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March 31, 2023

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U.S. Army Corps of Engineers  
NYNJHAT Study Team, Planning Division  
26 Federal Plaza, 17<sup>th</sup> Floor  
New York, NY 10279-0090

Re: NY & NJ Harbor & Tributaries Focus Area Feasibility Study, Tentatively Selected Plan

Dear Mr. Bryce W. Wisemiller and Ms. Cheryl R. Alkemeyer:

The Coalition to Save Hempstead Harbor (CSHH) appreciates the opportunity to submit comments on the Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement for the New York-New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study (the study).

CSHH is a nonprofit environmental organization founded in 1986 dedicated to identifying and eliminating environmental threats in and around Hempstead Harbor. Hempstead Harbor is part of the study area, and we feel it necessary to submit comments to ensure the needs of this area and our region in general are represented and addressed. Below is a list of our concerns, questions, and recommendations. We have also attached an appendix containing a list of articles and notes that support Natural and Nature-Based Features (NNBF).

**Natural and Nature-Based Features**

Natural and Nature-Based Features to protect the coastline are referred to in the study but with no specific plan. The report states in *Section 4.7*:

*The details of nonstructural and NNBFs are conceptual and so are not presented in detail in this section. For the nonstructural portions of the alternative plans, number of structures and types of nonstructural treatments are not yet final, and so are not included in the TSP. Similarly, the locations of potential NNBFs have not yet been chosen. The plans will be refined as more information is made available and documented in the final version of this report.*

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This suggests that NNBFs are not an important element of the overall plan. Using a combination of the features proposed here with a strong plan for ecological restoration could provide the framework for a more sustainable and resilient coastline for the future. NNBFs have the potential to provide benefits beyond storm surges. NNBFs will help the shorelines adapt for sea level rise and an increase in severe precipitation events, as well as provide ecosystem benefits such as carbon sequestration. Instead, the Tentatively Selected Plan seems to rely primarily on hardened structures that will break down over time and require maintenance and additional resources.

Specific plans for NNBFs should be incorporated as much as possible while considering the hard structures. Hard structures have a high potential negative impact on NNBFs if not properly planned in conjunction. How will NNBFs work with the large-scale hard structures being proposed here? (See more in Water Quality below.)

NNBFs provide significant economic benefit in terms of protecting coastlines. Additional benefits include the creation of jobs and supporting of local economies. How can the cost/benefit analysis be properly addressed without considering the financial co-benefits of natural features? (See articles 1, 4, 5, and 6 in Appendix A.)

Additionally, what will happen should a power outage occur during a major storm event? Nature-based solutions do not rely on power, so investing more in NNBF provides an inherent failsafe.

For areas such as Hempstead Harbor for which Alternative 3B has dropped plans for hard structures, there should be some guidance on how local municipalities and the county can implement nature-based mitigations. Hempstead Harbor remains part of the USACE study area and shouldn't now be overlooked. What are the efforts to support local and regional municipalities to implement nature-based features? The New England Interstate Water Pollution Control Commission has commissioned a wetland migration mapping tool along with the Long Island Sound Study and New York Department of Environmental Conservation. The tool will be able to help local municipalities formulate their own marsh conservation plans as sea levels rise, the idea being that if land planning and management allows, marshes will naturally expand along the coastline. An overarching collaborative approach as well as support for local government is essential.

The work being considered in this study should incorporate cooperation with local plans. These plans include, but are not limited to, the Long Island Sound Study Comprehensive Conservation and Management Plan, the 1998 Water Quality Improvement Plan for Hempstead Harbor, and the 2004 Harbor Management Plan for Hempstead Harbor (the latter two can be found on our website under Harbor Management Plans: <https://coalitiontosavehempsteadharbor.org/waterquality-reports>).

NNBFs will provide a more well-rounded approach to preparing for the impacts of climate change in general, beyond storm surges. Natural features should be a priority, planned in concert with any hardened structures being proposed here, and not an afterthought.

See Appendix A for a list of articles highlighting the various benefits and the work that's being done to strengthen shorelines using Natural and Natural-Based Features.

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## **Water Quality**

Creating permanent and semi-permanent structures requiring foundations could diminish water exchange resulting in a buildup of pollution in waters closest to land. This could further degrade water quality and subsequent impacts to habitat and marine life, particularly in large storm events where large tidal gates are closed and when stormwater pollution impacts are at their highest. This is not readily addressed in the study. Mitigation efforts could be designed to incorporate the previously mentioned NNBFs, but these should be planned together to target or combined sewage overflows or known nitrogen-loading hotspots (see article 3 in Appendix A).

Efforts are currently taking place to reduce bacteria pollution, such as New York City Department of Environmental Protection's Combined Sewage Overflow Long Term Control Plans, although this effort does not appear in this study.

## **Habitat Connectivity**

Certain hard structures, such as flood walls, are permanent disruptions to habitat connectivity. Also, foundations required to build any of the hard structure barriers can also be permanent and disruptive. Has USACE considered the impacts to marine life and habitat structure when the barriers are activated? What kind of disruptions will occur when the gates are being opened and closed? How will the potential impacts be studied as the plan further progresses?

## **Impacts to Aquifer**

A huge project like this that impacts the dynamics of water systems should also address the impacts to groundwater. Do any of the features included in Alternative 3B affect local hydrology and potentially have any short- or long-term impacts on Long Island's sole source aquifer?

Sincerely,



Michelle Lapinel McAllister  
Programs Director, CSHH

## APPENDIX A

The benefits of Natural and Nature-Based Features are extensive. See articles below, along with bullet lists highlighting elements of each article:

1. Shepard, C.C., Crain, C.M., Beck, M.W. (2011). The Protective Role of Coastal Marshes: A Systemic Review and Meta-analysis. PLoS One 6(11): e27374. <https://doi.org/10.1371/journal.pone.0027374>
  - Focuses on ecosystem services provided by salt marshes, namely wave attenuation, shoreline stabilization, and floodwater attenuation.
  - The 1963 US Army Corps of Engineers is referenced as being used for studying the roles of marshes in attenuating storm surge.
  - Coastal wetlands in the United States provide an estimated \$23.2 billion (in 2011 dollars) per year in storm protection services.
  - The United Kingdom and the Netherlands have initiated “managed realignment” or moving coastal defense lines (such as sea walls) further inland to allow reclaimed land to be converted back to salt marsh.
2. Annis, G.M., Pearsall, D.R., Kahl, K.J., Washburn, E.L., May, C.A., Franks Taylor, R., et al. (2017). Designing coastal conservation to deliver ecosystem and human well-being benefits. PLoS ONE 12(2): e0172458. <https://doi.org/10.1371/journal.pone.0172458>.
  - "The most important areas for conservation to achieve multiple goals are clustered along the coast, reflecting a concentration of existing or potentially restorable coastal wetlands, coastal landbird stopover habitat and terrestrial biodiversity, as well as important recreational activities." (pg. 1)
3. Cheng, F.Y., Van Meter, K.J., Byrnes, D.K., et al. Maximizing US nitrate removal through wetland protection and restoration. Nature 588, 625-630 (2020). <https://doi.org/10.1038/s41586-020-03042-5>
  - The role of wetlands to effectively remove nitrate pollution to increase water quality could be substantially increased by targeting wetland restoration in known nitrogen hotspots.
  - With climate change, hypoxia caused by high-nutrient loads in coastal areas will become more prevalent.
4. Elmqvist, T., Setälä, H., Handel, S.N., van der Ploeg, S., Aronson, J., Blignaut, J.N., Gomez-Baaethun, E., Nowak, D.J., Kronenberg, J., and de Groot, R. (2015). Benefits of restoring ecosystem services in urban areas. Current Opinion in Environmental Sustainability 2015, 14:101-108. <https://doi.org/10.1016/j.cosust.2015.05.001>
  - "...urban ecosystems, that is, the urban ‘green and blue infrastructure’, may have a crucial role in increasing the adaptive capacity to cope with climate change." (pg. 101)
  - "Even in highly degraded urban areas, restoring ecological structure and functionality is — perhaps surprisingly — often possible." (pg. 103)

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5. Mehvar, S., Filatova, T., Dastgheib, A., de Ruyter van Steveninck, E., and Ranasinghe, R. (2018). Quantifying Economic Value of Coastal Ecosystem Services: A Review. *Journal of Marine Science and Engineering*. *J.Mar. Sci. Eng.* 2018, 6, 5; <http://doi.org/10.3390/jmse6010005>
- "A more recent study indicates that global land use has changed between 1997 and 2011 resulting in an ecosystem services loss of between US \$4 and US \$20 trillion per year, implying that coastal ecosystem services may have experienced a proportional loss." (pg. 2)
  - "... a coherent review on the valuation of coastal ecosystem services with a systematic description of fundamental concepts, key reported applications, and potential climate change impacts on the monetary value of coastal ecosystem services has not been undertaken to date. This review article takes a step towards addressing this large knowledge gap and is aimed at assisting researchers and policy makers in multidisciplinary fields to gain a better appreciation of the economic value of coastal ecosystem services and potential climate change impacts on coastal ecosystem services." (pg. 2)
6. Steven, A.D.L, Appeaning Addo, K., Llewellyn, G., Vu, T.C., et al. (2020). Coastal Development: Resilience, Restoration, and Infrastructure Requirements. Washington, DC: World Resources Institute. <https://oceanpanel.org/publication/coastal-development-resilience-restoration-and-infrastructure-requirements/>.
- This report "...makes the economic and security case for the development of resilient coastlines, and examines trade-offs between coastal protection and infrastructure development. The paper illustrates that practical solutions exist which can be implemented to allow economic and infrastructure development, without comprising the integrity and benefits of coastal ecosystems or disadvantaging the people who rely on them." (pg. 1)
  - "Poorly designed and operated infrastructure can also create harmful environmental and social impacts, increase vulnerability to natural disasters and can sometimes leave an unserviceable burden of debt." (pg. 3)
  - "Nature-based solutions are increasingly being adopted as complementary approaches to bridging this adaptation gap, to make infrastructure more resilient to climate change effects and add longer-term value to infrastructure assets." (pg. 3)
  - "Large-scale declines in the extent of coastal landforms, vegetated ecosystems and biogenic structures over the last 40 years have occurred in many regions, and these declines have diminished coastal ecosystems' natural resilience to recover from a range of climate and anthropogenic threats, and to the biodiversity and services they support. The primary agents occurring on local to regional scales are the direct consequences of land-clearing and fragmentation, the degradation of these ecosystems from pollution, and imbalance in natural sediment supplies." (pg. 21)
  - "Along the Northeastern seaboard of the United States, saltmarshes avoided costs of \$625 million in direct flood damages resulting from Hurricane Sandy in 2012." (pg. 25)
  - "Building resilient communities is a shared challenge for the world's population living along the coast now and in the future. To address this challenge, communities typically engineer barriers along the coast. However, there is growing understanding that traditional approaches to coastal protection (e.g. seawalls, bulkheads) are unsustainable. Hardened shorelines can be expensive to build and maintain, and can lead to unintended shoreline erosion, degradation or loss of habitat,

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impacting on communities that depend on healthy coastal ecosystems for protection, subsistence and livelihoods.” (pg. 30)

- A chart on page 43 shows the major advantages and disadvantages of grey infrastructure, natural and hybrid infrastructure, and ecosystem restoration.
- “In addition to the ecosystem services that restoration of coastal habitats can provide, there are also significant flow-on benefits through the creation of new jobs and supporting local economies.” (pg. 46)

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