United States Department of the Interior

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Peter Blum, Chief
Planning Division
Philadelphia District
U.S. Army Corps of Engineers
Philadelphia, Pennsylvania 19107-3390
Attn: Steven Allen

RE: New Jersey Back Bays Coastal Storm Risk Management Study
Draft Integrated Feasibility Report
Tier 1 Environmental Impact Statement

Dear Mr. Blum:

The U.S. Department of the Interior (Department) has reviewed and is providing consolidated comments on the August 2021 U.S. Army Corps of Engineers, Philadelphia District's (Corps) New Jersey Back Bays (NJBB) Coastal Storm Risk Management (CSRM) Draft Integrated Feasibility Report (Draft Integrated Report, or Report) and Tier 1 Environmental Impact Statement (EIS), located in Monmouth, Ocean, Burlington, Atlantic, and Cape May counties, New Jersey (Study Area). The Study is one of nine feasibility studies that are currently underway by several Corps Districts in the Northeast as part of a North Atlantic Coast Comprehensive Study (NACCS). The following comments include input from the National Park Service (NPS) and the U.S. Fish and Wildlife Service (Service). The Service is participating in the National Environmental Policy Act (NEPA) process as a Cooperating Agency; NPS as a Participating Agency.

The Corps is using a tiered approach to the NEPA process in evaluating the current risks of coastal flooding and sea level change (SLC) within the Study Area. The Tier 1 level of review is general in nature and scope, and utilizes the information available to the Corps in assessing the effects of its Tentatively Selected Plan (TSP) on the human environment.

The Draft Integrated Report presents preliminary findings of its study to identify CSRM strategies to increase resilience and reduce risk from future storms and compounding effects of SLC for the NJBB region. The Report identified “problems” and “solutions” to reduce damages from coastal flooding that may affect the human environment (*i.e.,* critical infrastructure, property, and ecosystems).

The TSP identifies numerous strategies and alternatives throughout the Study Area to reduce coastal storm risk and the effects of SLC. The TSP also identifies numerous impacts to the aquatic environment, including the filling of over 154 acres of wetlands (Draft Integrated Report pp. xv), mud flats, submerged aquatic vegetation, and open waters of the Study Area and the potential for the TSP to impact water quality, tidal flow and regime, sediment transport, and the life stages of a variety of aquatic organisms and other wildlife that utilize the many habitats found in the Study Area.

As described in more detail below, these impacts present risks to natural, cultural and recreational resources under the jurisdictional responsibilities of both the NPS and the Service. Both NPS and Service comments also identify significant concerns with the Draft Integrated Report's data gaps, the Corps' focus on structural alternatives to the neglect of non-structural alternatives, the lack of Nature and Nature Based Features (NNBF) in the TSP, and the level of analysis, among other needs.

The Report is also voluminous, can be difficult to follow or comprehend, with numerous typographical, grammatical, and factual errors (*e.g.*, red knots do not nest in Barnegat Bay and the common tern (*Sterna hirundo*) is not a federally listed species p. 76). Further, to understand the full scope of impacts associated with the TSP, the reader must comb over disparate parts of the document to find them. Among other recommendations herein, in preparing the Final Integrated Report/Final EIS, factual errors must be corrected, an acronym page should be added, and the discussion of impacts unified in one section in order to create a document that decision makers and the public can understand and use more easily.

The Department acknowledges the Corps' efforts to coordinate with various agencies regarding this project and encourages continued coordination with federal and state agencies as well as tribes throughout the life of this project. The Department also understands that due to the large geographic scale of the Tier 1 DEIS that determining all potential impacts on Departmental resources was not feasible at this time in the NEPA process, and understand that a Tier 2 DEIS, will be completed in the future. The Department looks forward to working closely with the Corps in its Tier 2 NEPA analysis to avoid, minimize, or mitigate any impacts to Departmental resources.

U.S. FISH AND WILDLIFE SERVICE

Authority

The following comments on the proposed action are provided pursuant to NEPA; the Fish and Wildlife Coordination Act (48 Stat.401; 16 U.S.C. 661 *et seq*.) (FWCA); Endangered Species Act of 1973 (87 Stat. 884, as amended; l6 U.S.C. 1531 *et. seq*.) (ESA); the 2014 Memorandum of Understanding between the Corps and the Service regarding implementation of Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds; the Migratory Bird Treaty Act of 1918 (40 Stat. 755; 16 U.S.C. Section 703-712); Clean Water Act of 1977 (86 Stat. 816, 33 U.S.C. 1344 *et seq*.) (CWA), the Emergency Wetlands Resource Act of 1986 (P.L. 99-645; 100 Stat. 3582); the National Wildlife Refuge System Improvement Act of

1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd - ee); the Wilderness Act (78 Stat. 890; 16 U.S.C. 1131 *et seq.*) (WA), EO 11988, Floodplain Management (May 24, 1977; 42 FR 26951); and EO 11990, Protection of Wetlands (May 24, 1977; 42 FR 26961).

The following comments do not preclude additional comments on forthcoming phases of the Project (Tier 2 and Tier 3), including potential effects on federally listed species, pursuant to ESA. This letter follows additional Service comments provided to the Corps on July 23, 2021 (attached).

Overview

The Draft Integrated Report builds on the March 1, 2019, NJBB Interim Feasibility Study and Environmental Scoping Document, which the Service commented on in correspondence of March 29, 2019 (Attachment A); the Service had also commented on the preliminary Feasibility Study in comments of September 14, 2018 (Attachment B), both of which are included in Appendix F.10, Environmental Appendix U.S. Fish and Wildlife Service Coordination, of the Draft Integrated Report. In addition, the Service provided additional comments on the preliminary Draft Integrated Report on July 23, 2021 (Attachment C).

The elements identified in the TSP include the installation of three storm surge barriers or inlet closures (SSB) at Manasquan, Barnegat and Great Egg Harbor Inlets; two cross-bay barriers (CBB) at Absecon Boulevard in Atlantic City and Ocean City (includes 84,461 feet of levees and floodwalls and five road closure gates); elevating and floodproofing 18,800 structures; and installing numerous additional perimeter measures including floodwalls, levees, and seawalls (totaling 78,259 feet) to further complement the three SSBs and two CBBs (Project).

The Corps estimates the cost of implementing all of the TSP strategies and alternatives at $16.067 billion (Draft Integrated Report p. viii). Of the total estimated cost, the local cost-sharing sponsor of the study, New Jersey Department of Environmental Protection's (NJDEP) Bureau of Coastal Engineering, will bear 35% or $5.623 billion. Once the TSP is completed, the Corps states that NJDEP will also be required to bear the full costs to operate and maintain the TSP estimated at $196 million per year (approximately $10 billion over the life of the 50-year Project). The Corps is also considering the effects of additional structural perimeter plans and non-structural measures including elevating and floodproofing 38,232 structures in the Study Area. However, at this time the Corps has yet to determine if these additional perimeter plans or non-structural measures are viable alternatives (Draft Integrated Report pp. 347-8, 354). The Feasibility Cost Sharing Agreement of 2016 established that this study would be performed at a 50/50 cost-share (Corps/NJDEP). The total TSP study costs are currently $18,050,000 (p. 5).

The Service will continue to meet its Cooperating Agency status responsibilities pursuant to NEPA and offer comments and recommendations to the Corps in identifying TSP alternatives that are sufficiently protective of fish and wildlife resources and their respective habitats found in the Study Area. Rather than reiterate the concerns from the Services' previous correspondences, the Department requests that the Corps prepare a response to the Service's September 14, 2018,

March 29, 2019, and July 21, 2021, comments (in addition to those contained in this letter) so that they are readily identified in the Tier I FEIS.

Generally, the Service's greatest resource concerns are focused on threatened and endangered species; interjurisdictional fisheries, primarily as it relates to inlet and bay closures; and migratory birds (primarily shorebirds, waterfowl, and wading birds) that use back bay areas and inlet areas that may be adversely affected by large inlet structures. For example, New Jersey coastal areas are critical wintering habitat for brant (*Branta bernicla*), and it remains unclear how the proposed project will impact brant feeding, resting, and wintering areas.

Background and History

The Corps has a long history of conducting studies and constructing water-related infrastructure projects in New Jersey, many of which occur in the NJBB Study Area. Some of the more notable projects include the operation and maintenance (O&M) of the Intracoastal Waterway (ICWW) from the Cape May Canal, Cape May County to Manasquan River in Ocean County; the dredging of nearly all of New Jersey's Atlantic Ocean Inlets including Shark, Manasquan, Barnegat, Great Egg Harbor, Corson, Townsend, Hereford and Cape May inlets; the undertaking of numerous Atlantic beach nourishment activities on an almost yearly basis; the recent beneficial use of dredged material in Barnegat Bay (Section 1122 of the Water Resources Development Act (WRDA) of 2016); and Cape May County's Seven Mile Island Innovation Laboratory (SMIIL).

In addition, the Corps' Regulatory Program, under the authority of Section 10 of the Rivers and Harbors Act of 1899 and the CWA, issues permits to the Service, New Jersey Department of Transportation (NJDOT), the NJ Division of Fish and Wildlife (NJDFW), municipalities, and non-government organizations to undertake non-structural coastal resilience projects in the Study Area (*i.e*., living shorelines, beneficial use of dredged material, wetland and island restoration, submerged aquatic vegetation restoration).

More recently, in response to the growing losses of important aquatic habitats in the Study Area, the Corps' Regulatory Program, the Service's Edwin B. Forsythe National Wildlife Refuge (EBFNWR), the NJDFW, the Barnegat Bay Partnership (BBP), Jacques Cousteau National Estuarine Research Reserve (JCNERR), several local communities, the Mordecai Land Trust, The Nature Conservancy, the American Littoral Society, and the Wetlands Institute have partnered with the Corps' Operations Division and NJDOT dredging programs to undertake the planning and construction of a suite of non-structural and natural and nature-based feature (NNBF) projects in Barnegat and Delaware Bays with great success.

The Corps' Operations Division received National recognition for its work on Mordecai Island (*https://www.erdc.usace.army.mil/Media/News-Stories/Article/2381522/protecting-fragile-coasts-and-improving-community-resilience*/), leading to the selection of the Corps' Philadelphia District as one of several Districts across the nation to undertake a SMIIL Engineering with Nature (EWN) initiative, located in Lower Township, Cape May County. The Department is especially encouraged by these successes and is hopeful that the Corps' Planning Division and the NJDEP's Division of Coastal Engineering (as co-sponsor) will strongly consider the

environmental and resilience gains made by these projects and fully commit to a more robust non-structural and nature-based landscape level effort in association with any TSP.

Endangered Species Act

The Biological Assessment (BA) prepared by the Corps for the TSP correctly identifies the appropriate federally listed species under the jurisdiction of the Service that may be affected by the TSP. They include the piping plover (*Charadrius melodus,* threatened), seabeach amaranth (*Amaranthus pumilus,* threatened), red knot (*Calidrus canutus,* threatened), northern long-eared bat (*Myotis septentrionalis,* threatened (4d)), roseate tern (*Sterna dougalli,* endangered), and eastern black rail (*Laterallus jamaicensis jamaicensis,* threatened (4d)).

However, at this time it would be premature for the Service to undertake the preparation of a Biological Opinion until there is certainty of the scope of the final selection of TSP that is undergoing further biological, economic, engineering and hydrologic analysis. As the Service and other Federal resource agencies meet their statutory obligations pursuant to NEPA, CWA, and FWCA, and through consideration of the many expected comments by the public, a more robust TSP will emerge that can be evaluated for potential effects on federally listed species. Until the TSP is fully vetted through the numerous reviews and investigations needed, the Service considers the current BA incomplete for evaluation purposes pursuant to the ESA.

On December 15, 2020, the Service announced that listing the monarch butterfly (*Danaus plexippus*) as endangered or threatened under the ESA is warranted, but was precluded by higher priority listing actions. The Service recommends that the Corps utilize the conference procedures available within the ESA's Section 7 consultation authority to initiate conservation actions for the monarch butterfly, reducing uncertainty should the monarch butterfly be listed.

In addition, the Service is evaluating the salt marsh sparrow (*Ammospiza caudacuta),* little brown bat (*Myotis lucifugus*), tricolored bat (*Perimyotis subflavus*), and the yellow-banded bumble bee (*Bombus terricola*) to determine if listing under the ESA is warranted. These four species may be present in the Study Area. Species being evaluated for listing do not receive any substantive or procedural protection under the ESA, and the Service has not yet determined if ESA listing of any of these species is warranted. It is likely that the Service will make the listing determinations under ESA during the review of the subject NEPA document. Despite the current non-listed status of these species, each of them is in decline range-wide along the East Coast. The Service advises the Corps that because these species are being evaluated for possible listing, it may be prudent to include them in field surveys and/or impact assessments, particularly for projects such as this with long-term planning horizons and operational lives.

Fish and Wildlife Coordination Act (FWCA)

Pursuant to Section 2(b) of the FWCA, the Corps is required to coordinate with the Service, the National Oceanic and Atmospheric Administration (NOAA) Fisheries (also known as the National Marine Fisheries Service [NMFS]), and the NJDFW for activities that affect, control or modify waters of any stream or bodies of water, in order to minimize the adverse impacts of such actions on fish and wildlife resources and habitat.

In addition, Section 2(b) authorizes the Service and NOAA Fisheries (the Services) to conduct surveys and investigations to determine the possible damage of proposed developments to wildlife resources; to make recommendations for preventing their loss or damage; and to offer measures for developing and improving them. Further, FWCA stipulates that the [2(b)] reports "…shall be made an integral part of any report ..." justifying project authorization (e.g., Chief's Report). The Draft Integrated Report/DEIS was prepared without the benefit of a 2(b) report and the requisite consultations, inconsistent with FWCA and the Corps' own policies and interagency agreements.[1]

The FWCA establishes fish and wildlife conservation as a co-equal objective of all federally funded, permitted, or licensed water-related development projects. Federal action agencies developing water-related projects are to include justifiable means and measures to benefit and reduce impacts to fish and wildlife, and mitigation and enhancement recommendations are to be given full and "equal consideration" with other project purposes.

Pursuant to Section 2(e) of the FWCA, the Corps may develop financial agreements with the Services to seek and apply transfer funds to assist the Corps in obtaining recommendations that will promote fish and wildlife conservation, through avoidance, minimization and mitigation of any impacts identified on fish and wildlife resources and their respective habitats.

The proposed project and EIS approach have changed significantly since the Service signed the October 19, 2016, Scope-of-work (SOW, Attachment D) between the Service and the Corps to prepare a Planning Aid Letter (PAL) followed by draft and final 2(b) reports pursuant to Section 2(b) of FWCA for the NJBB Feasibility Study. Following the Service's September 14, 2018, and March 29 comment letters, and upon review of the subject Draft Integrated Report, the Service has communicated to the Corps that in order for the Service to complete the draft and final FWCA 2(b) reports for the Tier 1 EIS/Integrated report, a new SOW will be needed with the Corps that reflects the expanded scope of the TSP and the increased complexity of projects selected for the TSP (SSB and CBBs). Due to the interrelationship of numerous resources affected by the TSP in the marine and terrestrial environments, and consistent with aforementioned practice and guidance, the Service anticipates close collaboration with NOAA Fisheries in the 2(b) draft and final report preparations.

The Service has also communicated to the Corps that additional expertise for economic analyses, the U.S. Geological Survey (USGS) for hydrologic and sediment modeling will be needed, as well as expertise from other stakeholders, including BBP, and the State Universities at Rutgers and Stockton, and Stevens Institute to undertake additional study work, and to review some of the more complicated aspects of the TSP. The comments and recommendations contained herein

[1] See: *Memorandum of Agreement (MOA) between the U.S. Fish Wildlife Service and the U.S. Army Corps of Engineers for Conducting Fish and Wildlife Coordination Act Activities,* January 22, 2003, the FWCA Handbook, *Water Resources Development Under the Fish and Wildlife Coordination Act* (2004), the *U.S. Army Corps of Engineers SMART Planning Feasibility Studies - A Guide to Coordination and Engagement with the Services,* September 2015, and the MOA between the Service and the NMFS, *Agreement regarding Shared Fish and Wildlife Coordination Act Authority between the Services,* August 9, 2018 (see https://fws.gov/ecological-services/energy-development/NMFS-USFWS-Agreement-on-FWCA-8-9-2018.pdf).

will identify some of the concerns the Service has that will require additional expertise in the preparation of the final FWCA 2(b) report.

General Comments

The following comments are intended to assist the Corps in identifying a single project or series of projects that are sufficiently protective of fish and wildlife resources and their habitats, while meeting the stated Study purpose which is to confirm whether sites are likely to provide the "greatest flood risk management benefits, as well as any associated feasible ecosystem restoration benefits."

Project Description. The project description as defined in the "Action Area" in Section 2.0 of ESA BA (Appendix F.3, p.1 [page numbers are not continuous]) and in the TSP Overview (Draft Integrated Report p. vii) should also include all aspects of the TSP under consideration. For example, in different areas of the document, the Corps acknowledges that additional non-structural measures (*e.g.*, retrofitting 38,232 structures, Draft Integrated Report p.347), several other perimeter plans (Draft Integrated Report p. 354) and NNBF projects (Draft Integrated Report p. 314) remain under consideration. The Department recommends that the Corps describe the full extent of the TSP, including all of the measures under consideration and the specifications of each TSP element (*e.g.*, total lengths and total square footage of all aquatic fill impacts). This will add clarity to the understanding of the Project proposal and the immediate and cumulative effects of the TSP on the environment.

Scoping. A total of 23 management measures (alternatives) were evaluated during the scoping of the TSP. In the Service's September 14, 2018, letter, the Service objected to the selection of hard engineered solutions, including the now preferred TSP alternatives, and recommended that the Corps include an array of nature-based alternatives that would have considerable ecological and community benefit versus a seawall or other hard structure. However, in its scoping of alternatives for the TSP, the Corps did not give serious consideration to natural and NNBF and non-structural alternatives. This arbitrarily and improperly narrows any comments on the project as a whole, not only from cooperating agencies, but also from the public. This action is contrary to the goals set out in 40 CFR Part 1501.9 (Scoping) and 40 CFR Part 1506.6 (Public Involvement). As the lead Federal agency, it is unacceptable for the Corps to dismiss the Service's scoping recommendations as it undermines the inter-agency cooperation that NEPA advocates.

The Department requests clarification of how the Corps concluded that certain TSP NNBF components with low risk in most environment categories were discounted in the first screening of projects selected in the Tier 1 Draft Integrated Report, and that the Corps revisit on equal grounds the use of NNBF and non-structural alternatives to the scope of alternatives under consideration.

Plan Formulation. We recognize that data limitations (discussed below) may exist at this stage of the NEPA process, but a fundamental issue with the report is the failure to emphasize the high degree of uncertainty of impacts associated with a number of structural management measures.

The "Plan Formulation Process" section (Draft Integrated Report p. 151) does not address these uncertainties and appears to assign weighting to alternatives regardless of certainty and assumptions. This results in a bias toward structural alternatives, such as providing a score of "0" for acceptability in the Cycle 2 screening for "Managed Coastal Retreat" while providing a score of "1" for a number of structural measures in the Cycle 2 screening that is not justified. The Department is concerned with the lack of clarity and transparency in the Cycle 2 screening process and that these decisions may favor short-term structural measures over more sustainable long-term nonstructural measures.

The Corps states that "Equal consideration must be given to these two categories of measures (structural and non-structural) during the planning processes" (Draft Integrated Report p. 152) but does not follow through with this commitment in many parts of the Draft Integrated Report. The Department recommends that the Corps pause on any further "Plan Formulation" analyses or drawing conclusions in future NEPA documents until it revisits non-structural and NNBF alternatives with the same level of specificity that is given to the current structural alternatives and until the major environmental, geologic, hydrologic and engineering data gaps (see below) that currently exist in the Draft Integrated Report are addressed. The Service is concerned with the shortcomings of this report and assessment.

The Corps' Planning Guidance Notebook (PGN) states that "Section 73 of the WRDA of 1974 requires consideration of nonstructural alternatives (measures) in all flood risk reduction studies. They can be considered independently or in combination with structural measures." Planning Bulletin (PB 2016-01, December 22, 2015) further clarifies Corps policy on nonstructural measures for the Plan Formulation phase on investigations and implementation. The PGN indicates that it is the policy of the Corps to formulate a full array of alternatives consisting of nonstructural measures and structural measures and that not all nonstructural measures need to meet Corps criteria for agency participation and cost share implementation. (Non-Structural Management Measures, Section 7.2.2.1 p. 156).

Economic Services and Risk from Coastal Storms and SLC. The focus of the Corps' Study is to reduce flood-related damages to residential structures, commercial structures, critical infrastructure, and industries critical to the national and regional economy (Document Overview, Draft Integrated Report p. iii). However, the Corps has not given equal-consideration to the economic valuation of Study Area's ecosystem, the flooding and SLC risks the Back Bay's habitats face, and the significant ecosystem service benefits they provide to the national and regional economies; *e.g.*, through storm protection, nutrient uptake, commercial fishing, and general recreation:

- In a letter to the Secretary of Commerce dated February 28, 2017 (Attachmentt E), the Commissioner of NJDEP valued recreational fishing in New Jersey as a $1.5 billion industry directly supporting 20,000 jobs in the State. The Commissioner further stated that recreational fishing "is vital to the economic health and way of life of our coastal communities."
- Narayan *et al.* (2017) concluded in a regional study (Metro New York) that wetlands on the New Jersey coast prevented $430 million in direct flood damages during Hurricane Sandy.

- The Service's 2011 survey found that 2.4 million New Jersey residents and nonresidents 16 years and older fished, hunted, or otherwise observed wildlife in New Jersey and spent $2.3 billion on wildlife recreation (USFWS and U.S. Census Bureau 2011).
- In 2011, expenditures by hunters, anglers and wildlife-recreationists were $145.0 billion nationally (USFWS and U.S. Census Bureau 2011).
- Costanza *et al.* (1997) references potential economic value of wetlands worldwide at $14.9 trillion. Hunting, fishing, and wildlife observation are also major contributors to our national and regional economy.
- In 2016, more than 103 million Americans (40 percent of the U.S. population 16 years and older) participated in some form of fishing, hunting, or other wildlife-associated recreation such as bird watching or outdoor photography.
- Americans spent an estimated $156.9 billion on equipment, travel, licenses, and fees. These expenditures represent almost 1 percent of the Nation's Gross Domestic Product, and create and support tens of thousands of jobs and communities in the United States (USFWS and U.S Census Bureau 2016).

Hundreds of acres of wetlands in New Jersey were filled (Dahl 1990) to support the very properties that are now at risk, further highlighting the Corps' obligation under NEPA to acknowledge the direct and indirect economic benefits (*e.g.,* flood control, hotel stays, wildlife viewing, tourism) these habitats provide to the Study Area.

The Service requests that the Corps fully evaluate the economic value of these remaining habitats in the Study Area that are crucial to national and regional economic vitality, and expand the alternatives analysis to include NNBF solutions in the TSP. The analysis should be on the same scale as was used in the selection of the SSB and CBBs. This should include the construction of seagrass beds, wetlands, and islands in the Study Area on a scale that could replace what has been lost from human development in the Study Area. Omission of these economic benefits undercuts the utility of the Draft Integrated Report and subsequent Tier II NEPA evaluation of any TSP alternative.

Natural and Nature-Based Features. By acknowledging that the undeveloped upland and aquatic habitats of the Study Area are under the same coastal and SLC threats as the homes, businesses, and infrastructure in the Study Area, the Corps can expand its cost-benefit analysis to include NNBF as a viable alternative(s) in the TSP. As noted in the above section, the Corps' models and calculations do not currently consider the economic contributions of the ecological services of the various habitats of the Study Area, resulting in a skewed ranking in favor of SSB and CBB alternatives over for NNBF alternatives. Corps/EPA Guidance (1990) requires the Corps to consider a broad range of alternatives commensurate with the scale and cost of the project. The Department has determined that further analysis of NNBF alternatives is required considering the projected multi-billion dollar projected cost of the TSP and the geographic scale of the Study Area (950 square miles, Draft Integrated Report p. 8). The Department considers NNBF alternatives to be practicable and "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." [40 CFR 230.10(a)(2)]. NNBF and other non-structural alternatives (*e.g.,* building retrofits and floodproofing as defined on p. 186 in Draft Integrated Report) should be given equal consideration in the current TSP.

The Department recommends that the Corps and NJDEP host a meeting with all of the Federal and State agencies and the BBP prior to the Agency Decision milestone date of January 2022 to discuss a new trajectory for the TSP wherein the selection of NNBFs can be fully developed as an equal and independent alternative (as currently proposed the NNBFs appear only to complement the SSBs and CBBs). The Department would also seek clarification on the approach for the NJBB TSP, which relies on SSB and CBB elements, while in other areas of the NACCS, Corps Districts are strongly considering non-structural alternatives in the economic and engineering analyses for coastal resilience project reviews. The Corps' New York District (NY District) is considering the withdrawal of SSBs and CBB in its New York Harbor and Long Island Back Bay Study and is favoring the use of non-structural and NNBF alternatives in its TSP (Steve Papa pers. comm. 2021). The Department understands the NY District will be publishing its Tier 1 Integrated Report shortly. The Corps may be aware that the Service's New Jersey and New York Field Offices have expressed concern to the NY District about the use of any SSB or CBB in the New York region including Sandy Hook, New Jersey, an area supporting a substantial proportion of New Jersey's piping plover population.

The inclusion of NNBF solutions will be consistent with Corps' current EWN initiatives that are already underway in the Study Area, which involves the Corps' Operations Division, the Corps' Engineer Research and Development Center, NJDFW, Mordecai Land Trust, and The Wetlands Institute, that are overwhelmingly supported by the Service, NOAA Fisheries, EPA, the BBP, and the general public.

Non-structural Management Measures. Among the non-structural management measures the Corps mentions in the Draft Integrated Report is the "managed retreat" approach (Non-structural Alternatives, Section 7.2.2.1, p 160-167). The Corps defines "managed retreat" on p. 160 as an effort involving multiple measures that reduce the level of development along a shoreline, reduce the number of repetitive losses, and limit the encroachment of private properties onto vulnerable shorelines through a series of non-structural efforts carried out at the municipal, State and Federal levels. However, the Corps' analysis in Tier 1 only incorporates residential retrofits (elevations) and floodproofing and omits "managed retreat" elements such as acquisition, buy outs, relocation and land use management. NEPA regulations at 40 CFR Part 1502.14 (b) (Alternatives including the proposed action) define the federal action agency's role in developing a detailed wide range of alternatives for consideration "...so that reviewers may evaluate their comparative merits." The current exclusion of these non-structural alternatives does not embrace the goal of this NEPA requirement and prevents important information from the public on the nature and viability of this alternative at the initial stages of the project review.

This omission by the Corps reflects related concerns raised by the Department throughout this letter regarding consideration of the NNBF alternative in the TSP: lack of economic valuation of ecological services, the threat of coastal storms and SLC to those ecosystem service values, and the potential economic and ecological benefits that NNBF and non-structural elements could provide to the TSP (*e.g.*, flood protection, little or no O&M costs, likely increases in the primary production of the aquatic environment, and increased habitat for trust resources, including habitat for threatened and endangered species). By omitting a robust discussion of this topic in the first phase of the TSP, the Corps precludes the public from awareness and understanding, and the

ability to make informed comments on, these viable alternatives, contrary to development of a wide range of alternatives.

Non-structural and NNBF alternatives would avoid the filling of 154 acres of the aquatic environment and would meet the requirements of the 404(b)(1) Guidelines in terms of identifying a viable alternative that is practicable, after considering costs, logistics and existing technology. The proposed TSP has a cost of approximately $26 billion (including O&M costs for the life of the project of $10 billion) to protect approximately $72.2 billion in total structural value (not all of which are equally at risk from storm surge, Table 7, Draft Integrated Report pp. 34-5). The "managed retreat" alternative should be seriously assessed and analyzed as a realistic, cost-effective and environmentally sound alternative along with other non-structural or NNBF alternatives that avoid or reduce impacts on the aquatic environment, as required by NEPA and CWA. As such the Department recommends that the Corps provide a full analysis of the "managed retreat" alternative in its Tier 2 NEPA analysis.

The Corps' Engineer Regulation 1105-2-100, Section 2-3, c (2) states, "As a general rule, projects must be formulated to reasonably maximize benefits to the national economy, to the environment, or to the sum of both." (7.5.7 Planning Criteria Screening Analysis, Draft Integrated Report p. 253). The summary of the four planning criteria (Completeness, Efficiency, Effectiveness, and Acceptability) and how the various alternatives ranked are highlighted on Draft Integrated Report pp. 255-266. Non-structural alternatives are ranked higher than SSBs and CBB in three of the four planning criteria (Completeness, Efficiency and Acceptability). Yet in the category titled "Effectiveness" the Corps gives a lower rating for non-structural alternatives because they "…do not reduce risk to infrastructure." (p. 253). The Department strongly disagrees with the Corps' blanket assertion that non-structural alternatives do not reduce risk to infrastructure.

Non-structural alternatives (*e.g.*, flood-proofing or financial buyouts) undertaken by NJDEP's Green and Blue Acres Acquisition Programs demonstrate the efficacy of these alternatives and therefore should rank high in the Corps' TSP selection. The State's Blue Acres purchases of flood-prone houses in Bay Point, Lawrence Township, Cumberland County removed all risk to utility, sewage, water and road infrastructure, as all 30 homes and their supporting infrastructure were removed, eliminating long term operation and maintenance costs (see https://www.state.nj.us/dep/newsrel/2017/17_0118.htm.). The same scenario occurred at two other Delaware Shore beaches resulting in the same infrastructure benefits (Sea Breeze and Money Island, Cumberland County, New Jersey) where Blue Acres funds were again utilized to purchase homes that were at risk from coastal storms, surges, and SLC (see https://www.inquirer.com/philly/health/environment/another-n-j-hamlet-on-the-delaware-bayshore-is-disappearing-because-of-sea-rise-20171212.html).

The Corps should also factor into its planning criteria and cost/benefit analysis the use of state or Federal buyout programs which would also result in little or no O&M costs over the 50-year life of the TSP into its planning criteria and cost/benefit analysis. Once properties are purchased and the corresponding houses or infrastructure removed, the lands are returned to their natural conditions. In the case of the three Cumberland County communities that were bought out using New Jersey Blue Acres funds, the lands were restored to their former natural state (*i.e.*, sandy beaches that now add resilience to the adjoining marshes).

The Corps' four Planning Criteria should also factor in the economic benefits of non-structural alternatives such as those that reduce or eliminate O&M. Given the Report identified a State annual cost of $196 million to undertake O&M of the TSP, the potentially significant savings over the life of the project could be redirected toward a non-structural buyout or relocation alternative to purchase National Flood Insurance Program (NFIP) repetitive damage properties discussed in the Report. Not only would impacts from the SSB or CBB be avoided, but some of the very areas identified in the Draft Integrated Report as being at risk for flooding and storm surges that were formerly wetlands, could be returned to their previous natural state, providing added economic and ecological benefit. The selection of a buyout or relocation alternative over the selection of a levee, flood wall, SSB or CBB would meet the Project purpose (reduce risk to residences and infrastructure) and satisfy the Corps/EPA MOA CWA alternative analysis criteria avoiding impacts to the aquatic environment while remaining practicable, after considering "…cost, existing technology, logistics, and in light of overall project purpose."

Another added benefit of the buyout/relocation alternative (as in the case of the above-referenced restoration projects at Bay Point, Sea Breeze, and Money Island) is the potential for the restored "blue acre" property to become valuable habitat for threatened and endangered species. These communities now provide valuable spawning habitat for the horseshoe crab (*Limulus polyphemus*) and foraging habitat for the threatened red knot *(Calidris canutus*) and many other coastal birds including the ruddy turnstone (*Arenaria interpres*), semipalmated sandpiper (*Calidris pusilla*), sanderling (*Calidris alba*), short-billed dowitcher (*Limnodromus griseus*), and dunlin (*Calidris alpina*) (see https://www.state.nj.us/dep/fgw/ensp/shorebird_info.htm and Dunne *et al*., 1982).

The Corps' beneficial use project at Mordecai (a Corps-sponsored non-structural project that provides coastal risk reduction to the community of Beach Haven, New Jersey) involved the use of newly deposited dredged sands from the Corps ICWW for red knot and piping plover habitat. The added benefit of increased habitat for a listed species in the Project Study Area (e.g., dredging the ICWW at Mordecai Island and the bird nesting islands created by the Seven Mile Island Living Laboratory in Lower Township, Cape May County, New Jersey) meets the provisions of Section 7(a)(1) of the ESA which states that Federal agencies shall, in consultation with and with the assistance of the Service, "utilize their authorities in furtherance of the purposes of ESA by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of ESA." In addition, through the implementation of NNBF alternatives, there may be the added benefit of an improved baseline for listed species habitat and/or production within the Study Area.

On pp. 228-9 in Draft Integrated Report, the Corps states that the benefit-cost ratio for nonstructural alternatives is greater than for all of the structural or hybrid alternatives. The nonstructural plan (Draft Integrated Report p. 308) indicates a Benefit Cost Ratio (BCR) 2.3 and the TSP only has a BCR of 1.8. Since non-structural alternatives have the best benefit-cost ratio, the Department requests clarification on why only structural alternatives and/or hybrids are considered in the TSP.

The Corps assessed a unit cost of between $211, 414 to $245,147 to perform a house elevation for residences in the Study Area (Table 37, Draft Integrated Report p 190). The Department

requests that a citation be provided, as this figure ($7 billion for 31,666 residences) affects the practicability of considering non-structural alternatives for the TSP.

Mitigation. The Corps has equated NNBF with (compensatory) mitigation, when they are in fact risk reduction features, independent of any mitigation required to comply with NEPA, the CWA, or the environmental statutes enforced by the NJDEP [Coastal Area Facility Review Act of 1973 (wetland impacts), the Freshwater Wetland Protection Act (wetlands impacts) and the Flood Hazard Area Control Act (riparian impacts)]. This reflects a misunderstanding of what an NBFF is, and may be the source of the inadequate treatment of NNBF in the Draft Integrated Report/DEIS.

Regarding mitigation, the Corps should make provisions to assess any cumulative and secondary effects from implementation of the TSP, as defined under 40 CFR Part 230.11(a - h)(Factual determinations). This will aid the Corps in determining the scope of mitigation needed, if any, to comply with the CWA.

Storm Surge and Cross Bay Barriers. The Corps states that it expects closures of the SSBs at a frequency of three times per year (annual O&M) and for three days every five years due to a storm event (Section 8.2.4.16.1.2.5, Closed Gate Scenario, Draft Integrated Report p. 379). In addition, on p. ix of the Draft Integrated Report the Corps estimates a closure frequency of "20% annual exceedance probability water level." The meaning of this needs to be explained, and the document should clarify and present the projected number and duration of tidal gate closures on an annual basis and for the 50-year life of the Project. The Corps' analysis should also discuss the effects of SLC with regard to expected closings and whether there is potential for additional closings or permanent partial closings over the 50-year time period.

The Department requests that the Corps compare its estimated times of closure, duration, and the projected effects from SLC with any existing real-life applications that could apply. The Bayshore Flood Control Project in Keansburg, New Jersey, is one such facility which *(https://www.nj.gov/dep/shoreprotection/bayshore.htm)* may be able to offer valuable information on the current estimates regarding the maintenance schedule, frequency of closures, and backup power provisions, if any, and how the structure responded during Hurricane Sandy. The Department understands that the structures' supporting walls/levees were topped during that storm. In addition, the Corps references 17 Storm Surge Barriers across the world, with six located in the United States (Table 39, Reference Set of Storm Surge Barriers, Draft Integrated Report p. 204). The DOI requests that the Corps also compare its estimated closure findings with actual data from these 17 structures, and include the findings in the NJDEP Bayshore Flood Control Project on Table 39.

It is unclear whether these are stand-alone systems capable of operating during power interruptions with provisions to operate the gates (*e.g.,* back-up power plants) in the event of a power loss. As the Corps is aware, many residential areas were without power for months in Ocean County after Hurricane Sandy and provisions should be made to have the gated structures on an independent power system capable of operating during power shortages or outages. During a power outage, a back-up system could avoid initiating a closed gate during a critical fish migration or when stormwater has backed behind a gated structure due to a high precipitation event. The Department recommends that the Corps identify in its Operation and

Maintenance Section (8.2.4.7.3, Draft Integrated Report p. 359) the source of power to be used to operate the gated structures during both under normal and emergency conditions in its Operations and Maintenance Section (8.2.4.7.3, p. 359).

National Flood Insurance Program. The DOI requests clarification on whether any or all of the 18,800 structures proposed for elevation and floodproofing (Draft Integrated Report p. vi) and the additional 38,232 structures under consideration (see Section 8.2.4.2 Action Area, Draft Integrated Report pp. 347 and 348) are among the damaged properties identified by the NFIP (Section 3.2.1 Problems, Draft Integrated Report p. 17). The clarification should state whether any of the proposed retrofitted properties have also filed repetitive claims with the NFIP.

In addition, the Department note that if the final TSP justifies the construction of a levee or floodwall in a community that is part of the NFIP, the "Special Flood Hazard Area" designation behind the levee or flood wall may change and reduce land-use regulations for development causing potentially more risk to residences or aquatic habitats in the future. According to the Corps' own maps of the TSP, there are numerous wetland areas that will become landlocked behind the proposed levees and floodwalls. The Department is also concerned that the TSP structures will interfere with the hydrologic needs of the landlocked aquatic sites either from stormwater flooding or through the interruption of tidal flow, either temporarily or permanently. The National Research Council (2013) highlights the indirect effects of levee construction on future land use restrictions, the loss of land use restrictions, and the potential for trapping stormwaters behind the levees and placing residences and businesses at risk. Any TSP alternative involving a levee or floodwall should include provisions that: a) discourage or prohibit additional development behind the newly constructed levee or floodwall; and b) prevent additional stormwater flooding, or the disruption of hydrology to any aquatic site.

Data Gaps. The Department is concerned that the Corps is moving very quickly toward developing a TSP that includes some of the largest and most expensive water control structures ever considered on the East Coast, while acknowledging that there are numerous data gaps in engineering, hydrology, geology, biology, and economics that must be addressed to fully assess the impacts of the TSP on the human environment.

The Department considers that moving forward in the decision-making process for a project of this magnitude in the face of numerous critical data gaps would be premature.

The Corps has committed to performing analyses to fill these data gaps. To do so, the Federal environmental community, including the Service, USGS, NOAA Fisheries, and EPA and other stakeholders including the BBP and academic institutions must be offered the opportunity to collaborate on, and subsequently peer review the conclusions of these analyses, including modeling, before they are released to the public. By seeking collaboration up front, the Corps will be in a better position to understand the overall effects of the TSP on the Study Area.

The overall effects to the aquatic environment must be quantified prior to a) the selection of an alternative that realistically avoids and minimizes adverse impacts to the environment; and b) the development of a comprehensive mitigation strategy for any unavoidable impacts (*Memorandum: Appropriate Level of Analysis Required for Evaluating Compliance with the*

CWA Section 404(b)(1) Guidelines Alternatives Requirements) (USEPA and Corps 1990). The requisite sequencing (avoid, minimize, mitigate) should also be included in the Tier 2 NEPA document. The Department strongly supports the Corps' commitment to gathering the necessary data and considering public and academic input and agency comments before proceeding to Tier 2 and Tier 3, and prior to the development of the Chief of Engineers Report (expected April 2023).

Finally, between 2013 and 2016, the Hurricane Sandy Program, administered through DOI and the National Fish and Wildlife Foundation (NFWF), invested over $302 million to support 160 projects designed to improve the resilience of ecosystems and communities to coastal storms and SLC. The DOI/NFWF program supported a wide array of NNBF activities, including aquatic connectivity restoration, marsh restoration, beach and dune restoration, living shoreline creation, community resilience planning, and coastal resilience science to inform decision making. One of the projects, Prime Hook National Wildlife Refuge (PHNWR), was engineered, designed, and built by the Corps (see https://www.fws.gov/refuge/Prime_Hook/what_we_do/marshrestoration.html). PHNWR supports a robust piping plover population due to the beach habitat built by the Corps. A review of the PHNWR project and the findings of the NFWF study further demonstrate that non-structural activities can increase ecological benefits, maintain economic regional vitality, and provide valuable coastal resilience without the need for elaborate and costly projects. In light of the economic, community, and environmental benefits these projects have provided, the Corps' arbitrary dismissal of these alternatives is unjustified. The Department encourages the Corps to recognize that the non-structural and NNBF alternatives meet the overall Project purpose and a large and growing accumulation of evidence demonstrates that these alternatives, some of which were constructed by the Corps, have been highly successful.

Adaptive Hydraulic Modeling. An assessment of the Adaptive Hydraulic (AdH) modeling conclusions (Draft Integrated Report p. xii) will require further analysis and will be addressed in the Service's final FWCA report which will necessitate a new SOW (see above FWCA discussion). The Service will seek an independent review by our sister agency, the USGS, to provide a qualitative assessment of the AdH model and any conclusions made by the Corps. The Corps is aware that the hydraulic effects on Barnegat Bay are more influenced by the tidal effects of Little Egg Inlet than by those of Barnegat Inlet. Therefore, any CBB in the vicinity of Little Egg Inlet, which is bordered by the EBFNWR at Holgate and Little Beach Island, will require close examination to ensure there are no impacts to EBFNWR lands or their significant habitats that require a dynamic environment of shifting sands and overwashes.

In addition, the Corps needs to update the 2013 piping plover nesting information contained in its Draft Integrated Report (p. 39, Section 4.8.2.1.3, National Wildlife Refuge). Approximately 35 percent of the New Jersey piping plover population utilize EBFNWR lands for breeding, nesting, and foraging; it will be necessary to ensure that any aspect of the TSP does not affect the piping plover, red knots and other important shorebird species that inhabit these Federal lands. Upon the conclusion of the Tier 3 NEPA review of the Draft Integrated Report, which would also include a peer review of the AdH modeling and its results, the Service will provide its Biological Opinion as required by the ESA to assess the effects, if any, of the TSP on a federally listed species.

The DEIS needs to clarify that the sufficient consideration has been given to the effects of a significant precipitation event and potential for backwater flooding that will likely accompany a coastal storm when one or more of the tidal gates is closed. This was a concern of the National Resource Council (2013) when considering the selection of tidal gates to control storm surges. It will be important to know if the properties that would be protected by the TSP could be flooded as storm waters build up behind a levee, flood wall, or one of the many tide gates proposed. Any modeling effort for the tidal environment should include the effects of a large precipitation event that would likely occur in a 100- or 500-year storm.

New York Bight Ecological Model. On page xv in Draft Integrated Report, the Corps states that it will use the New York Bight Ecological Model (NYBEM) ecosystem model, an ecosystem model that is in development, to consider "… all key aspects of the various marine, estuarine, and freshwater aquatic habitats within the affected area…". The only reference found on this ecosystem model was in a slide presentation made by the NY District (slides 46-7) (see https://www.nan.usace.army.mil/Portals/37/docs/civilworks/projects/ny/coast/NYNJHAT/HAT%20Presentation%20for%20Great%20Neck%20NY%20on%2024%20Oct%2019.pdf?ver=2019-10-25-115255-550). Additional information on the New York NYBEM needs to be provided to NPS and FWS, and other resource agencies to determine its relevance to the TSP; whether it has been peer reviewed; and if it has been used to evaluate potential resource and habitat effects on other geographically large-scale projects and thus applicable for Tier 2 use. This determination should be reflected in the Final Integrated Report and EIS. . Considering the importance of the NYBEM, the Service will recommend that the development of the NYBEM be included in the above-referenced new SOW and in the Service's final FWCA 2(b) report.

Land Use. The Corps is aware of the many regulatory bodies that implement land use plans in the Study Area. It appears that all of the TSP elements are located within or adjacent to many of these regulated areas. They include, but are not limited to, the New Jersey State Parks, Forests, and Wildlife Management Areas, New Jersey Pinelands Commission, BBP (National Estuary), JCNERR, EBNWR, and CMNWR. 40 CFR Part 1502.16 (5) (*Environmental consequences*) states that the Federal action agency shall identify "Possible conflicts between the proposed action and the objectives of Federal, regional, State, Tribal, and local land use plans, policies and controls for the area concerned." The Department recommends that the Corps develop a compliance matrix for each of the TSP alternatives and how each of the alternative elements complies with the varying land use management plans that exist in the Study Area, for inclusion in Tier 2 of the NEPA document.

Specific Comments on Draft Integrated Report

The project description as defined in the "Action Area" in Section 2.0 of ESA BA (Appendix F.3, p.1 [page numbers are not continuous]) and in the TSP Overview (p. vii) should also include all aspects of the TSP under consideration. For example, in different areas of the document, the Corps acknowledges that additional non-structural measures (e.g., retrofitting 38,232 structures, p.347-8), several other perimeter plans (p. 355) and NNBF projects (p. 214) remain under consideration. The Department recommends that the Corps describe the full extent of the TSP, including all of the measures under consideration and the specifications of each TSP element (*e.g.*, total lengths and total square footage of all aquatic fill impacts). This will add clarity to the

reader's understanding of the Project proposal and the immediate and cumulative effects of the TSP on the aquatic environment.

On p. xviii the Corps states that the cost share percentages for the pre-construction and engineering design (PED and construction phases are 75/25 and 65/35 respectively, but on p. 490 (Section 12.2.2, Plan Implementation) the Corps uses a 65/35 ratio for all PED and construction costs. The information on the Federal/non-Federal cost sharing percentages for the PED and initial construction will need to be clarified.

On p. x and p. 10 (Section 2.6.1 Coastal Lakes Region) the Corps misrepresents that Wreck Pond is not tidally influenced due to the presence of some type of flood control structure. In our previous letter of March 29, 2019, and in an electronic email between the Service and the Corps dated July 23, 2021, the Service requested that the Corps acknowledge that Wreck Pond is tidally connected to the Atlantic Ocean through two water-control free flowing conduit pipes. Please correct the error regarding the tidal influence that exists in Wreck Pond in future NEPA documents.

Page 19, Section 3.2.2 - The statement is made: "The primary goal of the NJBB CSRM Feasibility Study is to reduce risk to human life and property through the reduction of storm surge and damage to residential and commercial structures and industries critical to the nation's economy." The primary goal should include language at the end of the existing statement such as "...while limiting negative impacts to coastal habitats and fish and wildlife resources."

Page 36, Section 4.8.1 - This statement is made: "The entire study area is part of the Atlantic Flyway which is home to 32 priority bird species." Additional information should be provided to identify a reference and expand upon why this is important.

Page 39, Section 4.8.2.1.3 - The refuge name is Edwin B. Forsythe; it is "over 48,000 acres" and different parts of the refuge are no longer referred to as "Units." This section could include additional information about the importance of the refuge for piping plover habitat as well as a variety of important salt marsh monitoring programs at the refuge.

Page 52, Section 4.8.5 – It is unclear why EBFNWR is referred to in this section.

Page 69-76 , Section 4.8.10 – Reference should be made to the importance of high marsh habitat to federally threatened black rail and the at-risk species saltmarsh sparrow in this section. Additionally, it may be valuable to identify the importance of high marsh in coastal resilience and adaptation to sea level rise.

Page 111, Section 4.8.21 – This section should identify the EBFNWR Class I airshed classification and requirements associated with that classification.

Page 171, Section 7.2.2.3.3 – The sentence: "Wetlands may contribute to coastal flood risk management, wave attenuation and sediment stabilization." should be changed to "Wetlands do contribute….."

Summary and Conclusions

The Department continues to be encouraged by the Corps seeking input from the many stakeholders in the Project. The Corps recognizes that the TSP is massive in scale and will cost billions of dollars to construct. The Corps has presented a recommended plan based on a ranking of certain criteria including project features, level of design, sustainability, cost, and the long-term effects of SLC. The Department recommends that the Corps continue to fully consider the recommendations contained herein and work with other Federal agencies, stakeholders, and the public in a cooperative and transparent manner in order to meet the basic premise of NEPA.

The Service is a Cooperating Agency in this Draft Integrated Report and the Department is hopeful, that the Corps will give the recommendations contained in this letter full consideration. The Department will continue to seek a community approach with the other stakeholders with the goal of ensuring that the residences, businesses, infrastructure, and the Study Area's varied ecological habitats will thrive and continue to contribute to our national and regional economies during the life of the Project.

The Corps acknowledges that the current Draft Integrated Report contains significant data gaps that are essential in determining the effects of the Project on the aquatic environment. The Department expects that as the TSP evolves with agency and public input, many of the data gaps will be addressed and some of the assumptions in the report re-examined. We are especially concerned that by not acknowledging the contributions that ecosystem services offer to our national and regional economy that the Corps' current trajectory of selecting a structural alternative over a non-structural is unjustified. The Service was clear in its letters of September 14, 2018, and March 29, 2019, that the Corps should consider the economic value of the ecosystem services being performed by the aquatic environment in the Study Area. The Corps should give equal consideration to the threats from coastal storms and SLC on residences, infrastructure and ecosystems alike. The inclusion of the ecosystem's economic contribution is foundational to the development of a legitimate and complete alternatives analysis discussion.

The Department requests that the following be incorporated into the Corps Tier 2 NEPA document. The Service will maintain our coordination status pursuant to FWCA and NEPA to ensure that the Project is sufficiently protective of fish and wildlife resources, including species protected under the ESA, and their respective habitats. .

- prepare a response to the Services 'September 14, 2018, March 29, 2019, and July 21, 2021 comments in addition to those contained in this letter;
- continue coordination pursuant to the ESA for potential project effects of the Project on federally listed species;
- utilize the conference procedures available within the ESA's Section 7 consultation authority to initiate conservation actions for the Monarch butterfly and thereby receive ESA predictability should the monarch butterfly be listed;
- include in the ESA effects analysis potential effects of the project on the salt marsh sparrow, little brown bat, tri-colored bat, and the yellow-banded bumble bee;
- commence negotiations to develop a new SOW with the Service and NOAA Fisheries to prepare a final 2(b) report pursuant to FWCA, including the review of the AdH and NYBEM's modeling results as integral to any final 2(b) report;

- correct all factual and typographical errors and add an acronym page;
- discuss all TSP elements under consideration in one section of the document, describe the full extent of the TSP, including all of the Management Measures under consideration and the specifications of each TSP element (*e.g.*, total lengths and total square footage of all aquatic fill impacts);
- acknowledge that the aquatic environment provides substantial economic benefits to the region and is under the same risk from coastal storms and SLC as are residences, businesses, industry, and infrastructure;
- acknowledge that non-structural alternatives provide risk reduction to infrastructure;
- revisit on equal grounds, the use of NNBF and non-structural alternatives to the scope of alternatives under consideration;
- resolve all environmental, geologic, hydrologic and engineering data gaps;
- clarify why certain TSP NNBF components with low risk in most environment categories were discounted in the first screening of Projects selected in the Tier 1 report;
- give equal consideration of NNBF and non-structural elements in its Tier 2 NEPA alternative analysis;
- provide a full analysis of the "managed retreat" alternative in its Tier 2 NEPA alternative analysis;
- factor into the project planning criteria and cost/benefit analysis the use of State or federal buyout programs;
- supply a rationale for selecting structural alternatives in the TSP with the lower BCR;
- provide a citation for the house raising unit costs;
- clarify the projected number and duration of tidal gate closings on an annual basis and for the 50-year life of the Project and whether there is potential for additional closings or permanent partial closings over the 50-year time period;
- compare the estimated times of gate closure, duration, and the projected effects from SLC with any existing real-life applications that could apply;
- include discussion in the Operation and Maintenance Section of the source of power to operate the gated structures under normal and emergency conditions;
- clarify whether any or all of the 18,800 structures proposed for elevation and floodproofing and the additional 38,232 structures under consideration are among the damaged properties identified by the NFIP;
- include whether any of the proposed retrofitted properties have also filed repetitive claims with the NFIP;
- clarify if the TSP structures will interfere with the hydrologic needs of the landlocked aquatic sites either from stormwater flooding or through the interruption of tidal flow, either temporarily or permanently;
- include provisions that: a) discourage or prohibit additional development behind the newly constructed levee or floodwall; and b) prevent additional stormwater flooding, or the disruption of hydrology to any aquatic site;
- utilize the requisite sequencing (avoid, minimize, mitigate) in all alternatives selected, as afforded by the CWA;
- include in any AdH modeling the effects of a large precipitation event that would likely occur in a 100- or 500-year storm;

- develop a compliance matrix for each of the TSP alternatives showing how each of the alternative elements complies with the varying land use management plans that exist in the Study Area;
- clarify the Federal/non-Federal cost sharing percentages for PED and initial construction; and,
- correct the error regarding the tidal influence that exists in Wreck Pond in future NEPA documents.

NATIONAL PARK SERVICE

General Comments

The NPS acknowledges that the Corps states in the Opportunities Section of the DEIS that they want to apply adaptive and sustainable solutions to the problem. The Corps also states in the Constraints Section of the report that they would like to avoid non-sustainable solutions. The NPS supports both of those premises. We understand that one of the Corps' key Environmental Operating Principles is to create mutual economic and environmentally sustainable solutions.

We also acknowledge at this stage of the feasibility study and the Tier 1 DEIS that quantitative impact analyses are unavailable for the proposed alternatives due to the current preliminary low-level of design and limited modeling that has been completed at this point. Further impact analysis on selected alternatives and the TSP will be completed in a future Tier 2 DEIS.

National Park Service Resources - Great Egg Harbor Scenic and Recreational River

The key resource for the NPS within the Study area is the Great Egg Harbor National Scenic and Recreational River and its tributaries (GREG), located in the Central Region of the Study.

The GREG is a unit of the National Park Service and was designated into the National Wild and Scenic River system in 1992 (P.L.102-536). Most of the river and its dozen designated tributaries are in the Pinelands National Preserve and total 129 river miles. All the rivers, including the mainstem, drain into the Great Egg Harbor Bay. Part of the bay itself is designated under the statute, and it is the National Park Service's responsibility, pursuant to Section 7 of the National Wild and Scenic Rivers Act, to ensure that what is proposed by the Study does not invade or unreasonably diminish the values for which the river, its designated tributaries, and bay that were designated.

The river's Comprehensive Management Plan (CMP) lists the Great Egg Harbor's values as water quality, free flow, and Outstandingly Remarkable Values (ORVs). ORVs for the Great Egg Harbor River include recreation, dozens of plant and animal species (some listed as Threatened or Endangered), cultural resources and scenery. All the river's ORVs receive protection through the designation legislation, CMP, an established River Council, and partner organizations like the Great Egg Harbor Watershed Association. All ORVs in the CMP associated with this river are considered NPS-protected resources.

The Great Egg Harbor River ecosystem provides aquatic and wetlands habitats for numerous wildlife species currently listed as rare, threatened, or endangered by the NJ Department of Environmental Protection (NJDEP), Service, National Marine Fisheries Service (NMFS), and the Pinelands Commission. Wildlife habitats contained in the Great Egg River corridor are characterized as "exceptional" by the NJDEP. Wetland cover types within and adjacent to GREG, such as riverine, tidal and nontidal emergent wetlands, provide habitat for migratory waterfowl and passerine birds. Federally and State threatened and endangered flora and fauna known to occur in and adjacent to areas within the Great Egg Harbor River and its tributaries include the bald eagle, peregrine falcon, bog turtle, Pine Barrens tree frog, and Northern Harrier. In addition, the Great Egg Harbor River and estuary are important foraging, spawning, and nursery habitat for anadromous fish, including alewife (*Alosa pseudoharengus*), striped bass (*Morone saxatilis*), and American shad (*Alosa sapidissima*).

The lower GREG (below Lake Lenape Dam) and its tributaries contain large expanses of ecologically significant tidal marshland and hardwood swamp. The middle and upper segments of the Great Egg Harbor River and its tributaries contain significant areas of hardwood swamp. All areas have sites with rare plants or plant communities recognized by federal and state agencies and the Pinelands Commission. Furthermore, GREG is an important area for recreational fishing, boating, paddling, hiking, birdwatching, and for viewing scenic areas, which are all recreational ORVs noted in the CMP.

Tentatively Selected Plan – Central Region

The Corps' Tentatively Selected Plan (TSP) includes two structural alternatives within 5 miles of the designated portion of the Great Egg Harbor River. One is a Bay Closure at 52nd Street in Southern Ocean City and the other is a storm surge barrier at the Great Egg Harbor Inlet. Both locations are outside and downstream of the designated mainstem and tributaries. However, both have potential for impacts that could unreasonably diminish the GREG's values.

Since NPS resources are only found in the Central Region of the Study, we will focus our comments specifically to that region. The TSP for the Central Region includes the following:

- One inlet closure or storm surge barrier (SSB)
    - Great Egg Harbor Inlet
- Two cross bay barriers (CBB)
    - Absecon Blvd
    - South Ocean City
- Non-structural measures
    - Structures eligible for elevation and floodproofing

The array of alternatives currently presented in the DEIS for the Central Region focuses heavily on structural alternatives and does not appear to spend an equal amount of analysis on non-structural alternatives. By focusing mainly on structural solutions to storm surge, the Corps does not appear to be considering Nature and Nature Based Feature (NNBF) alternatives to the storm surge problem. This has led the Corps to select a TSP that has a structural component as the

main focal point of the plan and only a minor non-structural component. The Corps' own policy states the importance of non-structural alternatives:

> "Section 73 of the Water Resources Development Act of 1974 requires consideration of nonstructural alternatives (measures) in all flood risk reduction studies. They can be considered independently or in combination with structural measures (Corps Planning Guidance Notebook PGN). Planning Bulletin (PB 2016-01) signed on 22 December 2015 further clarifies Corps policy on nonstructural measures for the plan formulation phase on investigations and implantation. The Planning Bulletin clarifies that it is the policy of USACE to formulate a full array of alternatives consisting of nonstructural measures and structural measures and that not all nonstructural measures need to meet USACE criteria for agency participation and cost share implementation."

In the NPS' April 5, 2019, letter to the Corps on the interim report for the Study, to minimize impacts on NPS resources, we recommended the Corps complete a thorough analysis of all non-structural alternatives to meet the project goals and objectives. The current non-structural analysis for the Central Region focuses entirely on one type of non-structural alternative, building retrofits. We recommend again that relocation (buyouts) and "managed retreat" be considered further and with the same depth of consideration as non-structural solutions moving forward in the planning process for this study. Only through a complete analysis of these non-structural options will the federal and state agencies, and the public fully understand the viable options to this problem.

There are several other viable alternatives presented in the DEIS for the Central Region and include the following:

- Non-structural measures only alternative (elevation and floodproofing for 10,895 structures) in the Central Region (Alternative 4A)
- Non-structural measures (elevation and floodproofing for 1,189 structures) and perimeter plan alternative in the Central Region (Alternative 4D1)
- Non-structural measures (elevation and floodproofing for 2,340 structures) and perimeter plan alternative in the Central Region (Alternative 4D2).

We encourage the Corps to further investigate these options as they appear to be viable alternatives for the Central Region that do not involve a storm surge barrier. They include the non-structural solution (Alt 4A), non-structural plus perimeter plan (Alt 4D1), and non-structural plus perimeter plan (Alt 4D2). The Benefit to Cost Ratio (BCR) for these plans, are 2.65, 1.65, and 1.46, respectively, and compare to a BCR of 1.8 for the TSP. A non-structural TSP alternative selected by the Corps will have less impacts on NPS resources and the NPS believes a structural solution will have greater impacts to NPS resources, and may even have the potential to unreasonably diminish the GREG's values.

The NPS recommends that the Corps take a hard look at long term maintenance costs associated with constructing additional hardened resources in some of the harshest environmental conditions in the United States (active coastal zones). Given our nation's infrastructure maintenance challenges, serious consideration needs to be given to alternatives that minimize

future funding needs for maintenance and operational costs of SSBs. In addition, as mentioned above, a more sustainable solution to the problems this study is trying to address, will have less impacts to NPS resources, specifically, the GREG.

In addition, the NPS believes that SSBs and CBBs should be considered unsustainable solutions as they require considerable operation and maintenance costs, are not environmentally acceptable, and do not fit the definition of sustainability, which is one of the Corps own objectives for this Study, as well as Corps policy. Sustainability as defined by the Corps' own Headquarters website: "Sustainability is an umbrella concept that encompasses energy, climate change and the environment to ensure today's actions do not negatively impact tomorrow. USACE is a steward for some of the Nation's most valuable natural resources and must ensure customers receive products and services that provide sustainable solutions that address short and long-term environmental, social, and economic considerations."

Potential Impacts to NPS Resources

The NPS is concerned with the possible effects the proposed SSB/CBBs could have on the values associated with GREG including tidal flow, tidal regime, Outstandingly Remarkable Values (ORVs), river sediment transport, and water quality – all of which could invade or unreasonably diminish the Great Egg Harbor River's values. The large-scale of the SSB and CBBs components of the TSP are especially concerning, with the SSB at Great Egg Harbor Inlet estimated to be over 1 mile in length. A more detailed analysis of how the TSP could diminish NPS resources is below in the Section 7(a) of the Wild and Scenic Rivers Act Preliminary Evaluation.

Section 7(a) of the Wild and Scenic Rivers Act Preliminary Evaluation

Designated a National Scenic and Recreational River in 1992 (P.L. 102-536), the GREG benefits from protections provided by the National Wild and Scenic Rivers Act (P.L.90-542) (ACT). A key provision for protecting a National Wild and Scenic River's values (free flow, ORVs, and water quality) is the ACT's Section 7(a). The Corps has correctly identified the ACT's Section7(a) standard as the review standard to apply to the TSP for this study and proposed NNBFs associated with the TSP.

The below- Mean High Water (MHW) projects identified in the TSP include the construction of CBBs, an SSB, and possibly NNBF structures outside the GREG's designation. As such, the legal Section 7(a) review standard that applies to the TSP is the "invade or unreasonably diminished" standard. It is important to clarify that under the authority delegated to it by the Secretary of the Interior, the NPS will be the sole reviewer of the TSP pursuant to the Act's Section 7(a), consistent with the Administrative Procedures Act. The NPS appreciates that the Corps has prepared a Tier 1 Wild & Scenic River Section 7(a) Evaluation Appendix (Appendix F.11 Environmental) for the DEIS that specifically addresses how the TSP could impact the GREG.

Appendix F.11 repeats that the GREG's 4.5-mile distance from the SSB/CBBs will only result in *indirect* impacts to its designated values because of this distance. The NPS believes the use of

the word "indirect" is irrelevant. The NPS is charged with determining, on behalf of the Secretary of the Interior, if impacts invade or unreasonably diminish the GREG's values. The three values of any National Wild and Scenic River are free flow, water quality, and ORVs. The NPS believes all three river values, particularly in the lower GREG (the designation downstream of Lake Lenape) will be diminished to some degree by the proposed TSP. The following are specific ACT values the NPS believes will be diminished by the TSP.

Free Flow

The proposed SSB structure alone will impede 42% of the Great Egg Harbor inlet's flow *while the SSB gates remain open*. This is a significant flow impact, made more complex by proposed CBBs impeding flow between the Great Egg Harbor Bay and bay wetlands to the north and south. During storm surge events, projected at once every five years, and during SSB and CBB maintenance regimes, water flowing from the Great Egg Harbor River and its tributaries will not flush as readily, and water will accumulate in the river and its tributaries. Whether a SSB is open all the time or is unpredictably closed, the ecosystem will experience significant changes to which it will have to adapt (Elgershuizen 1981). To determine if the accumulation of water diminishes free flow reasonably when the SSB and CBBs are closed during storm events, a detailed flow analysis should be conducted during CBB and SSB closures extending from 1– 4 days.

Water Quality

Even while CBB gates and SSB gates are open, water will not flow as readily during tidal cycles, and will likely diminish water quality in the bay, and in the GREG. Water temperature, salinity and harmful nutrient loads can be expected to increase in the GREG. Dissolved oxygen will likely be reduced. The effects on sediment transport will also be impacted negatively by the TSP. The diminished impacts to water quality will be exacerbated during storm events requiring SSB/CBB closures. More precise water quality impact modeling by the Corps is needed to more accurately determine whether the proposed SSB/CBB impacts will be considered an unreasonable diminishment of water quality during open or closed gates operations.

The assumption that the TSP features and other measures are not expected to have significant impacts on the geologic setting because construction and Operation and Maintenance activities would occur outside of the GREG area misses that the disruptions in sediment budget may result in impacts to the geologic setting within portions of GREG. Geologic setting/sediment budget is important to enable salt marsh to keep pace with SLC. Tie-ins or perimeter plans also can disrupt sediment transport. Changes in tidal amplitude and velocity (from TSP features alone or combined with SLC may also affect riparian vegetation and the integrity of streambanks and the associated sediment load. Low frequency high intensity storms (events where the gates would more likely be closed) can also have a strong impact on sediment flux, potentially resulting in long-term impacts to the overall sediment budget.

As noted in Appendix F.11 of the DEIS, gate closures would likely have a strong impact on water quality and associated resources. Modeling of closed-gate scenarios is critical to being able to assess both temporary and long-term impacts to water quality on even a coarse level.

While potential impacts to salinity, nutrient loading and dissolved oxygen are mentioned for the open-gate scenario, potential changes in temperature associated with increased residence time and decreased tidal input/flushing are not discussed, nor are expected changes in pH. All these physical changes can have synergistic impacts to water quality, flora and fauna and should be considered in that light for both TSP features alone and in combination with stressors associated with anticipated SLC. The GREG is part of a broader ecosystem that stretches well to the north and south; it is not sufficient to say that the CBBs at Southern Ocean City and at Absecon Boulevard are considered "reasonable diminution" simply because of the distance from the Great Egg Harbor River confluence with the designated Patcong Creek. The loss of wetlands in those locations, combined with other potential associated impacts to water quality and other resources can all affect the integrity of the overall ecosystem.

Outstandingly Remarkable Values (ORVs)

The GREG CMP lists wetlands, certain bird, fish, plant, and mammals as ORVs. Scenery and Recreation are also ORVs. The TSP will likely impact all ORVs in the CMP. The degree to which values are impacted, and whether the impacts unreasonably diminish the ORVs is the legal standard the TSP must be held to by the NPS.

Scenery. The proposed SSB at Great Egg Harbor Inlet will be over one mile across and may have a visual impact on GREG and the surrounding communities; therefore, the NPS recommends that a comprehensive visual effects analysis be completed during the Tier 2 analysis and include viewpoints from both land and in-water recreational activities (i.e., boating).

Recreation. In 2015, the Great Egg Harbor Watershed Association (GEHWA) conducted a GREG recreation inventory. Just over 65% of the GREG designation is tidal, and within the GREG designation in the lower GREG, there are 29 privately owned marinas. In addition, there are 11 public boat access points on the tidal GREG. Privately owned marinas alone account for hundreds of boat slips. No recent counts of private docks exist, but there could be an additional 200 docks in the GREG below Lake Lenape, many of which have slips. Many, if not most of the tidal GREG's boats, either pass through the Great Egg Harbor Inlet to the ocean or take advantage of excellent fishing opportunities in the bay, lower Great Egg Harbor River, and lower tributaries. The GEHWA-GREG recreation inventory did not count any boat marinas/slips in or along Ocean City, NJ. It is likely that a significant amount of boating recreation is also tied to angling, in the GREG, in the bay, and in the ocean outside of the proposed SSB.

The NPS strongly recommends that the TSP must address recreation safety. The TSP's SSB and CBBs will impede boat traffic to and from the GREG. How much this impacts recreational boating/fishing in the GREG is unaddressed in the TSP. It can be assumed that recreationists who use GREG marinas will have to pass through these barriers to get into the ocean/intracoastal waterway. The proposed SSB navigable sector gates are proposed at 320' feet wide when open. Proposed vertical lift gates are 150'feet apart while the gates are open. The TSP doesn't address how paddlers, boats, and personal watercraft drivers are to safely transit the navigable sector gates on high-traffic summer days. The TSP also doesn't address how boaters and paddlers will be deterred from traveling between vertical lift gates.

With such high boating/fishing recreational activity between the GREG, the bay, intracoastal waterways and the Atlantic Ocean, coupled with boating recreation in the bay nearer Ocean City, the NPS believes a recreational boating survey of the GREG should be conducted as part of the Tier 2 DEIS. Recreation surveys could measure the amount of boat traffic between the GREG and the bay, and between the SSB/CBBs between the bay and the ocean, and intracoastal waterways.

Cultural Resources. The lower GREG is comprised of vast wetland complexes with scant, scattered cultural resources. The Corps should consult with NJ SHPO through the Section 106 process, and carefully inventory cultural resources that could be impacted by changes in water level, particularly during storm events when all SSB gates and CBB gates are closed, and water from the tributaries accumulates in the Bay and the GREG.

Mammals. Dozens of mammal species rely on the GREG's resources for survival, such as muskrats, otters, and gray foxes. Muskrats are one of the few terrestrial mammals that are recreationally trapped/hunted in the lower GREG's salt marshes. Flooding and decreases in water quality related to SSB/CBB closures could have a diminishing impact to these mammals. In addition, the CMP refers to the river otter as a resource that should be protected in the lower GREG as well. Harbor seals are also known to occasionally rest in the salt marshes. Anecdotally, it doesn't appear there are many harbor seals in the GREG, but their protection must be considered in the development of the TSP.

Shellfish. There are oyster beds in the Great Egg Harbor's bay. Healthy oyster populations filter contaminants and clean estuary waters and have a positive impact on the GREG. One of the oyster beds is partly in the GREG designation, slightly upstream of Drag Island. The NPS recommends the Corps consult with the Rutgers Haskin Shellfish Laboratory and National Marine Fisheries Service (NMFS) on finding ways and proposing methods to reduce the TSP's water quality impacts to oysters. Crabbing is also an important recreational resource and is also a commercial fishery in the GREG. The NPS is concerned that the diminishment of water quality could have an effect on blue crab populations and believes blue crabs should be studied as part of the Tier 2 EIS effort in consultation with NMFS.

Horseshoe crabs are a critical species that supports migratory bird populations, such as the threatened Red Knot (*Calidris canutus rufa)*. Horseshoe crabs are known to lay eggs in the banks of the lower GREG and the Great Egg Harbor Bay. Populations of horseshoe crabs migrate in the spring from the northern edge of the offshore Carl N. Shuster Federal Horseshoe Crab Sanctuary, and concentrate egg laying in the lower GREG, from Drag Island through the more brackish, intertidal zone.

One of the chief NPS concerns is the design of the SBB vertical lift and navigable sector gates, and the CBB passage narrowing; and how these TSP components may act as impediments that may impact horseshoe crab migration. The SBB navigable sector gates sill elevation can drop to – 35 ft. from the surface. The vertical lift gate sill elevations can drop to as low as 18ft. below the surface. The NPS believes that gate sill construction must consider horseshoe crab migration, and that these structures be designed in a way that minimizes impediments to

horseshoe crab movements through these barriers. The NPS believes the Corps should consult with NMFS, and the Service further on the need to protect this important species of crab.

Fisheries. As mentioned in the Appendix F.11, it is likely the proposed SSB gates, even in the open position, will have a diminishing impact on GREG fisheries. The appendix estimates the SSB gates in the open position will impede inlet flows by 42%. The appendix only generally describes what flow impediments to fish passage can be anticipated by CBB structures when open or closed.
Because of the constricted flow through the proposed SSB gates, flow velocities will increase and potentially reduce fish populations in the GREG, and/or change fish migration patterns. Flow attraction will also change and grow more intense at the SSB gates and could potentially alter fish migration patterns further. Currently, the impacts of increased flow velocities caused by open SSB gates on migratory diadromous/catadromous fish (and their larvae) such as Atlantic sturgeon, eels, alosines and river herring, are unknown. Increased flow velocity at the SSB gate will impact facultative migrators such as flounder, bluefish, and weakfish, and it is likely that there will be negative impacts to forage fish such as menhaden, Atlantic silversides, and bay anchovy. The impacts of constricted flow also will likely impact striped bass, an important species for recreation in the lower GREG. Increased flow velocities through narrower CBBs (levees and smaller gates), and how they impact the GREGs fisheries are unknown.

While closed, the CBBs and the SSB will result in lower water quality in the bay and the GREG, will stress fish populations and cause fish mortality. The degree of diminishment of fisheries as an ORV when gates are closed, even for maintenance, is unknown.

The NPS agrees with the Corps that the installation of CBBs and the SSB will diminish the fishery in the GREG. The degree to which the proposed TSP will diminish the GREG's fishery must be studied in consultation with NMFS and must include analysis of TSP impacts to EFH. Mitigation of TSP effects on the GREG fishery may or may not be sufficient to prevent unreasonable diminishment of the GREG fishery ORV, and mitigation in general will not considered compensation for unreasonably diminished values in a National Wild and Scenic River (NPS Directors Order 46, Sec. 4.1.2). It is clear that many fish species will be impacted by the proposed TSP and it is imperative that the impacts of the TSP to the aforementioned fish species, who clearly feed, live, and reproduce in the GREG, be evaluated in the Tier 2 DEIS.

Threatened, Endangered & Candidate Species. The lower GREG contains eight species listed by the USFWS as threatened, endangered or candidate (IPaC, 2021): The Northern Long-eared Bat, Eastern Black Rail, Red Knot, Knieskern's Beaked-rush *(Rynchospora knieskernii),* Sensitive Joint-vetch (*Aeschynomene virginica),* and Swamp Pink (*Helonius bullata*), Threatened; American Chafseed *(Schwalbea americana*),Endangered; Monarch Butterfly, Candidate Species. The NPS recommends consultation with the Service to inventory these species for their presence in the lower GREG and to develop conservation plans for threatened, endangered or candidate species found present. The Service lists no critical habitat for these species in the lower GREG.

The Service lists 32 migratory bird species that can be found in the lower GREG. Of special focus for the lower GREG is the protection of the osprey. Although osprey are not a listed T&E

species, they are largely dependent on human-built nests and other human-built structures. The GEHWA and the Great Egg Harbor River Council have invested significant time, energy and funding in the protection and enhancement of osprey populations in the GREG for more than 30 years. Reductions in fish populations may impact osprey populations in the lower GREG. Certain man-made structures, such as high-tension wire towers and bridges, have made poor nesting surfaces for osprey, and have resulted in nests being blown off these structures during storms. The NPS recommends that any structures related to the TSP be designed in a way that discourages osprey or other birds from nesting on them. The Corps, in partnership with the GEHWA and GREG River Council, should consider building more NJDEP-approved osprey nest stands in the Lower GREG.

Overall, the NPS believes that the proposed TSP will diminish the values of the GREG. Studies beyond AdH modeling of the impacts to specific ORVs will be necessary for the NPS to determine if the TSP will *unreasonably* diminish the river's values, and more specifically, ORVs. It is important to note that species ORVs, such as osprey and striped bass, needn't be listed as protected species for them to be considered protected under the GREG's designation (P.L. 102-536). The CMP includes species to be protected independently of the ESA. The NPS looks forward to comments from NMFS related to protecting marine/shellfish ORVs, including EFH, and Service/NJDEP for other listed federal and state species.

Specific Technical Comments on the DEIS

The BCR analysis for the Central Region should be done specific to the resources and the various alternatives impacts outlined in Appendix F.11 as part of our Section 7a preliminary review under the Wild and Scenic Rivers Act for the Great Egg Harbor River. The NPS requests the BCR analysis, including residual damages, to account for maximizing net National Economic Development Benefits (NED), and considerations of the TSPs project performance, Sea Level Change (SLC) adaptability, and risk to life and safety, be separated out as discrete analysis units for the different project components.

Appendix F.11 does not specify any differences between modeled sea level rise scenarios, and it is not clear which of those described in Appendix B.4 (USACE sea level change low, intermediate, or high or New Jersey STAP) are evaluated for the Central Region. A technical modeling concern is that the TSP's provided modeling has been completed without modeling SLC, and that the TSP includes post hoc sea level rise scenarios as substitutes for SLRSLC models. Any non-linear impacts are thus beyond model capabilities. As described in Appendix B.4, modeling was done at current NTDE, so therefore 1992 MSL. If the starting point does not include SLC in past 30 years, before even considering projections of 50-year economic analysis and, 100-year planning horizon, the methodology and results may be questionable. We recommend that the Corps engage the U.S. Geological Survey (USGS), in evaluating how much these simplifications could impact the uncertainty of the models, and that this issue be addressed through peer review of the technical reports.

In the Flora, Rare and/or Special Status Species and Wetlands sections of Appendix F.11, the relative impacts of the indirect efforts of the SSB and SLC in the without project condition are compared as ways to suggest impacts are small (e.g., reduced tidal amplitude of 1.4 cm) or

counter in direction to sea level change impacts. This approach should not dismiss the need to manage our resources to adapt to SLC or be used to justify maladaptive actions. Further, project changes discussed as minimal in comparison to those projected with SLC alone are additive to those expected from SLC, thus exacerbating changes associated with climate change and potentially reaching threshold conditions for ecosystem components (including species viability). The adaptation choices to protect infrastructure, such as SSB, should not limit our adaptation options for salt marshes and the special status species that depend on them to keep pace vertically with SLC or migrate inland; and the threat of SLC to those resources should not be used as a justification for diminution of resources.

The preliminary conclusions provided in Appendix F.11 regarding modeled changes in tidal amplitude, mean salinity changes, residence times, water quality impacts under the current gate scenario assessed for this effort appear to rely heavily on two studies, McAlpin and Ross, 2020 and Lacey et al. 2020. Both studies are listed in the references section of Appendix F.11 as "Draft." The NPS requests copies of both technical reports along with references and electronic copies of whatever data was used to run/build the AdH and PTM models for independent review. We also request the draft Technical Report by Slusarczyk et al. (2020) to evaluate if the Corps' North Atlantic Coast Comprehensive Study (NACCS) model resolution is sufficient for supporting estuary circulation modeling, if the grid was refined for this application beyond what was presented when the study report was released. One technical concern is the ability of 2D AdH to assess estuarine processes that are inherently 3D including residence time, sediment transport and salinity. We recommend that the Corps request that the USGS provide an evaluation of the applicability of this 2D model and its results.

<u>Recommended Future Impact Analysis for the Tier 2 Environmental Impact Statement (All)</u>

If the TSP containing an SSB in the Central Region Study is carried further in the Planning process, we recommend that the draft Tier 2 EIS provide additional impact analysis related to the following issues:

1. Operation and Maintenance of SSBs and CCBs. At this point of the study, the Corps estimates that storm surge barriers and cross bay barriers would be closed for a 5-yr and higher storm surge event, with an average of one closure operation every five years. In the Tier 2 DEIS, we recommend that the storm surge barrier operations plan, and closure criteria be evaluated. We expect the operation and maintenance for storm surge barriers to include monthly startup of backup generators/systems, annual closure of surge barrier gates pre-hurricane season, dive inspections, gate adjustments/greasing, gate rehab and gate replacement. The NPS recommends a much more detail analysis of this for the Tier 2 DEIS.

    a. Modeling. The AdH modeling and PTM have not been conducted for TSP closed gate scenarios and are intended to be completed for Tier 2. This is an important assessment to complete before selecting a plan. Given the potentially large impact of gate closures on water quality and other resources (closures may be temporally short, but impacts could be long-term), the lack of closed gate scenario modeling for even the Tier 1 analysis diminishes the value of commenting at this

time (i.e., the alternative analysis of open gate scenarios alone may be misleading if closed-gate scenarios modeling reveals unforeseen impacts or magnitude). We recommend further modeling work on SSB and CCBs closures.

2. SSB and CCBs Construction. In-water construction activities for the construction of storm surge barriers and cross bay barriers include installation and removal of temporary cofferdams, temporary excavations, fill and rock placement, concrete work, and pile driving. On land construction activities would include clearing, grading, excavations, backfilling, movement of construction equipment, concrete work, pile driving, and soil stockpiles. The Tier 1 DEIS estimates that the construction of the Great Egg Harbor Inlet SSB will take approximately 137 months or 11 years. The duration of construction will potentially have a great impact on GREG, and we recommend a more detailed analysis and evaluation of the components (e.g., equipment used, staging areas) of construction as well as the tentative schedule of construction in the Tier 2 DEIS.

Natural and Nature Based Features (NNBF)

The Corps has identified several NNBF that may be additions to any selected alternative. The NPS is generally supportive of these types of features and encourages the Corps to further analyze and incorporate them where applicable into the selected plan, as the planning process moves forward.

The NNBFs modelled for the Great Egg Harbor Inlet are limited to creation of wetlands in addition to the SSB. The results of these models are interesting but are not conclusive as to the likely impact on flooding when combined with the SSB (depending on storm modelled and location to the north or south of the SSB). No NNBF alternatives are considered/modelled either alone or with more a more modest structural component (vs the proposed SSB). It would be very informative to have such an alternative presented, including a combination of NNBF alternatives described in the introduction of Appendix G (vs wetland creation alone), along with hybrid features or less dramatic infrastructure to dampen waves and slow tidal surges, and a managed retreat strategy. As written, the NNBF assessment is limited in scope and the modelling is predicated on construction of the SSB, yet impacts associated with the SSB (increased velocity, decreased water quality, sediment input, etc.) would likely diminish the likely success of establishing the wetlands modelled as NNBFs. The discussion of cost effectiveness included in Appendix D should also be expanded to include a valuation of ecosystem services gained by the enhancement of existing natural features and incorporation of additional features vs an economic assessment focused purely on economic impacts associated with flooding. We look forward to seeing more information on the NNBFs in the Tier 2 DEIS.

* * *

Thank you for the opportunity to comment on the Draft Integrated Feasibility Study and Tier 1 DEIS. We look forward to the opportunity to comment on the Tier 2 DEIS. For further assistance or questions on the NPS comments, please contact Mark Eberle, at mark_eberle@nps.gov or 215-597-1258; for the Service, please contact Eric Schrading, at

eric_schrading@fws.gov, or 609-382-5272. Please contact me at (617) 223-8565 if I can be of further assistance.

Sincerely,

Andrew L. Raddant
Regional Environmental Officer

ATTACHMENTS

Attachment A – U.S Fish and Wildlife Service correspondence, March 29, 2019
Attachment B – U.S. Fish and Wildlife Service correspondence, September 14, 2018
Attachment C – U.S. Fish and Wildlife Service email, July 23, 2021
Attachment D – Bob Martin, Commissioner, NJDEP, correspondence, February 28, 2017
Attachment E – October 19, 2016 FWCA SOW between U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service

CC: USFWS, Region 5 (ARDs for ES and NWR)
USFWS, (EBFNWR and CMNWR)
USGS
USEPA
NOAA Fisheries
NJDEP
NJDFW
NJDOT
BBP
NPS

REFERENCES

A. LITERATURE CITED

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B. PERSONAL COMMUNICATIONS

Mars, S. 2021. Retired Biologist. U.S. Fish and Wildlife Service, Galloway, New Jersey.

Papa, S. 2021. Biologist. U.S. Fish and Wildlife Service, Long Island Field Office, Shirley, New York

ATTACHMENT A

United States Department of the Interior
FISH AND WILDLIFE SERVICE
New Jersey Field Office
4 E. Jimmie Leeds Road, Suite 4
Galloway, New Jersey 08205
Tel: 609/646 9310
www.fws.gov/northeast/njfieldoffice/

In reply refer to: 16-CPA-0267b

MAR 29 2019

Peter Blum, Chief
Planning Division
Philadelphia District
U.S. Army Corps of Engineers
Philadelphia, Pennsylvania 19107-3390
Attn: Steve Allen

Dear Mr. Blum:

The U.S. Fish and Wildlife Service (Service) is continuing to provide comments pursuant to the Fish and Wildlife Coordination Act (48 Stat.401; 16 U.S.C. 661 *et seq.*) (FWCA) regarding the U.S. Army Corps of Engineers, Philadelphia District's (Corps) New Jersey Back Bays Coastal Storm Risk Management Interim Feasibility Study and Environmental Scoping Document - Main Report dated March 1, 2019. These comments follow previous comments made by the Service on September 14, 2018 and are intended to meet our statutory responsibilities pursuant to the National Environmental Policy Act of 1969 (87 Stat. 884, as amended; 42 U.S.C. 4321 *et seq.*) (NEPA) and do not preclude additional comments on the draft Federal Environmental Impact Statement (EIS).

The geographic boundary of the New Jersey Back Bays Coastal Study Area (includes five counties of New Jersey (Monmouth, Ocean, Burlington, Atlantic and Cape May counties) and a drainage area of over 1,300 square miles. The Study Area includes parts of the Atlantic Coast and the entire Back Bay system from Manasquan River to the Cape May Canal, New Jersey and includes numerous land holdings of the Edwin B. Forsythe and Cape May National Wildlife Refuges (Project Study Area).

AUTHORITY

The following comments on the proposed action are provided to assist the Corps in seeking comments on potential alternatives pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et. seq.*) (ESA); FWCA; the 2014 Memorandum of Understanding between the Corps and the Service regarding implementation of Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds; the Migratory Bird Treaty Act of 1918 (40 Stat. 755; 16 U.S.C. Section 703-712); NEPA; the Clean Water Act of 1977 (86 Stat. 816, 33 U.S.C. 1344 *et seq.*) (CWA), the Emergency Wetlands Resource Act of 1986 (EWRA) (100 Stat. 3582; 16 U.S.C. 3901-3932); the National Wildlife Refuge System Improvement Act of 1966, as amended by the National Wildlife Refuge System Improvement

Act of 1997 (NWRSIA) (111 Stat. 1252; 16 U.S.C. 668 et seq.); the Wilderness Act (WA)(78 Stat. 890; 16 U.S.C. 1131 *et seq.*), EO 11988, Floodplain Management (May 24, 1977; 42 FR 26951); and EO 11990, Protection of Wetlands (May 24, 1977; 42 FR 26961).

INTRODUCTION

The Service provided scoping comments on the subject Feasibility Study on September 14, 2018. Although the March 1, 2019 Main Study Report acknowledges that substantive comments were received by the Service, the Corps response to these concerns was general in scope and breadth. Rather than reiterate our concerns in this correspondence, the Service requests that the Corps prepare a streamlined response to our September 14, 2018 comments (and that of other agency's comments) in order that they are readily identified and sufficiently responsive.

Upon reviewing the current March 1, 2019 Main Report, we offer the following additional comments (by Section as identified in the Corps' Main Report) that should be addressed prior to the development and selection of a preferred alternative(s). The Service emphasizes the use of natural and nature-based alternative solutions that can meet project objectives. The Service expects a robust alternative analysis be completed that complements the efforts of numerous stakeholders in the Project Study Area; avoids impacts on the numerous fish and wildlife species and their habitats; and supports the mission of the Service's National Wildlife Refuge System of which two Refuges are managed in the Project Study Area (Edwin B. Forsythe and Cape May National Wildlife Refuges).

COMMENTS

3.6 Study Area

Each of the five areas evaluated (Coastal Lakes, Shark River, North, Central and South) which describe current conditions and the physical settings of the Project Study Area should also include a description of all Federal entities (Barnegat Bay and Delaware Bay National Estuary Programs, Jacques Cousteau National Estuarine Research Reserve (JCNERR), two National Wildlife Refuges and the National Pinelands Reserve) and State land holdings (State Forests, Parks, or Wildlife Management Areas).

3.6.1 Coastal Lakes Region

Acknowledge that Wreck Pond, located in Allenhurst, Monmouth County, New Jersey is a tidally influenced watershed with the Atlantic Ocean. In recent years river herring (*Alosa* sp.) have been documented passing through the existing non-gated culvert to watershed areas upstream of the Atlantic Ocean (McCulloch pers. comm. 2019).

4.2.1 Problems

Rising sea level represents a threat to numerous habitats important for fish and wildlife species. These threats include the loss of valuable breeding habitats for threatened and endangered species; migratory and shorebird nesting species; commercially important shellfish and finfish

species should be added to the ongoing threat assessments performed by the Corps. Historical acreage losses of wetlands (which has been shown to provide storm surge protection) in the Study Area from human development and coastal erosion should be discussed along with the projected acreage losses of habitats due to sea level rise.

4.4 b. Universal Constraints

Include compliance with the Department of the Interior if a selected alternative(s) lies within the jurisdictional boundary of the New Jersey Pinelands National Reserve. In addition, the Corps should ensure compliance with the State's Coastal Zone Management Act (N.J.A.C. 7:13-1.1 *et seq.*) and the Coastal Zone Management Act of 1972 (P.L. 92-583) (86 Stat. 1280; 16 U.S.C. 1451-1464) and Section 320 of the CWA (86 Stat. 816; 33 U.S.C. 1251 *et seq.*) (for activities that occur in a National Estuary Reserve).

4.4 c. Study-Specific Constraints

Reference should be made of the management plans for the New Jersey Pinelands National Reserve, Barnegat and Delaware Bay National Estuary Programs and the JCNERR. These management plans should be fully considered in the selection of the preferred alternative(s).

5.3 Existing Studies and Projects

Coastal engineering or maintenance dredging projects that the Corps conducted (if any) at Corson's Inlet, Great Egg Harbor Inlet, Townsend Inlet, and Hereford Inlet should be included in the discussion of existing studies and projects.

5.4 Shoreline Types

The Corps should discuss shoreline types (also in Section **5.8 Historical Shoreline Changes**) from a historical perspective and how sea level rise will contribute future changes in the Study Area. This discussion should be consistent with the historical losses of tidal marshes and future adverse impacts to New Jersey's marsh plains from projected rising seas.

5.5 Economics

The Corps should consider the economic wealth of the current wetland and forest systems in the Project Study Area and the ecological services they provide (fish and shellfish production, carbon sequestration, water quality benefits, and recreational and commercial use of the Study Area's waterways, National, State and local municipal parklands, refuges, and beaches). In 2016, more than 103 million Americans (40 percent of the U.S. population 16 years and older) participated in some form of fishing, hunting, or other wildlife associated recreation such as birdwatching or outdoor photography (U.S. Department of the Interior *et al.* 2016). This usage equated to an estimated $156.9 billion in expenditures on equipment, travel, licenses, and fees. The United States Environmental Protection Agency (2006) provided estimates of the economic value of wetlands worldwide at $14.9 trillion. Human based recreation is a strong economic interest for the State of New Jersey and rising sea levels represent a threat to the State's

economy. The Corps should consider discussing the growing data of the value of wetlands from a coastal resilience perspective. To highlight one of the many functions that wetlands perform (*e.g.*, flood protection), a regional study showed that wetlands on the New Jersey Coast avoided $430 million in direct flood damages during Hurricane Sandy (Narayan *et al.* 2017).

5.8 Historical Shoreline Changes

The Corps should acknowledge that the effects of shoreline erosion and sea level rise, coupled with coastal storm flooding is continuing to place the region's economy at risk.

6.14 Special Status Species

The Service has proposed the listing of the eastern black rail (*Laterallus jamaicensis*) as threatened, and is evaluating the listing of the monarch butterfly (*Danaus plexippus*), and the saltmarsh sparrow (*Ammodramus caudacutus*) for listing under the ESA. These three species may be present in the Project Study Area. Proposed species (black rail) are subject to the conference procedures under Section 7 of the ESA. Species being evaluated for listing (monarch butterfly and salt-marsh sparrow) do not receive any substantive or procedural protection under the ESA. Despite the current status of the monarch butterfly and salt marsh sparrow (*i.e.*, non-listed), each of these species are in decline range-wide.

6.2.2 Coastal Barrier Resources Act Areas

The Corps should acknowledge that the Service is the Federal lead agency responsible for the administration of the Coastal Barrier Resources Act of 1982 (P.L. 97-348) (96 Stat. 1653; 16 U.S.C. 3501 *et seq.*).

6.2.8 National Estuary Programs

The Corps should identify that the Delaware National Estuary Program is also located in the Project Study Area.

6.21 Climate and Climate Change

The Corps should acknowledge that the 2018 precipitation rate was the highest since record keeping began in 1895, with a statewide average of 64 inches of precipitation being recorded (see https://www.nj.gov/dep/drought/rainfall.html).

7.1 Economic and Social Without Project Conditions

The Corps should reference the Union of Concerned Scientists 2017 and 2018 publications and its conclusions regarding future without project impacts, economic risk, sea level rise, and chronic flooding predictions for New Jersey communities (Union of Concerned Scientists 2017, 2018).

8.2 Sea Level Change

The Service requests that the Corps compare its sea level projections against that of the rates predicted by the National Oceanic and Atmospheric Administration (see https://coast.noaa.gov/digitalcoast/tools/slr) and that of the Intergovernmental Panel on Climate Change (2014).

11. Environmental Laws and Compliance

The Service requests that the following authorities also be included: the EWRA; the National Wildlife Refuge System Administration Act of 1966, as amended by the NWRSIA; and the WA.

11.1 National Environmental Policy Act

Pursuant to NEPA (40 CFR Part 1508.7, Effects), the Corps should evaluate the direct and indirect effects of each of the alternatives considered, including those that may occur later in time and are reasonably foreseeable. For example, the placement of tidal gates at Barnegat Inlet may increase navigation use at Little Egg Inlet, an unmaintained and natural inlet (without a dredging history) bordering a designated Wilderness Unit of the Edwin B. Forsythe National Wildlife Refuge. This increased navigational use may warrant new dredging at the inlet or other waterways that are within or adjoin refuge lands.

In addition, the Corps should evaluate a change in use of a tidal gate where it could evolve (once constructed) from a storm protection structure whose project purpose would be served once or twice a year to a structure whose project purpose would be to halt rising sea levels on a daily basis. Each of these alternatives will have different scopes of environmental review pursuant to NEPA (alternatives considered, cumulative impacts and effects [direct and indirect]).

SERVICE CONCLUSIONS AND RECOMMENDATIONS

The Service appreciates the efforts by the Corps to discuss the array of alternatives being considered and for their commitment in ensuring the production of a comprehensive and transparent NEPA document. As the Corps further refines its environmental analysis, the Service will continue to provide comments and recommendations to ensure that the Project(s) maximize their benefits on the human environment, including fish, wildlife, and their respective habitats. The Service reiterates our concerns over alternatives that focus on hard engineered solutions, such as levees, tide gates, or flood walls being constructed in the Project Study Area. The Service prefers the selection of Engineered with Nature or Nature-based alternatives as was constructed on Mordecai Island, and now being considered in Delaware Bay and Seven Mile Island in Avalon, New Jersey.

The Corps should be seeking alternatives that avoid or minimize activities in the aquatic environment with a goal of improving water quality and the habitats of numerous fish, shellfish, and migratory birds whenever possible. The Corps should focus on the Study Areas' population declines of numerous fish and wildlife species, wetland and seagrass losses; and fish migration impediments, as they develop a robust alternative analysis. Finally, the Corps should utilize the

efforts of the Pinelands Commission, the Barnegat Bay Partnership, the Jacques Cousteau National Estuary Research Reserve, the NJDEP, and the Edwin B. Forsythe and Cape May National Wildlife Refuges to develop viable solutions for the affected communities while providing a path forward towards ecological restoration of New Jersey Back Bay habitats.

In addition to the recommendations contained in the Service's September 14, 2018 letter, the Service requests the following additional concerns be incorporated into the Corps NEPA document. The Service will maintain our coordination status pursuant to FWCA and NEPA to ensure that the Project is sufficiently protective of fish and wildlife resources, including species protected under the ESA, and their respective habitats.

Thank you again for allowing the Service to continue providing comments pursuant to FWCA, NEPA and ESA on the subject feasibility investigation. If you require additional information on the above, please contact Mr. Steve Mars at 609-382-5267.

Sincerely,

Eric Schrading
Field Supervisor

CF: USFWS- Region 5 (ARD for ES and NWR)
USFWS - EBFNWR and CMNWR
USEPA (Montella, Spinweber)
NOAA (Greene, Hanson)
NJDEP (Kopkash, Keller)
BBPNEP (Hales)
DBNEP (Kreeger)
JCNERR (Auermuller)
New Jersey Pinelands Commission

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A. LITERATURE CITED

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Narayan, S., M.W. Beck, P. Wilson, C.J., Thomas, A. Guerrero, C.S. Shepard, B.G. Reguero, F. G. Franco, J.C. Ingram and D. Trespalacios . 2017. The Value of Coastal Wetlands for Flood Damage Reduction in the Northeastern USA. Scientific Reports, New York, New York. 12 pp.

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U.S. Environmental Protection Agency. 2006. Economic Benefits of Wetlands. EPA843-F-06-004, Office of Water, Washington, D.C. 4pp.

B. PERSONAL COMMUNICATIONS

McCulloch, D. 2019. Biologist. United States Fish and Wildlife Service, Galloway, New Jersey.

ATTACHMENT B

United States Department of the Interior
FISH AND WILDLIFE SERVICE

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Galloway, New Jersey 08205
Tel: 609/646 9310
www.fws.gov/northeast/njfieldoffice/

In reply refer to: 16-CPA-0267a

SEP 14 2018

Peter Blum, Chief
Planning Division
Philadelphia District
U.S. Army Corps of Engineers
Philadelphia, Pennsylvania 19107-3390
Attn: Steve Allen

Dear Mr. Blum:

The U.S. Fish and Wildlife Service (Service) is providing the following comments pursuant to the Fish and Wildlife Coordination Act (48 Stat.401; 16 U.S.C. 661 *et seq.*) (FWCA) regarding the U.S. Army Corps of Engineers, Philadelphia District's (Corps) New Jersey Back Bay Feasibility Study (Study), Monmouth, Ocean, Burlington, Atlantic, and Cape May Counties, New Jersey. These comments are also intended to meet our statutory responsibilities pursuant to the National Environmental Policy Act of 1969 (87 Stat. 884, as amended; 42 U.S.C. 4321 *et seq.*) (NEPA) and do not preclude additional comments on forthcoming environmental, documents including a Federal Environmental Impact Statement (EIS). The Study is one of nine feasibility studies that are underway by several other Corps Districts in the Northeast as part of a North Atlantic Coast Comprehensive Study (NACCS). The New Jersey Department of Environmental Protection's (NJDEP) Bureau of Coastal Engineering is the local cost-sharing sponsor of the Study.

AUTHORITY

The following comments on the proposed action are provided to assist the Corps in seeking comments on potential alternatives pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; l6 U.S.C. 1531 *et. seq.*) (ESA); FWCA; the 2014 Memorandum of Understanding between the Corps and the Service regarding implementation of Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds; the Migratory Bird Treaty Act of 1918 (40 Stat. 755; 16 U.S.C. Section 703-712); NEPA; the Clean Water Act of 1977 (86 Stat. 816, 33 U.S.C. 1344 *et seq.*) (CWA), the Emergency Wetlands Resource Act of 1986 (P.L. 99-645; 100 Stat. 3582); the National Wildlife Refuge System Improvement Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd - ee); the Wilderness Act (78 Stat. 890; 16 U.S.C. 1131 *et seq.*) (WA), EO 11988, Floodplain Management (May 24, 1977; 42 FR 26951); and EO 11990, Protection of Wetlands (May 24, 1977; 42 FR 26961).

INTRODUCTION

The Corps states a draft EIS will be forthcoming which will evaluate a suite of alternatives that support long-term resilience and sustainability of the coastal ecosystem and surrounding communities. The EIS will focus on Statewide or watershed scale strategies (including a municipal or community level scale) for potential implementation. Factors under consideration include sea level rise; local subsidence; and predicted storm frequency and intensity; and economic costs and risks associated with large scale flood and storm events. Preliminary alternatives under consideration include a suite of structural and non-structural alternatives, in addition to several natural and nature-based features.

The following comments are intended to assist the Corps in identifying a single project or series of projects that are sufficiently protective of fish and wildlife resources and their respective habitats, while meeting the stated Study purpose which is to confirm whether sites are likely to provide the "greatest flood risk management benefits, as well as any associated feasible ecosystem restoration benefits."

STUDY AREA

The geographic boundary of the Study Area includes five counties of New Jersey (Monmouth, Ocean, Burlington, Atlantic and Cape May counties) and a drainage area of over 1,300 square miles. The Study Area includes parts of the Atlantic coast and the entire Back Bay system from Manasquan River to the Cape May Canal (Figure 1).

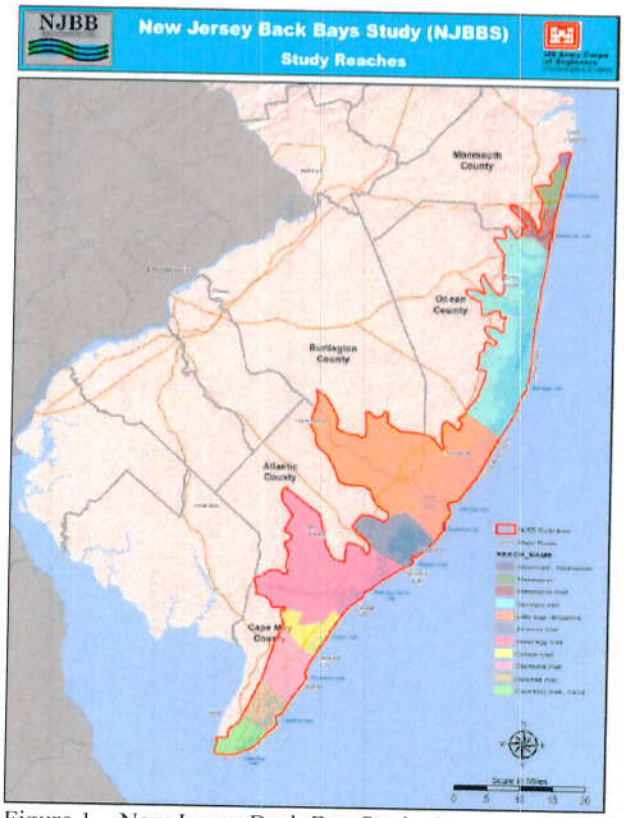

Figure 1 – New Jersey Back Bay Study Area

National Wildlife Refuges

The geographic area also encompasses all 47,485 acres of lands managed by the Edwin B. Forsythe National Wildlife Refuge Program, Atlantic County, New Jersey (EBFNWR) and up to 5,500 acres of the Cape May National Wildlife Refuge, Cape May County, New Jersey (Albers pers. comm., 2018; Hanlon pers. comm., 2018). Parts of the EBFNWR are designated as "National Wilderness Areas" at the Holgate and Little Egg Inlet Units (Units), and as such remain unmaintained for navigation purposes pursuant to the WA (Figure 2); the WA mandates that these Units be managed to preserve their wilderness character. Aside from Old Inlet (a designated Wilderness area located within the National Park Service's (NPS) Fire Island National Seashore), Little Egg Inlet is also the only unmodified inlet between Montauk, New York, and Gargathy Inlet, Virginia (Rice 2014). In addition, the two EBFNWR Units are habitat for approximately 30 percent of New Jersey's piping plover (*Charadrius melodus*) population. The piping plover is listed as threatened pursuant to the ESA. The Service provided substantive comments to the Corps on the ecological value of the two EBFNWR WA Units in a Planning Aid Report that evaluated the use of Little Egg Inlet as a potential sand source for the Barnegat Inlet to Little Egg Inlet Storm Damage Reduction Project (U.S. Fish and Wildlife Service 2016). As of this date the use of Little Egg Inlet as a sand source for beach nourishment has not occurred partly due to the incompatibly that dredging represented for a designated WA Unit and also because of its incompatibility with the management of a National Wildlife Refuge.

Any Study alternative proposed for advancement by the Corps which may impact (directly or indirectly) a designated WA Unit will likely receive the same level of concern from the Service as did for the proposed dredging of Little Egg Inlet. The Service recommends that any Study alternative consider the enabling legislation for which the Refuge lands were acquired. This includes not advancing any Study alternative that may adversely affect a WA Unit.

Coastal Barrier Resources Act

Numerous parts of the Study Area on the Atlantic Coast are also managed pursuant to the Coastal Barrier Resources Act of 1982 (16 U.S.C. 3501 *et seq.*) (CBRA) which established the Coastal Barrier Resources System (CBRS), a defined set of geographic units along the Atlantic, Gulf of Mexico, Great Lakes, U.S. Virgin Islands, and Puerto Rico coasts. Congress enacted CBRA to minimize the loss of human life, wasteful Federal expenditures, and damage to natural resources associated with coastal barriers. The Secretary of the Interior, through the Service, is responsible for administering CBRA. The CBRS units are depicted on a set of maps that are maintained by the Service and are available for viewing and download on the Service's CBRA website at https://www.fws.gov/CBRA/. Most new Federal expenditures and financial assistance that encourage development are prohibited within the CBRS. The Corps is required to consult with the Service prior to committing funds for projects or actions within or affecting the CBRS. Activities that are proposed in a CBRS Unit must meet the purposes of CBRA or meet the exceptions allowed by CBRA.

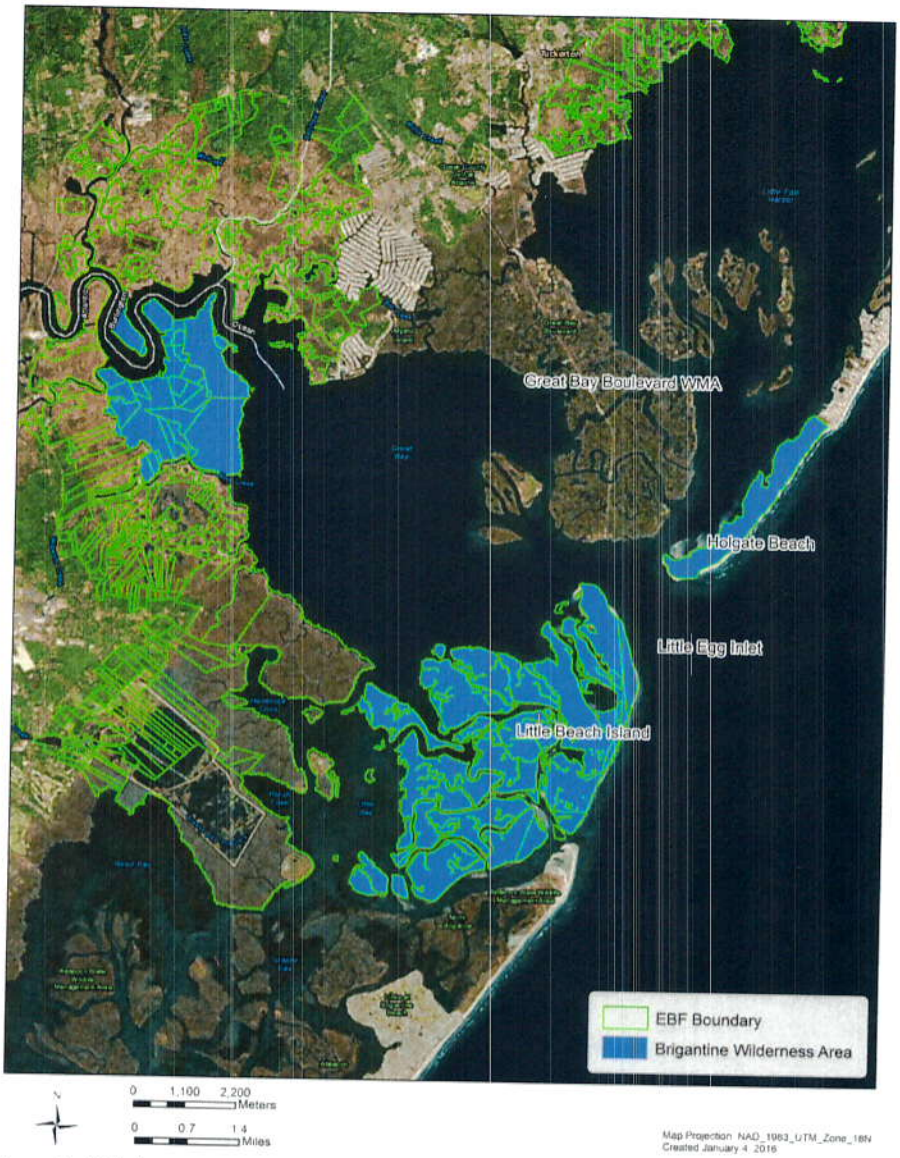

Figure 2. Wilderness Areas of EBFNWR

National Estuary Program and National Estuarine Research Reserves

The Study Area also includes the Barnegat Bay Partnership ([BBP], a National Estuary Program administered by the Environmental Protection Agency) located at Ocean County College, New Jersey and the Jacques Cousteau National Estuarine Research Reserve ([JCNERR], administered by the National Oceanic and Atmospheric Administration (NOAA)] located in Tuckerton, Ocean County, New Jersey. Both the BBP and JCNERR receive Federal funding and engage numerous stakeholders in their individual study areas both of which are encompassed by the Corps' Study Area; thus, it is imperative that the Corps include these groups to identify ecological relevant project(s) that offer long-term community resilience while providing needed benefits to the coastal ecosystem (see http://www.prepareyourcommunitynj.org/).

To that end, the BBP and its numerous Federal (including the Corps), State, local, and non-government agencies, academic institutions and other stakeholders have developed a Draft (July 2018) Comprehensive Conservation and Management Plan (CCMP) for public review to "reflect the changes in the Barnegat Bay's condition and emerging threats, such as climate change and sea level rise." The current draft CCMP can be accessed by visiting the following web site https://www.barnegatbaypartnership.org/wp-content/uploads/2018/07/Full-Document-BBP-CCMP-Draft.pdf.

The Corps should seek input from the BBP and JCNERR, as they have extensive knowledge of Barnegat Bay-Little Egg Harbor estuary and conduct substantial monitoring, research and outreach with the communities most affected in the Bay. Both the BBP and JCNERR can provide valuable information which will ensure the Corps Feasibility Study and the draft EIS is robust and current.

Great Egg Harbor River National Scenic and Recreation River

The Great Egg Harbor River (GEHR) was established by Congress as a Wild and Scenic River in 1992 and encompasses 308 square miles. The GEHR is an ecologically important watershed and supports one of only a few remaining river herring (*Alosa spp.*) spawning runs left in New Jersey (NJDEP 2016). The entire GEHR watershed is in the geographic boundary of the Study Area. A CMP was developed in cooperation with the Great Egg Harbor National Scenic and Recreational River Council (Council) and the NPS. A copy of the CMP can be obtained at http://www.gehwa.org/river-council/.

The GEHR is an ecologically important watershed and supports an important river herring spawning runs in New Jersey (Smith 2012). The entire GEHR watershed is in the geographic boundary of the Study Area. The Corps should coordinate with the NPS and the Council and similarly evaluate each alternative that may affect this significant and valuable watershed to ensure compatibility with the GEHR CMP and Congress' intent to establish the Wild and Scenic River.

Essential Fish Habitat

Portions of the tidally inundated areas of the Study Area are deemed essential fish habitat (EFH) and as such are regulated pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (90 Stat. 331; 16 U.S.C. 1801-1882). The National Marine Fisheries Service (NMFS) has designated much of the Study Area essential to the life stages of numerous recreational and commercial finfish species. Alternatives under consideration by the Corps should be coordinated with the NMFS to assess potential impacts to EFH.

OTHER RELATED CORPS ACTIVITIES IN THE STUDY AREA

There is numerous overlapping and potentially interrelated Corps projects, already approved under separate Congressional authorization, which may affect any one of the Study Area's proposed project alternatives. Most relevant of these authorized and ongoing projects involve the Corps' Operations and Maintenance Dredging Program (O&M). The Corps O&M Program

maintains the entire length of the Intercoastal Waterway from Manasquan River to the Cape May Canal (Canal), and includes the management of two Corps' confined disposal facilities (CDFs) on the Canal. In addition, the Corps maintains inlets on the Atlantic Coast and Delaware Bay, all of which are in the Study Area and may become interrelated to several of the Study alternatives under consideration. The inlets include Barnegat, Absecon, Great Egg Harbor, Corson, Townsend, Hereford, and Cape May. In most cases, each of these maintenance projects includes a beach nourishment component.

The Corps also maintains several 50-year Storm Damage Reduction Projects along the Atlantic Coast of NJ, all of which are located in the subject Study Area. Each of these O&M and Storm Damage Reduction Projects could become interrelated with the current Feasibility Study (potential source of clean sand needed for nature based projects) and as such should be closely evaluated with the current Feasibility Study to determine potential beneficial use compatibility.

Finally, the Corps was selected as one of three Corps Districts in the Nation to implement an Engineering With Nature initiative – a program the couples existing Corps authorities with potential beneficial use projects. Mordecai Island, Ocean County, New Jersey and the beneficial use of dredged material is an excellent on-the-ground approach to construction of an environmentally beneficial project while providing coastal resilience. The Mordecai Island also had the added benefit of protecting an adjacent sea grass bed and provides needed shorebird nesting and horseshoe crab (*Limulus polyphemus*) spawning habitat. Other ongoing discussions of similar beneficial use projects include removing accumulated dredged material from the Corps CDF on the Cape May Canal and placing the resultant dredged material as a beneficial use for neighboring bay communities, all the while providing added horseshoe crab spawning habitat and foraging habitat for the listed red knot (*Calidris canutus rufa*).

FISH AND WILDLIFE RESOURCES

Federally Listed Species

Any activity that may adversely affect listed species should be addressed in formal Section 7 ESA consultation, such as the one completed in December 2005 when the Service evaluated the Corps Coastal Storm Damage Reduction Program for the Atlantic Coast. However, the Service recommends that the Corps minimize impacts on federally listed species such that informal consultation can be completed for any alternative(s) selected by the Corps for advancement.

Piping Plover

As previously discussed, there are known nesting occurrences of the piping plover along New Jersey's Atlantic Coast shoreline. The largest nesting plover population in New Jersey is at the Gateway National Park - Sandy Hook Unit (NJDEP 2017). Specific to the Study Area, the next largest congregation of plovers is located at the EBFNWRs Holgate and Little Beach Units. Approximately 30 pairs of plovers have occupied the EBFNWR lands for breeding for the last ten years (Table 1). The Piping Plover Recovery Plan established a region-wide goal of 1.5 chicks fledged per breeding pair (U.S. Fish and Wildlife Service 1996a). Analysis of trends in abundance and productivity from 1986-2009 indicates the breeding productivity within New Jersey was 1.18 chicks per pair (Hecht and Melvin 2009).

TABLE 1. NUMBER OF PIPING PLOVER NESTING PAIRS AND PRODUCTIVITY ON E.B. FORSYTHE NATIONAL WILDLIFE REFUGE, 1993 TO 2015			
Year	Nesting Pairs	Plover Chicks Fledged	Fledging Rate (Chicks/Pairs)
1993	18*	4*	0.22*
1994	31	9	0.29
1995	9*	8*	0.89*
1996	35	13	0.37
1997	22	6	0.27
1998	31	26	0.84
1999	33	39	1.18
2000	30	29	0.97
2001	36	29	0.81
2002	35	20	0.57
2003	34	32	0.94
2004	38	8	0.21
2005	32	8	0.25
2006	30	10	0.33
2007	39	16	0.41
2008	25	1	0.04
2009	17	24	1.41
2010	26	31	1.19
2011	24	27	1.13
2012	31	20	0.65
2013	37	21	0.57
2014	26	45	1.73
2015	38	52	1.37
Mean	29.43	20.78	0.71

These small, territorial shorebirds are present on the Atlantic Coast between March and the end of August. Piping plovers nest above the high tide line, usually on sandy ocean beaches and barrier islands, but also on gently sloping foredunes, blowout areas behind primary dunes, washover areas cut into or between dunes, the ends of sand spits, and deposits of suitable dredged or pumped sand. Threats to piping plover include beach stabilization efforts (beach armoring, sand fences, sea walls, groins, jetties, and riprap); habitat loss; and intensive recreational use.

Based on the propensity of the piping plover to historically nest on the Atlantic Coast and its many inlets, including many areas in the Study Area including Little Egg Inlet, the Service recommends that the Corps fully evaluate the effects of any alternative being considered in the

subject Feasibility Study on piping plover habitat. This analysis will aid in the preparation of a biological assessment in the future for any alternative selected pursuant to ESA.

Seabeach Amaranth

Seabeach amaranth (*Amaranthus pumilus*) is found in the Study Area from Monmouth County to Cape May County, New Jersey. It is an annual plant endemic to Atlantic Coast beaches and barrier islands (U.S. Fish and Wildlife Service 1996b), occurring historically from Nantucket, Massachusetts to Folly Beach, South Carolina. By 1987, the plant was extirpated from nearly three-fourths of its earlier range (Hancock and Hosier 2003). Although the species recolonized much of those former areas between 1990 and 2000, populations in the recolonized states dropped sharply after an initial surge. Numbers remain very low and local extirpations are occurring again. The seabeach amaranth recovery objective is to have 75 percent of the sites with suitable habitat within the historical range occupied for 10 consecutive years (U.S. Fish and Wildlife Service 1996b).

The primary habitat of seabeach amaranth consists of overwash flats at accreting ends of islands, lower foredunes, and upper strands of non-eroding beaches (landward of the wrackline), although the species occasionally establishes small temporary populations in other habitats, including sound-side beaches, blowouts in foredunes, inter-dunal areas, and on sand and shell material deposited for beach replenishment or as dredge spoil. Seabeach amaranth usually is found growing on a nearly pure sand substrate, occasionally with shell fragments mixed in.

Seabeach amaranth occupies elevations from 8 inches to 5 feet above mean high tide. The plant is intolerant of even occasional flooding during its growing season. Seabeach amaranth is dependent on a terrestrial, upper beach habitat that is not flooded during the growing season from May into the fall. Such habitat is sparsely vegetated with annual herbs and, less commonly, perennial herbs (mostly grasses) and scattered shrubs. Vegetative associates of seabeach amaranth include sea rocket (*Cakile edentula*), seabeach spurge (*Chamaesyce polygonifolia*), and other species of open, sandy beach habitats. Seabeach amaranth is often associated with beaches managed for the protection of beach nesting birds such as the piping plover and the State-listed (endangered) least tern (*Sterna antillarum*) and black skimmer (*Rynchops niger*), and (Species of Concern) American oystercatcher (*Haematopus palliates*) and common tern (*Sterna hirundo*). Threats to seabeach amaranth include beach stabilization efforts (beach armoring, sand fences, sea walls, groins, jetties, and riprap); habitat loss; intensive recreational use; invasive species such as the Asiatic sand sedge (*Carex kobomugi*); and herbivory by webworms.

The Service recommends that the Corps fully evaluate the effects of any alternative being considered in the subject Feasibility Study on seabeach amaranth. This analysis will aid in the preparation of a biological assessment in the future for any alternative selected pursuant to ESA.

Red knot

A final rule to list the red knot as threatened under the ESA was published on December 11, 2014, with an effective date of January 12, 2015. Small numbers of red knots may occur in New Jersey year-round, while large numbers of birds rely on Delaware Bay and Atlantic Coast

stopover habitats during the spring (mid-May through early June) and fall (late-July through October) migration periods, respectively. These small shorebirds fly up to 9,300 miles from south to north every spring and reverse the trip every autumn, making the red knot one of the longest-distance migrating animals. Migrating birds break their spring migration into non-stop segments of 1,500 miles or more, ending at stopover sites called staging areas. Red knots converge in large flocks on stop-over and staging areas along the Delaware Bay and Atlantic Coast, including the Study Area. Threats to the red knot include disturbance, reduced food availability at staging areas, and loss of stopover habitat. Available records indicate that red knots occur in the Study Area, including Holgate, Little Beach and nearby State managed lands (*i.e.*, Island Beach State Park, Barnegat Lighthouse State Park, North Brigantine Natural Area, Malibu Beach Wildlife Management Area, Corson's Inlet State Park, Strathmere Natural Area, Cape May Point State Park). These records indicate red knots use the Study Area annually during both spring and fall migration, with flocks sometimes numbering hundreds of birds.

For red knots, unimproved tidal inlets are a preferred nonbreeding habitat. Along the Atlantic Coast, dynamic and ephemeral (lasting only briefly) features are important red knot habitats, including sand spits, islets, shoals, and sandbars, features often associated with inlets. From South Carolina to Florida, red knots are found in significantly higher numbers at inlets than at other coastal sites (U.S. Fish and Wildlife Service 2014). Threats to red knot include beach stabilization efforts (beach armoring, sand fences, sea walls, groins, jetties, and riprap); habitat loss; and intensive recreational use.

Specific to the Study Area, the red knot concentrated during fall migration of previous years at the northern tip of Corson's Inlet and from Prescott Terrace in Strathmere south to the northern tip of Sea Isle City, utilizing beaches, back bays, and marshes for foraging and roosting. Southbound migrating red knots may occur as early as July 15 and as late as November 15.

The Service recommends that the Corps fully evaluate the effects of any alternative being considered in the subject Feasibility Study on the red knot. This analysis will aid in the preparation of a biological assessment in the future for any alternative selected pursuant to ESA.

Northern long-eared bat

The proposed Study Area is located within the summer range of the northern long-eared bat (*Myotis septentrionalis*) (NLEB). During the summer, NLEB typically roost singly or in colonies underneath bark, crevices, or hollows of both live and dead trees and/or snags (typically $\geq$3 inches dbh). The NLEB bat is opportunistic in selecting roosts, selecting varying roost tree species throughout its range. During the winter, NLEBs predominately hibernate in caves and abandoned mine portals. Maternity colonies generally consist of 30 to 60 females and young. Males and non-reproductive females may occur within the breeding and foraging range of maternity colonies, but some individuals are solitary in the summer and may roost in cooler places such as caves and mines. Roosting NLEBs have also been observed in man-made structures, such as buildings, barns, sheds, cabins, under eaves of buildings, and in bat houses.

The Service recommends that the Corps fully evaluate the effects of any alternative being considered in the subject Feasibility Study on the NLEB. This analysis will aid in the preparation of a biological assessment in the future for any alternative selected pursuant to ESA.

CONSERVATION ACTIVITIES

Section 7(a)(l) of the ESA requires all Federal agencies to utilize their authorities, in consultation with the Service, to develop and carry out programs to conserve all species listed under the ESA. Additionally, Section 2(c)(1) of the ESA declares that all Federal agencies shall utilize their authorities to further the purposes of ESA. The purpose of the ESA is to protect and recover threatened and endangered species and the ecosystems upon which they depend. To avoid future Project delays, the Service recommends coordination with the Service to fulfill this important conservation mandate. Whenever possible the Corps should adopt a strategy of incorporating the habitat needs of the aforementioned species in the design of any Study alternative considered.

MIGRATORY BIRDS

The Corps entered into a Memorandum of Understanding (MOU) with the Service on September 5, 2014 (expires 2019) and committed to following Service recommendations to conserve migratory birds. Some of the applicable responsibilities of both parties of the MOU for the subject Study include: supporting EO 13186; emphasizing an interdisciplinary, collaborative approach to migratory bird conservation in cooperation with other governments, State and Federal agencies and non-federal partners; working to protect, restore, and enhance migratory bird habitats; and in general promoting collaborative approaches towards the development of reasonable and effective conservation measures for actions that promote bird conservation. It is recommended that the Corps seek opportunities to further bird conservation as specified in EO 13186 and embraced in the jointly signed MOU.

OTHER FISH AND WILDLIFE AND THEIR HABITATS

American Eel

American eel (*Anguilla rostrata*), are distributed in the Atlantic Ocean from Greenland to Brazil. Along the Atlantic coast of the United States, eels are found from Maine and Florida. The American eel spawns in the Sargasso Sea, a warm water area in the middle of the North Atlantic between the Azores and West Indies. American eel larvae spend 9 to 12 months as leptocephali larvae (glass eels) during which time they are transported by the Gulf Stream into coastal U.S. waters, including all of the waters identified in the Corps Study Area. American eels are managed under an interstate fishery management plan developed by the Atlantic States Marine Fisheries Commission (ASMFC) and implemented in 2001. Total American eel landings declined markedly from 1979 until 1996, and have since remained relatively low but stable. The ASMFC indicate the American eel population in U.S. waters is depleted. (https://www.nefsc.noaa.gov/sos/spsyn/op/eel/, http://www.asmfc.org/species/american-eel). American eel stocks along the U.S. Atlantic coast underwent a status review by the Service in 2011 in response to a petition to list the species as threatened or endangered under the ESA. On October 7, 2015 the Service determined the listing of the American eel was not warranted.

The Service recommends that any alternative selected during the development of a draft EIS identify potential adverse impacts to the American eel and any nature based mitigation strategies that could mitigate or potentially aid in the recovery of American eel.

River Herring

River Herring collectively known as Alewife (*Alosa pseudoharengus*) and Blueback Herring (*Alosa aestivalis*) are confirmed in numerous waterways of the Study Area. They include: Absecon Creek; Doughty Creek; Mill Creek; numerous creeks(12) in Barnegat Bay; the Great Egg Harbor River and 15 of its tributaries; Little Egg Harbor and three of its tributaries; the Manasquan River; Tuckahoe River; Toms River; and the Mullica River and 11 of its tributaries (including the Bass River) (NJDEP 2005). River herring are anadromous fish that spend the majority of their adult lives at sea, only returning to freshwater in the spring to spawn. Historically river herring spawned in virtually every river and tributary along the Atlantic coast. Alewives spawn in rivers, lakes, and tributaries of the Northeast. Blueback herring prefer to spawn in swift flowing rivers and tributaries and are most numerous in waters from Chesapeake Bay south. Mature alewife (ages three to eight) and blueback herring (ages three to six) migrate rapidly downstream after spawning. Juveniles remain in tidal freshwater nursery areas in spring and early summer, but may also move upstream with the encroachment of saline water. As water temperatures decline in the fall, juveniles move downstream to more saline waters. Little information is available on the life history of juvenile and adult river herring after they emigrate to the sea and before they mature and return to freshwater to spawn Shad and river herring once supported the largest and most important commercial and recreational fisheries along the Atlantic coast. Since colonial times, the blockage of spawning rivers by dams and other impediments, combined with habitat degradation and overfishing, have severely depleted shad and river herring populations. Commercial landings for these species have declined dramatically from historic highs (see http://www.asmfc.org/species/shad-river-herring).

In 2011, the river herring underwent a status review by NOAA to determine if the alewife and blueback should be listed as threatened or endangered pursuant to ESA. On August 7, 2013 NOAA determined that listing was not warranted for the alewife and blueback herring. As part of their determination NOAA agreed to fund and implement, in conjunction with the ASMFC and other partners, a coordinated coast-wide effort to continue to address data needs and proactively conserve river herring and their habitat. In their determination NOAA emphasized that they would be working with effected stakeholders to continue implementing important conservation efforts. NOAA indicated that they would likely revisit the status review of river herring by the end or 2018.

The NMFS indicated that the river herring is in major decline warranting designation as a Species of Concern (Greene pers. comm., 2017). Species of Concern are those species about which NOAA has concerns regarding status and threats, but for which insufficient information is available to warrant listing under the ESA. The Service concurs in NMFS' finding and recommends that any alternative selected during the development of a draft EIS should identify potential adverse impacts to river herring and any nature based mitigation strategies that could mitigate of potentially aid in the recovery of the river herring.

Striped Bass

The striped bass (*Marone saxitilis*) is found throughout the Study Area. The Atlantic Striped Bass Conservation Act (16 U.S.C. Section 5151 *et seq.*) is intended to support and encourage the development, implementation, and enforcement of effective interstate action for the conservation and management of the Atlantic striped bass. The Atlantic Coastal Fisheries Cooperative Management Act provides a vehicle for the Secretary of Commerce, in cooperation with the Secretary of the Interior, to support the Atlantic States Marine Fisheries Commission's striped bass management efforts.

Striped bass are one of the species most sought-after by recreational anglers on the Atlantic Coast. From 2005-14, recreational harvest along the Atlantic coast averaged 26.2 million pounds, generating significant revenues to the Nation's economy. Recreational landings for striped bass make up roughly 75-80% of the coastal landings. Along the Atlantic Coast, the striped bass ranges from the St. Lawrence River in Canada to St. John's River in Florida. Striped bass larvae and post larvae drift downstream toward nursery areas located in river deltas and the inland portions of the coastal sounds and estuaries. Juveniles typically remain in estuaries for two to four years and then migrate out to the Atlantic Ocean. Striped bass spend the majority of their adult life in coastal estuaries or the ocean.

Commercial fishermen harvest striped bass with a variety of gear including gill nets, pound nets, haul seines, and hook-and-line. From 2005-14, commercial harvest averaged 6.7 million pounds. Striped bass are managed directly by the state jurisdictions on the Atlantic Coast through the ASMFC (https://chesapeakebay.noaa.gov/fish-facts/striped-bass).

The Service recommends that any alternative selected during the development of a draft EIS identify potential adverse impacts to the striped bass and any nature based mitigation strategies that could mitigate loss of habitat or potentially aid in striped bass conservation.

Seagrasses or Submerged Aquatic Vegetation

Seagrasses or submerged aquatic vegetation (SAV) is found in the Study Area. It is found in shallow salty and brackish waters in many parts of the world, from the tropics to the Arctic Circle. Seagrasses serve as habitat and food for many recreationally and commercially important estuarine and marine species [*e.g.*, bay scallop (*Argopecten irradians)*, blue mussel (*Mytilus edulis)*, blue crab (*Callinectes sapidus)*, and weakfish (*Cynoscion regalis*)]. Seagrass beds support commercial fisheries, biodiversity, and also play a significant role in nutrient cycling, carbon sequestration, filtering of essential elements, and wave dampening. Seagrasses can form dense underwater meadows. Because of these benefits, seagrasses are believed to be the third most valuable ecosystem in the world (only preceded by estuaries and wetlands) (https://ocean.si.edu/ocean-life/plants-algae/seagrass-and-seagrass-beds). Threats to seagrass beds include dredging, filling, prop wash, turbidity, algae blooms and the general eutrophication of the seagrasses host waters.

In the Study Area, the BBP has been working cooperatively with the NJDEP in monitoring the heath of seagrass populations in Barnegat Bay. In their State of the Bay report for 2016, much of

the Bay's seagrass population was defined as "degraded" (see https://www.barnegatbaypartnership.org/wp-content/uploads/2017/08/BBP_State-of-the-Bay-book-2016_forWeb-1.pdf).

The Service recommends that any alternative selected during the development of a draft EIS identify potential adverse impacts to SAV and any nature based mitigation strategies that could mitigate for the loss of habitat or potentially aid in SAV habitat restoration.

Shellfish

Harvested species in the Study Area include hard clams (*Mercenaria mercenaria*), Eastern oysters (*Crassostrea virginica*), and bay scallops (*Argopecten irradians*). Overall, the abundance of hard clams in Barnegat Bay in 2012 was down approximately 23% from the last survey completed in 1985/1986. For Little Egg Harbor, the overall abundance in 2011 was down approximately 57% compared with the 1985/1986 survey. However, the abundance of hard clams in Little Egg Harbor increased 32% between 2001 and 2011 (see https://www.barnegatbaypartnership.org/wp-content/uploads/2017/08/BBP_State-of-the-Bay-book-2016_forWeb-1.pdf).

In the Study Area of Barnegat Bay, NJDEP has designated the Bay's waters for harvesting as 75% "approved," 6% "prohibited," and 19% "seasonal and special restricted" for shellfish harvest (see https://www.barnegatbaypartnership.org/wp-content/uploads/2017/08/BBP_State-of-the-Bay-book-2016_forWeb-1.pdf). To date, there have been no substantial changes in the percentages of classified waters over the past five years. Threats to shellfish include poor water quality that is generally attributable to contamination from stormwater runoff and other nonpoint sources rather than single, point source discharges. This can be seen in the northern portion of the Barnegat Bay, which represents a majority of the prohibited and special restricted waters. Additional threats to shellfish include overharvesting, the general eutrophication of host waters, algae blooms, pathogens, and loss of seagrass beds.

The Service recommends that any alternative selected during the development of a draft EIS identify potential adverse impacts to shellfish populations and any nature based mitigation strategies that could mitigate for the loss of habitat or potentially aid in shellfish recruitment and restoration.

NATIONAL ENVIRONMENTAL POLICY ACT

The goal of the NEPA is to reduce adverse impacts to the environment, including cumulative impacts and to take actions that protect, restore, and enhance the environment (40 CFR Parts 1500 to 1508). The Study Area is a mosaic of habitats ranging from tidal to non-tidal. Since Colonial times, 39 % of wetlands in New Jersey have been destroyed by human activities (Dahl 1990). Just in Barnegat Bay over 238 acres of tidal wetlands and 284 acres of freshwater wetlands were lost since 2007 (see https://www.barnegatbaypartnership.org/wp-content/uploads/2017/08/BBP_State-of-the-Bay-book-2016_forWeb-1.pdf). These historic losses have contributed to an increase of flooding and poor water quality and the general degradation of Barnegat Bay and other Study Area waters. Any additional losses of wetlands

associated with some of the Study alternatives would be considered substantial and should be avoided to the maximum extent practicable. Should the proposed Project involve an adverse effect to the aquatic environment, the goals of NEPA would not be fulfilled (*i.e.*, to protect and enhance the quality of the human environment). The filling of an undetermined amount of wetlands and waters of the U.S. is not supported by several Congressional initiatives aimed at the protection and restoration of wetlands and flood plains (E.O. for Flood Plains, and Wetlands) and the New Jersey Wildlife Action Plan.

The Service strongly recommends the Corps expend considerable effort on alternatives that provide an ecological uplift (i.e., *Mordecai Island*) and not pursue alternatives that are considered hard structures (*i.e.*, groins or inlet tide gate structures) that could further degrade the aquatic environment.

Purpose and Need

Pursuant to NEPA, it is vital that the purpose and need statement be easily understood in order to develop a proper scope of analysis for identifying reasonable and practicable alternatives for consideration; analyze those alternatives in depth; and select the preferred alternative. Further discussion should be offered by the Corps in the purpose and need statement regarding other reasonably expected projects that can be expected with any alternative considered (dune fortification, dredging, and additional wetland and open water fills) and the interrelationship or interdependence of any existing authorized Corps project to the Study's alternatives under consideration.

Federally Listed Species

Approximately one-third of the State's piping plover population is found in the Study Area. Other Federal listed species confirmed in the Study Area include the threatened seabeach amaranth, red knot, and northern long-eared bat. Based on some preliminary alternatives identified by the Corps (*i.e.*, tide gates; storm surge barriers; hardened shorelines; groins; dune construction; new levee construction; and increases in dredging frequency and volumes, including beach nourishment along the Atlantic Coast and the ICWW) it is reasonable to expect that any one of these activities could adversely affect a listed species. As such, the Corps should continue coordinating with the Service to determine the extent of any adverse impacts that could be associated with any Study alternative.

The Corps should be aware of another Feasibility Study underway by the Corps of Engineers, New York District as part of the NACCS. The New York District is evaluating the potential impacts of similar structures identified in the NJBBS, including a proposed levee/tide gate structure that would span New York Harbor from Breezy Point, Brooklyn, New York to Sandy Hook, Monmouth County, New Jersey. The Gateway National Park at Sandy Hook currently provides habitat for approximately 60 % of New Jersey's piping plover population. The New York District's NACCS study also has the potential to adversely affect the piping plover.

A shoreline hardening project selected by the Corps as a preferred alternative for either the Sandy Hook or Little Egg Inlet area could significantly impact the continued existence of this

species. As such, the Corps should evaluate the activities identified by the New York District (and the other seven NACCS studies) to ensure that the cumulative effects of any Study alternative being considered in the NACCS effort would not adversely affect, either individually or cumulatively, a federally listed species.

Cumulative Effects

The EIS should describe that the Study Area as impaired due to the cumulative actions of humans over the last two centuries and that any additional loss of wetlands or open waters in the Study Area will further exacerbate an already impacted Study Area. The draft EIS should reference that wetlands, and their corresponding ecological functions and values (including flood protection), continue to be lost in New Jersey due to development, the effects of sea level rise, and the subsidence of marsh plains. The EIS should also reference that the current mitigation strategy of converting lesser quality aquatic habitats (*i.e.*, a *Phragmites* dominated marsh) to another of higher value does not result in added flood protection to the region. To offset the continuing cumulative effects of declining wetland acreage in the Study Area the Service recommends that the Corps (1) minimize impacts to the aquatic environment by seeking Study alternatives that avoid the filling of wetlands or open waters, and (2) for wetland impact areas that are deemed unavoidable, develop a viable mitigation plan to offset adverse impacts to the aquatic environment as specified in the 2015 Presidential Memorandum (Obama 2015). In the Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment, for which the Department of Defense is a signature party, the White House said "Agencies shall each adopt a clear and consistent approach for avoidance and minimization of, and compensatory mitigation for, the impacts of their activities and the projects they approve" (Obama, 2015). The Corps cumulative analysis of impacts and corresponding compensation, if any, should also be consistent with the Executive Order 11988 (Floodplain Management), and EO 11990 (Protection of Wetlands). A restoration strategy whereby the selection of a preferred Study alternative would also result in a "net benefit to the aquatic environment" should also be major themes throughout the Study's draft EIS.

Indirect Effects

The draft EIS should discuss what, if any flooding impacts may occur as the Corps evaluates the potential construction of any Study alternative being considered. This should include a discussion on how a study alternative may exacerbate an already known flooding condition or place undue hydrologic stress on a barrier island system that may not be designed for coastal storms or projected rising sea levels. The latter example could apply should the Corps select a tide gate system that prohibits flood waters from entering the Back Bay may place undue stress on a dune system making it potentially prone to breach.

The Service is also concerned that flood waters that would normally be accommodated in the Study Area may be diverted to other areas outside the Study Area (*i.e.*, Shark, Navesink, or Shrewsbury Rivers, and Raritan and Delaware Bays) and cause indirect flooding of lands and communities in these watersheds. The feasibility Study should reference the potential indirect effects of converting known estuarine marshes to a freshwater habitat as tidal flow may be restricted upstream of planned levees or flood control structures. Several of the Study

alternatives under consideration have the potential to prohibit the passage of aquatic organisms upstream and downstream of any planned construction site. The conversion of aquatic habitats and/or the blocking of fish passage would necessitate mitigation requirements, and potentially exacerbate already depressed fisheries, and require large quantities of mitigation to offset impacts on the aquatic environment.

Alternative Analysis

The Council of Environmental Quality states (40 CFR Part 1508.25) that a range of actions, alternatives, and impacts shall be considered in a NEPA document. For a proposed action or any reasonable alternative, the Federal action agency should determine the area that will be affected. In 1989 the EPA defined the geographic scope for an alternative analysis to "...include all areas that would be reasonable to consider in the industry." and that "...the basic project purpose will generally determine the appropriate geographical scope."

The Service objects to the selection of hard engineered solutions, such as a levee, tide gate, or flood wall, unless they are accompanied by significant ecological gains for the Study Area. As discussed earlier, there are numerous opportunities for the Corps to pursue beneficial alternatives in the aquatic environment. The Service recommends the Corps to work closely with the effected stakeholders and pursue alternatives that improve water quality, finfish and shellfish habitat, wetlands habitat and fish passage. Improvement in aquatic functions and habitat can lead to additional flood storage and storm attenuation in the Study Area.

The Service also requests that the scope of alternatives include an array of nature based alternatives that utilize dredged material for large scale wetland and island restoration projects. The Corps should fully consider the utilization of the millions of cubic yards of dredged material currently found in the dozens of CDFs found within the Study Area, including the Corps' owned and operated CDF located adjacent to the Cape May Canal. Barring a CDF that contains contaminants of ecological concern, the use of dredged material for an ecological beneficial use can improve ecological functions of the bay while providing coastal resilience to adjoining communities facing flood risk. The Corps only has to review their very successful work at Mordecai Island which utilized dredged material for the restorations of an island and wetland habitat. This new habitat provides ecological uplift for Barnegat Bay, nesting habitat for shorebirds, storm resilience for Long Beach Island, protects an existing sea grass bed, and provides for safe navigation with the boating public. This initiative could result in the adoption many of the restoration projects identified in the Corps Final Selection Report dated December 2001, for the New Jersey Intercoastal Waterway (Corps 2001).

The use of nature based alternatives has considerable ecological and community benefits that appear just as practicable economically and environmentally as a seawall or other hard structure that offers minimum ecological benefit. The Corps needs to determine why dredged material that is contained in a CDF (that is free of contamination) cannot be utilized for sediment enrichment projects such as marsh and island creation and for coastal resilience for targeted Back Bay communities.

CLEAN WATER ACT

The Congressional intent of the CWA "... is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." As the NJDEP and the Corps are aware, the U.S. Congress passed the CWA to enable Federal agencies to restore, and maintain the chemical, physical, and biological integrity of the Nation's waters.

Alternatives that are not water dependent (i.e., in-water fills for the purpose of constructing levees, groins, or seawalls) should be avoided whenever possible. Hard structures or tide gates may likely generate sufficient interest from the public to warrant reconsideration, as the losses of wetlands or waters of the US and the costs of mitigation may outweigh any gains a hard structure or tide gate may represent.

Non-water dependent alternatives that may be economically viable and meet the purpose of the Study could include a "retreat" program for businesses and residences that suffer repeatable flood losses. Properties eligible for a "retreat" program could be bought-out, relocated outside the flood plain or be raised above a certain storm height elevation. For properties that are vacated, the use of upland areas for the construction of berms or levees is a preferred alternative over any losses to the aquatic environment. The implementation of a "retreat" program should be carefully coordinated with representatives of the Housing and Urban Development Authority (HUD), the Federal Emergency Management Authority (FEMA), and NJDEPs Blue Acres Program - as each of these agencies manages programs to acquire or relocate flood prone properties and businesses.

SERVICE CONCLUSIONS AND RECOMMENDATIONS

The Service has significant concerns to the selection of hard engineered solutions, such as levees, tide gates, or flood walls being constructed in the Study Area. The Service prefers the selection of nature based alternatives as was constructed on Mordecai Island, as the template used in selecting Study alternatives. The Corps should be seeking alternatives that avoid or minimize activities in the aquatic environment with a goal of improving water quality and the habitats of numerous fish, shellfish, and migratory birds whenever possible. The Corps should focus on the Study Areas population declines of numerous species, wetland and seagrass losses, and fish migration impediments, as they develop a robust Study alternative analysis. Finally, the Corps should utilize the efforts of the BBP, JCNERR, and NJDEP to develop viable solutions for the affected communities while providing a path forward towards ecological restoration of New Jersey Back Bay habitats.

The Service requests the following be incorporated into the Corps draft NEPA document. The Service will maintain our coordination status pursuant to FWCA and NEPA to ensure that the Project is sufficiently protective of fish and wildlife resources, including species protected under the ESA, and their respective habitats. The Service recommends the Corps implement the following measures:

- evaluate all Study alternatives to ensure compliance with the enabling legislation which authorized the acquisition of Refuge lands and avoid the advancement of any alternative that may affect a WA Unit;
- coordinate with the BBP and JCNERR to further the selection of alternatives that align with the work they are implementing with many stakeholders in the Study Area;
- coordinate with the NPS and the Council to ensure compatibility with their CMP;
- consult with the NMFS to ensure the effects any Study alternative are evaluated pursuant to ESA and the Magnuson-Stevens Fishery Conservation and Management Act;
- work with the Corps O&M Division to evaluate the beneficial use of dredged material, (including the utilization of sediment currently stored in dozens of CDFs) to meet the Study's purpose and need objectives;
- continue informal ESA consultation with the Service on potential effects of Study alternatives considered;
- evaluate the cumulative effects on listed species regarding actions taken by the Corps of Engineers to further the goals of the NACCS;
- adopt a strategy for the selection of Study alternatives that prioritize the habitat needs of any affected listed species or fish and wildlife resource;
- seek opportunities to further migratory bird conservation pursuant to EO 13186 and highlighted in the MOU between the Corps of Engineers and the Service;
- evaluate impacts to the American eel, striped bass, seagrasses, shellfish, and river herring and develop Study alternatives that further conservation efforts for these species;
- avoid the selection of hard structure Study alternatives by seeking Study alternatives that provide an ecological uplift while meeting the Study's purpose and need (*i.e.*, Mordecai Island)
- evaluate the interrelationship and interdependence of the current Study with other previously authorized Corps activities;
- ensure the Study's NEPA document advances the goals of EOs 11988, 11990 and 13112; and
- partner with HUD, FEMA and NJDEPs Blue Acres Program to identify businesses and residents that are prone to flooding and work towards developing a "Retreat" program.

Thank you again for allowing the Service to continue providing comments pursuant to FWCA, NEPA and ESA on the subject feasibility investigation. If you require additional information on the above, please contact Mr. Steve Mars at 609-382-5267.

Sincerely,

Eric Schrading
Field Supervisor

CF: USFWS, Region 5 (ARD for ES and NWR)
USFWS, (EBFNWR and CMNWR)
USEPA
NOAA
NJDEP

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ATTACHMENT C

U.S. Fish and Wildlife Service Comments on Preliminary Draft Integrated Feasibility Study and Tier 1 Environmental Impact Statement for the New Jersey Back Bay Study

Eric Schrading – Field Supervisor, USFWS, NJFO

July 23, 2021

The U.S. Fish and Wildlife Service (Service) has reviewed the New Jersey Back Bay Study Preliminary DEIS dated July 2021. The U.S. Army Corps of Engineers, Philadelphia District, in partnership with the New Jersey Department of Environmental Protection (NJDEP), is conducting a feasibility study within the New Jersey Back Bay area - the network of interconnected tidal water bodies located landward of the New Jersey ocean coastline in Monmouth, Ocean, Atlantic, Burlington, and Cape May counties – that includes approximately 950 square miles and 3,400 linear miles of shoreline. The objective of the feasibility study is to investigate problems and solutions to reduce damages from coastal flooding. The Interim Report presents preliminary findings in a focused array of alternative plans that reduce risks and damages from coastal storms.

The following comments are provided under the authority of the Fish and Wildlife Coordination Act (FWCA), NEPA, CWA, and the Endangered Species Act (ESA) and are consistent with the intent of the Service's Mitigation Policy The Service's Mitigation Policy emphasizes that avoidance and minimization precede compensation, which is to be considered for unavoidable adverse impacts to fish and wildlife resources and supporting ecosystems.

The Service previously provided comments on this project in letters dated September 14, 2018 and March 29, 2019. As a Cooperating Agency, the Service has continued concerns with the limited time that was provided (10 days) to review a 538 page document with appendices. The currently proposed schedule for this substantial project is very aggressive and we continue to have on-going concerns with the ability to provide careful analysis and assessment required through the FWCA and the ESA within the projects current schedule.

Alternatives Analysis

"Section 73 of the Water Resources Development Act of 1974 (WRDA) requires consideration of nonstructural alternatives (measures) in all flood risk reduction studies. They can be considered independently or in combination with structural measures (Corps Planning Guidance Notebook PGN). Planning Bulletin (PB 2016-01) signed on December 22, 2015 further clarifies Corps policy on nonstructural measures for the plan formulation phase on investigations and implantation. The Planning Bulletin clarifies that it is the policy of the USACE to formulate a full array of alternatives consisting of nonstructural measures and structural measures and that not all nonstructural measures need to meet USACE criteria for agency participation and cost share implementation."

There are numerous places throughout the DEIS where nonstructural alternatives are discounted and not adequately considered. Four planning criteria are introduced on page 155 but it is

unclear what these four planning criteria are beyond referencing the reader to Appendix A (which was not provided to the Service). Additionally, on page 185 acquisition/relocation cost are not evaluated in the HEC-FDA Analysis. Further if "the HEC-FDA model reaches were developed with storm surge barrier alternatives in mind" (page 187). The public may question whether the alternatives analysis is predecisional and whether nonstructural alternatives were adequately considered (as required by WRDA). Additionally on pages 222-223 the BCR for nonstructural alternatives is greater than all of the structural or hybrid alternatives and it is unclear why structural alternative and/or hybrids are in the Tentatively Selected Plan as opposed to only nonstructural alternatives that have the best benefit/cost ratio. The nonstructural plan (pg 292) indicates a BCR 2.3 and the TSP only has a BCR of 1.8. The rational for selecting structural alternatives in the TSP with a lower BCR is unclear in the document.

The managed retreat alternative is briefly described in the document, but there is no analysis of the alternative. There is a reference on page 180 that identifies that "future analysis will include additional building retrofits such as managed coastal retreat including acquisition / relocation." The nonstructural acquisition / relocation costs were not evaluated in the HEC-FDA analysis. The Service recommends that the Corps provide more than a cursory sentence on managed retreat and provide an analysis of this alternative in the document. The proposed TSP has a cost of approximately $26 billion (incuding O&M costs for the life of the project) to protect approximately $72.2 billion in total structural value (all of which are not equally at risk from storm surge). Managed retreat to relocate some of these structures should be seriously and adequately assessed and analyzed as a realistic and cost-effective alternative with other nonstructural alternatives that also reduces adverse impacts on fish and wildlife resources.

We recognize that data limitations are an issue for this effort at this interim stage, but a major issue with the report is the failure to emphasize the high degree of uncertainty of impacts associated with a number of structural management measures. The "Plan Formulation Process" section (page 147) does not address these uncertainties and appears to give the same weight (regardless of certainty and assumptions) to all alternatives. Bias toward structural alternatives, such as providing a score of "0" for acceptability in the Cycle 2 screening for "Managed Coastal Retreat" while providing a score of "1" for a number of structural measures in the Cycle 2 screening appears prejudicial. The Service is concerned with the lack of clarity and transparency in the Cycle 2 screening process and that these decisions may favor short-term structural measures over more sustainable long-term nonstructural measures.

Ecosystem Services

One prominent aspect of the report is the apparent absence of economic considerations of current and future habitats and species and the wealth of benefits they provide. Ecosystems provide a range of services fundamentally important to human well-being and existence. These include many of the services currently being analyzed in the Interim Report, such as erosion protection, wave attenuation, flood protection, carbon sequestration, water quality benefits, and many others. A number of peer-reviewed (e.g., Costanza, et al. 2014) sources have valued these ecosystem service benefits on global and regional scales (e.g., Narayan et al. 2017) and the Corps should consider these services and integrate them into all future analyses. This includes analyzing the

potential loss of ecosystem services through the implementation of man-made structural measures.

Specific Comments and Questions

- Figure 9 (pg 25-27) – Should include a better explanation of DOI projects listed on the Figure
- Table 7 (pg 34-35) – Are all values $?
- Page 18 – indicates $2.9 billion in NFIP damages from Hurricane Sandy, but page 35 indicates $4.5 billion in damages. You may want to clarify the difference between these estimates.
- Page 36 – References 32 priority bird species. You should identify the source of this reference.
- Page 40 – There are more Wildlife Management Areas in the study area than those referenced (e.g., Absecon, Sedge Island, Upper Barnegat, Pork Island).
- Page 88 – May want to mention saltmarsh sparrow which is a species at risk and petitioned for listing since large areas of marsh in the project areas may be affected.
- Page 93 – In November 2016 a 2nd culvert was installed with DOI Hurricane Sandy funds in collaboration with the American Littoral Society at Wreck Pond significantly increasing fish passage.
- Page 120 – May need to explain what "NACCS synthetic tropical cyclones" are.
- Page 418 and 421 – It should be identified that changes in sediment transport and hydrologic changes in inlets with storm surge barriers may adversely affect piping plover, red knot, and seabeach amaranth habitat adjacent to these inlets over the long term.

ATTACHMENT D

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Jersey Field Office
4 E. Jimmie Leeds Road, Suite 4
Galloway, New Jersey 08205Tel: 609/646 9310
www.fws.gov/northeast/njfieldoffice/

IN REPLY REFER TO:
16-CPA-0267

Peter Blum, Chief
Planning Division
Philadelphia District,
U.S. Army Corps of Engineers
Philadelphia, Pennsylvania 19107-3390

OCT 19 2016

Dear Mr. Blum:

This letter responds to your July 12, 2016 electronic correspondence to the U.S. Fish and Wildlife Service (Service) to provide a Fiscal Year 2017 (2017) scope of work (SOW) for services pursuant to the Fish and Wildlife Coordination Act (FWCA) (48 Stat.401; 16 U.S.C. 661*et seq.*) regarding the U.S. Army Corps of Engineers Philadelphia District's (Corps) New Jersey Back Bay Feasibility Study, Monmouth, Ocean, Burlington, Atlantic, and Cape May Counties, New Jersey.

Enclosed please find a draft FY 2017 SOW including the Service's staff cost for services estimated at $18,228. The Service will provide a Planning Aid Letter (PAL) and a draft and final 2(b) Report pursuant to FWCA. The PAL and 2(b) reports will contain updated information regarding wildlife resources and an assessment of potential impacts and benefits to these resources from the project.

Please indicate that you are in agreement with the draft SOW and the estimated cost of services.

The Service looks forward to working cooperatively with you and your staff to assess and minimize wildlife impacts from the Project. If you have any questions regarding the draft SOW please contact Ron_Popowski@fws.gov.

Sincerely,

Field Supervisor
Eric Schrading

Mars/corps actions/ civil works/ NJBBFS/ cover letter

Draft Scope of Work

Fiscal Year 2017

U.S. Fish and Wildlife Service/U.S. Army Corps of Engineers

New Jersey Back Bay Feasibility Study

Monmouth, Ocean, Burlington, Atlantic, and Cape May Counties, New Jersey.

A. SUBJECT:

Scope-of-work (SOW) between the U.S. Army Corps of Engineers, Philadelphia District (Corps) and the U.S. Fish and Wildlife Service's (Service) New Jersey Field Office (NJFO), to prepare a Planning Aid Letter (PAL) followed by draft and final 2(b) reports pursuant to Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401; 16 U.S.C. 661 *et seq.*) for the New Jersey Back Bay Feasibility Study (NJBBFS) in multiple counties in New Jersey. Transfer funding between the Corps and the Service is authorized pursuant to the Economy Act (31 U.S.C. 1535).

Agency Financial Information

Service:
DUNS: 151157950
Tax ID: 53-0201504
Agency Locator Code: 14160006

Corps:
DUNS: 009609020
Tax ID: 62-1642142
Agency Locator Code: 00008736
Business Event Type Code: DISB
Treasury Account Symbol: See Military Interdepartmental Purchase Request (MIPR)

If the Corps cancels the agreement, the Service may collect costs incurred prior to the cancellation of the agreement plus any termination costs.

B. STUDY/PROJECT NAME:

New Jersey Back Bay Feasibility Study; Monmouth, Ocean, Burlington, Atlantic, and Cape May Counties, New Jersey (NJBBFS)

C. CORPS DISTRICT AND CONTACTS:

U.S. Army Corps of Engineers
Philadelphia District
Wanamaker Building – 100 Penn Square East
Philadelphia, Pennsylvania 19107-3390

Chief, Planning Division:	Peter Blum	Peter.R.Blum@usace.army.mil
Project Manager	Mark Eberle	Mark.D.Eberle@usace.army.mil
Project Biologist:	Beth Brandreth	Mary.E.Brandreth@usace.army.mil
Financial Point of Contact:	Mandy Fry	Mandy.J.Fry@usace.army.mil

D. SERVICE OFFICE AND CONTACTS:

U.S. Fish and Wildlife Service
New Jersey Field Office
Atlantic Professional Park
4 E. Jimmie Leeds Road, Suite 4
Galloway, New Jersey 08205

Field Supervisor:	Eric Schrading	Eric_Schrading@fws.gov
Project Biologist:	Steve Mars	Steve_Mars@fws.gov
Financial Point of Contact:	Laura Perlick	Laura_Perlick@fws.gov

E. DESCRIPTION OF STUDY:

The Atlantic Coast of New Jersey is designated as a Federal Coastal Storm Risk Management (CSRM) Planning Area (http://www.nad.usace.army.mil/About/National-Centers-of-Expertise/Coastal-Storm-Risk-Management-Planning/). However, the NJBBFS area, which encompasses five counties and approximates 1,300 square miles and 950 miles of coastline, lacks a comprehensive CSRM program. As a result, the New Jersey Back Bay (NJBB) region experienced major impacts and devastation during Hurricane Sandy and subsequent coastal events owing to low elevations and highly developed residential and commercial infrastructure along the NJBB coastline.

The Corps NJBB CSRM Feasibility Study is to catalyze and spearhead innovation and action by all in the NJBB region to develop and implement comprehensive CSRM strategies to increase resilience, and to reduce risk from future storms and impacts of sea level change (SLC). The objective of the NJBB CSRM Study is to investigate CSRM challenges and solutions to reduce damages from coastal flooding that affects population, critical infrastructure and facilities, property, and ecosystems.

The NJBB is one of nine focus areas identified in the North Atlantic Coast Comprehensive Study (NACCS), whose goals are to:

- provide a risk management framework, consistent with and National Oceanic Atmospheric Administration/Corps Infrastructure Systems Rebuilding Principles; and

- support resilient coastal communities and robust, sustainable coastal landscape systems, considering future sea level and climate change scenarios, to reduce risk to vulnerable populations, property, ecosystems, and infrastructure.

While the NACCS provides a Tier 1 regional scale analysis, the NJBB CSRM Study will employ NACCS outcomes and apply the NACCS CSRM Framework to formulate Tier 2 (State or watershed scale) and Tier 3 (municipal or community level scale) analyses, strategies and measures for potential implementation towards enabling communities to understand and manage their short-term and long-term risk in a systems context.

Study Approach: The New Jersey Department of Environmental Protection (NJDEP) is the non-Federal Sponsor for the NJBB CSRM Study. The study will investigate the network of interconnected tidal water bodies and coastal lakes located landward of the New Jersey ocean coastline of Monmouth, Ocean, Burlington, Atlantic and Cape May Counties. The study will consider and develop solutions with respect to past, current, and future CSRM and resilience planning initiatives and projects underway by the Corps and other Federal, State, and local agencies. Four overarching efforts will be performed:

1) assess the study area's challenges, opportunities and future without project conditions;

2) assess the feasibility of implementing system-wide CSRM solutions such as policy/programmatic strategies, storm surge barriers at selected inlet entrances, or tidal gates at selected lagoon entrances;

3) assess the feasibility of implementing site-specific perimeter solutions such as a combination of structural, non-structural, and natural and nature-based features; and

4) assess the impacts of back-bay strategies and solutions on the Atlantic Coast CSRM Program towards developing recommendations within a systems context given likely future scenarios.

The end product of this study will be a comprehensive CSRM and climate change adaptation shared vision for the NJBB amongst the Corps and all stakeholders. With this approach, the NJBB study will align with the broader climate change adaptation, community resilience planning, and sustainability principles coupled with the ongoing Systems Approach to Geomorphic Engineering (SAGE) and Engineering with Nature (EWN) practices currently being incorporated into Corps Civil Works planning processes. This approach will allow the Corps to facilitate interagency efforts, leverage funding and serve as the Agency Champion/Integrator,

representing a holistic plan to address vulnerable coastal communities within the NACCS NJBB study area.

The deliverable for this study will be a Corps' Feasibility Report (Report) with integrated National Environmental Policy Act (NEPA) compliance documentation culminating in a Chief's Report recommending scaled, incrementally implementable comprehensive, integrated Corps' design and phased construction opportunities using the full array of CSRM strategies and measures for community-based solutions within a watershed-based, systems framework. The Report will also offer implementable policy recommendations with supporting analyses for non-Corps entities including floodplain management, landscape architecture, hurricane evacuation plans, and Community Rating System enhancement opportunities. Additional recommendations will be provided for incorporating existing Corps and external programs, projects, plans and actions, as well as public-private partnership opportunities into the NJBB study umbrella.

While the draft Report will develop programmatic NEPA compliance documentation identifying a range of impacts, the final Report will produce a detailed fully compliant NEPA document which evaluates impacts for specific solutions.

F. STATUS OF STUDY:

Active. The following independent studies by the Corps were taken in the Project area:

New Jersey Shore Protection Study, Brigantine Inlet to Great Egg Harbor Inlet, Brigantine Island, New Jersey;

New Jersey Shore Protection Study, Brigantine Inlet to Great Egg Harbor Inlet, Absecon Island, New Jersey;

New Jersey Shore Protection Study, Hereford Inlet to Cape May Inlet, New Jersey;

New Jersey Shore Protection Study, Barnegat Inlet to Little Egg Inlet (Long Beach Island), New Jersey;

New Jersey Shore Protection Study, Manasquan Inlet to Barnegat Inlet, New Jersey;

Oakwood Beach, Final Feasibility Report, New Jersey;

Townsend Beach Inlet to Cape May Inlet, Feasibility Study, New Jersey; and,

New Jersey Intracoastal Waterway Final Site Selection Report, Cape May, Atlantic, Burlington and Monmouth Counties, New Jersey.

G. COORDINATION AND SCOPING:

The Corps and the Service will coordinate routinely as necessary. Additionally, the Service will coordinate with the New Jersey Division of Fish and Wildlife (NJDFW) to include the NJDFW's input in final FWCA 2(b) reports.

H. DATA AND INFORMATION NEEDED FROM THE CORPS:

1. Signed SOW.

2. Completed and signed transfer funding agreement via MIPR.

3. Supporting documents (*i.e.,* NACCS), including maps, diagrams, reports, project schedules, and data produced by or available to the Corps.

4. Draft NEPA document and draft Report.

I. SPECIFIC WORK TO BE ACCOMPLISHED BY THE SERVICE:

1. Identify and review existing information regarding federally listed species, State-listed species, species of concern, and other wildlife resources relevant to the Feasibility Study project area.

2. Review study reports, maps, and other information.

3. Coordinate with NJDFW, local environmental organizations, and Corps staff regarding the NJBBFS.

4. Participate in site visits and key team meetings, as needed. Site visits will be coordinated with the Corps in advance.

5. Aid the Corps in identifying Natural and Nature-Based Features type solutions, as well as EWN opportunities within the Project area.

6. Provide one PAL for the draft scoping letter with detailed information on the existing natural resources in the area, potential impacts to the those resources, and recommendations for avoidance and mitigation opportunities, as appropriate.

7. Provide draft Section 2(b) report under the FWCA with substantive comments on biological, ecological, and natural resource-related subjects, including federally and State-listed species and any opportunities for habitat enhancement or mitigation and with substantive comments on project alternatives with a focus on the Corps' recommended plan as described in the draft Feasibility Study Report, draft NEPA document, and other draft products.

8. Provide a final Section 2(b) report under the FWCA addressing and incorporating comments received from the Corps and NJDFW on the draft Section 2 (b) report.

J. CORPS INPUT TO THE SERVICE:

The Corps will provide project documents and technical information developed during the course of the study, secure any other existing Corps documents that the Service may request, and coordinate routinely as plans are refined.

The Corps will provide comments or concurrence with the Service's written products within 30 days of submission. Once any comments are addressed and the Corps provides concurrence, Service products will become public documents available to outside parties upon request.

K. SERVICE INPUT TO CORPS:

Service submits Planning Aid letter	November 1, 2016
Service submits draft Section 2(b) Report	see below target date
Service submits final Section 2(b) Report	see below target date

L. CORPS AND SERVICE SUBMISSION SCHEDULE:

The Service and the Corps will provide written notice of any anticipated changes in schedule. Notification will be submitted as soon as possible, but no less than 30 days prior to the scheduled due date.

	Target Date
Corps provides project information, and transmits MIPR.	October 21, 2016
Service submits PAL to the Corps and NJDFW.	Within 30 days after receipt of MIPR
Service submits draft Section 2(b) Report to the Corps and NJDFW.	Within 60 days after receipt of draft Feasibility Study and Integrated NEPA document.
Corps and NJDFW provide comments on draft Section 2(b) Report.	Within 30 days after receipt of draft Section 2(b) Report
Service addresses Corps and NJDFW comments and submits final Section 2(b) Report.	Within 30 days after receipt of Corps and NJDFW comments.

M. SERVICE EFFORTS AND COSTS:

Service Efforts	**Task Days**
Investigate fish and wildlife resources within the vicinity of project area including review of GIS; available literature and coordination with NJDFW, local agencies, and non-governmental organizations.	2
Conduct site visits.	5
Participate in meetings and conference calls	4
Provide Section 7 consultation pursuant to the Endangered Species Act (87 Stat. 884; 16 U.S.C. 1551 *et seq.*) (not charged to project transfer funds).	-
Prepare PAL	2
Prepare draft Section 2(b) Report.	5
Review Corps comments on draft Section 2(b) Report and prepare final Section 2(b) Report.	3
Total Service Task Days	**21**
Biologist Day rate ($629) X Overhead Rate (38% or $239)	$868
28 Service Task Days x $868	$18,228
Total	$18,228

ATTACHMENT E

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF THE COMMISSIONER
Mail Code 401-07
P.O. Box 402
Trenton, NJ 08625-0402
TEL (609) 292-2885
FAX (609) 292-7695

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

February 28, 2017

The Honorable Wilbur Ross
Secretary
United States Department of Commerce
1401 Constitution Avenue, NW
Washington, DC 20230

Dear Secretary Ross:

I am writing to request your urgent assistance in preventing the looming destruction of the recreational summer flounder fishing industry in the State of New Jersey. The recreational fishing industry is a key contributor to New Jersey's economy, directly supporting 20,000 jobs and contributing $1.5 billion annually to the state's economy. It is vital to the economic health and way of life of our coastal communities.

On February 2, 2017, the Atlantic States Marine Fisheries Commission, which manages the summer flounder (or fluke) stock, put our recreational summer flounder industry in serious jeopardy. The Commission, based on poor stock assessment data and inflexible regulatory directives from the National Marine Fisheries Service (NMFS), voted to cut summer flounder quotas by 34% for New Jersey, increase the minimum size of fish that may be kept (from 18 to 19 inches), reduce the number of fish an angler can keep ("bag limit" cut from five to three), with a fishing season of 128 days. This action imposes a de facto moratorium on recreational summer flounder fishing in my state, because due to their natural migratory patterns, only about 15% of fluke off New Jersey's coast are at least 19 inches. This action also is disproportionately damaging to New Jersey compared with other states.

Fortunately, the decisions by the Commission as well as the Mid-Atlantic Marine Fisheries Council are subject to review by the Secretary of Commerce's office, your department's NOAA Fisheries office, the National Marine Fisheries Service. This is required before this regulation is published in the Federal Register and becomes final.

New Jersey recognizes the importance of protecting our marine resources by preventing the overfishing of any species. But the decisions that are made to ensure the health of fisheries must be based on reliable data about the health of the fishery and the use of up-to-date, sound science. In this case, the Commission's decision, based on data from the National Marine Fisheries Service, does not meet that standard. It is based on a questionable, out-of-date stock assessment and a flawed modeling. In fact, the National Academies of Sciences, Engineering, and Medicine recently released a report highlighting 38 needed changes to the recreational data collection process, and emphasized the urgent need to improve the way in which data is collected. NMFS also readily admits that the modeling methodology for fluke stock assessments is antiquated and needs to be replaced. They also recognize that the data collection process needs to be dramatically improved.

In the short-term, New Jersey is requesting that you stop these new regulations from going into effect and that NOAA Fisheries maintain the status quo of the 2016 Recreational Harvest Limit for summer flounder. At the same time, we are requesting an immediate benchmark stock assessment for summer flounder be conducted. This would allow for the Commission and Council to make science-based decisions with the best available data and methodology. For the long-term, New Jersey supports a paradigm shift regarding the management of all of the Atlantic marine fisheries, one based on updated methodology and more accurate data collection.

I respectfully request a meeting with you or your senior staff to brief you on this issue and to discuss how we can move forward to better protect the health of our fisheries and the health of our recreational and commercial fishing industries.

Sincerely,

Bob Martin
Commissioner

Cc: Justin Clark, Director, Intergovernmental Affairs, White House