

Air Alliance Houston  
Bayou City Waterkeeper  
Christmas Bay Foundation  
Coalition for Environment, Equity, and  
Resilience  
Coastal Conservation Association, Texas  
Environment Texas

Galveston Bay Foundation  
Healthy Gulf  
Healthy Port Communities Coalition  
Lower Brazos Riverwatch  
Port Arthur Community Action Network  
Public Citizen  
Save Buffalo Bayou

Sierra Club Lone Star Chapter  
Texas Campaign for the Environment  
Texas Health & Environment Alliance  
Texas Housers  
Turtle Island Restoration Network  
West Street Recovery

VIA EMAIL

October 12, 2021

Lt. Gen. Scott A. Spellmon  
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Coastal Texas Study  
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**Re: Comments to Final Feasibility Report & Final Environmental Impact Statement (FEIS)  
for the Coastal Texas Protection and Restoration Study [Coastal Texas Study]**

To Lt. Gen. Spellmon:

Nicholas made landfall last month as a Category 1 hurricane and unleashed heavy rains and intense winds, which caused more than \$1 billion in damage for communities along the Upper Texas Coast. Most storms to have hit this region over the last decade have brought a similar combination of heavy rain and wind, like Tropical Storm Beta (2020), Tropical Storm Imelda (2019), the Memorial Day flood (2016), and the Tax Day flood (2015). Hurricane Harvey (2017), the worst, directly killed close to 100 people,<sup>1</sup> displaced tens of thousands more, destroyed key infrastructure, infused floodwaters with sewage and toxic chemicals as wastewater treatment plants and Superfund sites were flooded, and caused an estimated \$125 billion in damage—primarily from flooding, through rain that lasted nearly a week.

The coastal gate system proposed by the Coastal Texas Study would not have protected us from the heavy rains and high winds characterizing these recent storms. The system also does not adequately account for sea-level rise and intensifying weather patterns associated with climate change and may not protect us from storm surges associated with Category 3+ storms. The structures will take years to build, cost billions of dollars, and offer protection for only a generation or two. And yet its effects, despite not fully being studied, will be permanent; the gate structure will forever change our coast and the ecology of Galveston Bay.

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<sup>1</sup> In the years following Hurricane Harvey, many more people have died as a result of the storm and obstacles to recovery. This tragic loss of life is not reflected in official counts and is currently the subject of a longitudinal study.

Hurricane Ike (2009), which killed more than 100 people in the United States and caused \$30 billion in damage to our coast, made clear that we must address storm surge. But by focusing on that single threat, the Coastal Texas Study lost sight of the questions that must drive our planning forward: How will those of us living along the Texas coast stay out of harm's way as climate change intensifies over the next several decades? And how will we do this without losing the things that make this place that we call home special?

With those questions in mind, we urge the USACE to return to the drawing board and address gaps in its analysis. The USACE must fully consider:

- Environmental impacts, including those on Galveston Bay's oysters, fish, shrimp, and crab species;
- Alternatives to the coastal gate system, such as a full non-structural, nature-based alternative that minimizes risk to communities, local economies, and the environment;
- Alternatives that will impose a fair share of the cost on the multi-billion dollar industries in need of protection; and
- How to reduce, rather than exacerbate, impacts of disasters on vulnerable communities.

In the meantime, solutions are needed now. Decision-makers at the federal, state, and local levels must work together and invest in shorter-term solutions on a more rapid timeline than contemplated by the Coastal Texas Study. We must embrace the goal of moving people out of harm's way as rapidly as possible, and Harris County's Harris Thrives prioritization framework and the city of Houston's Resilient Houston plan offer models for the region as a whole to build and expand on. By taking a holistic, multi-faceted approach, our region's leaders can lay the groundwork for the resilience of our coastal communities. We must:

- Upgrade homes to withstand high winds, heavy rains, and storm surge, on a rapid timeline;
- Help frontline communities move to safer areas in a proactive, coordinated, equitable, and sustainable way;
- Continue to strengthen building regulations across the watershed to avoid exacerbating existing risks, including identifying at-risk industrial facilities and requiring upgrades in order to protect neighboring communities;
- Preserve wetlands, prairies, floodplains, and the natural flood protection they offer; and
- Center equity, so the most vulnerable among us are not pushed further behind with each disaster our region faces.

The organizations joining together to submit this letter work across the greater Houston region and along the Texas coast on a range of issues relevant to the Coastal Texas Study: land conservation, environmental justice, reducing sources of air, land, and water pollution, climate resilience and disaster recovery, and affordable housing. The recommendations embodied in this letter build on the previous comments submitted by many of these organizations over the past three years. We fully incorporate our previous comments and as more fully discussed below, reiterate the need for a more thorough analysis of the impacts of the project and consideration of proposed alternatives.

## Comments

### **1. The FEIS too narrowly defines the project purpose and fails to adequately consider alternatives**

This FEIS does not meet the requirements for an initial tiered EIS. The NEPA directive for agencies includes in part that the Federal Government shall, “include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on... any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.”<sup>2</sup> Tiering is, “the coverage of general matters in broader environmental impact statements or environmental assessments (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basin-wide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared.”<sup>3</sup> It is encouraged when used to move from a broad review to a narrower one and it will help the agency focus on the issues ripe for discussion.<sup>4</sup>

That being said, when the USACE tiers, “[t]he initial broad or programmatic EIS must present sufficient information regarding overall impacts of the proposed action so that the decision-makers can make a reasoned judgment on the merits of the action at the present stage of planning or development and exclude from consideration issues already decided or not ready for decision.”<sup>5</sup> This FEIS selects the suite of measures that will be used to meet the goals of the Water Resources Development Act. As such it must provide a sufficient analysis of the possible alternatives and impacts of those alternatives to support a reasoned decision to select the identified measures in lieu of other possibilities. Because this FEIS will support over \$28 billion in spending, it is vitally important that a careful decision is made considering both the opportunity costs of projects not selected and of the significant timeframe for project implementation and accelerating impacts of climate change. The Final EIS does not provide an analysis of project alternatives and their impacts that is sufficient to allow such reasoned decision making.

#### **a. USACE improperly narrowed the objectives for the Coastal Texas Study by restricting its purposes to storm surge mitigation and ecosystem restoration.**

Agencies bear responsibility for outlining the objectives of a major federal action, and those objectives determine the range of feasible alternatives required for consideration in an EIS.<sup>6</sup> While courts afford agencies discretion in setting the objectives of an action, “an agency may

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<sup>2</sup> 42 U.S.C. § 4332(c).

<sup>3</sup> 40 C.F.R. § 1508.1(ff).

<sup>4</sup> 40 C.F.R. § 15011.11

<sup>5</sup> 33 C.F.R. § 230.13.

<sup>6</sup> *City of Alexandria, Va. v. Slater*, 198 F.3d 862, 867 (D.C. Cir. 1999).

not define the objectives of its action in terms so unreasonably narrow,” that the range of feasible alternatives shrinks to only those that fit the agency’s policy preference.<sup>7</sup>

In defining objectives “agencies must look hard at the factors relevant to the definition of purpose.”<sup>8</sup> When an agency acts pursuant to express statutory authorization, “the statutory objectives of the project serve as a guide by which to determine the reasonableness of objectives outlined in an EIS.”<sup>9</sup> This confines agency action to the general principle that agency power “is limited to the authority delegated by Congress.”<sup>10</sup>

USACE prepared the Coastal Texas Study under the standing authority granted by section 4091 of the Water Resources Development Act of 2007 (“the Act”).<sup>11</sup> The Act provides the following mandate:

- a) In General. — The Secretary shall develop a comprehensive plan to determine the feasibility of carrying out projects for flood damage reduction, hurricane and storm damage reduction, and ecosystem restoration in the coastal areas of the State of Texas.
- b) Scope. — The comprehensive plan shall provide for the protection, conservation, and restoration of wetlands, barrier islands, shorelines, and related lands and features that protect critical resources, habitat, and infrastructure from the impacts of coastal storms, hurricanes, erosion, and subsidence.<sup>12</sup>

These express objectives charge USACE with developing a “comprehensive plan” to protect the Texas coast from both flooding and coastal storms, in addition to providing ecosystem restoration efforts. Hurricanes and storms impact the coast in multiple ways, most significantly from rainfall, high wind speeds, and storm surge.<sup>13</sup> The Final EIS, however, limited damage reduction objectives to storm surge measures only.<sup>14</sup> Excluding the impacts of rainfall, which causes both storm damage and flooding, and high wind speeds, which cause storm damage, improperly narrowed the objectives of the EIS and departed from the statutory mandate outlined in the Act.

The first Draft EIS signaled impacts from rainfall and high wind speeds would be excluded. Although the initial notice of intent and scoping promulgated in 2016 tracked the broad

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<sup>7</sup> *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991).

<sup>8</sup> *Id.*

<sup>9</sup> *Westlands Water Dist. v. U.S. Dep’t of Interior*, 376 F.3d 853, 866 (9th Cir. 2004).

<sup>10</sup> *Bowen v. Georgetown Univ. Hosp.*, 488 U.S. 204, 208 (1988).

<sup>11</sup> U.S. Army Corps of Engineers, Coastal Texas Protection & Restoration Feasibility Study Final Environmental Impact Statement (“Coastal Texas Study”) 1-3 (August 2021).

<sup>12</sup> Water Resources Development Act of 2007 § 4091.

<sup>13</sup> *Hurricane Damage*, UCAR Center for Science Education, <https://scied.ucar.edu/learning-zone/storms/hurricane-damage>.

<sup>14</sup> Coastal Texas Study, 1-12.

objectives of the Act,<sup>15</sup> all seven damage reduction objectives listed in the 2018 Draft EIS purport to mitigate storm surge.<sup>16</sup> Both the 2020 Draft EIS and 2021 Final EIS carried this narrow purpose forward and limited the Study's scope to "measures primarily related to the management of storm surges."<sup>17</sup>

Excluding impacts from rainfall and high wind speeds from the risk reduction objectives belies USACE's own recognition of the multiple risks posed by coastal storms. The 2018 Draft EIS noted that "the intensity of precipitation events is likely to increase [with rising sea level],"<sup>18</sup> and both the 2020 Draft EIS and 2021 Final EIS warned "[t]he damages from hurricanes and tropical storms could become more severe as wind speed is projected to increase with higher sea levels and rising ocean temperatures."<sup>19</sup> The Final EIS also described the impacts of Hurricane Harvey in 2017, which brought primarily rainfall to the upper coast and a mixture of impacts from rain, storm surge, and high wind speeds to the mid-coast.<sup>20</sup>

Each EIS provided only vague rationales for excluding rainfall and wind mitigation from its objectives. The 2018 Draft EIS notes that USACE considered rainfall impacts but "determined that adequate authorities exist to address flood risk management in the study area outside of the Coastal Texas Study, and specific legislation will revisit the opportunities to address those vulnerabilities to precipitation."<sup>21</sup> Without further explanation of what authorities and legislation were meant by this, it is impossible to determine whether impacts from rainfall will in fact be addressed, as called for by the Act's directive to assess flood damage reduction as part of a comprehensive plan.

The Final EIS adopted the same posture as the initial Draft EIS, acknowledging that, while flood risk management was authorized as an objective for the Coastal Texas Study, it would not be addressed specifically.<sup>22</sup> The only additional details in the Final EIS pointed to section 216 of the Rivers and Harbors Flood Control Act of 1970 as a potential source for flood risk mitigation.<sup>23</sup> Mere reference to another statutory authority, however, fails to explain how flood risk will be managed as required by the Act authorizing this Study.

Moreover, just because flood risk could be addressed under other authority, USACE must still describe how those measures would interact with other flood control measures proposed in this EIS. Both storm surge and rainfall mitigation measures address flooding but from different root causes. It is possible these different objectives could either complement or detract from each

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<sup>15</sup> Intent To Prepare a Draft Environmental Impact Statement for the Coastal Texas Protection and Restoration Feasibility Study, 81 FR 18601-01.

<sup>16</sup> U.S. Army Corps of Engineers, Coastal Texas Protection & Restoration Feasibility Study Draft Environmental Impact Statement, 1-13 (Oct. 2018) ("October 2018 Draft EIS").

<sup>17</sup> U.S. Army Corps of Engineers, Coastal Texas Protection & Restoration Feasibility Study Draft Environmental Impact Statement, 1-11 (Oct. 2020) ("October 2020 Draft EIS"); Coastal Texas Study at 1-12.

<sup>18</sup> October 2018 Draft EIS, at 1-6.

<sup>19</sup> October 2020 Draft EIS, at 1-11; Coastal Texas Study, at 1-12.

<sup>20</sup> Coastal Texas Study, at 1-12.

<sup>21</sup> October 2018 Draft EIS, at 1-12.

<sup>22</sup> Coastal Texas Study, at 1-12.

<sup>23</sup> *Id.*

other and analyzing those interactions must be part of USACE's comprehensive plan for mitigating flood risk on the Texas coast.

**b. Narrowing the objectives of the EIS resulted in an inadequate consideration of feasible alternatives.**

By not considering any measures for mitigating rainfall or high wind speed impacts, this EIS failed to consider the full range of feasible alternatives required under NEPA.

An agency preparing an EIS must evaluate reasonable alternatives to its proposed action.<sup>24</sup> Reasonable alternatives must be objectively feasible and “reasonable in light of [the agency’s] objectives.”<sup>25</sup> The first question, however, is “whether the agency has reasonably identified and defined its objectives.”<sup>26</sup> An “impermissibly narrow purpose” for a proposed action renders the subsequent analysis of alternatives within the EIS inadequate.<sup>27</sup>

The alternatives analysis is also shaped by the scope of the proposed action; larger projects require consideration of a larger range of alternatives.<sup>28</sup> For large, complicated projects, reasonable alternatives may also include measures outside of the agency’s jurisdiction and control.<sup>29</sup> This reflects that an EIS is not just for the agency’s own decision-making process but provides a full accounting of the environmental impacts of a project to inform the President, Congress, and the public.<sup>30</sup>

When USACE narrowed the objectives for the Coastal Texas Study to address storm surge only, an impermissible limitation on the alternatives considered became inevitable. All seven damage risk reduction objectives in the Final Feasibility Report address storm surge specifically; none pertain to rainfall or high wind speeds.<sup>31</sup> As a result, each alternative considered in the Final EIS presented a variation on the same theme—structural and nonstructural barriers designed to blunt the impact of coastal storm surge.

The Final EIS’s failure to include any discussion of possible flood risk mitigation projects, the benefits and the environmental impacts of such projects, or information about the extent to which other programs will address coastal flooding, makes it impossible for the public to evaluate the environmental costs and benefits of the Corp’s decision to spend over \$28 billion on storm surge mitigation and minimal ecosystem restoration in lieu of flood mitigation.<sup>32</sup> The unprecedented scope of this project, spanning hundreds of miles across the entirety of the Texas coast, necessitates legitimate consideration of flood risk mitigation measures that fall within the express authorization of the Coastal Texas Study.

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<sup>24</sup> 40 CFR § 1502.14(a).

<sup>25</sup> *Theodore Roosevelt Conservation P’ship v. Salazar*, 661 F.3d 66, 72 (D.C. Cir. 2011) (quoting *City of Alexandria, Va. v. Slater*, 198 F.3d 862, 867 (D.C. Cir. 1999)).

<sup>26</sup> *City of Alexandria, Va.*, 198 F.3d at 867.

<sup>27</sup> *Simmons v. U.S. Army Corps of Engineers*, 120 F.3d 664, 667 (7th Cir. 1997).

<sup>28</sup> *Nat. Res. Def. Council, Inc. v. Morton*, 458 F.2d 827, 835 (D.C. Cir. 1972).

<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> Coastal Texas Study, Appendix A: Plan Formulation.

<sup>32</sup> Coastal Texas Study, Executive Summary at 21.

Even if USACE proves correct in its prediction that flood risk mitigation will receive adequate consideration under other authorities or legislation, the analysis of alternatives here is deficient without an in-depth explanation of what those projects are, how they would interact with measures proposed in this EIS, and whether those projects in toto will contribute to a comprehensive plan for protecting the Texas coast from the full impacts of coastal floods and storms. A full EIS for a project of this scope must consider even measures that will not be constructed by USACE. More importantly, however, an examination of specific flood mitigation measures in this EIS would reveal whether those measures are likely to be constructed at all. Without this information, Congress and the public cannot understand the environmental impacts and tradeoffs inherent in the Corps decision to focus largely on hard infrastructure to address storm surge in lieu of other coastal protection measures.

Although USACE conducted an examination into storm surge measures to benefit the Texas coast, the scale, cost, and complexity of this project demands more. Until the Final EIS for the Coastal Texas Study includes full consideration of measures that would provide protection from all the impacts of coastal floods and storms, the alternatives analysis will be incomplete.

### **c. Additional Study of Project Alternatives and Impacts Should Be Required**

An EIS is normally required for “[f]easibility reports for authorization and construction of major projects.” The independent review of this FEIS concluded that the review conducted did not rise to the level of a feasibility review. A detailed feasibility review of the coastal project is needed and should be accompanied by a full-scale EIS.

If the Corps issues a Record of Decision based on the existing Final EIS, before any funds are committed to the selected projects, the USACE should conduct a supplemental analysis that analyzes alternatives that would address storm impacts due to rainfall and wind and that compares the benefits and costs of such alternatives to those identified in the Final EIS.

In addition, the Corps should conduct an EIS, rather than an EA for the selected Tier 1 alternatives, including:

- B2 - Follets Island Gulf Beach and Dune Restoration
- Bolivar Roads Gate System
- Bolivar and West Galveston Beach and Dune System
- Galveston Ring Barrier System
- Clear Lake Gate System and Pump Station
- Dickinson Bay Gate System and Pump Station
- Nonstructural Improvements

## **2. The FEIS does not provide sufficient information regarding overall project impacts**

Corps regulations require that an initial tiered EIS, “present sufficient information regarding overall impacts of the proposed action so that the decision-makers can make a reasoned judgment.”<sup>33</sup> The FEIS fails to sufficiently analyze project impacts. When an independent

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<sup>33</sup> 33 C.F.R. § 230.13(c).

analysis of the Corps' approach was conducted it concluded that the review was only a reconnaissance level look and did not rise to the level of a feasibility review.<sup>34</sup>

Commenters raised many issues regarding specific deficiencies in comments on the Draft EIS. Those deficiencies were largely unaddressed in the Final EIS, which is insufficient in several respects, including the following.

- The Bolivar Road Gate system's impacts have been under-examined
- The dune system analysis is insufficient and fails to note the sources of the sand

Full impact of the gate system has not been properly analyzed to determine impacts to shrimp, oysters, fish, crab, dolphins and sea turtles.

We, along with the Independent External Peer Review panel, do not believe that the FEIS rises to a feasibility level investigation. Instead, the Coastal Texas Study FEIS only represents a reconnaissance level investigation, that does not provide sufficient analysis to make a reasoned decision on the merits.

**a. The FEIS does not adequately analyze environmental impacts on Galveston Bay's oysters, fish, shrimp, and crab species**

While we acknowledge that the refinements to the project, most notably the gate design, have reduced some physical and hydrological impacts to Galveston Bay, the Corps has not provided an adequate analysis of the impacts to the direct and indirect environmental impacts to habitat and the ecologically and economically critical living species of Galveston Bay, most notably to its oysters, fish, shrimp, and crab species. Nor have impacts on other important species such as dolphins or sea turtles been adequately addressed.

On page 136, FR notes the following substantive impacts from the gate structures (emphasis added):

"Species and their habitats in and around Galveston Bay could be altered by changes in the rate of flow of water in and out of the Bay during normal tides and/or rainfall events. Water characteristics such as salinity could affect species that thrive in a narrow range of fresh or saline conditions, such as oysters, vegetation, and marine mammals. Furthermore, **the physical obstruction of the water column could create velocities around the gate as water is driven through a constricted area. Certain velocities could create hazards that could affect species' mobility and ability to feed and could also potentially impact habitat used for breeding.**

Preliminary studies conducted by the USACE also show that navigation gate structures, proposed as features of the Galveston Bay Storm Surge Barrier System, may affect wetland functions by constricting tidal exchange and the associated sediment transport and altering salinity gradients. This could potentially impact the ecology of the Galveston

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<sup>34</sup> Battelle, Coastal Texas Independent External Peer Review, Final IEPR Report (Jan. 2019).



Bay estuary by decreasing the available habitat that can serve as nurseries, food, and refuge for various fish and shellfish species and could negatively impact birds and other wildlife species, which depend on the resources provided by wetland and marsh habitats. Additionally, two-dimensional and three-dimensional hydraulic modeling conducted by the USACE shows that **construction of the gate structures would impact flow into and out of Galveston Bay by causing a constriction in the channel that would increase velocities along the opening of the gates. These effects could have long-term impacts on estuarine habitats and fauna within the bay.**"

Given these impacts, we do not accept the results of rudimentary particle modeling as sufficient to state that there will be no significant difference in larval transport between "with" and "without" project conditions. These results are extremely limited and have not been adequately reviewed by fisheries biologists, thus we are not convinced they simulate known responses of larval transport and recruitment patterns. In addition, none of the project's effects on adult fish or shellfish movement have been studied. State and federal resource agencies have recommended such studies<sup>35</sup>, which makes their absence all the more unacceptable. Again, the impacts to Galveston Bay's fisheries could be substantial, resulting in a loss of jobs, negative local economic impacts as well as a loss of quality of life.

While the Corps states that additional modeling will be conducted in preliminary design phase once refinements are made to the gate design, at that point it will be too late to change the design appreciably.

We are concerned about the project's impacts on Galveston Bay's dolphin populations. Galveston Bay Foundation has endeavored to develop a dolphin research and conservation program to protect these important and charismatic marine mammals. It is very troubling that the final EIS can still only speak of the project's potential to impact dolphins from stressors such as noise, dredging, presence of the barrier, and prey source. It does not appear that any additional details on the potential impacts, as was requested by our organizations in a 2019 letter, have been developed.

In addition, given the likelihood that the Corps will not be able to construct or maintain a dune levee system which would necessitate a change to that portion of the Coastal Barrier to an earthen levee or seawall, the environmental impacts to habitats on Bolivar Peninsula and Galveston Island will fundamentally change. Such a change would affect species which depend on functioning Gulf beach/dune habitats such as the endangered Kemp's ridley sea turtle, Green sea turtle, Loggerhead sea turtle and Piping plover.

The Corps has not provided detailed mitigation strategies including appropriate adaptive management for any of these impacts to habitat or living species. The only mitigation that is described in detail is for the direct and indirect impacts to jurisdictional wetlands. The Corps has not addressed the impacts to wetlands due to a reduction or cessation of sediment transport from the Gulf side of Bolivar Peninsula and Galveston Island to the Bay side of each that will

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<sup>35</sup> See e.g., Coastal Texas Study, at 6-25.

result from the placement of a fixed levee system. Such a structure will impact natural transport of sediment by aeolian forces and over wash events.

We understand that land used as compensatory mitigation for habitat impacts from the FR is not required to remain protected in perpetuity. This deficiency must be remedied. A perpetual conservation easement, held by a local land trust, should be placed on all wetland mitigation components of the FR. We recommend that a conservation easement be held by a local land trust that has formally adopted and adheres to the national Standards and Practices protocol of the National Land Trust Alliance. Funding for this land trust should be in place so that the appropriate monitoring can be conducted in perpetuity.

The Corps must work with the state and federal resource agencies to ensure that any mitigation plans do not impact or replace other critical habitats such as oyster reefs, seagrass meadows, and mudflats. In general, restoration of any habitat such as wetlands or oyster reefs should be coordinated with the state and federal resource agencies.

One area of particular environmental concern is San Luis Pass. Existing flow patterns are such that San Luis Pass captures only about 12 percent of the flow between the main body of Galveston Bay and the Gulf of Mexico, as stated in the EIS itself. The Corps acknowledges the increased velocity, flow, and scour through San Luis Pass that would occur if the surge gates were closed during a storm. However, we maintain that the surge gates could malfunction and remain closed for longer than intended, and that a storm could affect the freshwater inputs into Galveston Bay, pushing water out of San Luis Pass if Bolivar Roads was constricted. Also, the gate structures themselves, even in the open position, will create a detrimental constriction. The structures would restrict flow through Bolivar Roads, and even under normal conditions significantly more water would be shunted through the West Bay toward San Luis Pass.

In a storm scenario, with the Bolivar Roads gates closed, in addition to intense scour from high-velocity water forced out of San Luis Pass, sediment and fresher water are more likely to be entrained in the West Bay or wetlands, because of the restriction of flow already present due to the bridge structure over the Pass. The geomorphology, salinity, and hydrologic regimes of San Luis Pass and the West Bay would be significantly altered, and the DFR pays alarmingly little attention to this impact. While the Corps acknowledges some of the geomorphological changes that could occur, a full account of the effects of the Coastal Texas Study system, including sediment modeling and budgeting, is essential before an adequately comprehensive review of the FR can be completed.

Finally, we note the following passage from pages 4-83 of the EIS on impacts (emphasis added):

Potential long-term direct impacts to fish and shellfish with larval and juvenile life stages that depend largely on passive transport could result from the cumulative impacts of the Coastal Barrier. These impacts would include losses resulting from 1) reduced numbers entering the bay proportional to the reduced volume flowing into the bay, 2) loss of individuals trapped in eddies that could form on the backside of the gate structures; 3)

increased exposure to predation while migrating across the open bay to the marshes due to reduced velocities and increased transport times; and 4) reduced area of accessible marsh caused by reduced tidal amplitude. Many of these species are important forage species for other species of fish, birds, and dolphins. These other species could experience indirect impacts resulting from reduced access to forage. **It is difficult to predict what those impacts could be because few gate structures have been constructed in the world and no studies have been conducted on the ecological impacts these gate structures could cause. Therefore, the exact long-term impacts to the Galveston Bay complex are uncertain and additional studies would be required to best predict the impacts the structure may cause.**

This strikes at the heart of our objection to the project. We simply do not have the environmental impact analysis needed that would allow the public to provide informed comment. This project should not proceed until that information is available.

**b. The FEIS misrepresents impacts on endangered sea turtles**

All five species of sea turtles that use Texas shores are threatened or endangered of becoming extinct are protected under the Endangered Species Act.

The FEIS claims that there would be no significant impact to these protected sea turtles, when in reality the proposed actions of dredging, sand sourcing, shoreline alteration with the dune system and extended shoreline, and the Bolivar Gate System will have massive impacts on sea turtle's nesting, migration, and foraging behaviors. The details of those impacts for each sea turtle species are outlined in Turtle Island Restoration Network's public comments on the DEIS submitted January 13th, 2021.

The FEIS states that because of "insufficient" nesting habitat, that sea turtles are unlikely to nest in the project area and that construction would likely happen during nesting season. Even if the habitat isn't sufficient, annual nest data proves that Kemp's ridley sea turtles, the most endangered species of sea turtle, do indeed nest on the Upper Texas Coast every year. With scientific consensus stating that each egg in each nest is vital to the survival of the species, it is imperative that the construction of the beach and dune system not occur during nesting season.

There is insufficient information on the environmental impacts of the gate system on endangered sea turtles and marine mammals. Construction of navigational and environmental gates across the bay could impair and prevent sea turtle migration, feeding, and reproductive behavior between the Gulf and Galveston Bay. Construction can disrupt such behaviors by producing underwater vibrations and noise at frequencies which could disrupt sea turtles. The configuration of the gates could also increase vehicle construction traffic, increasing the likelihood of ship strikes. Dredging activities can injure and kill sea turtles, and increased turbidity from dredging can impair their ability to find prey. Construction activities on land can disturb nesting behaviors, and artificial lighting associated with beach construction can disorient nesting and hatchling sea turtles, leading to higher levels of sea turtle mortality. The gate

structures, which will also make it increasingly difficult for species to navigate through eddies and differing velocities near the structure.

Eighty percent of tidal flow into and out of Galveston Bay occurs at Bolivar Roads, and any reduction in volume of tidal flow or restriction of this pass will increase shoreline erosion. Any hard structure placed on the Gulf side of this structure will eventually erode and become a shoreface. Kemp's ridley sea turtles nest on shores of Follet's island, Galveston Island and Bolivar peninsula every year, and anticipated increase in shoreline erosion will negatively impact nesting areas. While the ambitious goals of the dune creation system would purportedly create more nesting habitat, the current iteration of this plan is such that construction would not begin for at least 10-15 years. During the interim there are unknown and potentially devastating effects to sea turtle nesting ground. Additionally, renourishment plans are left up to the local sponsors, leaving no guarantee that nesting habitat will be protected in perpetuity. If clay or hard cores are used in the construction of these dunes, the hard structure barrier system and inner clay cores of sand dunes will eventually become the new shoreline without constant beach renourishment plans. In addition, average beach slope is an important parameter influencing nest site selection for Kemp's ridley nests with far less nest density on beaches with a steep average slope or those that are relatively flat. Changes to the beach and dune profile could decimate the only nesting habitat for sea turtles on the Upper Texas Coast.

The Beach renourishment plan can also have adverse effects on sea turtles, even if proper and timely renourishment occurs. If the beach profile or sediment type is not compatible with existing shorelines or reference shorelines, this can lead to a disturbance in sea turtle nesting and breeding activities, temporary elevated turbidity levels, changes in near shore bathymetry and associated changes in wave action, burial of intertidal and bottom plants and animals in the surf zone, and/or increased sedimentation in areas seaward of the surf zone as fill material redistributes to a more stable beach profile. These effects must be fully analyzed and disclosed prior to any further action or approval of the Coastal Texas Study.

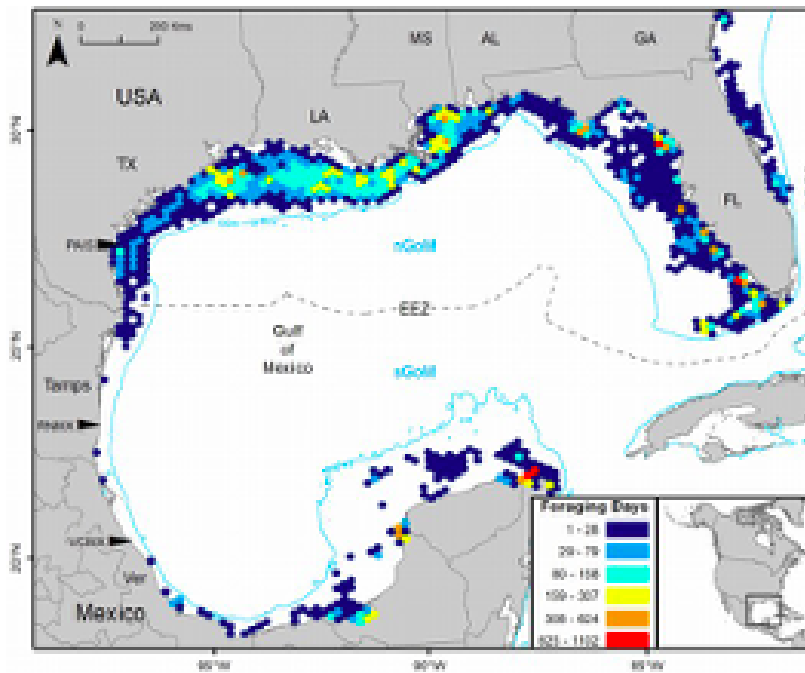
Effects of dredging on the marine ecosystem is discussed above, but dredging will also have adverse impacts to endangered species that utilize potential areas to be dredged. For example, sand sources identified for dredging include critical habitat for Kemp's ridley sea turtles.<sup>36</sup> Removing this sand could detrimentally affect their ability to forage, and impacts from such a massive dredging project would have unknown effects on their overall population level.<sup>37</sup> Dredging is also likely to adversely affect Sargassum habitat, which is crucial to the survival of Loggerheads.<sup>38</sup>

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<sup>36</sup> Gredzens, C. and Shaver, D.J. (2020) Satellite Tracking Can Inform Population-Level Dispersal to Foraging Grounds of Post-nesting Kemp's Ridley Sea Turtles. *Mar. Sci.* 7:559. doi: 10.3389/fmars.2020.00559

<sup>37</sup> Shaver, et al. (2013) Foraging area fidelity for Kemp's ridleys in the Gulf of Mexico. *Ecology and Evolution.* 3(7): 2002-2012 doi: 10.1002/ece3.594

<sup>38</sup> See NOAA Fisheries Critical Habitat for Loggerhead Sea Turtle, available at <https://www.fisheries.noaa.gov/action/critical-habitat-loggerhead-sea-turtle> ; see also Loggerhead Critical Habitat map, available at:



Figure, Foraging areas for Kemp's ridley sea turtles<sup>39</sup>



Figure 17, Known Foraging Areas for Kemp's ridley sea turtles<sup>40</sup>

<https://www.fisheries.noaa.gov/resource/map/loggerhead-turtle-northwest-atlantic-ocean-dps-critical-habitat-map>

<sup>39</sup> Gredzens, C. and Shaver, D.J. (2020) Satellite Tracking Can Inform Population-Level Dispersal to Foraging Grounds of Post-nesting Kemp's Ridley Sea Turtles. *At 6. Mar. Sci.* 7:559. doi: 10.3389/fmars.2020.00559

<sup>40</sup> Shaver, et al. (2013) Foraging area fidelity for Kemp's ridleys in the Gulf of Mexico. *Ecology and Evolution*, at 2006. 3(7): 2002-2012 doi: 10.1002/ece3.594

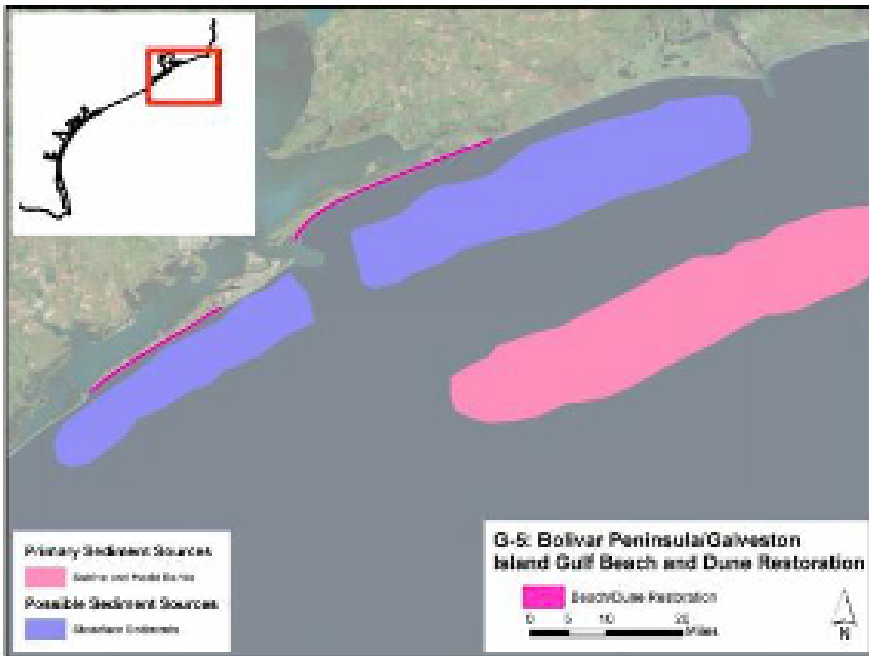
So many unknowns are associated with the dredging portion of the Coastal Texas Study that it is impossible to evaluate the full extent this could have on endangered sea turtles, and these effects must be fully analyzed and disclosed before any further actions or decisions are made. For example, how often will dredging occur? How long will dredging take place in order to obtain the massive amounts of sand needed for the proposed dune and beach restoration system? How long will the anticipated "temporary" effects to the surrounding ecosystem last for years or longer? USACE Galveston District has recorded 113 incidental takes of sea turtles and openly states that dredging of fill material for levees can injure or kill sea turtles and increased turbidity from dredging can impede their foraging ability. We ask USACE to reconcile this and provide greater clarity and analysis of dredging impacts on sea turtles in the Gulf.

It is estimated that only one in a thousand sea turtle hatchlings survive to adulthood, and protection must be ensured for every hatchling at every following life stage. Thousands of federal dollars are budgeted each year to the recovery program for endangered sea turtles and every animal is critical to the program's success. Along the upper Texas coast, the sea turtle recovery program has been successfully running since the mid-1980s and ensures the recovery of the critically endangered Kemp's ridley.

There is a wide array of construction activities that can adversely affect sea turtles at every life stage, from lighting to compaction, to changes in sediment and slope, the presence of large machinery and utilization of drift net fences, to name a few. Although mitigation actions are and should be part of the project description, there is still a high likelihood of sea turtle take that can never be eliminated. This is particularly true given the unknown length and intensity of the project at this time.

**c. The proposed Bolivar and West Galveston Beach and Dune nourishment system poses unacceptable environmental risks**

The proposed Bolivar and West Galveston beach and dune nourishment system is extremely problematic and poses unacceptable environmental risks. This portion of the Coastal Texas Study would require an initial volume of 22.1 million cubic yards of sand material with a 6- to 10-year renourishment cycle, depending on erosion rates, including an additional 1.9 million cubic yards of sand material for each cycle. The identified sediment sources would be Sabine and Heald Banks, located approximately 30 miles offshore from Bolivar Peninsula. The environmental effects of dredging and moving such massive amounts of sand are highly concerning, and the identified sand sources are located in crucial habitat for endangered sea turtles.



**Figure 2-10. Location of the Dual Purpose Beach and Dune Measure for Bolivar Peninsula and Galveston Island with Borrow Sources**

Figure 2-10, Location of dune system for Bolivar Peninsula and Galveston Island with borrow sources.

The proposed locations for sediment include Sabine and Heald Banks. Sabine Bank is a crucial foraging area for the critically endangered Kemp's ridley sea turtle. Endangered sea turtles are known to be caught in dredges, and because of their frequent use of this area, the Sabine bank should be off-limits for proposed dredging. Dredging Sabine and Heald Banks not only places the Kemp's ridley at risk, but the multitude of other species that rely on this habitat. Offshore sand deposits are important for fish that preferentially forage on sand banks off the Texas coast. Dredging these areas would involve taking over 60 million cubic yards of sand that is already acting as part of the sediment transport system. This amount of offshore sand to create an onshore beach system has never been attempted before, and prior to taking any steps for approval or Congressional authorization, the USACE must analyze and disclose all potential environmental effects of undertaking such a project.

High-resolution seismic data and sediment cores from the Sabine, Trinity, and Lavaca incised valleys show that sand is typically confined to the lower portion of these valleys and buried beneath several meters of bay and marine mud. (Ongoing study by UTIG)

The beach dune system would consist of approximately 25 miles of Gulf shoreline from High Island on Bolivar Peninsula to Galveston East Jetty and about 18 miles of Galveston Island Shoreline west of Galveston Seawall. This dune system, consisting of 44 miles in total of beach and dune segments, is intended to form a first

line-of-defense against Gulf storm surge, preventing or reducing storm surge volumes that would enter the Bay.

Construction of the dunes would include a dual dune system, which will have a seaward dune elevation of 12 feet and a landward dune elevation of 14 feet, with dune crests 15-feet-wide. This would also include the addition of 250 feet of beach, located where water currently exists. (Appendix D-annex 11: Map Book- Bolivar Dune Alignment & Appendix D-annex 13: Map Book- Galveston Dune Alignment)

This proposed project calls for significant volumes of sand and to date the sources of sand have not been identified, nor has the quality of the sand been determined. The beach is in fact a living ecosystem with critically important habitat. Construction would impact or eliminate intertidal benthic invertebrate infauna and would disturb and displace shorebirds.

The beaches on Galveston Island have been significantly eroded due to three Hurricanes impacting Louisiana in 2020 and Hurricane Nicholas coming ashore in Texas in 2021. The public/private beach line has been blurred, foundations have been compromised and in some areas there is not a beach in front of the homes. This construction of the beach front would be a massive endeavor that has never been attempted on the Upper Texas Coast. Construction would cover existing ocean habitat to create a larger beach front covering miles of shoreline habitat. With the unknown quality of the sand, it could take months upward to years for sediment species diversity and richness to return to pre-construction levels that would have cascading effects up the food web.

We are concerned about the USACE analysis of the beach ecosystem. As described by USACE, "except in specialized habitats (such as the wrack line, where rotting organic material forms both food and a mechanism for water storage), very few animals and no true plants can live in this [beach] zone." We would like to reiterate that the beach is not an eco-desert, but rather a rich ecosystem teeming with microorganisms that support habitat for many plant and animal species. The wrack line, while important, is not the only ecologically crucial part of the beach ecosystem - but so is the surf zone, swash zone, entire intertidal zone, coastal sand zone, bluffs and coastal dunes. Beaches provide ecosystem functions such as nutrient cycling and water filtration. The sand beach ecosystem is a unique habitat containing dense concentrations of benthic invertebrates that feed surf fishes, residents and migrating shorebirds, and crabs, and also provide critical habitat supporting the seasonal nesting of threatened and endangered sea turtles. Beaches provide nursery habitat for birds, mammals, fish, and other animals.

#### **d. Shoreface sand removal will have negative environmental impacts**

In general, removing sand from the shoreface is considered a bad practice as it removes sand that is part of an active sediment transport system. Furthermore, results from offshore coring have shown that relatively little sand occurs in the shoreface of Bolivar and west Galveston Island. Shoreface sand thickness based on sediment core transects from offshore Galveston



Island and Bolivar Peninsula show that beach quality sand is confined to the nearshore portions of the shoreface, which is an active part of the longshore sand transport system

### **3. The FEIS does not adequately address impacts to vulnerable communities**

On August 3, 2021, in *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, No. 20-1045 (D.C. Cir. Aug 3. 2021),<sup>41</sup> the U.S. Court of Appeals for the DC Circuit found that the Federal Energy Regulatory Commission (“FERC”) erred in its analysis of climate change and environmental justice factors under both the National Environmental Policy Act and the Administrative Procedure Act when it authorized the construction and operation of three liquified natural gas export terminals and associated pipelines. In doing so, the court concluded that FERC failed to justify that the construction was necessary and in the public interest and remanded the case to FERC.

The reasoning of this case underscores the need for the USACE to adequately consider impacts on vulnerable communities before issuing a record of decision. The USACE has not adequately addressed these impacts, as described below:

#### **a. Localized environmental justice analyses must inform the project from the start**

A previous comment letter submitted by Lone Star Legal Aid on behalf of Caring for Pasadena Communities, Port Arthur Community Action Network, Citizens for Clean Air and Water, and community members outlines environmental justice impacts that the USACE must consider and outlines legal and regulatory requirements that the USACE must follow, but has not, in finalizing the EIS and feasibility report associated with the Coastal Texas Study.<sup>42</sup> And since the draft EIS was circulated, President Biden issued Executive Order 14008 and articulated a broad and unambiguous commitment to environmental justice across all federal programs and spending.

The environmental justice concerns delineated in the LSLA comments still have not been sufficiently addressed. USACE takes the approach that localized impacts on vulnerable communities should only be assessed as the selected alternative moves forward to the design phase. But this misses the point. By refusing to look at localized impacts of the Coastal Texas Study projects at the start, the USACE has closed the door on information that should inform the foundation, design, and placement of the projects embodied by the Study. In particular, the USACE has favored a long-term, expensive alternative over a series of interrelated approaches that may be implemented more quickly for the benefit of those most vulnerable to sea-level rise, coastal erosion, flooding, storm surges, and other storm-related impacts. This ignores the instruction of EO 14008 to “ensure that environmental and economic justice are key considerations in how we govern.”

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<sup>41</sup> Available at

[https://www.cadc.uscourts.gov/internet/opinions.nsf/1F97B59429C7D4F6852587260052CC71/\\$file/20-1045-1908759.pdf](https://www.cadc.uscourts.gov/internet/opinions.nsf/1F97B59429C7D4F6852587260052CC71/$file/20-1045-1908759.pdf).

<sup>42</sup> The organizations submitting this letter incorporate Lone Star Legal Aid’s letter by reference and urge the USACE to fully account for the comments raised in that letter before proceeding further.

The information contained in the current FEIS remains sufficiently incomplete to show that affected low-income and minority populations will not be adversely affected by the massive selected plan. The USACE should revisit environmental justice concerns to ensure that our most vulnerable residents do not bear a disproportionate burden for this project. See *Cmtys Against Runway Expansion, Inc. v. FAA*, 355 F.3d 678, 689 (D.C. Cir. 2004) (showing a petitioner may challenge an agency’s environmental justice analysis as arbitrary and capricious under NEPA and the APA).

**b. The FEIS flags but does not adequately account for NOx emissions**

Appendix G of the FEIS states:

“It was found that the potential project emissions resulting from the construction efforts indicates that the project will be subject to the GCR based on estimated NOx emissions for 10 of the 15 project construction years. The dredging emissions are the large bulk, at approximately 93% of the projected emissions, and were intentionally conservative to show the total potential emissions in a maximum emissions scenario. Based on a comparison to the currently approved SIP ***the project will not be able to demonstrate conformity at this time without some mitigation.***

***The overall project emissions are significant compared to the currently approved SIP*** HGB CMV projections at 16% for the first year and 14% to 15% for the next 7 years. Because of the high percentage of the total budget that the RP would take, it is not reasonable to assume that the RP CMV emissions could be included in the currently approved SIP, especially given the significant number of other actions in the state, such as dredging operations and navigational commerce, that also rely on this budget.”

(Emphasis added.) The USACE’s assessment seems to only leave mitigation and scheduling as the only real options for the project to conform with the Clean Air Act, but those plans are not identified or sufficiently explained. The Final EIS acknowledges that emissions credits may not be available and moreover that the TCEQ and EPA may require a combination of mitigation methods. We urge the USACE and partners not to rely exclusively on emissions credits and take steps to reduce emissions from projects associated with the Coastal Texas Study. Further, the fact that the “overall project emissions are significant compared to the currently approved SIP” supports the need for the USACE to consider alternatives with less environmental and public health impacts.

**4. Community engagement and public participation have fallen short given the magnitude of this project**

**a. Community working groups**

In 2019 the General Land Office, the USACE’s state partner in the Coastal Texas Study, implemented coastal working groups for communities affected by the proposed plans. As explained at the kick-off meeting for the Galveston-Harris Counties group, this was “just the beginning of a more thorough and engaging community outreach initiative to support the study.” While these groups met periodically that year, they have not been convened since March of

2020. These meetings were important forums for advocates and other community representatives to raise and discuss many of the issues that remain a problem with the Coastal Texas Study—from ecological impacts on Galveston Bay and concerns related to proposed sand dunes—translate and relay these details to communities affected by the projects proposed by the Study.

These groups have not met since, removing one of the primary means for communicating the substance of the Coastal Texas Study to the public. In the absence of this form of community engagement, the USACE must hold public meetings to explain the substance of the final EIS, alternative, and address key concerns raised by the public, including those highlighted in this letter. The USACE must also hold public meetings to address key concerns raised so far, including those highlighted in this letter.

**b. Public comment period**

The only opportunities for the public at large to engage with and learn about the Coastal Texas Study has been with previous comment periods. The final EIS and feasibility report represent a final step before the final version of the Coastal Texas Study is submitted to the Chief of Engineers for approval by the USACE, which will then seek congressional funding to support this \$29 billion project with wide-ranging implications for the future and resilience of our coast.

We urge the USACE to convert this public review period to a public comment period, publish notice, and allow the public 60 more days to provide meaningful comment. The number of organizations joining in this letter, and the diverse interests we represent, should illustrate for the USACE that the public has an interest in being able to provide input at this phase. The USACE should also hold public meetings to address key concerns raised so far, including those highlighted in this letter.

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The organizations listed below reserve the right to rely on all public comments submitted, request a written response to our comments, and request written notification when any action is taken on this Final Feasibility Report & Environmental Impact Statement. If you have any questions, please contact Kristen Schlemmer at [kristen@bayoucitywaterkeeper.org](mailto:kristen@bayoucitywaterkeeper.org).

Thank you for considering these comments.

Sincerely,

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**Air Alliance Houston**  
Houston, Texas

Kristen Schlemmer, Legal Director and  
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Benjamin Brinkman, UT Environmental Clinic  
Samuel McCombs, UT Environmental Clinic  
**Bayou City Waterkeeper**  
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Bruce Bodson, President  
**Christmas Bay Foundation**

Iris Gonzales, Coalition Director  
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Shane Bonnot, Advocacy Director  
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**Environment Texas**  
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Bob Stokes, President  
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Naomi Yoder, Staff Scientist  
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Bruce Bodson, President/Executive Director  
**Lower Brazos Riverwatch**  
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John Beard, Jr., CEO  
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Port Arthur, Texas

Adrian Shelley, Director, Texas Office  
**Public Citizen**  
Texas (Statewide)

Susan Chadwick, President and Executive  
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Alex Ortiz, Water Resources Specialist  
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Texas (Statewide)

Robin Schneider, Executive Director  
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Jackie Medcalf, Executive Director  
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Julia Orduña, Southeast Texas Regional  
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