

**DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)**  
**Back Bay Living Shoreline to Enhance Community and Military Coasts**  
**Keesler Air Force Base Biloxi, Mississippi**

---

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) Sections 4321 to 4347, implemented by Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) §1500-1508, and 32 CFR §989, Environmental Impact Analysis Process (EIAP), the U.S. Air Force (Air Force) assessed the potential impacts on the natural and human environment associated with Back Bay Living Shoreline to Enhance Community and Military Coasts at Keesler Air Force Base Biloxi, Mississippi.

***Purpose of and Need for Proposed Action***

The purpose of the Proposed Action is to implement floodplain stabilization and resilience to: 1) reduce shoreline erosion through the reduction of wave energy along the southern shoreline of the Back Bay of Biloxi shared by Keesler AFB, the Biloxi VAMC, and the City of Biloxi's Hiller Park; 2) conserve and promote the expansion of marshes and associated ecosystem services (e.g., flood protection, water purification, increased biodiversity); and 3) increase community resilience in the Back Bay of Biloxi, Mississippi, by protecting vital infrastructure from sea-level rise and storm surges. The Proposed Action is needed to address the Back Bay of Biloxi's susceptibility to coastal flooding and to minimize disruptions to Keesler AFB's military mission from storm-related flooding of critical base infrastructure and operational areas. Analysis of satellite imagery of this area shows that marshes are being lost at a rate of nearly 1 ft per year and some areas, particularly Keesler AFB, Hiller Park, and the VAMC, only have a narrow band of marsh habitat remaining. Most of this erosion can be attributed to vessel traffic in the nearby boat channel and will be exacerbated with increasing water levels and frequency of storms.

***Description of the Preferred Alternative— Segmented breakwaters and planting***

Under the Preferred Alternative/Proposed Action, a segmented breakwater would be constructed followed by plantings of native vegetation in select areas. A segmented breakwater complex is a structure usually made of rocks or concrete pieces that is placed parallel to the shoreline followed by a gap and another breakwater. The intent of these types of breakwaters is to reduce wave energy while the gaps allow hydrological flow. The proposed breakwaters would be designed with a crest height at least 1.5 ft above mean high water, which would leave them exposed (i.e., above water level) for most of the time and protect sensitive shorelines from the impacts of vessel wakes. Each breakwater for all 3 phases of the project is proposed to be a maximum of 100ft in length x 8ft wide with at least 25ft gaps between breakwaters. Behind (shoreward of) the breakwaters, along the shoreline, native grasses would be planted. *Spartina alterniflora* would be planted in the lower elevations with *Juncus roemerianus* in the higher elevations. This action also represents the most environmentally preferable alternative as it best promotes the policies expressed in section 101 of NEPA by maximizing environmental benefits by way of improvements to native wetlands and floodplain protection.

---

### ***Description of Alternative 2 - Bulkhead***

Hardening the shoreline with a bulkhead would help to prevent future erosion and loss of property. A bulkhead is a vertical wall constructed near the mean high water line and often backfilled with sediment. The intent of bulkheads are to reduce shoreline erosion. The overall effect of this action could be positive for shoreline and infrastructure protection in the short-term, but negative for the environment in the long-term. Bulkheads degrade and are susceptible to damage from ambient and storm-based wave action. Additionally, bulkheads are known to reduce shoreline habitat by limiting connectivity and enhancing scour associated erosion of coastal wetlands. Therefore, this action would have long-term negative effects on biological, water, and geological resources. This alternative would, therefore, not be a feasible long-term solution for this project and was eliminated from further consideration as it would not accomplish the purpose and need described for the Preferred Alternative.

### ***Description of Alternative 3 – Riprap revetment***

In order to minimize loss of sediment fill, riprap could be installed along the shoreline. A riprap revetment is a sloping structure made of large rocks or concrete that protects shorelines and streambanks from erosion. The overall effect of this action could be positive for shoreline and infrastructure protection in the short-term, but negative for the environment in the long-term. Riprap revetments are known to reduce shoreline habitat by limiting connectivity, eliminating shallow water habitat, and limiting growth areas of shoreline wetlands. Riprap revetments do not provide a feasible and nature friendly solution to the project. Consequently, this alternative was eliminated from further consideration as it would not accomplish the purpose and need described for the Preferred Alternative.

### ***Alternatives Eliminated from Further Consideration***

This EA has considered all reasonable alternatives under the CEQ regulation, 40 CFR §1502.14(a), which states that that all reasonable alternative that have been eliminated must be briefly discussed. The following alternatives have been eliminated: Alternative 2 – Bulkhead and Alternative 3 – Riprap revetment. Alternative 2 - Bulkhead was eliminated due to only being able to provide short-term shoreline protection and its associated negative environmental consequences, such as loss of coastal wetlands and eliminating habitat connectivity. Alternative 3 – Riprap revetment was eliminated due to the negative environmental consequences, such as loss of shoreline vegetation, shallow water habitat, and limiting habitat connectivity. The Preferred Alternative of a segmented breakwater and planting provides long-term shoreline protection and environmental benefits.

### ***Description of the No-Action Alternative***

The CEQ regulation 40 CFR §1502.14(d) requires the inclusion of a No Action Alternative in the NEPA analysis. Under the No Action Alternative, there would be no change from existing conditions. However, if the No Action Alternative is chosen, improvements to the existing shoreline would not be made. Shoreline erosion would continue at historical rates exacerbated by the frequency and intensity of future storm events. Over time, the shoreline infrastructure protection area and fringing wetlands would continue to narrow, jeopardizing existing vital infrastructure and leading to a reduction in habitat and environmental benefits.

---

---

### ***Summary of Environmental Findings***

The Air Force has concluded that the Preferred Alternative – Segmented Breakwaters and Planting would not affect the following resources: Safety and Occupational Health, Infrastructure and Utilities, Transportation, Noise, Socioeconomics, Visual Resources, Environmental Justice, and Airspace. Based on the findings in this EA, no significant adverse impacts would result to the following resources Land Use, Air Quality, Water Resources, Hazardous Materials/Waste, Biological Resources, Cultural Resources, and Geological Resources. Descriptions of the potential impacts and rationale for decision on each can be found described in the sections below. No significant adverse cumulative impacts would result from activities associated with the Preferred Alternative – Segmented Breakwaters and Planting when considered with past, present, or reasonably foreseeable future projects.

***Noise:*** Assessment of noise impacts is not included in this document because the Proposed Action area is outside the Keesler AFB Air Installation Compatibility Use Zone (AICUZ) noise contours, and the noise generated from construction activities (barge traffic, placement of segmented breakwaters) would be minor and temporary. Each of the three phases of the proposed project are anticipated to require only 1-3 days of construction and no more than 5 barge trips per 500 linear ft of shoreline. As the Back Bay is typically subject to boat traffic of various sizes, the noise impacts to nearby property owners would be negligible when compared to existing water traffic for the area. Therefore, the noise effect would not be readily perceptible when compared to the existing high noise levels at Keesler AFB from daily flight operations and existing water traffic for the area and has therefore been eliminated from further consideration. Additionally, the work will occur between the hours of 7am and 10pm, which aligns with the target timeframes for noise generating work in the Harrison County and City of Biloxi noise ordinances.

***Airspace:*** Airspace concerns any alterations or restrictions to airspace. The proposed action and alternatives considered are all low-relief with the majority of the proposed action occurring below mean sea level. Due to the low relief, no significant impact on airspace would result from the proposed action or the alternatives. Therefore, airspace issues were eliminated from further analysis.

***Air Quality:*** The cumulative effects of the proposed action and alternative actions on air quality should be negligible in that emissions associated with the project are small relative to normal boat and vehicle traffic. Conservation and enhancement of vegetation will provide some air quality and carbon sequestration improvements, but these will be relatively small. The no action alternative would continue to allow shoreline erosion and loss of vegetation, but would not generate emissions.

***Land Use:*** The cumulative effects of the proposed action on air Installation compatible use zone/land use should be positive in that it will provide shoreline protection that is more adaptable to changing water levels than the proposed action alternatives. The segmented breakwater should protect the shoreline while allowing the vegetation to migrate upslope over time. The proposed alternatives would provide shoreline protection, but will be less effective and adaptable to changing conditions as the proposed action. The no action alternative would continue to allow shoreline erosion that accoaches toward infrastructure.

---

---

**Biological Resources:** The cumulative effects of the proposed action on biological resources should be positive in that it will provide shoreline protection that is more adaptable to future conditions than the proposed action alternatives. The segmented breakwater should protect the shoreline while allowing the vegetation to migrate upslope over time, thereby enhancing wetlands and water quality. Many of the local fauna and species listed above rely on healthy wetlands for at least portions of their life cycle. The proposed alternatives would provide shoreline protection, but will be less effective and adaptable to changing conditions as the proposed action and would provide less biological resource benefits. The no action alternative would continue to allow shoreline wetland erosion and general loss of habitat for biological resources.

**Cultural Resources:** The cumulative effects of the proposed action, alternative rip rap revetment action, and no action scenario on cultural resources should be negligible. None of those action scenarios involve excavation of sediment and, thus, could not lead to disturbance of cultural resources. The alternative bulkhead scenario would involve some excavation and backfilling that would lead to soil disturbance and potential disturbance of cultural resources if they were present.

**Geological Resources:** The cumulative effects of the proposed action and alternative rip rap revetment action on geological resources should be positive. Both of those actions will lead to the stabilization of soft sediments and the shoreline. The alternative bulkhead action would involve some excavation and backfilling that would lead to soil disturbance. Wave action impacting the front of the bulkhead would lead to scouring and disturbance of nearshore sediment. The no action scenarios would lead to continued erosion and disturbance of nearshore geological resources.

**Water Resources:** The cumulative effects of the proposed action on water resources should be positive in that it will provide shoreline protection that is more adaptable to changing water levels than the proposed action alternatives. The segmented breakwater should protect the shoreline while allowing the vegetation to migrate upslope over time, thereby enhancing wetlands and water filtration capacity. The proposed alternatives would provide shoreline protection, but will be less effective and adaptable to changing conditions as the proposed action and would provide less water resource benefits. The no action alternative would continue to allow shoreline wetland erosion.

**Socioeconomic Resources:** Assessment of socioeconomic impacts is not included in this document because the Proposed Action would not have an effect on recreational or commercial fisheries, as well as county-wide or AFB employment. As previously discussed, each of the three phases of the project are anticipated to require only 1-3 days of construction and no more than 5 barge trips for every 500 linear ft of breakwater. In addition, the Back Bay of Biloxi supports various amounts of both commercial and recreational fishing activity throughout the year. Fishermen who reach this area by small craft, would still have the ability to navigate around the project area to reach alternative angling locations. Fishers who use the Hiller Park Pier or the AFB piers could be minimally and temporally impacted by construction noise and water turbidity. However, they could either fish a different area, if they have the ability to reach a

---

---

different pier/bank, or fish early in the morning or later in the evening when construction was not occurring. Commercial fishing would not be impacted by construction activities. Therefore, due to short construction times and minimal impacts to water/biological resources, the proposed project would have negligible effects on recreational fisheries and no effects on commercial fisheries. Additionally, the proposed project could improve water quality and habitat leading to positive effects on recreational fisheries. A minimal number of off-base contracts would be awarded as a result of this project. While these expenditures would benefit the local economy, the economic impact would be considered negligible in context to county-wide or AFB spending. Thus, socioeconomic impacts would be minimal and have therefore been eliminated from further consideration.

**Environmental Justice:** Environmental justice concerns the disproportionate effect of a federal action on low-income or minority populations. The existence of disproportionately high and significant impacts depends on the nature and magnitude of the effects identified for each of the individual resources. If implementation of the proposed action or no action alternative could significantly affect any people, these effects would have to be evaluated for how they adversely or disproportionately affect low-income or minority communities. Because no significant effects would result from the proposed action or the alternatives, neither minority nor low-income groups would be affected disproportionately. Therefore, environmental justice issues were eliminated from further analysis.

**Safety:** Assessment of Safety and Occupational Health impacts is not included in this document; all contractors would be responsible for compliance with applicable occupational Safety and Health Act regulations concerning occupational hazards and specifying appropriate protective measures for all employees. During construction, all safety procedures and BMPs will be followed in order to ensure the safety of construction workers and the public.

**Hazardous Materials and Wastes:** The cumulative effects of the proposed action and alternative actions on hazardous waste should be negligible in that the only hazardous waste materials associated with these actions are associated with vessels and vehicles (fuel and oil). In the event there is a spill, cleanup activities will be initiated by the contractor leading to only a temporary impact. The no action alternative would not have any potential hazardous materials associated with it.

**Transportation:** Assessment of transportation impacts, which addresses roads, waterways, and circulation, is not included in this document. Transportation near Keesler AFB and its neighboring properties is mainly achieved via road and street networks. The Proposed Action area includes shorelines, intertidal zones, and inland waterways. Barges and skiffs would be primarily used for the transport and placement of the segmented breakwaters. Therefore, construction activities would not have an effect on pedestrian walkways, roads, or overall traffic volume for Keesler AFB, Biloxi VAMC, or Hiller Park. The Back Bay of Biloxi is a large navigable water that supports commercial and recreational fisheries, and recreational users in vessels of varying sizes. In the location of the project, water depths are around 3 feet, so only smaller vessels (kayaks, flat-bottomed skiffs) frequently utilize the area. Only Phase 1 of the project has been designed. However, Phases 2 and 3 are projected to have similar construction schedules.

---

---

***Visual Resources:*** Visual resource concerns the impact on visually sensitive locations. Example concerns could include excess light emissions or viewshed alterations. The proposed action and alternatives considered are all low-relief with the majority of the proposed action occurring below mean sea level. Due to the low relief, no significant visual resource impacts would result from the proposed action or the alternatives. Therefore, environmental justice issues were eliminated from further analysis.

***Finding of No Significant Impact***

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ Regulations, and 32 CFR §989, I conclude that the segmented breakwater and plantings would not have a significant environmental impact, either by itself or cumulatively with other known projects. Accordingly, an Environmental Impact Statement is not required. This analysis fulfills the requirements of NEPA, the President's CEQ 40 CFR §§ 1500-1508 and the Air Force EIAP regulations 32 CF.R § 989. The signing of this Finding of No Significant Impact completes the EIAP.

---

BILLY E. POPE, JR, Colonel, USAF  
Commander, 81st Training Wing

---

Date

---