USACE Executive Team stated that the preference was to purchase mitigation bank credits to satisfy mitigation requirements.

This SEA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's Regulations (40 CFR 1500-1508), as reflected in the USACE Engineering Regulation (ER) 200-2-2. This SEA provides sufficient information on the potential adverse and beneficial environmental effects to allow the District Commander, U.S. Army Corps of Engineers, CEMVN District, to make an informed decision on whether an Environmental Impact Statement (EIS) should be prepared or to make a Finding of No Significant Impact (FONSI).

1.1 Proposed Action

The proposed action consists of the purchase of bottomland hardwood (BLH) mitigation bank credits from CEMVN approved mitigation bank(s) within the Barataria Basin watershed to offset the outstanding 52 AAHU mitigation requirement. This total includes the 45 AAHUs of BLH habitat that was originally expected to be generated with implementation of the Bayou Segnette project, plus an additional 7 AAHU to account for the temporal lag (between 2003 impacts and the implementation of mitigation for those impacts in 2024) in replacement of this habitat. This proposed action would implement the replacement compensatory mitigation as quickly as possible and avoid the uncertainty whether it would achieve success.

1.2 Authority

The funding authority for the proposed action was provided by the Department of Defense (DoD) Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico, and the Pandemic Influenza Act of 2006 (PL 109-148, Chapter 3, Construction, and Flood Control and Coastal Emergencies) which appropriated funds to accelerate the completion of the previously authorized West Bank and Vicinity, New Orleans, Hurricane Protection Project.

The Westwego to Harvey Canal Hurricane Protection Project was authorized by the WRDA of 1986 (PL 99-662, Sec. 401(b)). The WRDA of 1996 (Public Law (PL) 104-303,

Sections 101(a)(17) and 101(b)(11)) modified the project and added the Lake Cataouatche area to the project. WRDA 1996 also authorized the East of Harvey Canal Hurricane Protection Project. These authorizations were based upon the three FR/FEIS and accompanying Chief's Reports which are listed in Section 1.4 (Prior NEPA documents). WRDA 1999 (PL 106-53, Sec. 328) combined the three projects under the name, the West Bank and Vicinity, New Orleans, Hurricane Protection Project.

The DoD Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico, and the Pandemic Influenza Act of 2006 (PL 109-148, Chapter 3, Construction, and Flood Control and Coastal Emergencies) or "3rd Supplemental," appropriated funds to accelerate the

completion of the previously authorized project, and to restore and repair the project at full Federal expense. In July 2006, the Corps Mississippi Valley Division approved an Abbreviated Project Information Report to use funds appropriated to accelerate the completion of the previously authorized project for implementation of mitigation adjacent to the Lake Salvador Wildlife Management Area and at the Bayou Segnette State Park.

In May 2007, the U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (PL 110-28, Title IV, Chapter 3, Flood Control and Coastal Emergencies and Sec. 4302) or "5th Supplemental," provided $1,300,000,000 to carry out projects and measures for the WBV and Lake Pontchartrain projects as described in PL 109- 148 above, and provided flexibility to the Secretary to reallocate un-obligated funds from the PL 109-234 projects funded under the Flood Control and Coastal Emergencies heading, subject to coordination with the House and Senate Committees on Appropriation. The 5th Supplemental also provided additional appropriations to accelerate the completion of the previously authorized project.

Mitigation of environmental impacts caused by water resources projects is required by the WRDA 1986 Section 906, as amended, along with other statutes, including the Fish & Wildlife Coordination Act. Mitigation features are project features of the water resources project which generated the mitigation requirements-in this case, WBV.

1.3 Purpose and Need for the Proposed Action

The purpose of the proposed project is to address unfulfilled mitigation requirements related to the WBV Project as authorized prior to Hurricane Katrina. The proposed action described in SEA #498 was for enhancement and preservation of wet BLH forests on 125 acres at the BAS site. Construction of the BLH forest was ultimately unsuccessful due to hydrologic conditions that contributed to the repetitive loss of trees after three separate planting efforts. The USACE considered implementing a hydrologic control plan for the area, but determined that cost estimates associated with this initiative, combined with schedule constraints and the risk of possible continued site issues, indicated the need to pursue an alternative mitigation strategy. No credit is being claimed for the work completed at the BAS site, so the outstanding mitigation requirement is equivalent to the 45 AAHUs intended to be mitigated by that project. Since WBV HPS impacts were realized in 2003 and satisfaction of the mitigation requirement is proposed to be in 2024, a difference of 21 years, the Habitat Evaluation Team (HET); which consisted of USACE, NOAA, USFWS, and USDA, agreed that the appropriate approach for addressing the delay in mitigation was to add 21 years to the period of analysis for impacts. This approach is consistent with agreed upon programmatic protocol used on other MVN Civil Works mitigation projects (USACE HSDRRS unpublished period of analysis diagram, attached as Appendix C). To address the temporal lag in satisfying the mitigation requirement, 7 AAHUS were added to the existing 45 AAHUS tor a total of 52 BLH AAHUs that now require mitigation.

1.4 Prior NEPA Documents

Previous NEPA documents for the WBV project identified above and below in this SEA are incorporated by reference herein.

USACE. 1996. Westwego to Harvey Canal, Louisiana Hurricane Protection Project, Lake Cataouatche Area: Feasibility Report and Environmental Impact Statement. New Orleans, LA.

Volumes 1 and 2. (and accompanying Chief's Report September 1996and Record of DecisionDecember 1996).

Since the issuance of these feasibility documents, several design changes have occurred over the years as portions of this project have been implemented. These changes have been documented in the following reports:

USACE. 1988. Westwego to Harvey Canal, Louisiana, Hurricane Protection Project. Design Memorandum No.1, General Design, Advance Supplement-Harvey Canal Floodwall.

USACE. 1989. Westwego to Harvey Canal, Louisiana, Hurricane Protection Project. Design Memorandum No.1, General Design, Reduced Scope.

USACE. 1990. Westwego to Harvey Canal, Louisiana, Hurricane Protection Project. Design Memorandum No.1, General Design, Supplement No.2.

USACE. 1990. West Bank of the Mississippi River in the Vicinity of New Orleans, LA (Westwego to Harvey Canal) Hurricane Protection Project. Environmental Assessment (EA) #121.

USACE. 1991. West Bank of the Mississippi River in the Vicinity of New Orleans, LA (Westwego to Harvey Canal) Hurricane Protection Project. EA #136.

USACE. 1992. West Bank Hurricane Protection Levee, Jefferson Parish, LA (Westwego to Harvey Canal) Hurricane Protection Project: Disposal Site. EA #165.

USACE. 1994. West Bank of the Mississippi River in the Vicinity of New Orleans, LA (Westwego to Harvey Canal) Hurricane Protection Project: Jefferson Parish, LA. EA #198.

USACE. 2000. Harvey Canal Hurricane Protection Features, Jefferson Parish, LA. EA #320.

USACE. 2002. West Bank and Vicinity, New Orleans, LA Hurricane Protection Project: Harvey Canal Sector Gate Site Relocation and Construction Methodology Change, Jefferson Parish, LA. EA #306.

USACE. 2003. West Bank & Vicinity, New Orleans, Louisiana Hurricane Protection Project: Algiers Canal Levee Alternate Borrow Site. Plaquemines Parish, LA. EA #337.

USACE. 2003. West Bank & Vicinity, New Orleans, Louisiana Hurricane Protection Project: Lake Cataouatche Area Levee Improvement, Jefferson Parish, LA. EA #373.

2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Planning Goals

The intent of the proposed action is to satisfy the outstanding mitigation need of 52 AAHUs of BLH impacts remaining due to the lack of success implementing the BLH enhancement project at the BAS site. Through the proposed action, the remaining BLH AAHUs impacted by construction of WBV as authorized prior to Hurricane Katrina in August 2005 would be replaced. The period of analysis for this project is 50 years. In accordance with the USACE Guidance for Section 1163 of the WRDA 2016, Mitigation for Fish and Wildlife and Wetlands Losses, and

Appendix C to ER 1105-2-100, compensatory mitigation was formulated to occur within the same watershed as the impacts and to replace the functions and services of the impacted habitat type with functions and services of the same habitat type. Consistent with the CEMVN's 404 Regulatory Program, the Barataria Basin, equivalent to USGS HUC #08090301, was used as the watershed to consider options to satisfy the necessary mitigation need (Figure 1). Pursuant to revised Section C-4, Mitigation Planning (July 2019) of ER 1105-2-100, the purchase of credits from mitigation banks shall be considered, where appropriate, when providing compensatory mitigation for environmental impacts to ecological resources resulting from construction of a Corps Civil Works project (Section 2036(c), WRDA 2007, as amended by Section 1163 of WRDA 2016). Section 1163 of WRDA 2016 provides for consideration of the entire amount of potential in-kind credits available at mitigation banks as a part of the feasibility study process. The service area of a mitigation bank and in-lieu fee program, to the maximum extent practicable, shall be in the same watershed as the habitat impacted by the Civil Works project., Using the Barataria Basin as the watershed for BLH mitigation planning is consistent with law and policies pertaining to Civil Works projects.

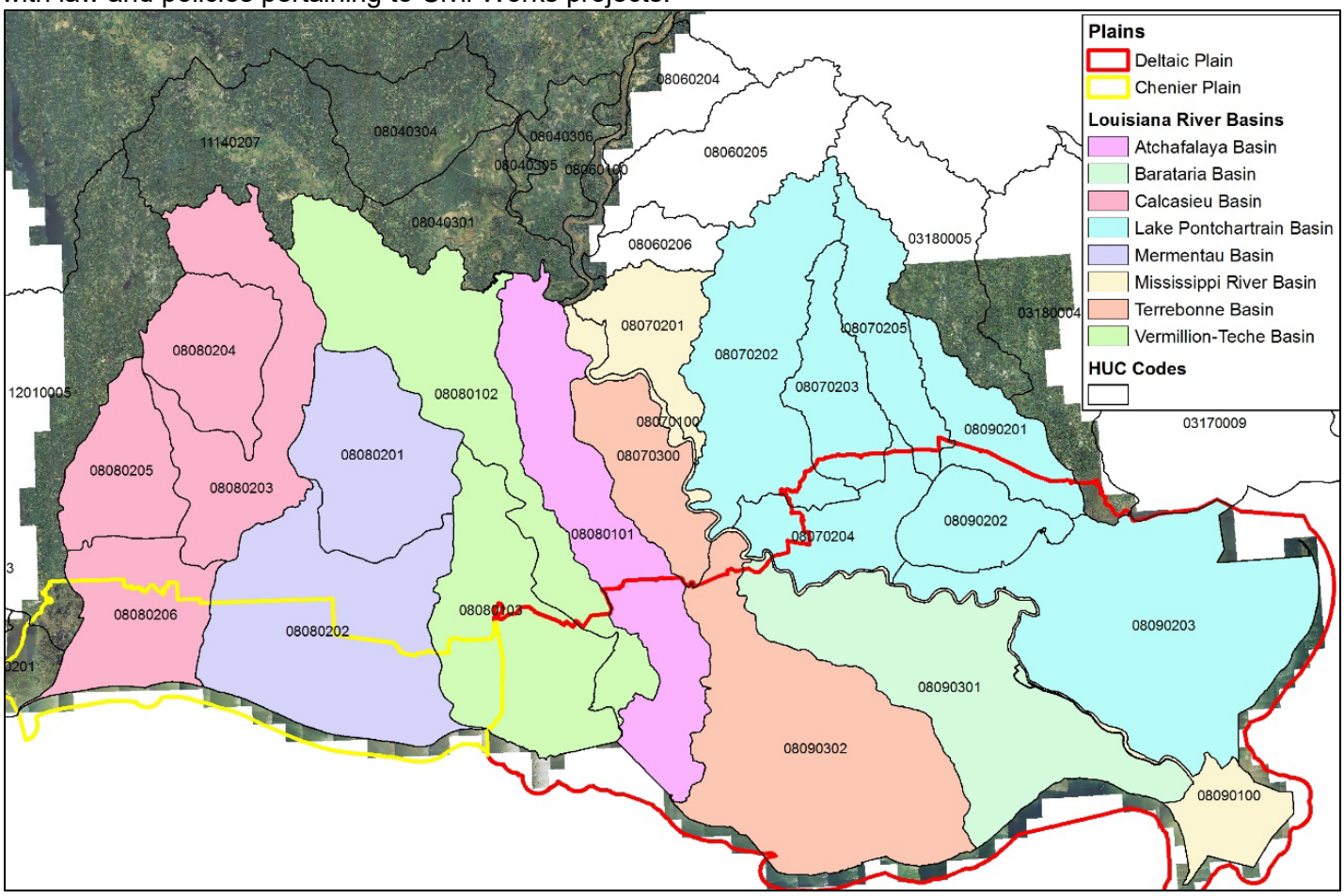


Figure 1: River Basin Watersheds in Louisiana

2.2 Alternatives including the Proposed Action

The NEPA requires that in analyzing alternatives to a proposed action, a Federal agency consider an alternative of "No Action" (Section 2.3.1). Because the proposed action is intended

to remedy the failure of previously constructed BLH mitigation and due to the long delay in satisfying the mitigation requirement since the impacts occurred and the length of time required to select and design Corps-constructed alternatives, the only alternatives evaluated are the purchase of BLH mitigation bank credits and the No Action Alternative.

The purchase of eligible mitigation bank credits is generally more cost effective (cost per AAHU) and quicker to implement compared to other methods of mitigation. Because released mitigation bank credits are available for immediate purchase, purchase of released bank credits can proceed faster than the design, contract award and construction of the other potential alternatives. Further, once the purchase of in-kind mitigation bank credits is complete, no additional action (such as operation or maintenance or monitoring) by the USACE or the Non-Federal Sponsor (NFS) would be required to meet the WBV mitigation need.

2.2.1 No Action Alternative

The No Action alternative evaluates not implementing the proposed action or any action alternatives and represents the future without project (FWOP) condition to which alternatives considered in detail are compared. The No Action alternative represents the status quo if no action is taken. However, previous implementation of the BAS project was not successful, leaving an outstanding mitigation requirement. Therefore, because compensatory mitigation for unavoidable impacts is required by law (e.g., Clean Water Act Section 404(b)(1) Guidelines, WRDA 1986, Section 906, as amended, 33 U.S.C 2283), the No Action alternative would not comply with legal requirements. Under the No Action alternative, the existing BAS project area, which was intended to compensate for BLH impacts, would continue to transition from BLH to marsh and swamp due to flooding exacerbated by loss of the adjacent pump station. Furthermore, the No Action would result in the permanent loss of BLH habitat would cumulatively contribute to overall BLH and wetland losses in the Basin caused by development, which would result in the loss of habitat for terrestrial and aquatic species and may diminish the basin's capacity to store and filter floodwaters. The No Action alternative would not provide compensatory mitigation for unavoidable impacts to BLH from WBV construction and therefore would not meet legal requirements.

2.2.2 Proposed Action, Purchase of Mitigation Bank Credits

The purchase of released BLH credits from USACE approved mitigation banks with perpetual conservation servitudes would address the outstanding WBV mitigation need of 52 BLH AAHUs. The specific mitigation banks capable of supplying the credits needed to meet the mitigation requirements at the time of solicitation is uncertain. Banks currently able to meet the mitigation requirements may not be able to do so at the time of solicitation. In addition, new banks able to meet the mitigation requirement may be approved before the solicitation is issued. Accordingly, specific mitigation banks that may be used to meet the mitigation requirement cannot be identified with any degree of certainty. Because the number of credits that would be required to offset an AAHU of impacts is specific to each mitigation bank and because which mitigation banks may submit bids is uncertain, the number of in-kind mitigation bank credits that will be required to satisfy 52 AAHUs of impacts cannot be determined until the competitive solicitation of bids. However, within the Barataria Basin there are currently available bank credits for BLH habitat and more credits may be released in the future. All operating mitigation banks with service areas that encompass the impacted area (Barataria River Basin, see section 2.1) that have available BLH credits at the time of solicitation would be eligible to be considered.

Since the mitigation bank(s) that may ultimately be selected to provide the necessary mitigation credits is unknown, the existing conditions present at the bank site(s) are also unknown. However, because the banks are established and monitored through CEMVN's Regulatory Mitigation Banking Program, mitigation banks have minimal uncertainty relative to achieving ecological success. Through the CEMVN Regulatory Mitigation Banking program and their Mitigation Banking Instruments (MBIs), mitigation banks are required to monitor ecological success, to adaptively manage their sites to ensure ecological success, and to maintain financial assurances to ensure project success. Because mitigation banks have already been evaluated and approved for construction under the CEMVN Regulatory Mitigation Banking Program, the purchase of released credits would not result in additional construction or additional environmental impacts compared to the No Action/future without project conditions.

If CEMVN were to pursue the purchase of bank credits, mitigation banks wishing to sell credits to satisfy CEMVN's mitigation obligations for BLH would be encouraged to submit competitive bids.

2.3 WVA Model and Sea Level Rise Analysis

2.3.1 WVA Model Certification

WBV previously authorized impacts were calculated by US Fish and Wildlife Service (USFWS) using both species-based Habitat Evaluation Procedure (HEP) and Wetland Value Assessment (WVA) community model methods for a 50-year period of analysis. Recent assessments use certified WVA models with an output of Average Annual Habitat Units (AAHUs). The WVA is a modification of the HEP developed by the USFWS, and outputs from the HEP are considered to be equivalent to AAHU outputs from the WVA. These calculations are discussed in previous NEPA documents related to mitigation for WBV (1996 FEIS for the Lake Cataouatche project, EA #373, and SEA # 498) and their associated USFWS Coordination Act Reports.

2.3.2 WVAs

The WVA methodology is a quantitative habitat-based assessment methodology developed for use in determining wetland benefits of project proposals submitted for funding under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA). The WVA methodology operates under the assumption that optimal conditions for general fish and wildlife habitat within a given coastal wetland type can be characterized, and that existing or predicted conditions can be compared to that optimum level to provide an index of habitat quality. Habitat quality is estimated or expressed using a mathematical model developed specifically for each wetland type. Each model consists of the following components: 1) a list of variables that are considered important in characterizing fish and wildlife habitat; 2) a Suitability Index graph for each variable, which defines the assumed relationship between habitat quality (Suitability Index) and different variable values; and 3) a mathematical formula that combines the Suitability Index for each variable into a single value for wetland habitat quality. That single value is referred to as the Habitat Suitability Index, or HSI.

The WVA models assess the suitability of each habitat type for providing resting, foraging, breeding, and nursery habitat to a diverse assemblage of fish and wildlife species. This standardized, multi-species, habitat-based methodology facilitates the assessment of project-induced impacts on fish and wildlife resources. The BLH WVA model consists of six variables:

1) Tree species composition; 2) Stand maturity; 3) Understory/midstory; 4) hydrology; 5) size of contiguous forest; 6) suitability and traversability of surrounding land uses.; and 7) disturbance.

Values for variables used in the models are derived for existing conditions and are estimated for conditions projected into the future if no mitigation efforts are applied (i.e., future without project, or FWOP), and for conditions projected into the future if the proposed mitigation project is implemented (i.e., future with project, or FWP). These values provide an index of habitat quality, or habitat suitability, for the period of analysis. The HSI is combined with the acres of habitat to generate a number that is referred to as "habitat units." Expected project impacts/benefits are estimated as the difference in habitat units between the FWP scenario and the FWOP scenario. Total benefits are averaged over a 50-year period, with the result reported as AAHUs.

2.3.3 Sea Level Change Analysis

The USACE ER 1100-2-8162, states that potential sea level change must be considered in every USACE coastal activity as far inland as the extent of estimated tidal influence. Potential increases in SLC could affect the performance and therefore ability of a mitigation project to achieve replacement of the services and functions of the impacted habitat type.

Since, the proposed action is buying mitigation bank credits, SLC would be taken into account in the WVA for any bank within the coastal area. Using USACE-predicted future water levels under the SLC scenarios, water levels are converted into relative sea level rise (RSLR) rates, incorporating SLC effects measured at the nearest gauge. The WVA then incorporates the RSLR rates and bank design to predict FWP acres left at the end of the 50-year period of analysis to determine the mitigation potential of the bank. Since the intermediate SLC scenario is used to account for potential uncertainties in future SLC impacts, the risk of not successfully meeting the mitigation requirement due to SLC is minimized.

3 AFFECTED ENVIRONMENT

3.1 Description of the Study Area

Consistent with the MVN Regulatory Program, the study area established for compensatory mitigation is Barataria Basin (see section 2.1.). Barataria River Basin is bounded by the Mississippi River to the north and east, by Bayou Lafourche to the west, and by the Gulf of Mexico to the south and includes nine parishes: Assumption, Ascension, St. James, Lafourche, St. John the Baptist, St. Charles, Jefferson, Plaquemines, and Orleans.

The Barataria River Basin was formed and historically nourished by riverine sediment sands, silts, and clays deposited by the Mississippi River over thousands of years. In recent history, the area has experienced high rates of land loss due to lack of freshwater and sediment input from the river, which was cut off from the basin with construction of flood control levees along the Mississippi River.

The basin is comprised of a swamp and marsh interspersed with lakes in the northern portion, tidally influenced marsh in the south, and a series of barrier islands at its most gulfward extent. Distinct features include natural ridges; fresh, intermediate, brackish, and saline marshes; swamps; bayous; lakes; bays; and barrier islands. Man-made levees and canals, built mainly for floodwater management and oil and gas exploration, are also ubiquitous upon the landscape.

3.1.1 Climate

The climate in Barataria River Basin is influenced by the many water surfaces of the nearby wetlands, rivers, lakes, streams, and the Gulf of Mexico. Throughout the year, these water areas modify relative humidity and temperature conditions, decreasing the range between the extremes. Summers are long and hot, with an average daily temperature of 82° Fahrenheit (°F), average daily maximum of 91°F, and high average humidity. Winters are influenced by cold, dry polar air masses moving southward from Canada, with an average daily temperature of 54°F and an average daily minimum of 44°F. Annual precipitation averages 54 inches.

3.2 Relevant Resources

The relevant resources described are those recognized by laws, executive orders, regulations, and other standards of National, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. Appendix B provides summary information of the institutional, technical, and public importance of these resources. Below are discussions of relevant resources that are found in BLH habitat in the Barataria River Basin.

3.2.1 Wetlands

Wetlands in Barataria River Basin include marshes, swamps, BLH, and open water (e.g., lakes and bayous), but the outstanding mitigation requirement to be addressed in this SEA is for BLH-Wet habitat. BLH are alluvial-forested wetlands and are found at higher ground elevations than surrounding swamp habitats and are therefore inundated less frequently. They are occasionally flooded, which builds up the alluvial soils. In Louisiana the productivity of BLH depends on a reliable wet-dry cycle for healthy growth, with rain in the late winter and early spring and drier conditions the rest of the year. Changes in this regime lead to stress and reduced productivity. With pumping, water levels drop and the forest becomes drier. Hardwoods–green ash, bitter pecan, and Nuttal oak–disappear and are replaced by Chinese tallow.

There are typically no aquatic resources or Essential Fish Habitat (EFH) associated with BLH areas in the Barataria River Basin.

3.2.2 Wildlife

Numerous wildlife resources are located within BLH habitat in the Barataria River Basin. Migratory waterfowl such as mallard, teal, wood ducks, and coot utilize swamps and BLH for feeding and resting areas. The largest concentrations of waterfowl typically occur during the winter months. In addition to waterfowl, a wide range of wading birds including egrets, herons, ibis, and other common birds such as boat tailed grackle, rail, gallinule, snipe, and red-winged blackbird are resident. Other animals that utilize or are dependent on forested wetland habitats in the study area include deer, rabbit, squirrel, alligator, nutria, muskrat, raccoon, mink, opossum, otter, and various other reptiles and amphibians. Both bald eagles and ospreys have been sighted in the area. Feral pigs are also common.

3.2.3 Threatened, Endangered and Other Protected Species

Within the state of Louisiana, there are 34 animal and 4 plant species presently classified or proposed as endangered or threatened (http://www.fws.gov/endangered). Of these species, only the Northern Long-eared Bat (*Myotis* septentrionalis) and the Alligator Snapping Turtle (*Macrochelys temminckii*) may temporarily occupy BLH during a part of their life cycle or may potentially traverse through the habitat to get to a different habitat type, but do not exclusively rely on the BLH habitat within the Barataria basin.

See table below for the full list of endangered species present in the Barataria Basin and whether each may be impacted by loss of BLH habitat.

Table 1: Threatened and Endangered Species of Barataria Basinand if BLH Affected

Species	Status	Impacted by Loss of BLH
Northern Long-eared Bat *Myotis septentrionalis*	Endangered	Potential
West Indian Manatee *Trichechus manatus*	Threatened	No
Eastern Black Rail *Laterallus jamaicensis ssp. Jamaicensis*	Threatened	No
Piping Plover *Charadrius melodus*	Threatened	No
Rufa Red Knot *Calidris canutus rufa*	Threatened	No
Alligator Snapping Turtle *Macrochelys temminckii*	Proposed Threatened	Potential
Hawksbill Sea Turtle *Eretmochelys imbricata*	Endangered	No
Kemp's Ridley Sea Turtle *Lepidochelys kempii*	Endangered	No
Leatherback Sea Turtle *Dermochelys coriacea*	Endangered	No
Loggerhead Sea Turtle *Caretta caretta*	Threatened	No
Pallid Sturgeon *Scaphirhynchus albus*	Endangered	No

Other species in the project area that were listed on the Endangered Species List but have since been delisted because population levels have improved are the bald eagle and the brown pelican. The bald eagle is protected under the Bald and Golden Eagle Protection Act (BGEPA), and the Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.). In southeastern Louisiana parishes, eagles typically nest in mature trees (e.g., bald cypress, sycamore, willow, etc.) near fresh to intermediate marshes or open water.

American alligators and shovelnose sturgeon are listed as threatened under the Similarity of Appearance clause in the Endangered Species Act (ESA) of 1973, as amended, but are not subject to ESA Section 7 consultation.

Colonial nesting wading/water birds and shorebirds are protected under the MBTA (40 Stat. 755), as amended (16 U.S.C. 703 et seq.). Colonial nesting wading/water birds generally include herons, egrets, night herons, ibis, roseate spoonbill, pelicans, anhinga, and cormorants. These birds typically nest and forage in wetlands and open water areas.

The Louisiana Natural Heritage Program of Louisiana Department of Wildlife and Fisheries (LDWF) has developed its own lists and monitors the status of rare, threatened, and endangered species for each parish of the state. The species and habitats listed by the State of Louisiana may be found at http://www.wlf.louisiana.gov/wildlife/species-parish-list.

3.2.4 Water Quality

The Louisiana Department of Environmental Quality (LDEQ) surface water monitoring program is designed to measure progress towards achieving water quality goals at state and national levels, to gather baseline data used in establishing and reviewing the state water quality standards, and to provide a data base for use in determining the assimilative capacity of the waters of the state. Information is also used to establish permit limits for wastewater discharges. The program provides baseline data on water bodies to monitor long-term trends in water quality.

Section 303(d) of the Clean Water Act requires states to identify water bodies that are not meeting water quality standards and to develop total maximum daily loads for those pollutants suspected of preventing the water bodies from meeting their standards. Total maximum daily loads are the maximum amount of a given pollutant that can be discharged into a water body from all natural and anthropogenic sources including both point and non-point source discharges. The following information was largely taken from the 2022 Louisiana Water Quality Inventory: Integrated Report (2022 IR) and refers to the entire state of Louisiana.

Water quality in Louisiana is affected by both point source and non-point source discharges. Point sources include mainly industrial, municipal, and sewer discharges. Non-point sources include storm water runoff, industrial discharges, landscape maintenance activities, forestry, agriculture, and natural sources. Water quality criteria are expressed as constituent concentrations, levels, or narrative statements. There are currently seven designated uses adopted for Louisiana's surface waters: Primary Contact Recreation (PCR), Secondary Contact Recreation (SCR), Fish and Wildlife Propagation, Drinking Water Supply, Oyster Propagation, Agriculture, and Outstanding Natural Resource Waters. The water bodies in the Barataria River Basin support a variety of the designated uses.

Water quality in Louisiana has remained relatively constant over the past few years, with support for secondary contact recreation (SCR or "boating") at 95% and support of the PCR ("swimming") around 50%. For Fish and Wildlife Propagation, 30% of assessed subsegments fully support the designated use. Common causes of impairment impacting various uses include low Dissolved Oxygen (DO), fecal coliform, Enterococcus, and turbidity.

3.2.5 Air Quality

The EPA, Office of Air Quality Planning and Standards has set National Ambient Air Quality Standards, (NAAQS), for six principal pollutants, called “criteria” pollutants. They are carbon monoxide, nitrogen dioxide, ozone, lead, particulates of 10 microns or less in size (PM-10 and PM-2.5), and sulfur dioxide. Ozone is the only parameter not directly emitted into the air, but it forms in the atmosphere when three atoms of oxygen (Ozone 03) are combined by a chemical reaction between oxides of nitrogen and volatile organic compounds in the presence of sunlight. Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of nitrogen and volatile organic compounds, also known as ozone precursors. Strong sunlight and hot weather can cause ground-level ozone to form in harmful concentrations in the air.

Table 2: National Ambient Air Quality Standards

Pollutant [links to historical tables of NAAQS reviews]	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead (Pb)	primary and secondary	Rolling 3 month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)	primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	primary and secondary	1 year	53 ppb (2)	Annual Mean

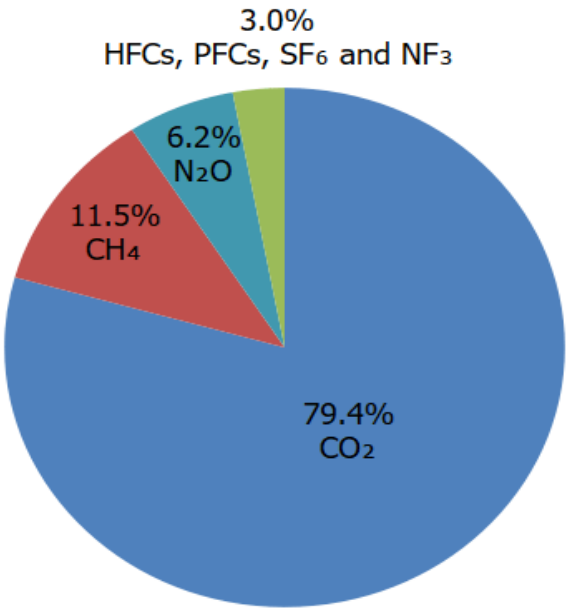
Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
Ozone (O_3)		primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	primary	1 year	9.0 µg/m^3	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.
(2) The level of the annual NO2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O3 standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O3 standards.
(4) The previous SO2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.Table Source: https://www.epa.gov/criteria-air-pollutants/naaqs-table, 16 May 2024.

The USEPA Green Book Nonattainment Areas for Criteria Pollutants (Green Book) maintains a list of all areas within the United States that are currently designated “nonattainment” areas with respect to one or more criteria air pollutants. Nonattainment areas are discussed by county or metropolitan statistical area (MSA). MSAs are geographic locations, characterized by a large population nucleus, that are comprised of adjacent communities with a high degree of social and economic integration. MSAs are generally composed of multiple counties. Review of the Green Book and Louisiana Department of Environmental Quality Air Quality list of “nonattainment” areas indicates that Jefferson Plaquemines, and Orleans Parishes are currently in attainment for all Federal NAAQS pollutants.

3.2.6 Greenhouse Gas

The Council of Environmental Quality (CEQ) on January 9, 2023 introduced the interim guidance on Greenhouse Gas (GHG) and how agencies are to compute GHG and the social cost for their projects. USACE, in coordination with USACEHQ, developed a methodology to analyze the components for GHG and incorporate GHG analysis within National Environmental Policy Act (NEPA) documents. The components that are analyzed within GHG are Carbon dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_20). Primary sources of CO_2 can be natural sources like decomposition of organic material and anthropogenic sources like burning of fossil fuel (Carbon Dioxide 101, 2023). For CH_4, emissions can come from a variety anthropogenic process including flora and fauna sources (Crutzen etc all, 1986). For N_20, majority of the point source revolves around agricultural processes: fertilization (Nitrous Oxide Emissions, 2023). For GHG, CO_2 is the primary contributor to GHG and climate change, followed by CH_4 and N_20. The pie graph below outlines the total U.S. emissions of 2021 showing that over 75% of GHG is CO_2 (Overview of Greenhouse Gas Emissions and Sinks, 2023).



U.S. Environmental Protection Agency (2023). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021

Figure 2. Overview of Greenhouse Gas emissions and Sinks

3.2.7 Cultural and Tribal Resources

Cultural resources include historic properties, archaeological resources, and Native American resources, including sacred sites and traditional cultural properties (TCPs). Historic properties have a narrower meaning and are defined in 36 CFR 800.16(l) of the National Historic Preservation Act (NHPA); they include prehistoric or historic districts, sites (archaeological and religious/cultural), buildings, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP). Historic properties are identified by qualified agency representatives in consultation with State Historic Preservation Officers (SHPO), Tribes, and other consulting parties.

Federal regulations require CEMVN to identify historic properties (listed or eligible for listing in the NRHP); to assess the effects proposed work will have on historic properties; to seek ways to avoid, minimize, or mitigate any adverse effects to historic properties; and to evaluate the proposed action's potential for significant impacts to the human and natural environment. The consideration of impacts to historic and cultural resources is mandated under Section 101(b)4 of the NEPA as implemented by 40 CFR, Parts 1501-1508. Additionally, Section 106 of the NHPA, as amended (54 U.S.C. § 300101 et seq.), requires Federal agencies to take into account their effects on historic properties (i.e., historic and cultural resources) and to allow the Advisory Council on Historic Preservation an opportunity to comment.

Section 106 lays out four (4) basic steps that must be carried out sequentially: 1) establish the undertaking and area of potential effects (APE); 2) identify and evaluate historic properties within APE; 3) assess effects to historic properties; and 4) resolve any adverse effects (avoid, minimize, or mitigate). An agency cannot assess the effects of the undertaking on historic properties until it has identified and evaluated historic properties within the APE. The federal agency must consult with the appropriate State Historic Preservation Officer/s (SHPO), Tribal Historic Preservation Officer/s and/or tribal officials, state and local officials, NFS/applicants, and any other consulting parties in identifying historic properties, assessing effects, and resolving adverse effects, and provide for public involvement.

Tribal Resources

It is the policy of the Federal Government to consult with Federally recognized Tribal Governments on a Government-to-Government basis as required in E.O. 13175 ("Consultation and Coordination with Indian Tribal Governments;" U.S. President 2000). The requirement to conduct coordination and consultation with Federally recognized tribes on and off of tribal lands for "any activity that has the potential to significantly affect protected tribal resources, tribal rights (including treaty rights), and Indian lands" finds its basis in the constitution, Supreme Court cases, and is clarified in later planning laws. The USACE Tribal Consultation Policy, 1 December 2023, specifically implemented this E.O. and later Presidential guidance. The 2023 USACE Tribal Consultation Policy and Related Documents provide definitions for key terms, such as tribal resources, tribal rights, Indian lands, consultation, as well as guidance on the specific trigger for consultation (Table 3).

Table 1: 2023 USACE Consultation Policy Definitions

Category	Definition
Tribal rights	Those rights legally accruing to a Federally recognized tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaties, statutes, judicial decisions, executive orders or agreement and that give rise to legally enforceable remedies.
Tribal lands	Any lands title to which is: either held in trust by the United States for the benefit of any Federally recognized Indian tribe or individual or held by any Federally recognized Indian tribe or individual subject to restrictions by the United States against alienation.
Protected tribal resources	Those natural resources and properties of traditional or customary religious or cultural importance, either on or off tribal lands, retained by, or reserved by or for, federally recognized tribes through treaties, statutes, judicial decisions or executive orders.

There are no tribal lands, nor are there specific tribal treaty rights related to access or traditional use of the natural resources in the project area. However, a total of seven Federally recognized tribes have an aboriginal/historic interest in the general area. The tribes are: 1) the Alabama Coushatta Tribe of Texas (ACTT), 2) the Choctaw Nation of Oklahoma (CNO), 3) the Coushatta Tribe of Louisiana (CT), 4) the Jena Band of Choctaw Indians (JBCI), 5) the Mississippi Band of Choctaw Indians (MBCI), 6) Muscogee (Creek) Nation (MN), and 7) the Tunica Biloxi Tribe of Louisiana (TBTL).

Historic and prehistoric sites in the Barataria River Basin are often located along the natural levees of waterways that were used as transportation routes. The Mississippi River was the main means of transportation, and its natural levees were the choice location for settlement. Prehistoric mound sites are still being discovered. The surrounding coastal lakes and areas were gradually explored for natural resources and utilized as well. As the population along the Mississippi River increased, land along its natural levees became scarce. Settlers began to move further outward following waterways such as Bayou Lafourche and Bayou Segnette. Sites throughout coastal Louisiana, including in the Barataria River Basin, demonstrate the continuous use of the region and its resources from the earliest prehistory to modern times.

Prehistoric sites include hunting and food processing camps, hamlets, and village sites. Native Americans relied on hunting, fishing, and gathering of plants. Discovered archeological sites represent the continuous span of human occupation in Louisiana's Mississippi River Delta region, beginning approximately with the Late Archaic period (i.e., Poverty Point culture, 1700-800 B.C.) through the Mississippi period (i.e., Plaquemine culture, A.D. 1200-1700), and carrying over through European arrival to the region and into the Historic period.

3.2.8 Recreational Resources

This resource is institutionally important because of the Federal Water Project Recreation Act of 1965, as amended, and the Land and Water Conservation Fund Act of 1965, as amended. Recreational resources are technically important because of the high economic value of recreational activities and their contribution to local, state, and national economies. Recreational resources are publicly important because of the high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana.

There are many State and Federal recreation areas within the Barataria River Basin that are visited annually for hunting, hiking, biking, boating, bird watching, fishing, and crabbing, crawfishing, shrimping, education, camping, picnicking, and playing. The Louisiana Statewide Comprehensive Outdoor Recreation Plan (SCORP) provides a statewide inventory of recreation resources and identifies recreational needs. The Land and Water Conservation Fund provides funding for numerous boat ramps, other facilities or lands that enhance opportunities for recreation.

4 ENVIRONMENTAL CONSEQUENCES

Resource Impacts Resulting from the Proposed Mitigation Bank Credit Purchase

For the proposed action, the CEMVN would purchase sufficient BLH credits from one or more mitigation banks within the Barataria River basin to mitigate up to 52 AAHUs. The particular

mitigation bank(s) to be utilized is/are unknown at this time. Since permitted banks exist as reasonably foreseeable projects in the FWOP conditions, no new direct, indirect or cumulative impacts to wetlands, wildlife, T&E and protected species, water quality, cultural resources, or recreational resources would be incurred from the purchase of these credits. As such, there is no further discussion in this section regarding impacts to those resources as a result of the proposed action.

4.1 Wetlands

No Action

Direct, Indirect, and Cumulative Impacts

Under the No Action Alternative, the planted BLH habitat at the BAS mitigation site would continue to deteriorate and the site would continue its transition to swamp and marsh habitats due to frequent/continuous flooding. Compensatory mitigation for WBV BLH impacts would not occur and CEMVN's obligation to compensate for habitat losses would not be satisfied. There would be a permanent loss of BLH habitat in the Barataria Basin that would contribute to the overall loss of wetlands in the Barataria River Basin from other natural and anthropogenic activities.

4.2 Wildlife

No Action

Direct, Indirect, and Cumulative Impacts

The permanent loss of BLH within the Barataria River Basin would reduce the habitat available to wildlife for breeding, nesting, and foraging. However, because there is an abundance of wetland habit in the watershed, this relatively small loss of BLH habitat would likely have a minimal impact on Barataria Basin wildlife populations. Cumulatively with other development and BLH habitat destruction due to anthropogenic and natural forces, the no action alternative would contribute to the overall loss of wetlands in the Barataria River Basin, which could permanently reduce wildlife populations.

4.3 Threatened and Endangered (T&E) Species and Other Protected Species

No Action

Direct, Indirect, and Cumulative Impacts

The permanent loss of BLH within the watershed would reduce the habitat available to T&E species for breeding, nesting, and foraging. However, because there is an abundance of BLH habitat in the watershed, this relatively small loss of BLH habitat would have no overall impact on T&E populations. The two T&E species that may temporarily occupy BLH habitats, in the Barataria Basin (the Long-eared Bat and the Alligator Snapping Turtle) are not exclusively dependent on BLH habitat. Consequently, impacts from the loss of the relatively minor amount of BLH would be expected to be minimal. Cumulatively, the No Action alternative would contribute to the overall loss of BLH wetlands in the Barataria Basin, which could permanently indirectly reduce some T&E populations.

Proposed Action

CEMVN has determined that the proposed action would have no effect on any listed T&E species or designated critical habitat.

4.4 Water Quality

No Action

Direct, Indirect, and Cumulative Impacts

The permanent loss of BLH within the Barataria Basin and the loss of filtering functions that this habitat provides would indirectly, negatively impact water quality in the project area. Cumulatively with other development and loss of wetland habitats due to anthropogenic and natural forces, the No Action alternative would contribute to the overall loss of wetlands in the Barataria Basin which could further reduce water quality in the basin.

4.5 Cultural Resources

No Action

Direct, Indirect, and Cumulative Impacts

No cultural resources would be impacted through the No Action alternative.

4.6 Air Quality

No Action

Direct, Indirect, and Cumulative Impacts

Under the No- Action Alternative, the status of air quality would remain unchanged from current conditions.

4.7 Recreational Resources

No Action

Direct, Indirect and Cumulative Impacts

Under the No Action plan, recreational resources provided by BLH impacted by construction of WBV would be permanently lost. This loss, and the effect such losses would have on wildlife species, would have indirect negative impacts on the recreational opportunities in the Barataria Basin. With no action, there would be an overall loss of BLH from the Barataria Basin, which would equate to a loss in recreational opportunities (e.g., fishing, hunting, wildlife viewing). The overall loss of within the system combined with habitat loss incurred from other natural and anthropogenic forces in the system could have cumulatively permanent negative impacts to recreational resources in the basin.

4.8 Socioeconomics

No Action

Direct, Indirect, and Cumulative Impacts

The permanent loss of BLH would not impact any existing housing, business, employment, industrial activity, public facilities and services, transportation, tax revenues, and property values, community and regional growth, and community cohesion would remain unchanged from current conditions. The Bayou Segnette area and BAS site are located in an unpopulated area. No housing units exist within the site and no public facilities or businesses are within or near the foot print of BAS.

Proposed action

Direct, Indirect and Cumulative Impacts

Since the purchase of mitigation bank credits would occur at an existing approved bank and since permitted banks exist as reasonably foreseeable projects in the FWOP conditions, no new direct, indirect or cumulative impacts to socioeconomics/land use would be incurred due to the purchase of bank credits for the WBV mitigation. However, depending on the amount of BLH-Wet mitigation bank credits available in the basin at the time of credit purchase, CEMVN purchase of mitigation bank credits may reduce the overall number of credits available to permittees to compensate for BLH impacts authorized by Department of the Army Section 10/404 permits. Depending on the number of credits available, USACE may determine that rather than purchasing all or some of the available credits itself, the credits should be reserved for purchase by permittees. In that event, USACE would need to identify and evaluate other compensatory mitigation options. In the event USACE purchases credits and sufficient credits are no longer available for purchase by a permittee to offset impacts associated with a proposed permit, the district engineer would determine appropriate permittee responsible compensatory mitigation based on the factors described in 33 CFR Part 332.3(b). Therefore, no direct, indirect, or cumulative impacts to socioeconomics is anticipated from implementation of the proposed action.

4.9 HTRW

No Action

Direct, Indirect, and Cumulative Impacts

No HTRW impact would be incurred under the No Action alternative.

5 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Environmental compliance for the proposed action in SEA # 498b will be achieved through coordination with appropriate agencies and organizations and release of the Draft SEA #498b and the draft FONSI to the public for its review and comment.

5.1 Fish and Wildlife Coordination Act of 1934

The FWCA provides authority for the USFWS involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It requires Federal agencies that construct, license or permit water resource development projects to first consult with the USFWS, NMFS and state resource agencies regarding the impacts on fish and wildlife resources and measures to mitigate these impacts. Section 2(b) requires the USFWS to produce a Coordination Act Report (CAR) that details existing fish and wildlife resources in a watershed, potential impacts due to a proposed project and USFWS' recommendations to minimize impacts to fish and wildlife resources. USFWS provided a CAR on the Bayou Segnette Enhancement project on XX. By communication dated April 19, 2024, the U.S. Fish and Wildlife Service provided a letter of no objection to the proposed action.

Because the original WBV impacts did not occur in the Louisiana Coastal Zone, compensatory mitigation for those impacts does not need to occur within the Coastal Zone.

CEMVN has determined the proposed action will have no effect on federally listed species or their designated critical habitat and coordination with the Services is not required under the Endangered Species Act.

6 CONCLUSION

The proposed action has been assessed for its potential impacts to wetlands, wildlife, threatened and endangered species, water quality, socioeconomics, cultural resources, and recreation. This assessment has not identified any potential significant environmental impacts from implementation of the proposed action. The recommended action would offset the original impacts to 125 acres of BLH in 2003 and would compensate for the temporal lag of 21 years since the impacts were incurred. In total, the proposed action would provide 52 AAHUs of mitigation required to offset impacts incurred through WBV construction through the purchase of in-kind mitigation bank credits. CEMVN has concluded that purchase of mitigation bank credits could occur on a faster schedule than developing and implementing a new plan for CEMVN to construct replacement BLH habitat and that the use of credits would avoid the risk that a habitat creation or enhancement project may fail due to factors not controlled by CEMVN, which in turn would cause further delay in satisfying the mitigation requirement.

7 PREPARED BY

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APPENDIX A: Relevant Resources and their Institutional, Technical and Public Importance

Relevant Resources and their Institutional, Technical and Public Importance

Resource	Institutionally Important	Technically Important	Publicly Important
Wetlands	Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968., EO 11988, and Fish and Wildlife Coordination Act.	They provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities.	The high value the public places on the functions and values that wetlands provide. Environmental organizations and the public support the preservation of marshes.
Aquatic Resources/ Fisheries	Fish and Wildlife Coordination Act of 1958, as amended; Clean Water Act of 1977, as amended; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968.	They are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of the various freshwater and marine habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.
Essential Fish Habitat (EFH)	Magnuson-Stevens Fishery Conservation and Management Act of 1996, Public Law 104-297	Federal and state agencies recognize the value of EFH. The Act states, EFH is "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity."	Public places a high value on seafood and the recreational and commercial opportunities EFH provides.
Wildlife	Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918	They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.
Threatened and Endangered Species	The Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940.	USACE, USFWS, NMFS, NRCS, EPA, LDWF, and LDNR cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem.	The public supports the preservation of rare or declining species and their habitats.
Cultural Resources	National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979	State and Federal agencies document and protect sites. Their association or linkage to past events, to historically important persons, and to design and construction values; and for their ability to yield important information about prehistory and history.	Preservation groups and private individuals support protection and enhancement of historical resources.
Recreation Resources	Federal Water Project Recreation Act of 1965 as amended and Land and Water Conservation Fund Act of 1965 as amended	Provide high economic value of the local, state, and national economies.	Public makes high demands on recreational areas. There is a high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana.
Aesthetics	USACE ER 1105-2-100, and National Environmental Policy Act of 1969, the Coastal Barrier Resources Act of 1990, Louisiana's National and Scenic Rivers Act of 1988, and the National and Local Scenic Byway Program.	Visual accessibility to unique combinations of geological, botanical, and cultural features that may be an asset to a study area. State and Federal agencies recognize the value of beaches and shore dunes.	Environmental organizations and the public support the preservation of natural pleasing vistas.

Resource	Institutionally Important	Technically Important	Publicly Important
Water Quality	Clean Water Act of 1977, Fish and Wildlife Coordination Act, Coastal Zone Mgt Act of 1972, and Louisiana State & Local Coastal Resources Act of 1978.	USACE, USFWS, NMFS, NRCS, EPA, and State DNR and wildlife/fishery offices recognize value of fisheries and good water quality and the national and state standards established to assess water quality.	Environmental organizations and the public support the preservation of water quality and fishery resources and the desire for clean drinking water.
Prime and unique Farmland	Farmland Protection Policy Act	State and Federal agencies recognize the value of farmland for the production of food, feed and forage.	Public places a high value on food and feed production.
Noise Quality	USACE ER 1105-2-100, and National Environmental Policy Act of 1969, Noise Control Act of 1972, Quiet Communities Act of 1978	Unwanted noise has an adverse effect on human beings and their environment, including land, structures, and domestic animals and can also disturb natural wildlife and ecological systems.	The EPA must promote an environment for all Americans free from noise that jeopardizes their health and welfare.
Socio-economics	USACE ER 1105-2-100, and National Environmental Policy Act of 1969	When an environmental document is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental document will discuss all of these effects on the human environment.	Government programs, policies and projects can cause potentially significant changes in many features of the socioeconomic environment.
Navigation	Rivers and Harbors Act of 1899 and River and Harbor Flood Control Act of 1970 (PL 91-611).	The Corps provides safe, reliable, efficient, and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation.	Navigation concerns affect area economy and are of significant interest to community.

APPENDIX B: U.S. Fish and Wildlife Coordination Act Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
200 Dulles Drive
Lafayette, Louisiana 70506

April 19, 2024

Colonel Cullen Jones
District Engineer
U.S. Army Corps of Engineers
7400 Leake Avenue
New Orleans, Louisiana 70118

Dear Colonel Jones:

The U.S. Army Corps of Engineers (USACE) – New Orleans District is evaluating the purchase of mitigation bank credits to satisfy the mitigation requirements that were anticipated with implementation of the Bayou Segnette Enhancement Area (BSEA) project in Jefferson Parish, Louisiana. This correspondence describes the existing fish and wildlife resources of the currently proposed BSEA modification, identifies impacts to fish and wildlife resources as a result of the proposed project, and provides recommendations for implementing the currently proposed mitigation project. This supplemental draft report is provided in accordance with the Fish and Wildlife Coordination Act (FWCA; 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.); however, it does not constitute the final report of the Secretary of the Interior as required by Section 2(b) of that Act. A copy of this report has been sent to the Louisiana Department of Wildlife and Fisheries (LDWF) and the National Marine Fisheries Service (NMFS); their comments, if any, will be addressed in our final FWCA Report.

The BSEA was previously authorized as part of the mitigation plans for the West Bank and Vicinity Hurricane Protection Project (WBV project). The WBV project initially consisted of three separate projects and their associated mitigation, which were combined into a single project with the passage of the Water Resources Act of 1999 (PL 106-53). Mitigation plans for the WBV project were formulated and documented in three feasibility reports/environmental impact statements (FR/EISs) issued in 1986, 1994, and 1996. Details regarding those FR/EISs are contained in Supplemental Environmental Assessment (SEA) #498, "West Bank and Vicinity Hurricane Protection Project, Implementation of Previously Authorized Mitigation Plans." That SEA identified the success criteria and outlined the project-specific guidelines and plans for planting, monitoring, and reporting associated with implementation of the mitigation sites included in SEA #498.

The U.S. Fish and Wildlife Service (Service) submitted four FWCA Reports (dated November 10, 1986, August 22, 1994, November 15, 1996, and October 19, 2011) prepared for both the three original WBV projects and when the projects were combined into one. For sake of brevity, details of the originally proposed projects, their associated mitigation plans, and the Service's recommendations for those original actions are thus referenced herein. Please reference those documents for a description of the study areas and impacts as well as the condition of fish and wildlife resources found within each project area.

Subsequent to the issuance of those FWCA reports, the USACE's monitoring results indicated that the original BSEA option to restore approximately 125 acres of wet bottomland hardwood (BLH) forest was unsuccessful due to uncontrollable hydrologic conditions of the site that contributed to repetitive loss of trees after two separate planting efforts. The USACE considered implementing a hydrology control plan for the area but determined it was not feasible. Thus, the current alternative to purchase mitigation credits was evaluated. The Habitat Evaluation Team (HET) agreed that the appropriate approach for addressing the delay in mitigation was to add 21 years to the period of analysis for impacts. The impacts were realized in 2003 and mitigation credits will be bought in 2024. The difference is 21 years. This approach is based on the Hurricane and Storm Damage Risk Reduction System (HSDRRS) agreed upon programmatic protocol to extend the period of analysis to account for temporal loss until mitigation is successfully implemented (USACE HSDRRS unpublished period of analysis diagram).

The Service used the original impacts analysis to calculate the new appropriate mitigation required to satisfy the need to restore 125 acres of wet BLH forest. Accordingly, satisfaction of mitigation requirements would require the purchase of -52 Average Annual Habitat Units (AAHUs) of wet BLH forest from a mitigation bank within the service area.

Given that the USACE repeatedly attempted to meet the success criteria for the original BSEA mitigation project of restoring 125 acres of wet BLH forest, the Service would not object to the implementation of the currently proposed BSEA option of purchasing the equivalent of -52 AAHUs of mitigation bank credits to offset those remaining WBV Hurricane Protection Project impacts.

We appreciate the ongoing cooperation of your staff in this study and the USACE's commitment to implementing full mitigation for unavoidable impacts. If you or your staff have any questions regarding our comments, please contact Cathy Breaux of this office at (337) 291-3122.

Sincerely,

Brigette D. Firmin

Brigette D. Firmin BRIGETTE FIRMIN
Field Supervisor
Louisiana Ecological Services Office

cc: EPA, Dallas, TX
NOAA, Fisheries Service, Baton Rouge, LA
LDWF, Baton Rouge, LA
LDNR (CMD), Baton Rouge, LA
CPRA, Baton Rouge, LA

APPENDIX C: UNPUBLISHED PERIOD OF ANALYSIS DIAGRAM

HES-LCAT03Rev
29-May-24

TABLE C-4-1

LAKE CATAOUATCHE HABITAT ANALYSIS
HABITAT EVALUATION SYSTEM (HES)

Construction Area Analysis
Plan 1C
Habitat Type TALIBLH

	PLAN	TY	ACRES	HSI	HUV	CUM	AHUV[1]
			-0.005				
Construction Area	FwOP	0	174	0.33	57		
	FwOP	1	173	0.33	57	57	
	FwOP	20	157	0.33	52	1036	
	FwOP	50	135	0.33	45	1450	
	FwOP	75	119	0.33	39	1051	
	FwOP	100	105	0.33	35	828	
		121	95	0.33	31	694	
				TOTAL		5216	52.2

	Impact						
FwP	0	174	0.33	57			
FwP	1	171	0.33	0	29		
FwP	20	0	0.33	0	-3		
FwP	50	0	0.33	0	0		
FwP	75	0	0.33	0	0		
FwP	100	0	0.33	0	0		
FwP	121	0	0.33	0	0		
				Losses =		26	0.3
							51.9

Below are the columns with formulas before modifying to eliminate negative numbers.

Impact						
FwP	0	0	0.25	0		
FwP	1	-22	0.25	-6	-3	
FwP	25	-22	0.25	-6	-102	
FwP	50	-22	0.25	-6	-138	
FwP	75	-22	0.25	-6	-138	
FwP	100	-22	0.25	-6	-138	
				PLAN IMPACT (losses)=		-547
						5.5

Impact						
FwP	0	5	0.25	0		
FwP	1	0	0.25	-1	-1	
FwP	25	-5	0.25	-1	-30	
FwP	50	-5	0.25	-1	-31	
FwP	75	-5	0.25	-1	-31	
FwP	100	-5	0.25	-1	-31	
			PLAN IMPACT (losses)=		-124	
			TOTAL IMPACT			-12
						1.2
						7

Mitigation Area Analysis

Habitat Type TALIBLH

	PLAN	TY	ACRES	HSI	HUV	CUM	AHUV[1]
			-0.005				
Mitigation Area	FwOP	0	133	0.33	44		
	FwOP	1	132	0.33	44	44	
	FwOP	20	120	0.41	49	883	
	FwOP	50	104	0.43	45	1406	
	FwOP	75	91	0.57	52	1207	
	FwOP	100	81	0.74	60	1336	
				TOTAL		4938	43.4

			0				
FwP	0	133	0.33	44			
FwP	1	133	0.00	0	22		
FwP	20	133	0.00	0	0		
FwP	50	133	0.73	97	874		
FwP	75	133	0.83	110	3112		
FwP	100	133	0.88	117	2843		
FwP	100	133	0.89	118	2943		
				Gains =		9793	97.9
							48.6

[1] HES AHUV = HEP WVA AAHU

APPENDIX A:

RELEVANT RESOURCES AND THEIR INSTITUTIONAL, TECHNICAL AND PUBLIC IMPORTANCE

Table A: Relevant Resources and Their Institutional, Technical and Public Importance

Resource	Institutionally Important	Technically Important	Publicly Important
Wetlands	Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968., EO 11988, and Fish and Wildlife Coordination Act.	They provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities.	The high value the public places on the functions and values that wetlands provide. Environmental organizations and the public support the preservation of marshes.
Aquatic Resources/ Fisheries	Fish and Wildlife Coordination Act of 1958, as amended; Clean Water Act of 1977, as amended; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968.	They are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of the various freshwater and marine habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.
Essential Fish Habitat (EFH)	Magnuson-Stevens Fishery Conservation and Management Act of 1996, Public Law 104-297	Federal and state agencies recognize the value of EFH. The Act states, EFH is "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity."	Public places a high value on seafood and the recreational and commercial opportunities EFH provides.
Wildlife	Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918	They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.
Threatened and Endangered Species	The Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940.	USACE, USFWS, NMFS, NRCS, EPA, LDWF, and LDNR cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem.	The public supports the preservation of rare or declining species and their habitats.
Cultural Resources	National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979	State and Federal agencies document and protect sites. Their association or linkage to past events, to historically important persons, and to design and construction values; and for their ability to yield important information about prehistory and history.	Preservation groups and private individuals support protection and enhancement of historical resources.
Recreation Resources	Federal Water Project Recreation Act of 1965 as amended and Land and Water Conservation Fund Act of 1965 as amended	Provide high economic value of the local, state, and national economies.	Public makes high demands on recreational areas. There is a high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana.
Aesthetics	USACE ER 1105-2-100, and National Environmental Policy Act of 1969, the Coastal Barrier Resources Act of 1990, Louisiana's National and Scenic Rivers Act of 1988, and the National and Local Scenic Byway Program.	Visual accessibility to unique combinations of geological, botanical, and cultural features that may be an asset to a study area. State and Federal agencies recognize the value of beaches and shore dunes.	Environmental organizations and the public support the preservation of natural pleasing vistas.
Water Quality	Clean Water Act of 1977, Fish and Wildlife Coordination Act, Coastal Zone Mgt Act of 1972, and Louisiana State & Local Coastal Resources Act of 1978.	USACE, USFWS, NMFS, NRCS, EPA, and State DNR and wildlife/fishery offices recognize value of fisheries and good water quality and the national and state standards established to assess water quality.	Environmental organizations and the public support the preservation of water quality and fishery resources and the desire for clean drinking water.

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APPENDIX B:

U.S. FISH AND WILDLIFE COORDINATION ACT REPORT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
200 Dulles Drive
Lafayette, Louisiana 70506

April 19, 2024

Colonel Cullen Jones
District Engineer
U.S. Army Corps of Engineers
7400 Leake Avenue
New Orleans, Louisiana 70118

Dear Colonel Jones:

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We appreciate the ongoing cooperation of your staff in this study and the USACE's commitment to implementing full mitigation for unavoidable impacts. If you or your staff have any questions regarding our comments, please contact Cathy Breaux of this office at (337) 291-3122.

Sincerely,

Brigette D. Firmin

Brigette D. Firmin BRIGETTE FIRMIN
Field Supervisor
Louisiana Ecological Services Office

cc: EPA, Dallas, TX
NOAA, Fisheries Service, Baton Rouge, LA
LDWF, Baton Rouge, LA
LDNR (CMD), Baton Rouge, LA
CPRA, Baton Rouge, LA

APPENDIX C:

UNPUBLISHED PERIOD OF ANALYSIS DIAGRAM

HES-LCAT03Rev
29-May-24

TABLE C-4-1

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HABITAT EVALUATION SYSTEM (HES)

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	FwOP	50	135	0.33	45	1450	
	FwOP	75	119	0.33	39	1051	
	FwOP	100	105	0.33	35	828	
		121	95	0.33	31	694	
				TOTAL		5216	52.2

Impact						
FwP	0	174	0.33	57		
FwP	1	171	0.33	0	29	
FwP	20	0	0.33	0	-3	
FwP	50	0	0.33	0	0	
FwP	75	0	0.33	0	0	
FwP	100	0	0.33	0	0	
FwP	121	0	0.33	0	0	
				Losses =		26	0.3
						519	51.9

Below are the columns with formulas before modifying to eliminate negative numbers.

Impact						
FwP	0	22	0.25	0		
FwP	1	0	0.25	-6	-3	
FwP	25	-22	0.25	-6	-102	
FwP	50	-22	0.25	-6	-138	
FwP	75	-22	0.25	-6	-138	
FwP	100	-22	0.25	-6	-138	
			PLAN IMPACT (losses)=		-547	-5.5
						5.5

Impact						
FwP	0	5	0.25	0		
FwP	1	0	0.25	-5	-1	
FwP	25	-5	0.25	-5	-30	
FwP	50	-5	0.25	-5	-31	
FwP	75	-5	0.25	-5	-31	
FwP	100	-5	0.25	-5	-31	
		PLAN IMPACT (losses)=			-124	-12
		TOTAL IMPACT				12
						7

Mitigation Area Analysis

Habitat Type TALIBLH

	PLAN	TY	ACRES	HSI	HUV	CUM	AHUV[1]
			-0.005				
Mitigation Area	FwOP	0	133	0.33	44		
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	FwOP	50	104	0.43	45	1406	
	FwOP	75	91	0.57	52	1207	
	FwOP	100	81	0.74	60	1336	
				TOTAL		4938	43.4

		0				
FwP	0	133	0.33	0	44	
FwP	1	133	0.00	0	0	22
FwP	2	133	0.00	0	0	0
FwP	20	133	0.73	97	874	
FwP	50	133	0.83	110	3112	
FwP	75	133	0.86	117	2843	
FwP	100	133	0.89	118	2343	
				Gains =	9793	97.9
						48.6

[1] HES AHUV = HEP WVA AAHU