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*Via U.S. Mail and Electronic Mail*

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**RE: Scoping Comments on the New York New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study**

Dear Mr. Wisemiller and Ms. Brighton,

We are submitting these comments on behalf of our respective organizations and members, institutions, and businesses located, residing, or operating on Long Island Sound. We urge the United States Army Corps of Engineers ("Army Corps") to undertake a more thorough economic and environmental analysis of the proposed alternatives, and to consider likely impacts throughout the entire affected area, including Long Island Sound. We recognize the urgent need for robust measures to protect coastal communities from strengthening storm surges and sea level rise under the reality of our changing climate. We support the stated project need and purpose of the New York – New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study ("the Study"),[1] to "manage the risk of coastal storm damage in the New York and New Jersey Harbor and tributaries study area, while contributing to the resilience of communities, critical infrastructure, and the environment."[2] However, the level of analysis and assessment of the proposed alternatives completed to date is insufficient to arrive at tentatively selected plan(s).

[1] U.S. Army Corps of Engineers, New York/New Jersey Harbor & Tributaries Focus Area Feasibility Study, http://www.nan.usace.army.mil/Missions/Civil-Works/Projects-in-New-York/New-York-New-Jersey-Harbor-Tributaries-Focus-Area-Feasibility-Study/ (last visited Aug. 21, 2018) [hereinafter Project Webpage].
[2] New York – New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study, PowerPoint Presentation 3 (Oct. 2017), *available at* http://www.nan.usace.army.mil/Portals/37/docs/civilworks/projects/nj/coast/NYNJHATS/NJHatPres.pdf?ver=2017-10-16-141621-747 [hereinafter Study Summary PowerPoint].

We recognize that the Army Corps is bound by the "3x3x3 rule" for all feasibility studies, requiring their completion within 3 years, for a budget not to exceed $3 million. However, for projects with the scale and complexity of this Study, an exemption from that requirement can be granted. As per this established protocol, we formally ask the Army Corps to submit and endorse an exemption request to the 3x3x3 rule for the Study and extend the alternatives analysis and assessment process to include an Environmental Impact Statement (EIS) and complete cost-benefit analysis for each alternative. We also request that all the communities that will be impacted by the proposed alternatives, including the communities on the coast of Long Island Sound, be included in the public comment process for the upcoming Interim Report and Draft EIS, with analyses conducted throughout the entire affected area.

The issues, described further below, that must be assessed in detail in the Environmental Impact Statement and prior to the elimination of any alternatives include, but are not limited to:

- Potential deflection and induced flooding into Long Island Sound coastal communities, potential resulting harm, and necessary mitigation measures to protect these communities from even further flooding.
- Impacts on tidal flushing, as related to pollutants and sedimentation, both inside and outside of barriers.
- Impacts to fish migration.
- Impacts to threatened and endangered species.
- Impacts on boat and ship traffic due to increased congestion and increased velocity.
- Impacts to other coastal resiliency measures, due to location of construction and changes to waterbody channelization and flow.
- Impacts to and conflicts with existing ocean and coastal infrastructure.
- Potential disturbance of polluted sediments.
- The potential for natural and nature-based measures at the core of these alternatives, rather than merely supplementary.
- Criteria relied upon to determine location of storm barriers, including demographics of surrounding communities.

*All environmental, human, and economic impacts throughout the entire affected area, including Long Island Sound and its coastal communities, must be considered. The EIS must not be limited to the artificial study area boundaries.*

## I. The National Environmental Policy Act Requires Meaningful Participation from the Affected Public and Robust Environmental Analysis.

The National Environmental Policy Act (NEPA) recognizes the importance of involving members of the public in decision making processes for projects that will impact the environment: "The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore,

and enhance the environment."[3] Scoping is a critical stage in the NEPA process. It sets the stage for comprehensive analyses throughout the rest of the project development, as it is the "early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action."[4] "[P]ublic scrutiny [is] essential" to this process."[5] As the Army Corps materials for the Study state: "Local communities and stakeholders have valuable local knowledge and expertise and the scoping process is intended to help gather that for inclusion in the analysis."[6]

Under NEPA, the agency must consider all potential environmental impacts, not limited to those within the study area or determined by the Study's funding. The study area spans over 2,150 square miles, extending: northward up the Hudson River from New York Harbor, throughout the river's tidal and estuarine environments, to Troy, New York; westward up the Passaic River to the Dundee Dam and up the Hackensack River to the Oradell Reservoir; and eastward into the Western Long Island Sound. However, the study area stops at the Connecticut border and the City of Glen Cove on Long Island (located directly south of the New York - Connecticut border).

The impacts of this proposed project will not stop at this artificial study area boundary, rather with proposed barriers at the western end of Long Island Sound (the "Throgs Neck barrier") and the mouth of the Hutchinson River (the "Pelham Barrier"), impacts will extend into Long Island Sound and along the Westchester County, Connecticut, and Long Island coastlines.[7] Impacts must be considered throughout the entire geographic range within which they may occur. However, materials provided for the scoping process indicate that any environmental analyses will be limited to the study area, as were all the public meetings.[8]

The conclusions drawn for the New York-New Jersey Harbor cannot be applied to Long Island Sound. Long Island Sound will experience unique impacts due to its geography, orientation, tidal patterns, and strength of storm surge. Therefore, specific analyses must be conducted for Long Island Sound and all other affected areas, even those that extend beyond the boundaries of the study area.

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[3] 40 C.F.R. § 1500.1(c).
[4] 40 C.F.R. § 1501.7.
[5] 40 C.F.R.§ 1500.1(b).
[6] U.S. Army Corps of Engineers, New York – New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study, National Environmental Policy Act (NEPA) Scoping Meeting, http://www.nan.usace.army.mil/Portals/37/docs/civilworks/projects/ny/coast/NYNJHAT/NYNJHAT%20NEPA%20Scoping%20PresentationNEW.pdf?ver=2018-08-08-150005-403 [hereinafter Scoping Meeting Presentation].
[7] "Moreover, since the hydrological changes due to East River tide gates would extend as far as New Jersey and Connecticut, those states as well as villages on Long Island Sound and the Hudson River would have an opportunity to review these consequences . . . ." Douglas Hill, Robert E. Wilson & Malcolm J. Bowman, East River Tide Gates Operational Feasibility and Trade-offs 4 (Apr. 2004).
[8] *See, e.g.*, Public Information Meeting: New York and New Jersey Harbor and Tributaries Focus Area Feasibility Study Coastal Storm Risk Management, Scoping Meeting Posters 7 (July 9-11, 2018), *available at* http://www.nan.usace.army.mil/Portals/37/docs/civilworks/projects/ny/coast/NYNJHAT/NYNJHATS_All_NEPA_Scoping_Posters.pdf?ver=2018-07-06-104831-627 [hereinafter Scoping Meeting Posters] ("The Corps of Engineers is currently assessing the existing conditions in the *study area*.") (emphasis added).

The Council on Environmental Quality's implementing regulations for NEPA require that agencies "insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken."[9] The Army Corps has not provided sufficient information on the project alternatives to meet this standard. To date it has only provided an online Fact Sheet,[10] a PowerPoint presentation given at the scoping meetings available online,[11] a PowerPoint presentation of posters from the scoping meetings available online,[12] and a PowerPoint presentation summarizing the Study, which is largely repeated in the scoping presentations.[13] The PowerPoint slides include only low-quality, "zoomed out" maps of the entire project area, such that specific details cannot be discerned. The maps are also missing critical information, such as other post-Hurricane Sandy resilience projects planned and in progress. These omissions render the maps misleading, as the cumulative impacts of those plans with the proposed project alternatives are not represented. It is unclear if the cost-benefit analysis currently underway will include the other ongoing and planned resiliency projects.

We acknowledge the recent efforts by the Army Corps to improve the public involvement process, by adding scoping meetings in Brooklyn, Westchester County, and Long Island. (The original scoping comment meetings were limited to Manhattan, Newark, and Poughkeepsie.) These additional meetings are critical for ensuring that these communities throughout the impacted area are informed about the project and can voice their concerns. However, these new meetings were announced with limited notice, likely limiting the attendance by the public. The meetings were also not tailored to the specific communities where they took place, therefore they were not ideal for eliciting local knowledge or focusing on local impacts. The Army Corps still has not held or scheduled any meetings in Connecticut. We request that the Army Corps hold public meetings throughout the entire affected area and provided sufficient notice to members of the public after the Interim Report is released in 2019 and after Draft EIS is released in 2020. The meetings should incorporate a meaningful dialogue between Army Corps staff and members of the public. The meetings should be scheduled well in advance of their occurrence, and not in a piecemeal fashion as they were throughout this scoping process.

The Army Corps originally stated that they expected to narrow down the alternatives to one or two by this fall (potentially within a month of the conclusion of the scoping comment period) with the issuance of the Draft Feasibility Report and Environmental Impact Statement. We acknowledge and appreciate the critical extension of this timeline, whereby the Army Corps stated that they now intend to issue an Interim Report in January 2019, with all alternatives still under consideration. Only after the issuance of the Draft EIS and Feasibility Study in winter of 2020 will the alternatives be narrowed down. This allows for the public to meaningfully

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[9] 40 C.F.R. § 1500.1(b).
[10] U.S. Army Corps of Engineers, FACT SHEET - New York/New Jersey Harbor & Tributaries Focus Area Feasibility Study, http://www.nan.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/644997/fact-sheet-new-yorknew-jersey-harbor-tributaries-focus-area-feasibility-study/ (last visited Sept. 13, 2018) [hereinafter Fact Sheet].
[11] Scoping Meeting Presentation, *supra* note 6.
[12] Scoping Meeting Posters, *supra* note 8.
[13] Study Summary PowerPoint, *supra* note 2.

participate in the NEPA process before the majority of the alternatives will be eliminated from consideration, ideally avoiding the elimination of the alternative that best meets the project needs and also minimizes environmental impacts. This new timeline better supports the purpose of NEPA – to conduct fully-informed decision making, including considerations of the environment and concerns of the public. We request that the Army Corps clearly articulate the purpose of the Interim Report to the public so that it can be understood in the context of the overall timeline. We further request that the Army Corps determine the format and timeline for public involvement that will occur after the Interim Report is issued, given that this will not be dictated by statutory requirements. Clear notice will allow the public to best plan and participate in this process.

## II. Long Island Sound and Its Coastal Communities Will Likely Experience Unique Harmful Impacts Which Must Be Identified and Addressed.

The construction of in-water storm barriers across Western Long Island Sound near Throgs Neck (Alternatives 2 and 3A) and at the mouth of the Hutchinson River (Alternatives 3A, 3B, and 4) poses serious threats to the health of Long Island Sound and the safety of multiple coastal communities. Some of these impacts will also occur elsewhere as a result of the other proposed in-water storm barriers, but we are focusing our comments on Long Island Sound communities in this section.

### *a. Sea barriers will likely result in induced flooding in "outside the barrier communities" from the deflection of storm surge and other adverse impacts on quality of life.*

The very purpose of storm surge barriers is to deflect the force of the storm surge to prevent it from reaching areas within its protections. Logically, that deflected storm surge will then move into areas outside the barrier, resulting in increased flooding for neighboring "outside" coastal communities. As Catherine Seavitt Nordenson, Associate Professor of landscape architecture at CCNY's Spitzer School of Architecture, explained in reference to storm barriers: "If you mitigate to protect Lower Manhattan, you increase the impact in other areas. Everyone outside of the surge protection zone would be in jeopardy because the water doesn't get reduced, it just goes somewhere else."[14] These communities will, therefore, not only be faced with the sea level rise and increased storm surge that the Study aims to protect against because they are not inside the barriers, but they will also face additional flooding that results from these structures.

A 2004 report titled "Hydrologic Feasibility of Storm Surge Barriers to Protect the Metropolitan New York – New Jersey Region," authored by Malcolm J. Bowman, et al., considered the

[14] "Storm Surge Barriers for Manhattan Could Worsen Effects on Nearby Areas: Other Options Proposed," Science Daily, Nov. 19, 2012, https://www.sciencedaily.com/releases/2012/11/121119163504.htm. *See also* PlaNYC, A Stronger, More Resilient New York 49 (2013), *available at* https://www.nycedc.com/resource/stronger-more-resilient-new-york

"additional rise in water level outside [a] barrier" located at Throgs Neck.[15] The report used simulations that relied on data from Hurricane Floyd, which was only the strength of a tropical storm when it struck this region, and the December 2002 nor'easter.[16] The report found that if a barrier at this location is closed during storms of the aforementioned scale, "peak water levels on the outside [of] the barrier [will be raised] an additional 0.28 meters," or one foot.[17] Resulting additional sea level rise reaches as far east as Stamford, Connecticut, and Oyster Bay, New York, with the effect decreasing eastward throughout Long Island Sound.[18] A 2013 analysis, published by the American Society of Civil Engineers, expands upon this 2004 Bowman et al. report.[19] This analysis concluded that a barrier located at Throgs Neck, when faced with a Category 4 hurricane, would result in a sea level rise of an additional two feet outside of the barrier.[20] An additional foot or two of sea level rise during a storm event could result in an exponential increase in flooding and resulting damage and risk to human safety and well-being.

The deflection of storm surge will not only flood nearby communities, but it will also increase the erosion and scour of coastlines – potentially undermining other shoreline natural measures put in place to protect against sea level rise and storm surge. The entire hydrology of Long Island Sound, and the study area, will be altered, with changing velocity and circulation – even with the barriers open.[21]

The potential deflection and its impacts on "outside" communities must be studied in careful detail. Consideration should be given to the demographics of communities that will be subjected to deflection, especially those immediately adjacent to the barriers that will likely also suffer a reduction in quality of life brought about by a potential decline in property values, and disruptions from the construction and operation of the barriers. If in-water storm barriers are constructed, there must be corresponding measures taken to protect against, or compensate for, the negative side effects in "outside" communities. These measures should be included as part of each alternative that has in-water storm barriers and factored into the cost-benefit analysis.

*b. Sea barriers in Western Long Island Sound will restrict tidal flushing and alter patterns of exchange between fresh and salt water, and sedimentation.*

Barriers in Western Long Island Sound will alter the hydrology of the Sound both when open and closed, impacting the tidal flushing of pollutants and sediment, and altering the exchange of

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[15] Malcom J. Bowman et al., Hydrologic Feasibility of Storm Surge Barriers to Protect the Metropolitan New York – New Jersey Region, Summary Report 12-15 (Nov. 2004). *See also* Hill et al., East River Tide Gates Operational Feasibility and Trade-offs, *supra* note 7, at 6.
[16] Bowman et al., *supra* note 16, at 6.
[17] *Id.* at 15.
[18] *Id.* at 14.
[19] Michael J. Abrahams, *East River Storm Surge Barrier*, in Storm Surge Barriers to Protect New York City 182 (Douglas Hill, Malcolm J. Bowman & Jagtar S. Khinda eds., 2013).
[20] *Id.* at 184.
[21] *See, e.g.*, Feasibility of Harbor-wide Barrier Systems: Preliminary Analysis for Boston Harbor 48-71 (May 2018), *available at* https://www.greenribboncommission.org/wp-content/uploads/2018/05/Feasibility-of-Harbor-wide-Barriers-Report.pdf [hereinafter Boston Harbor Barrier Analysis].

fresh and salt water. These impacts are not unique to the proposed Throgs Neck barrier in the Western Sound, and will also occur as a result of the other proposed barriers. However, the impacts must be considered at each specific structure, as well as the compounded impacts from multiple barriers throughout the region choking the network of water bodies. In-water barriers will change the tidal circulation and velocity as water is channeled through the openings. The study conducted to examine the feasibility of storm barriers in Boston harbor ("the Boston barrier analysis") concluded that the water levels inside and outside of the proposed barriers would remain the same – "[t]he volume of water entering or exiting the harbor over a tidal cycle is the same with or without the barrier (with gates open) in place."[22] Therefore, the same volume of water that moves with each tidal cycle would consequently be traveling through narrower channels and at a greater velocity when the barrier is in place.[23] "[F]low fields will be modified. Tidal velocities at the storm surge barriers will increase while the barriers are opened and the same volume of water that now makes up the tidal prism is forced through a smaller cross-sectional area."[24]

Tidal exchange and circulation is critical for the flushing of pollutants and sediment distribution. Yet, alterations to tidal currents and velocity will impact how pollutants and sediment are distributed both inside and outside of the barriers.[25] While the velocity may increase where water is moving through the gates, there may also be areas where water becomes stagnant, such as the areas immediately adjacent to the barriers. In these areas of stagnation, sediment and pollution may aggregate. The Boston barrier analysis conducted particle tracking simulations and found large areas of stagnation along the barriers.[26] Similar analyses must be conducted for the proposed barriers in Western Long Island Sound, and throughout the study area to determine possible impacts of stagnation and localized aggregation of pollution and sediment, and subsequent harm to humans and the environment. The analysis must include consideration of the communities that are adjacent to the expected areas of stagnation. Subjecting communities to highly concentrated pollution poses environmental justice concerns. Further, the aggregation of sediment may impact the necessary maintenance required for the operation of the barriers.

Researchers reviewing the New Bedford, Massachusetts storm barrier found that sediment buildup behind the barrier was increasing and water exchange was reduced. [27] They referenced a model that indicated that water residency had increased by 30 percent and that the barrier altered circulation gyre patterns which actually recycled wastes back into the harbor with incoming tide.[28] The fact that gyres formed by structures can recirculate contaminated inner barrier waters and potentially flush these waters back inside coupled with overall longer residence time behind barriers leads one to think that contamination would increase behind the barriers. This is

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[22] *Id.* at 55-57.
[23] *See, e.g., id.* at 59 figs.5.9, 5.10, 5.11.
[24] Abrahams, *supra* note 20, at 126.
[25] *See e.g.,* Boston Harbor Barrier Analysis, *supra* note 22, at 63-64 figs. 5.13, 5.14, 5.15.
[26] *Id.* at 65.
[27] John Winkelman, New England District, Army Corps of Engineers, Pers. Comm. (Dec. 15, 2006).
[28] *Id.*

especially likely with contaminants attached to sediment particles that can precipitate out behind the barriers due to slower flushing velocities.

Proponents of these storm barriers claim that Long Island Sound will benefit from the operation of a storm barrier near Throgs Neck, as it might prevent pollution from flowing from the East River to the Sound.[29] However, proponents also note that these gates will be open the vast majority of the time – therefore, pollution will still flow to some degree from the East River into Long Island Sound. More importantly, storm barriers are not the appropriate or most effective avenue to clean up Long Island Sound. There are known, direct methods that can reduce the various inputs of pollutants that must continue to be the focus of any efforts to improve water quality in the Sound, in particular those detailed in the Long Island Sound Study Comprehensive Conservation and Management Plan.

In-water storm barriers will alter the freshwater/saltwater interchange, altering the degree and reach of the saltwater wedge into estuarine/riverine environments. Changing this dynamic will alter estuary function especially the autotrophic/heterotrophic community dominance which relates directly to nitrogen mitigation capabilities with freshwater dominance decreasing the rate of denitrification services in the estuary. The larval fish and shellfish community also depend on this interchange of salt and freshwater to complete their life cycles including food production, larval distribution and settlement.

The impacts of restricting tidal exchange must be considered both immediately surrounding the barrier and throughout the entire affected region. The needed analyses include: particle tracking, tidal velocities, areas of stagnation, shifts in salt wedges, impacts to sedimentation and scour, and other impacts to water circulation and tidal flushing. These impacts must be contextualized within the ecology and human communities of the water bodies.

## III. The Environmental and Human Impacts of In-Water Storm Barriers in Estuaries Must Be More Fully Evaluated and Understood.

There are many potential environmental and human impacts that could result from the construction of in-water storm barriers that must be considered in full and in conjunction with necessary and feasible mitigation measures. Many of these impacts are explained in greater detail in comments submitted by other institutions, organizations, and members of the public, including The Nature Conservancy, Riverkeeper, Inc., and Scenic Hudson. Some of these impacts are briefly mentioned below:

The barriers may impact aquatic species, including both state and federally listed endangered and threatened species. These species may be impacted by changes to water circulation and tidal exchange, or because of the narrow chokepoints created by the barrier gates. Artificial structures

[29] Robert D. Yaro & Malcolm J. Bowman, Protecting the NY-NJ Metropolitan Region from the Next Disastrous Storm Surge 13 (Mar. 9, 2017).

that hold fish at choke points due to physical blockage or velocity barriers, even temporarily, can result in predators keying in on the fish at unnaturally high levels. Examples of this occurring include Caspian terns on the lower Columbia River or sea lions in Washington State at a fish passage holding lock.

There are many existing and planned resiliency projects underway, as are referenced in Alternative 1. Changes in channelization, flow, and velocity may impact these projects and their design. Similarly, the construction of massive structures like in-water storm barriers may conflict or interact with other existing infrastructure, such as pipelines, or disturb polluted sediments. Cumulative construction impacts may cause other impacts to water quality and result in the harmful disturbance of ecosystems. The analyses must not be done in a vacuum, but rather in consideration of the other climate change adaptation projects conducted by other parties, existing infrastructure, and potential sources of pollution.

Overall, there is little information available on the environmental effects of barrier construction beyond down-current erosion. According to PlaNYC, "[t]he possible hydrodynamic and environmental impacts (on fish migration, siltation, river flow, and water quality) of harborwide barriers are likely to be substantial, are not yet known, and would require extensive study, potentially derailing or requiring substantial redesign of the project."[30] The Army Corps conducted an investigation of review of New England Hurricane Barriers in 2007 and 2016.[31] This analysis did not, however, fully explore the environmental impacts of these storm barriers. Overall, the current information on existing long-term projects is incredibly sparse. Well thought out long term monitoring programs at existing barrier sites would have been invaluable to scoping this current proposal – but we do not have this information available.

## IV. The Functionality of In-Water Storm Barriers Is Limited, as They Only Address Storm Surge (Not Sea Level Rise) and Have a Limited Life Span.

Storm barriers are not a "silver bullet" solution to climate change impacts that coastal communities will continue to face. Project proponents admit that storm barriers are inherently part of a "bifurcated system." Storm barriers will only address storm surge – they will do nothing to prevent the impacts of sea level rise. The sea level will equalize on either side of the storm barriers when they are open.[32] The stated purpose of the Study includes mitigating both the impacts of storm surge and sea level rise, and the alternatives include both storm barriers and "conceptual shoreline based measures." Very little detail has been disseminated with regard to the conceptual measures, yet in reality they will be critical as the only defense proposed in the Study to protect against sea level rise. Shoreline measures and natural/nature-based measures must be at the heart of any project, not an afterthought.

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[30] PlaNYC, A Stronger, More Resilient New York, *supra* note 15, at 49.
[31] Andrew Morang, Hurricane Barriers in New England and New Jersey: History and Status after Five Decades, 32 J. Coastal Res. 2016, *available at* http://www.jcronline.org/doi/pdf/10.2112/JCOASTRES-D-14-00074.1; Andrew Morang, Hurricane Barriers in New England and New Jersey: History and Status after Four Decades (2007).
[32] Boston Harbor Barrier Analysis, *supra* note 22, at 55-57.

Not only will the expensive and massive storm barriers do nothing to protect against sea level rise, but they will also lose effectiveness as the sea level continues to rise over time. With higher sea levels, the storm barriers will have to be closed for smaller and smaller storms. In time, they would have to be closed so frequently that they could no longer be effective. The Boston barrier analysis concluded that "[i]n the early years of operation the frequency of closure of a barrier would be no more than a few times per year. Because of rising sea levels, and assuming the system was designed to be closed each time the water level is above the level of protection provided by shore-based measures, after 50-60 years the frequency of closure would have increased so much that the barrier could no longer function as designed."[33] The Boston Harbor barriers functionality ranged between only 20 years to 60 years after construction, depending on date of construction and other shoreline projects installed.[34] Certain projections showed that by 2070, the gates would be closed 50 to 100 times per year.[35] The more often the gates are closed, the more intense the associated environmental, social, and economic impacts of closed barriers, described above, will be. This enormous investment, targeting only one coastal impact, has a shockingly short lifespan.

Finally, the Army Corps has stated that the states would be liable for the cost of maintenance of these storm barriers. Maintenance costs would include the removal of built-up sediments that would prevent the functioning of the gates, as well as other mechanical maintenance and upkeep. This cost to the states could be considerable, and would reduce resources available to continue to invest in other climate change adaptation measures that will be necessary to assist where the storm barriers fail to protect coastlines.

## V. Recommendation: Focus on Shoreline-Based Measures That Address Both Sea Level Rise and Storm Surge

The environmental and human harm that the proposed in-water storm barriers would cause cannot be justified by their limited effectiveness, short life span, and massive price tag. While urgent and aggressive action is needed to cope with the effects of climate change on our coastal region, Alternatives 2, 3A, 3B, and 4 are not the best course of action. Further, this urgency does not override the need to properly conduct meaningful public participation and environmental analyses.

Of the alternatives presented, Alternative 5, which consists of shoreline ("Perimeter Only") solutions, is the only alternative we support exploring. We urge the Army Corps to include natural and nature-based features with the shoreline measures in Alternative 5. Nonstructural approaches such as flood-proofing, raising structures, and planned retreat should also be pursued and reflected in the Army Corps plans, along with all other post-Hurricane Sandy resilience projects planned and underway. This multilayered approach, combined with a public engagement

[33] *Id.* at 71.
[34] *Id.* at 68.
[35] *Id.*

process that includes all the impacted communities, will result in a more flexible and affordable resiliency plan that does not externalize the serious costs and impact of protecting the NY/NJ Harbor and Tributaries on its neighbors or on the waterbodies that are its lifeblood.

Thank you for your consideration of these comments.

Respectfully Submitted,

Tracy Brown, Director, Save the Sound
Western Connecticut Council of Governments
Jayme Stevenson, First Selectman, Town of Darien
Adrienne Esposito, Executive Director, Citizens Campaign for the Environment
Dr. Sarah C. Crosby, Marine Ecologist, Resident of Greenwich, CT
Mystic Aquarium
Carol DiPaolo, Programs Director and Water-Monitoring Coordinator,
Coalition to Save Hempstead Harbor
David Spader, Secretary, Board of Directors, Kuder Island Colony, Inc.
Jack Brewer, Founder of Brewer Yacht Yards, Co-Founder of Safe Harbor Marinas
Douglas Manor Environmental Association
Ana Paula Tavares, Executive Director, Audubon New York
Kathryn Heintz, Executive Director, NYC Audubon
Anne Swaim, Executive Director, Saw Mill River Audubon
Sandra Morrissey, President, Bronx River – Sound Shore Audubon Society
Peggy Maslow, President, North Shore Audubon Society
South Shore Audubon Society
Eric Swenson, Executive Director, Hempstead Harbor Protection Committee
Heather Johnson, Executive Director, Friends of the Bay
Dr. Timothy Eaton, Associate Professor, School of Earth and Environmental Sciences,
Queens College City University of New York

CC:
U.S. Senator Charles Schumer (NY)
U.S. Senator Kirsten Gillibrand (NY)
U.S. Senator Richard Blumenthal (CT)
U.S. Senator Christopher Murphy (CT)
U.S. Representative Lee Zeldin (NY-01)
U.S. Representative Peter King (NY-02)
U.S. Representative Thomas Suozzi (NY-03)
U.S. Representative Kathleen Rice (NY-04)
U.S. Representative Gregory Meeks (NY-05)
U.S. Representative Grace Meng (NY-06)
U.S. Representative Nydia Velázquez (NY-07)
U.S. Representative Hakeem Jeffries (NY-08)

U.S. Representative Yvette Clarke (NY-09)
U.S. Representative Jerrold Nadler (NY-10)
U.S. Representative Daniel Donovan, Jr. (NY-11)
U.S. Representative Carolyn Maloney (NY-12)
U.S. Representative Adriano Espaillat (NY-13)
U.S. Representative Joseph Crowley (NY-14)
U.S. Representative José Serrano (NY-15)
U.S. Representative Eliot Engel (NY-16)
U.S. Representative Nita Lowey (NY-17)
U.S. Representative Sean Maloney (NY-18)
U.S. Representative John Faso (NY-19)
U.S. Representative Paul Tonko (NY-20)
U.S. Representative James Himes (CT-04)
U.S. Environmental Protection Agency, Long Island Sound, Director Mark Tedesco
NY Department of Environmental Conservation, Commissioner Basil Seggos
CT Department of Energy & Environmental Protection, Commissioner Rob Klee
NJ Department of Environmental Protection, Commissioner Catherine McCabe
New York City, NY, Mayor Bill de Blasio