



U.S. Army Corps of Engineers  
Charleston District

# **APPENDIX Q**

**CHARLESTON HARBOR POST 45**  
*CHARLESTON, SOUTH CAROLINA*

## **Correspondence**

29 April 2015



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## **SCOPING PROCESS SUMMARY**

The scoping process as outlined by the Council on Environmental Quality was utilized to involve Federal, State, and local agencies, and other interested persons and organizations. A Notice of Intent was published in the Federal Register (Vol. 76, No. 156, August 12, 2011). A scoping letter was sent to appropriate agencies/organizations asking for comments. On October 4, 2011, the Corps held an interagency meeting to discuss issues related to the project. On December 13, 2011, the Corps held a NEPA scoping meeting in a public workshop format at Mark Clark Hall, the Citadel from 1730 – 2000. At this workshop the public was notified of multiple ways to comment, including written comments on a comment card that could either be taken at the meeting or mailed in at a later date, email comments to a specified email address (Chas-Post45-Comments@usace.army.mil) , or give oral comments to a court reporter. The public was notified that the NEPA scoping period would end on February 10, 2012. Comments received throughout NEPA scoping are presented below. The Corps intends to use these comments to help refine the project scope to focus on the issues most significant and to minimize the effort on the issues that are not anticipated to be significant.

# NOTICE OF INTENT

**BILLING CODE: 3720-58**

**DEPARTMENT OF DEFENSE**

**Department of the Army; Corps of Engineers**

**Intent to Prepare a Draft Environmental Impact Statement (DEIS) for a Study on the Feasibility of Deepening Charleston Harbor**

**AGENCY:** Department of the Army, U.S. Army Corps of Engineers, DOD.

**ACTION:** Notice of Intent.

**SUMMARY:** The US Army Corps of Engineers (Corps), Charleston District, intends to prepare a Draft Environmental Impact Statement (DEIS), for the Charleston Harbor Deepening Study (Post-45 study). The purpose of this DEIS and feasibility study is to investigate modification of the existing Charleston Harbor project in the interest of navigation improvements.

**FOR FURTHER INFORMATION CONTACT:** Questions about the proposed action and DEIS can be directed to: Mark Messersmith, (843) 329-8162, *Chas-Post45-Comments@usace.army.mil*, 69 A Hagood Ave, Charleston, SC 29403. To submit comments please see our website at:

*<http://www.sac.usace.army.mil/?action=programs.post45>*.

**SUPPLEMENTARY INFORMATION:**

*a. Background:* Since 2000, the total value of international trade has risen by over 40 percent and it is becoming a larger part of our national economy. The combined value of foreign trade (imports and exports) represented 13 percent of GDP in 1990, rising to nearly 22 percent in 2006. If this trend continues, it is projected that the value of U.S. foreign trade will be equivalent to 35 percent of the Nation's GDP in 2020 and 60 percent in 2030. Marine transportation will become even more important to our economy as 95 percent of America's foreign trade is moved by ship. To sustain expected growth, it is estimated the U.S. must expand its overall port capacity by 10 percent annually. This would require port expansion, mainly on the West Coast, Gulf Coast and South Atlantic. That is the equivalent of adding capacity equal to the Port of Oakland every year.

The Charleston port district's ranking as a global trading port is consistently in the top ten nationally in container traffic and cargo value. In 2009, the Charleston port district was ranked ninth (out of 200 deep-draft ports) in cargo value, and ninth (out of 80 container ports) in container traffic.

Shipping trends in Charleston show adherence to projections for considerable growth in ship size, in all three dimensions, draft, beam, and length. As economies of scale and improved vessel technologies have driven ship sizes larger, the world's port infrastructure must be rapidly expanded in channel depths and widths and terminal capacity to accommodate larger ships. The number of ports able to handle larger vessels around the world is growing, and, most importantly, the Panama Canal is currently expanding lock capacity to handle ships of 25% greater draft (up to 50 ft), 52% greater beam (up to 160 feet), and 30% greater length (up to 1250 feet). Ships have been under

construction for several years to be ready for the new canal capacity when the new Panama Canal locks open in 2014.

*b. Objectives:* There is opportunity to deepen the navigation channel at Charleston Harbor to accommodate larger container vessels. Particularly important is the great increase in the deployment of those vessels, which is occurring now and expected to increase when the Panama Canal Expansion Project is completed in 2014. These larger vessels, commonly referred to in the shipping industry as the “Super Post-Panamax” vessels, are expected to comprise greater percentages of vessel fleet composition over the next several decades. This transition to larger vessels is expected to occur rapidly and current Panamax vessels are expected to no longer be used in the Asia service by 2024. Additional depth would be required to serve existing users of Charleston Harbor by that time, as the transition from the current Panamax fleet is complete.

*c. Alternatives:* The reconnaissance level alternatives analysis does not constitute a complete analysis of the full array of potential alternatives nor does it define a preferred alternative or National Economic Development (NED) plan. Detailed analyses are expected to be conducted in the proposed feasibility phase and would likely involve evaluation of all alternatives to address the problems and opportunities. The array of alternatives that may be examined in the feasibility study would likely include navigational improvements to some or all of the channels in Charleston Harbor, including (1) deepening channel(s) up to 50 feet MLLW or more, (2) widening channel(s), (3) adjusting existing channel alignments/bend easing, and (4) widening and/or lengthening turning basins.

During the feasibility phase, Charleston Harbor will be evaluated to identify the extent to which the array of alternatives will be applied to each reach of the Federal Navigation Channel. Problems and opportunities pertinent to each reach will be identified and investigated. A matrix of reach specific alternative plans will be developed and evaluated to produce a recommended plan for improvements to Charleston Harbor. This process will include the appropriate level of engineering, economic, and environmental analyses to identify all possible benefits and impacts associated with the projected navigational improvements.

Additional channel depth would allow current and future shippers to more fully utilize larger class vessels and would reduce future anticipated congestion. The current depth of the existing inner harbor channel is 45 feet MLLW. The Entrance Channel from the Atlantic Ocean through the jetties is 47 feet MLLW deep to allow for wave action.

*d. Issues:* The DEIS will consider the possible effects of channel deepening/widening on aquatic resources, loss of wetlands, as well as other project related impacts on protected species, water quality, fish and wildlife resources, cultural resources, essential fish habitat, socio-economic resources, coastal processes, aesthetics, and other impacts identified through scoping, public involvement, and agency coordination.

*e. Scoping process:* The scoping process as outlined by the Council on Environmental Quality would be utilized to involve Federal, State, and local agencies, and other interested persons and organizations. A scoping letter will be sent to the appropriate parties regarding issues to consider during the study. Public scoping

meetings would be held throughout the process. Exact dates, times, and locations will be published in local papers.

Date \_\_\_\_\_

Edward P. Chamberlayne, P.E.  
Lieutenant Colonel, EN  
Commander, US Army Engineer District, Charleston



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# **PUBLIC COMMENTS**

Comments available upon request



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## **PUBLIC COMMENTING DURING DRAFT EIS**

The Draft Integrated Feasibility Report and Environmental Impact Statement (IFR/EIS) was released to the public on 10 October 2014. The report was made available through the Charleston District's public website. A Notice of Availability was also published in the Federal Register on 10 October 2014. Announcement of the draft IFR/EIS was through a variety of news media, noticing through the Charleston District public noticing list serve; distribution of over 700 public notices by the SC Department of Health and Environmental Control; distribution to over 150 communities, churches, interest groups, etc; distribution to federal, state and local resource agencies. USACE held an informative public meeting on 24 October, 2014. USACE accepted public comments until 24 November 2014 to allow for a 45 day review period.

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**PUBLIC AND AGENCY  
COMMENTS AND USACE RESPONSES**

## Public and Agency Comments and Responses

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**2. Joe Davis, Email 11/24/2014**

**SUMMARY:** The prior deepening of Charleston Harbor directly resulted in the destruction of Morris Island and constantly threatens to do the same to Folly Beach, to the point that several very costly renourishment projects have been necessary to preserve any semblance of this important beach community. Before any harbor deepening project is undertaken, thorough environmental impact studies need to be conducted to ensure that the devastating results of prior harbor deepening projects are not repeated.

**RESPONSE:** See comment response #17

**3. Lawrence Moore, Emailed 11/20/2014**

**SUMMARY:** EIS does not address impacts to citizens, taxpayers and visitors of Folly Beach. Area is a major source of tax income and may have an increased accommodation to fund future beach renourishments. The Corp and the Port Authority need to fully rectify past and future unnatural erosion of Folly's beach. Erosion should be prevented by re-establishing the natural flow of sand to Folly Beach and replacing the near-shore sandbars which moderate storm waves. Else, funds from the Corp and from port revenues should be available whenever needed for renourishment of our beach and for rebuilding of public park and visitor facilities.

**RESPONSE:** See comment response #17

**4. Doyle Word, Email 11/23/2014**

**SUMMARY:** Urging a study to determine the impact of the proposed depth increase of the Charleston S.C. harbor. Need to determine downstream impacts of the project

**RESPONSE:** See comment response #17

**5. David Whetsell, Email 10/17/2014**

**SUMMARY:** Bigger TEU ships cannot fit under Ravenel Bridge. The only terminal I that could be used is the Columbus Terminal located before the bridge. Harbor deepening is a waste of money.

**RESPONSE:** USACE disagrees with this comment; however, the "190-feet above the immersed waterline" will be removed from the Economics Appendix paragraph 2.7.1 and replaced with the attached Figure (end of this doc), Ravenel Fixed Bridge Clearances, which provides a diagram of Post-Panamax and New-Panamax design vessel air draft clearances for a light-loaded condition with an existing Federal channel project depth of 45 feet.

Economic analysis assumptions did not include 14,000 TEU or larger container ships transiting to the North Charleston Terminal under the Don Holt Bridge. The benefit analysis restricted container ships for that segment to only those smaller Post-Panamax ships loaded to a draft which allows for safe passage under the Don Holt Bridge vertical clearance of 155 feet. Table 3-2 indicates a maximum project depth of 48 feet for Segment 3 or the channel leading to the North Charleston Terminal. To estimate origin to destination cost saving benefits for the North Charleston Terminal, the Container Loading Tool (CLT), a module within the HarborSym Modeling Suite of Tools, was used to limit the size of existing and future vessels that could call on the terminal based on the air draft restrictions (155 feet) for the Don Holt Bridge. For Segments 1 and 2 or ships transiting to the Wando Welch Terminal or the New Navy Terminal, the same benefit analysis methodology holds true for larger container ships including some Generation III Post-Panamax ships, which range from 10,000 to 14,000 TEUs. The Container Loading Tool was used to limit Generation III Post-Panamax container ships that could safely transit under the Ravenel Bridge in a light-loaded condition for the existing project depth of 45 feet or to a deeper draft with a future channel depth of 52 feet draft, while still meeting the vertical clearance requirement of 186 feet. The following Figure, Ravenel Fixed Bridge Clearances, provides a diagram of Post-Panamax and New-Panamax design vessel air draft clearances for a light-loaded condition with an existing Federal channel project depth of 45 feet.

Also, several meetings with the Charleston Branch (Harbor) Pilots occurred to review the design vessel selection for future fleet container ships, which could access the North Charleston Terminals as well as the Wando Welch and New Navy Terminals in light of the existing bridge vertical clearance constraints. As a result of those meetings the South Carolina State Ports Authority installed a monitoring system to provide real time vertical clearance data for the Don Holt Bridge. See Charleston Branch Pilots letter dated May 9, 2012, in Appendix Q – Correspondence, which indicates for the Don Holt Bridge the planned installation of an air gap sensor similar to PORTS system monitors in place in other United States ports. The Charleston Branch Pilots believe this technology will allow an additional air draft capability without reducing their standard safety margin of two feet below bridge structures.

#### **6. Humane Society of the United States (Sharon Young), Email 11/24/2014**

**SUMMARY:** comments focused on insufficiencies in Appendix F of the Biological Assessment pertaining to the impacts on large whales, particularly North Atlantic right whales (*Eubalaena glacialis*). Large vessels, dredging vessels, and smaller vessels pose a real risk to whales if they hit a whale. Regarding right whales and some other large whales, USACE has failed to use the best available science and information and the project does not undertake robust mitigation measures, based on information in the BA. Many references in the BA are outdated, see submitted comment for 11 specific examples.

Conservation measures are inadequate reasons include: the EWS that formerly operated off South Carolina has been discontinued, Locations of Right Whales within a 24-hour period are unlikely unknown, and additional mitigation is needed. In conclusion the Humane Society states, the ACOE must revise the draft BA to include the best and most recently available scientific information to inform its understanding of the use of the project area by protected species. It should also expand upon its conservation measures to include a requirement for aerial surveys or other similarly meaningful measures to detect right whales that use the waters in which project vessels will be operating and it should require these vessels to operate at risk-averse speeds of 10 knots as is stipulated in the NMFS rulemaking.

**RESPONSE:** On 20 February 2015, NMFS proposed new critical habitat for the NARW. USACE and NMFS have completed formal Section 7 consultation under the ESA. NMFS issued a Biological Opinion to USACE on 22 April 2015. This BO will be the guiding document for decisions related to compliance with the Endangered Species Act. Section 2.1.3.2 Right Whale Avoidance Measures of the BO includes a number of USACE-proposed conservation measures to reduce risk to right whales. Section 2.1.3.2 also includes a 10-knot speed provision stating “3. Dredge-related vessel speed reductions to protect whales: From November 1 through April 30, all project vessels operating in the Atlantic Ocean that are greater than or equal to 65 ft in overall length will maintain a speed of 10-knots or less during right whale migration/calving season while in specified areas designated as proposed right whale critical habitat ...,” etc. Charleston District has never had a documented whale strike and aerial surveys haven’t been flown in this area except for a few years.

**COMMENT:** “As the ACOE asserts that the Charleston harbor is the fourth busiest east coast port and stated that since 2006, the average per-vessel tonnage has increased by about 25 percent for all vessels and by about 27 percent for the deepest drafting vessels, it is imperative that the ACOE mitigate the impacts of this project will have on right whales. With the deepening of the channel, larger vessels will be able to enter into port and these vessels pose a greater risk of death or serious injury upon impact with a whale.”

**RESPONSE:** As stated in the DRAFT IFR/EIS, the project will not cause container traffic to increase. In fact, it is predicted that the large ships will call on Charleston Harbor with or without a project. The only difference will be that those ships can load more cargo thereby allowing for fewer ships to enter the harbor than if the project were not constructed. The overall reduction in the number of ships reduces the risk of a lethal strike occurring. No mitigation is warranted.

**COMMENT:** “It concerns us that many of the references cited in the Biological Assessment are outdated. The ACOE must undertake a robust assessment of habitat use in order to understand likely risks. Many of the information sources cited do not represent the best available science. The ACOE has not even used the most recent National Marine Fisheries Service (“NMFS”) stock assessments to determine the likely risks. The following are examples of outdated or incorrect information contained within Appendix F for which updated data is available and should be used by ACOE in its analysis:”

**RESPONSE:** USACE and NMFS completed Section 7 consultation, resulting in the issuance of a Biological Opinion to USACE on 22 April 2015. This BO will be the guiding document for decisions related to compliance with the Endangered Species Act. We will update relevant portions of the Final FR/EIS, accordingly.

**COMMENT:** *After providing background information, the letter states, "Clearly the aerial surveys were part of the reason for the lack of collisions cited by the ACOE in the current draft BA. Before it can dismiss risk, the ACOE and/or the port should be required once again to fund surveys for a period of time that can warn both the dredges used in the port modification and vessels that will be passing them in transit if there are right whales in the vicinity."*

**RESPONSE:** In the Draft BA, USACE proposed conservation measures to reduce risk to right whales. These were incorporated into the final BO, with the addition of a 10-knot speed conservation measure. Charleston District has never had a documented whale strike and aerial surveys haven't been flown in this area except for a few years. We believe that lack of strikes in the past is due to the fact that dredging of channels and harbors is a very small subset in time and area of total vessel traffic, that we have an active program to avoid strikes including on-board observers, that vessels reduce speed when whales are observed or in bad weather, that dredges already operate within or close to 10 knot speeds when actively dredging, and to the education and awareness of Corps and contractor personnel.

**COMMENT:** "Locations of Right Whales Within a 24-hour Period are Unlikely Unknown: As noted above, the lack of regular systematic surveys off South Carolina means that there is no reliable means of knowing where whales are within the project area within the prior 24 hours which was stipulated as part of the conservation measures. This lack of timely survey effort would make it impossible to comply with the requirement that vessels slow only when whales are seen within 15 nm of the vessel's path within the prior 24 hours. It also makes it unlikely that they can stop, alter course or "maneuver to avoid...the known location of a right whale."

**RESPONSE:** BO conservation measures include observers onboard the dredge and on the bridge during transiting to and from the disposal/dredge site. The use of observers provides a measure to reduce risk. The District acknowledges that surveys are no longer ongoing in this region; however, other conservation measures are also in place.

**COMMENT:** "The conservation measures in the BA offer no commitment to observe a 10 knot speed during the months when right whales are resident in the Southeast, nor does it include a commitment to fund surveys that were previously an important part of mitigation for dredging in prior projects."

**RESPONSE:** While USACE is not required to observe the 10 knot rule due to the promulgated exemption for federal vessels or vessels under contract to the federal government, Section 2.1.3.2 includes a 10-knot speed provision for dredge-related vessels from November 1 through April 30.

**COMMENT:** "We believe it imperative that the ACOE and/or the Port should resume funding the aerial surveys on which prior dredge projects have depended to warn of whales in the vicinity of transiting vessels. Even the discussion of mitigation measures in this BA appear to assume that there will be an EWS to warn of whales in the area. Further, we believe that dredges should operate at 10 knots or less during the seasonal high use time in which most vessels are required to observe speed restrictions. Since dredges are not on an urgent mission (as might be the U.S. Coast Guard or the U.S. Navy), their function and scheduling are not impaired by operating at speeds known to safeguard right whales. Further, because they are functioning to further a commercial interest (i.e., making the port more accessible and attractive to larger draft cargo vessels), they should be held to the same standard as commercial vessels operating in or transiting to and from the port. A resumption of aerial surveys combined with safe operational speeds will ensure the protection of this vulnerable species in a key habitat area."

**RESPONSE:** Funding for the EWS in the South Atlantic is directed through the South Atlantic Division of USACE. At this time, funding is only provided up to Brunswick, GA area. The District believes that the conservation measures in place in the BO provide adequate risk reduction to the species without the inclusion of aerial surveys. The Charleston District has not had a recorded incident with a Right Whale and the conservation measures in place provide more protection to the species than has previously occurred. For example, the BA states that observers will be on the bridge during transits. Previously, observers may have been in the hopper baskets looking through debris for bycatch while transiting. As previously noted, the BO includes a conservation measure for a 10-knot speed reduction.

**COMMENT:** "The ACOE must revise the draft BA to include the best and most recently available scientific information to inform its understanding of the use of the project area by protected species."

**RESPONSE:** USACE will revise the Final FR/EIS to reflect the NMFS Biological Opinion.

**COMMENT:** “It should also expand upon its conservation measures to include a requirement for aerial surveys or other similarly meaningful measures to detect right whales that use the waters in which project vessels will be operating and it should require these vessels to operate at risk-averse speeds of 10 knots as is stipulated in the NMFS rulemaking.”

**RESPONSE:** No requirement for aerial surveys will be included due to the unknown efficiency of those surveys and the questionable risk reduction as a result of such surveys. USACE acknowledges that these types of surveys can provide good data to scientists and researchers on populations/movement/etc; however, USACE should not be held liable to pay for these types of data collection efforts. Section 2.1.3.2 of the BO contains sufficient and effective Right Whale Avoidance Measures.

**7. Nancy Moore, Email 11/18/2014**

**SUMMARY:** Corps has a responsibility to mitigate downstream losses and not waste taxpayer money. Do the study to determine what needs to be done to mitigate sand loss to Folly Beach and/or to use the dredge material to add the sand already lost by the Corps projects.

**RESPONSE:** See comment response #17

**8. Howell Feig, Email 10/28/2014**

**SUMMARY:** EIS needs to include analysis of impacts of increased truck traffic and this information should be provided to the public with an outline of how this will be mitigated prior to any decisions to proceed forward.

**RESPONSE:** No increase in truck traffic beyond the without project / no action condition is anticipated as a result of deepening the Federal channel.

**9. Donna Davis, Email 11/23/2014**

**SUMMARY:** Please do not destroy Folly Beach in the process of deepening Charleston Harbor. Need to study to ensure project does not undo recent beach work and examine the natural deposition of sand onto Folly Beach before new work is done.

**RESPONSE:** See comment response #17

**10. Tom and Sandy Scruggs, Email 11/21/2014**

**SUMMARY:** conduct environmental studies to determine if the dredged materials can be used to protect Folly from losing its sand so quickly and/or replenish sites to be used for future renourishment.

**RESPONSE:** See comment response #17

**11. Stewart Weinberg, Email 11/22/2014**

**SUMMARY:** The James Island/Folly Beach Democratic Organization requests that you seriously consider the sand management measures as outlined in the letter to you from Tim Goodwin, Mayor of Folly Beach. Mitigation to protect Folly Beach is needed before the project moves forward.

**RESPONSE:** See comment response #17

**12. William (Bill) Geery, Email 11/23/2014**

**SUMMARY:** Evaluate and Mitigate for impacts to Folly Beach

**RESPONSE:** See comment response #17

**13. Anton DuMars, Email 11/24/2014**

**SUMMARY:** It is imperative that the Corps of Engineers include in their Feasibility Report/ Environmental Impact Statement (FR/EIS) the effect of Harbor Deepening on Folly Beach. In addition, a mitigation plan for deleterious effects of harbor deepening on Folly Island must be defined and addressed.

**RESPONSE:** See comment response #17

**14. Nancy Smith, Email 11/24/2014**

**SUMMARY:** Urges USACE to support The City of Folly Beach's recommendation for a Regional Sediment Management program to assist in working toward long-term, more positive outcomes for the economy and the environment.

**RESPONSE:** See comment response #17

**15. Matthew Hammond, Email 11/05/2014**

**SUMMARY:** I do not support the Harbor deepening project at this time due to the costs and current economic conditions. Essentially I do not see how there will be a ROI for an additional 12 hours of port use for larger ships.

Will there be premium rates for the added hours the larger ships can dock without the tide?

Also nothing in this harbor deepening guarantees A) The larger ships will call here and B) That it will generate any new business as the port and our elected officials keep alluding to.

Businesses generate cargo not larger ships, deeper harbors or the access to them, all driven by the economy. Not to mention the drive behind the larger ships are foreign entities. Which may or may not call on Charleston, where are they helping pay for this?

Cargo volumes at our SC Ports have not even made it back to their numbers in 2003 well before the peak. Both ports closest to us in neighboring states bounced back between 2010 & 2012 to pre-recession peak numbers. Not our Port under current leadership. If the deeper harbor was everything, we should have a substantial lead over Savannah in cargo volumes. Since our harbor is deeper and always has been. However by the TEU numbers they have almost twice as much volume (86% more) as Charleston.

Our politicians and port personnel continue to try to tell us that larger ships mean more jobs, business, cargo volume and revenue. This is just plain un-true, a deeper harbor does none of these. How then is this justifiable then given these current conditions?

**RESPONSE:**

- The Corps does not influence the rates charged by the SCSA for any particular vessel class or commodity.
- Concur that larger vessels do not drive growth for the harbor. Many factors influence the growth of a particular harbor: Land side development and infrastructure, location of distribution centers for imports, source locations for exports, population and income growth and location, port logistics and fees, business climate and taxes, carrier preferences, labor stability and volatility, and business relationships. Harbor depth is just one of the many factors involved. The analysis is conducted with the historical Charleston cargo share remaining the same in both the Future Without Project and Future With Project Conditions. In other words, with or without the deepening Charleston receives the same share of regional volumes. The non-Federal sponsor cost shares with the Federal government.
- The Corps recognizes the expressed views and perspectives of the project sponsor, politicians and many other interest groups in favor of harbor improvements

**16. Patrick Moore, Email 11/24/2014**

**SUMMARY:** Great Job USACE, you did good work with difficult constraints and I support your analysis.

**RESPONSE:** Acknowledged.

**17. City of Folly Beach, Letter (DATE)**

**SUMMARY:** The Feasibility Report and Environmental Impact Statement ("FR/EIS") gives no consideration or weight to the erosion that completely destroyed a county park facility on one end of the island and continues to threaten multiple structures along the coast.

The entrance channel of Charleston Harbor is responsible for most of the downdrift erosion on Morris and Folly Islands. Therefore, improvements or modifications to this entrance channel are likely to exacerbate downdrift erosion. Increased environmental impacts to protected species including Loggerhead Turtles and Piping Plover are also possible. The FR/EIS should acknowledge these impacts and offer mitigation measures, particularly through a study of Regional Sediment Management.

The Corps should conduct a detailed study of mitigation for harms caused to Folly Beach. The Corps should evaluate the possibility of using the dredged material at Folly Beach, Morris Island or other nearby areas. The Study should also consider more effective methods to bypass sediment trapped by the Charleston Harbor jetties by investigating the potential for:

- a) Modifications to the existing jetties, which are responsible for most of the downdrift erosion, and
- b) Bypassing sediment trapped on the north side of the jetties at Sullivan's Island.

Finally, the study should develop a sediment management and monitoring plan for the Charleston Harbor Entrance Channel. A routine monitoring program should assess the responses of the downdrift (or adjacent) beaches to the newly implemented sediment management plan. Similar planning and monitoring is common at other U.S. harbors with federal channels managed by the USACE.

To address these omissions the City of Folly Beach requests that the title of Section 4.2.6.6 be changed to **"Implementation of a Regional Sediment Management Study to Reduce Downdrift Impacts."** We also request that the text be revised as follows, *"A 1987 Section 111 Study determined that approximately 57 percent of the erosion of Folly Beach was due to the construction and continued operation of the Charleston Harbor Federal navigation project. Mitigation for these impacts will be addressed during the PED phase through a Regional Sediment Management (RSM) study that will consider options for reducing downdrift impacts. The study will consider options such as beneficial use of both new work and maintenance dredged material in the downdrift littoral system, jetty modifications, and sand sharing or bypassing from the updraft side of the harbor downdraft."*

The City of Folly Beach requests that funds to implement the recommendations of the RSM study should come from the Post 45 budget. While RSM practices may increase costs slightly in one business line, they have the potential for significant cost savings in other business lines; thereby, resulting in significant increased value to the nation.

The City of Folly Beach will oppose the deepening project and consider legal action, including challenge to any permits issued for the deepening project and challenge to the sufficiency of the EJS, unless it receives a written agreement that the project will include sand management measures as described herein.

**RESPONSE:** Beach erosion is a natural process that occurs due to storms, hurricanes, sea level rise and other complex and interconnected contributions. Beach erosion occurs on beaches not adjacent to federal navigation projects. Analysis by the Waterways Experiment Station (now Engineering Research and Development Center -ERDC) in 1987 concluded that the jetties at Charleston Harbor contributed to the erosion of Folly Beach and Morris Island by blocking the littoral transport of sediment from the north. The jetties are necessary for the stabilization of the federal navigation channel, saving taxpayers millions of dollars annually. However, there are no changes being proposed to the jetties. The majority of the proposed extension of the entrance channel is already at a depth of 52 below MLLW or deeper. The proposed changes to the entrance channel, when viewed in perspective of both the historical changes and large expanse of the ocean, are expected to result in negligible changes to the waves and currents that transport sediment. The Corps is committed to assessing whether the proposed action

will impact the shoreline and the analysis in PED phase will be done to verify that it does not. PED phase will revise costs, benefits and mitigation of the recommended plan if the results of coastal erosion analysis indicate significant impacts.

USACE has already mitigated for the impacts of the jetties and federal project by significantly reducing the cost sharing requirements of the City of Folly Beach for the Shore Protection Project. The 57% acknowledged impact of the jetties is subtracted from Folly Beach's cost share – reducing it from 35% to 15%. This has resulted in close to \$60 million in federal investment since 1993 when the initial shore protection project for Folly Beach was constructed.

Sand management is complex and highly dependent on local conditions. While some other ports have been able to use their dredged material as a sand source for beach nourishment projects, this does not mean that it is a viable solution for Folly Beach. There seems to be a misunderstanding that the maintenance material in the federal channel is beach compatible sand. Taking material from the maintenance dredging operations and placing on Morris or Folly islands would likely result in mud flats and clay balls on the beach. There are state and federal requirements for sand composition when material is placed on the beach or in the nearshore that the maintenance material does not meet.

An RSM study is outside the scope of a deepening study, which looks at the impacts and possibilities of the channel deepening and widening. USACE does intend to look at other sources of sand material in the upcoming Limited Reevaluation Report (LRR) for Folly Beach. The ideas suggested, including sand bypassing/sharing and other options are to be considered in that study.

This study will investigate beneficial uses of new work dredge material in PED phase. However, all state and federal requirements for beach compatibility must still be met and unless it is a least cost alternative, the additional cost would be the responsibility of the sponsor, the benefitting entity or others.

#### **18. City of Folly Beach, Supplemental Letter (DATE)**

**SUMMARY:** The City is not opposed to the deepening project and do not wish to delay the project. However, we ask the Corps and the Port to recognize that the Harbor causes substantial harm to Folly Beach and it is unfair for our citizens to bear that burden for the State. The project extension will only amplify those effects, and we would like to reach an agreement on mitigating those harms.

Instead, we are simply asking that the project and associated funding include a Regional Sediment Management study. This is important to better understand the flow of sand surrounding the jetties.

This may include testing dredged sand and sidcasting any beach compatible material south of the jetties, or creating a bypass for sand to flow through the jetties.

We welcome the opportunity to meet with representatives from the Port and the Corps to discuss a plan for accomplishing this objective without delaying the project at all. We will also request that these measures be studied in the upcoming Limited Reevaluation Report.

**RESPONSE:** See comment response to #17

#### **19. Dennis Bickford, Email 11/20/2014**

**SUMMARY:** Support the Mayor of Folly Beach's letter. No risk of negative cost or impacts to Port Authority associated with jetties interrupting flow of sand to Morris and Folly Island. Tax money should not be used to dump sand in ocean when it could be used for shoreline stabilization.

**RESPONSE:** See comment response #17

#### **20. Dale and Roy Stuckey, Email 11/23/2014**

**SUMMARY:** We are citizens and residents of Folly Beach, SC, and strongly support the request made by Mayor Tim Goodwin to implement a "Regional Sediment Management Study to Reduce Downdrift Impacts to Morris and Folly Islands".

**RESPONSE:** See comment response #17

**21. Christopher J.G. Lewis ,Letter 11/24/2014**

**SUMMARY:** In view of the proposal to deepen the channel for shipping, I wish to add my my very strong request to that of the City of Folly Beach in Implementation of a Regional Sediment Management Study to Reduce Downdrift Impacts to Morris and Folly Islands.

**RESPONSE:** See comment response #17

**22. John Wall, Email 11/20/2014**

**COMMENT 1:** Does the dredging include any work around the mouths of Molasses and Hobcaw Creeks?

**RESPONSE:** No, only the federal channel will be dredged.

**COMMENT 2.** If not, why not and what impact will this work have on these Creeks with respect to waterflow rates, water speed and siltation?

**RESPONSE:** The proposed project is to deepen the federal channel; there is no authorization to dredge outside of the federal channel unless identified as a direct impact of the proposed project. Estuarine shorelines and tidal creeks are constantly changing due to many contributing factors. It is a natural process of accretion and erosion that occurs due to tides, storms, subsidence, and sea level changes. It is also influenced by land use changes, such as construction of homes, communities and other land-based activities that contribute to changes in runoff, sedimentation from overland sources, construction of pile-supported structures and outfalls, as well as recreational and commercial boat traffic. The Federal channel in the Wando River already supports significant commercial traffic; the deepening will not change the contributing physical factors to any siltation of the tidal creeks. In fact, as fewer ships would be arriving if the channel were deepened, the impact of commercial traffic would be less than existing. There are no expected changes to waterflow rates and speeds due to deepening (see comment response #22, Comment 6).

**COMMENT:3.** Will the COE, DHEC and/or SC Ports support (permitting, cost, spoil deposit) the dredging of these creeks, especially Molasses since it cannot be entered for two hours before and after low tide?

**RESPONSE:** USACE does not speak for DHEC or SPA. USACE Regulatory will consider any application for a permit for dredging under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. USACE will consider any request for use of disposal areas. The Corps does not have cost sharing authorities that provide for dredging tidal creeks for the purpose of recreational boat access.

**COMMENT:4.** What effect have the previous dredging operations and container ship traffic had on the siltation in the entrances to these creeks?

**RESPONSE:** To the extent that this comment refers to Corps-sponsored dredging operations, if there has been any effect, it is unknown and not part of this study, the purpose of which is to assess impacts of deepening. However, as noted in comment response #22, Comment 2, estuarine shorelines and tidal creeks are constantly changing due to many contributing factors.

**COMMENT:5.** How will you insure that the current situation is not further exacerbated at these creeks, especially the mouths?

**RESPONSE:** We are not aware of any scientifically-based correlation between the federal project and siltation in the creek entrances. In addition, there is a "navigation servitude" that applies to navigable waters which reflects that the interest of the United States in maintaining and improving navigation is paramount over private, recreational usage. For example, dock permits are subject to the navigation servitude and include conditions related to the use and improvement of the navigable waters for navigation purposes.

**COMMENT:6.** Will the deepening of the channel create a stronger current in these creeks, especially the mouths?

**RESPONSE:** Numerical modeling of the river did not indicate any significant change in currents and only a 0.06 to 0.13 fps reduction in the 95th percentile near the shorelines of the tidal creeks, thus no impact is expected in the tidal creeks.

**COMMENT:7.** Has the silting in of the mouths of these creeks been monitored over the years to determine the amount of silt accumulating due to container shipping, tides, wake, etc. and any other factors?

**RESPONSE:** USACE does not monitor the siltation in the mouths of tidal creeks removed from the Federal channel.

**COMMENT:8.** If so, how were they monitored and what results have been recorded?

**RESPONSE:** NA

**COMMENT:9.** If not, why not?

**RESPONSE:** USACE is not currently authorized to monitor rates and causes of siltation in the mouths of tidal creeks removed from the Federal channel. There has been no request to cost share study.

**COMMENT:10.** Is the speed and wake of the container ships regulated in the shipping channel?

**RESPONSE:** There is no regulation; however, ship speed is controlled by the maneuverability and safety . Ships are generally assisted by tugs in this reach while preparing to dock at the terminal.

**COMMENT:11.** If so, what are the limits, how are they monitored, what results have been recorded and how much silt comes in with the wake?

**RESPONSE:** See comment response #22, Comments 9 and 10.

**COMMENT:12.** If not, why not?

**RESPONSE:** In the Wando reach, container ships are slowing to prepare for docking at the terminal. Tug ships are either in place or coming along side to help position them. Pilots are responsible for any damage they cause to the ship while bringing it to dock, so safety is the controlling factor in speed.

**COMMENT:13.** What will you do if the silting in of the mouths of these creeks, especially Molasses worsen and the creeks become even less navigable over the years?

**RESPONSE:** See comment response #22, Comments 2, 3 and 5. This is a natural process and outside the jurisdiction of USACE.

**COMMENT:14.** Would dredging a channel in the mouth of these creeks, especially Molasses, keep the creeks navigable all the time?

**RESPONSE:** That would depend upon the dimensions and maintenance of the navigation channel dredged in the creek. However, there are many tidal creeks that are not navigable all the time.

**COMMENT: 15.** If so, what would be the general plan, including future maintenance, budget, and would you offer to allow spoils to be deposited at any of the accumulation sites in and around the harbor?

**RESPONSE:** Any general plan would be up to the entity requesting to dredge to determine, consistent with applicable law. Use of upland dredged material disposal sites controlled by the Corps is made on a case-by-case basis.

**COMMENT:16.** Is there any Federal, State or local government funding available for this?

**RESPONSE:** There is no federal funding through the USACE. Appropriate inquiry may be made to State, local and other Federal government entities.

**COMMENT:17.** Will bigger ships create more wake and/or siltation of these creeks?

**RESPONSE:** As indicated in the FEIS, the increased magnitude of ship wake due to the larger container ships is extremely small and there will be a reduced number calling on the port. A net reduction in ship wake energy is anticipated with the proposed deepening project. There are many factors that contribute to siltation rates -See also the comment response #22, Comment 2.

**COMMENT:18.** If so, how much and will this be monitored?

**RESPONSE:** No siltation monitoring is planned.

**COMMENT:19.** If not, why not?

**RESPONSE:** It is not an impact of the proposed deepening project, and there is no legal or factual scientific basis for doing so.

**COMMENT:20.** What Federal, State and local regulations were considered in the study?

**RESPONSE:** Applicable laws and regulations were considered throughout the study in conjunction with the subject to which they pertain. Please consult the relevant portions in which you are interested for details.

### **23. South Carolina Department of Transportation, Letter 11/07/2014**

**COMMENT:** We appreciate your solicitation of our comments on this very important project and would like to request that SCDOT be allowed to review the more detailed Conceptual Mitigation Plan when it becomes available.

**RESPONSE:** Thank you for your comments. We will continue to coordinate with the South Carolina Department of Transportation as mitigation plans are finalized. South Carolina Department of Transportation, Letter 11/07/2014

**COMMENT:** We appreciate your solicitation of our comments on this very important project and would like to request that SCDOT be allowed to review the more detailed Conceptual Mitigation Plan when it becomes available.

**RESPONSE:** Thank you for your comments. We will continue to coordinate with the South Carolina Department of Transportation as mitigation plans are finalized.

### **24. Charleston Waterkeeper (Andrew J Wunderley, Esq.), Letter (11/26/2014)**

**SUMMARY:** For the foregoing reasons, Charleston Waterkeeper believes the DRAFT IFR/EIS underestimates Post 45's cumulative dissolved oxygen impact and fails to provide the mitigation required by law. We request the Corps analyze Post 45's dissolved oxygen impacts within the framework of the existing TMDL promulgated to implement South Carolina's 0.1 mg/L anti-degradation rule. We recognize no available allocative capacity exists under the TMDL and further request the Corps petition DHEC to reopen and revise the existing TMDL. Only then will the DRAFT IFR/EIS properly account for Post 45's impact and satisfy NEPA's requirement to take a hard look at the cumulative dissolved oxygen impacts. Additionally, we share the concerns raised by the Southern Environmental Law Center and the Coastal Conservation League with regard to a Meaningful Opportunity to Comment, Salinity, Wetlands, and Toxic Substances in Dredge Spoil.

**RESPONSE:** The assessment of dissolved oxygen impacts and their consistency with the TMDL antidegradation rule were performed in consultation with, and with the approval of, DHEC and EPA. The cumulative impacts of the project and permitted dischargers are within the existing TMDL. USACE has no basis for seeking the reopening or revision of the TMDL; such action is not necessary in order to demonstrate that the deepening project complies with state and Federal requirements. Regarding the shared concerns, see comment response #31 (SELC and SCCCL).

**COMMENT:** "Charleston Waterkeeper appreciates the Corps' efforts to foster public participation throughout the National Environmental Policy Act (NEPA) process. NEPA contemplates full and robust public involvement in the development of Environmental Impact Statements. See 42 U.S.C. § 4331(a) (2012) (declaring it policy of the United States to involve the public in the NEPA process); 40 C.F.R. § 1500.2(d) (2014) (requiring federal agencies to encourage and facilitate public involvement to the fullest extent possible); 40 C.F.R. § 1506.6(a) (2014) (requiring federal agencies to make "diligent efforts" to involve the public in the NEPA process). The Corps Post 45 website, public meeting formats, and social media outreach have helped it live up to that goal."

**RESPONSE:** Acknowledged

**COMMENT:** *After providing background information on the project, the TMDL, cumulative impacts, and Section 303 of the Clean Water Act, the commenter states that, "Here, the DRAFT IFR/EIS cumulative impact analysis is incomplete because it fails to analyze the dissolved oxygen impact within the framework of the existing TMDL's modeling and assumptions."*

**RESPONSE:** USACE disagrees. Extensive coordination with DHEC occurred on the modeling of cumulative DO impacts. As the commenter understands, TMDL's (Total Maximum Daily Load) are designed primarily to capture a "Load". Recognizing that the

deepening of the Federal channel is not a traditional load, capturing the effects of the project and compliance with the TMDL required additional coordination with DHEC. USACE coordination with DHEC resulted in a method that more accurately assesses the existing TMDL under a time-variable loading approach. The results of this modeling indicate to DHEC (and USACE) that there is reasonable assurance that the TMDL will not be violated. This means that current dischargers can operate under the existing TMDL and the project can be constructed without violating the antidegradation rule.

**COMMENT:** "The DIES acknowledges that it must comply with the TMDL: ....(bulleted list citing the DRAFT IFR/EIS)... However, the DRAFT IFR/EIS contains no discussion or analysis regarding whether sufficient loading capacity exists under the existing TMDL to allow for Post 45's dissolved oxygen impact.

**RESPONSE:** The Final EIS will be revised to explain that the project can be accommodated without a change to the TMDL or the existing waste load allocations. As the analysis indicates, the loading (point sources of pollution) that is actually occurring is well below the TMDL allotment, which allows for additional impacts to DO from non-point sources.

**COMMENT:** "As *Friends of Pinto Creek* and Regulation 122.4(i) make clear, Post 45's dissolved oxygen impacts must be analyzed under the existing TMDL."

**RESPONSE:** The impacts are evaluated under the existing TMDL; however they use a more realistic, time-variable approach to provide reasonable assurance that the project and dischargers will not cumulatively violate the antidegradation rule.

**COMMENT:** "Furthermore, the DRAFT IFR/EIS's reliance on the new time variable analysis and an email from DHEC endorsing the new modeling approach is insufficient to show compliance with the existing TMDL. DHEC promulgated the existing TMDL as the controlling regulatory mechanism to implement and ensure compliance with South Carolina's 0.1 antidegradation rule. DHEC cannot circumvent that mechanism by allowing alternative analyses to show compliance. Any new modeling analyses or assumptions must be incorporated into the existing TMDL pursuant to Regulation 61-110(G) of the South Carolina Code of Regulations. Accordingly, a complete cumulative impacts analysis requires the DRAFT IFR/EIS analyze whether sufficient capacity exists using the existing TMDL's modeling and assumptions."

**RESPONSE:** USACE defers to DHEC as the State agency promulgating and administering the TMDL for DO. DHEC has indicated that the time-variable analysis is compliant with the existing TMDL and that, when combined with the Project's monitoring and adaptive management plan, it provides them reasonable assurance that the existing TMDL will not be violated. DHEC is not presently re-evaluating the TMDL. They are responding to a scientific analysis of cumulative impacts on DO and agree that the method provides assurance that the impacts won't violate the standard. DHEC is not revising the load or wasteload allocation such that Regulation 61-110(G) is implicated.

**COMMENT:** "The DRAFT IFR/EIS's discussion of the new "time variable" analysis and EFDC modeling work contains no mention of an implicit or explicit margin of safety."

**RESPONSE:** The TMDL wasteload allocations have not been revised and the NPDES permit limits are unchanged. USACE, in coordination with SCDHEC and EPA, used a time-variable model to provide a more accurate representation of the discharges and has demonstrated that the cumulative impacts meet the DO standard. Thus, the margin of safety has not been eliminated; rather there is less uncertainty due to extensive characterization of actual effluent discharge patterns.

**COMMENT:** "...the DRAFT IFR/EIS's use of the new "time variable" analysis amounts to an improper revision of the existing TMDL's waste load allocation without public notice and comment."

**RESPONSE:** DHEC is not currently revising the TMDL. The project merely proves that the cumulative impacts of the deepening and the dischargers won't violate the standard. It uses a scientific approach to achieve those results. USACE does not believe that DHEC is revising the load or wasteload allocation such that public notice and comment are required.

**COMMENT:** "the new "time variable" modeling analysis uses the 90th percentile as the target output and allows for periodic violations of South Carolina's antidegradation rule. DRAFT IFR/EIS page 5-18. The 90th percentile sets the model to predict a scenario where the Harbor system achieves compliance with the 0.1 antidegradation rule 9 out of every 10 days. South Carolina's 0.1 antidegradation rule provides: "For a naturally low dissolved oxygen waterbody, the quality of the surface waters shall not be cumulatively lowered more than 0.1 mg/l for dissolved oxygen from point sources and other activities." S.C. Code Regs. 61-68(D)(4) (2012). In *Anacostia Riverkeeper, Inc. v. Jackson* the court dealt with whether a TMDL could permit periodic violations of state water quality standards. 798 F. Supp. 2d 210, 245 (D.C.C. 2011). There, the court looked to the underlying

state water quality standard which allowed for variation in total suspended solids levels. *Id.* at 246-48. The court concluded that because the underlying water quality standard allowed for variation it was proper for the TMDL to allow periodic noncompliance. Here, the plain language of South Carolina's 0.1 antidegradation rule indicates it applies March through October with no allowance for periodic violation during that time. Therefore, the new modeling does not achieve the level of compliance required by the 0.1 antidegradation rule.”

**RESPONSE:** These exceedence frequencies for cumulative DO impacts are essentially the same as the exceedence frequency used and approved in the 2013 DO TMDL and are considered to be an appropriate modeling target. It is impractical to model 100% compliance.

**COMMENT:** “Charleston Waterkeeper incorporates by reference the following sections of the Southern Environmental Law Center's and the Coastal Conservation League's Post 45 public comment letter submitted on November 26, 2014:

Meaningful Opportunity to Comment, Section II Pages 5-6:

To the extent it argues the Corps should provide the files used to run the EFDC model to the public. The model itself is open source and available for download from the EPA. The underlying files used to support the modeling work should be made available for download from the Corps' website.

Salinity, Section IV. A. Pages 13-14: DuPont's Cooper River Plant, the Bushy Park Industrial Complex, and SCANA's A.M. Williams generating station have fresh water intakes on the Bushy Park Reservoir. Increased salinity levels will likely increase equipment maintenance and repair costs as well as pre-use treatment costs.

Wetlands. IV. B. Pages 14-17.

Toxic Substances in Dredge Spoil. Section IV. F. Page 26.

**RESPONSE:** See comment response #31 (SELC and SCCCL)

#### **25. BP America Inc., Letter 11/20/2014**

**SUMMARY:** .... “please accept this letter as BP Amoco Chemical Company's formal request to be included among the properties being considered as mitigation options for indirect wetland impacts related to the Charleston Harbor Post 45 Project. We believe some of our wetlands, along with the required adjacent highlands buffer areas, would be a suitable mitigation option based on the information in Appendix P of the Corps' Draft Integrated Feasibility Report.”

**RESPONSE:** USACE continues to work with resource agency partners to ensure that wetland mitigation needs are met. As identified in the report and Appendix P, USACE is currently pursuing mitigation through land purchase and conveyance to the USFS. We will contact BP America if additional mitigation is needed and it appears that the offered conservation easement could be useful in satisfying that need.

#### **26. South Carolina Department of Natural Resources Letter (24 November 2014)**

**COMMENT:**“... DNR recommends that all project impacts and required mitigation be evaluated over the entire 50-year life of the project, in accordance with USACE policy.”

**RESPONSE:** Potential environmental impacts are assessed by comparing the with and the without project conditions, generally over a 50-year period of analysis. Section 3 provides the analysis of alternatives to the without project condition. In the case of this project, USACE believes that reasonable assumptions should be made regarding impacts resulting from the project. The Principles and Guidelines state that consideration should be given to environmental factors that may extend beyond the period of analysis.

The impacts are basically driven by the modeled prediction of the 0.5 ppt isopleth at a certain time (2022 or 2071, or any year in between). Depending on the river morphology in the area of the isopleths, the shift could be more or less. USACE will clarify

in the Final IFR/EIS that the 2071 results do not factor in a cumulative analysis of impacts over 50 years, and rather are interpreted as the impacts that would occur if the project were constructed when sea level is predicted to be higher 50 years in the future. It is more defensible and justifiable to estimate impacts that would occur closer to the time of construction. However, USACE recognized in the Draft IFR/EIS that there is no exact location for any isopleth, and that is why the “wetlands per river foot” method was used. After extensive coordination with DNR and other resource agencies, USACE performed a sensitivity analysis on the impacts by factoring in all 3 rates of sea level rise and the impacts at the time of construction and then averaged those results (for more details, see response to EFH comments by NMFS, below).

**COMMENT:** “Although the proposed project is not predicted to adversely affect shoreline erosion, the prediction that the much larger Post-Panamax ships will have less of an impact than the smaller ships currently visiting the port in counter-intuitive. DNR recommends that baseline and periodic post-construction monitoring of shorelines along Crab Bank and Shutes Folly be incorporated into the overall monitoring plan in order to verify the prediction that the deepening will not cause or accelerate erosion due to other anthropogenic or natural causes.

**RESPONSE:** The study is intended to address a without- versus a with-deepening project. The analysis supports the conclusions that: the impact of waves generated by commercial vessels transiting the Federal channel is insignificant when compared to the effects of wind generated waves; with the Project, larger vessels will have the ability to come in at lower tides thereby reducing the impacts that presently exist or may exist for a without project condition; and, with the Project, the number of smaller ships coming in at higher tides will be reduced. However, USACE has agreed to enter into a Programmatic Agreement (PA) with the SC Department of Archives and History and the National Park Service to perform monitoring to address uncertainties with the analysis. In conjunction with this PA, USACE will agree to perform analyses to validate the assumptions of the project and ascertain whether the project impacts significant resources or not. Additionally, if those islands are pursued as sites for beneficial use of dredged material, USACE will monitor the success of those projects.

**COMMENT:** “The Corps considered and rejected several other potential alternatives to restore freshwater wetlands or preserve other parcels of land. Recognizing that opportunities to restore or enhance tidal freshwater wetlands in the target area are not readily available, DNR supports in principal the proposed plan to preserve and protect ecologically valuable parcels of land in the Charleston Harbor area, particularly those within the upper Cooper River watershed. It should be noted, however, that some of the parcels identified as potential mitigation sites may be among those that have already been purchased and protected as mitigation for another project. These include portions of the Keystone Tract and portions of the Fairlawn Tract. In addition, most of the tracts identified as potential mitigation sites are not, strictly speaking, in the upper Cooper River watershed, where most of the impacts will occur. DNR recommends that further consideration be given to protecting ecologically important tracts of land closer to the area of greatest impact.”

**RESPONSE:** USACE appreciates that SCDNR supports the preservation plan and recognizes that opportunities for restoration or enhancement are limited. USACE also understands that the proposed parcels are not in the upper Cooper River watershed; however, the conservation value of conveyance to the USFS is arguable the best long term protective measure for any wetlands. Throughout the course of the review of the Draft IFR/EIS, USACE and DNR have coordinated extensively on the mitigation for the project. USACE will fully disclose the mitigation parcel in the Final IFR/EIS and will provide sufficient information to defend the functional benefits of the mitigation.

**COMMENT:** “While the DNR supports the proposed mitigation plan in principal, and concurs with using the Uniform Mitigation Assessment Method (UMAM) to calculate wetland impacts, we take exception to the calculation of mitigation acreage based on the anticipated acreage of wetland impacts immediately following construction completion (Y -2022), rather than the acreage of wetland impacts projected over the entire 50-year life of the project (Y -2071 ). The impacts of project-related salinity intrusion on freshwater wetland floral and faunal communities are not likely to be immediately apparent following construction completion.”

**RESPONSE:** As previously mentioned, USACE disagrees that 2071 represents the best time period to evaluate impacts. Please see response to NMFS comments for a discussion of an agreed to method.

**COMMENT:** “DNR believes the most appropriate path forward to mitigate for Post-45 Project impacts on freshwater wetlands is through a stakeholder-cooperative, landscape-scale approach that identifies interconnected lands as well as wetlands and riparian corridors in such a way as to achieve and link multiple conservation objectives. The benefits of such actions will not only mitigate for Post-45 Project impacts, but also will protect and buffer headwater wetlands, protect water quality as well as

surface and source water, mitigate flooding, enhance storm-water management, decrease erosion, connect sensitive habitats, benefit threatened and endangered species, sequester additional carbon and preserve traditional land uses.”

**RESPONSE:** USACE agrees and this information is provided in the current mitigation plan and will be more specific in the Final IFR/EIS.

**COMMENT:** “Protecting the Cooper and Wando river basins and its natural and cultural resources and landscapes is essential to sustaining quality of life in the vicinity of the Post-45 Project. Aquatic resources, wildlife; plants and cultural heritage are increasingly threatened by significant impacts that affect more than isolated places or habitats or single species. Broad impacts to freshwater wetlands threaten multiple resources and landscapes. Mitigating for Post-45 Project impacts is beyond the scope and reach of traditional wetland mitigation projects. Ecological restoration protecting landscapes requires comprehensive efforts that affect larger ecosystems. For these reasons, DNR supports an integrated, partnership mitigation plan that achieves the following objectives:

1. Establish necessary funding to achieve the desired landscape-scale mitigation for Post-45 Project impacts to freshwater wetlands, and
2. Plan, prioritize and implement the preservation of Cooper and Wando river basins acreage with significant conservation value - ecological, economic and social.”

**RESPONSE:** USACE agrees that “aquatic resource, wildlife; plants and cultural heritage are increasingly threatened by significant impacts that affect more than isolated places or habitats or single species.” USACE also agrees that, “mitigating for Post 45 project impacts is beyond the scope and reach of traditional wetland mitigation projects” because the impacts do not result in the loss of wetlands. Instead, they merely cause a minor change in habitat type. The impacted wetlands will still be functional.

**COMMENT:** *Regarding hardbottom habitat,* “DNR recommends that a longer time to full recovery (at least 8 to 10 years) be used to calculate the required mitigation acreage. This recalculation may result in some of the patch reef areas described below as “beneficial use” areas being used, instead, as additional mitigation for impacts to higher quality hardbottom habitat.”

**RESPONSE:** USACE has used the 3.5 years to recovery based upon preliminary data associated with the impact areas. In the Final EIS and associated appendices, text will be revised to include information to what the mitigation need would be if a 10 year recovery of the hardbottom habitat were assumed. HEA indicates that 32.5 acres of mitigation would be needed vs. 29.8 for a 3.5 year recovery. This range will be presented in the report. The mitigation plan will continue as presented in the draft EIS and the monitoring and adaptive management plan has sufficient mechanisms in place to account for risk with the mitigation. For example, the District is committed to pre-construction impact area refinement. This refinement will provide more information on the quality of the habitat impacted. It will be used to guide success criteria for the mitigation project. If recovery (based on the impact site conditions) isn’t satisfactorily met after 4 years of monitoring, the ICT will meet and USACE will reevaluate the HEA based on a revised anticipated recovery time. The HEA may then show that more mitigation area was needed, in which case monitoring will continue on the mitigation reef and the other reefs that can serve as adaptive management. In either case (recovery in 3.5 years or not), USACE believes that creating 264 acres of reef and supplementing the SCDNR Charleston Nearshore Reef will more than adequately mitigate for hardbottom impacts.

**COMMENT:** “The Corps has coordinated closely with staff in DNR’s Artificial Reef Program on the design and placement of the reef structures and will continue to coordinate with DNR throughout the construction and monitoring phase of the project. DNR supports the proposed mitigation plan, as well as the use of suitable dredged material for the proposed beneficial uses, including construction of additional patch reefs adjacent to the channel; addition of hardbottom substrate to the Charleston Nearshore Artificial Reef; and extension of the existing berm around the Ocean Dredged Material Disposal Site (ODMDS) to contain fine-grained sediments and protect nearby, naturally occurring hardbottom habitat outside the ODMDS.”

**RESPONSE:** USACE appreciates all the information and support on hardbottom habitat creation. USACE values being able to use dredged material beneficially and that is best achieved when agencies work together to see the overall value of these projects and in the dredged material as a resource rather than a liability. We commend DNR for their involvement and support of these concepts.

**COMMENT:** *Relating to fish habitat suitability...* “Most changes in habitat suitability were determined to be the result of small changes in water quality parameters {DO, salinity, temperature, velocity), and none were considered to be significant enough to

require mitigation. Overall, DNR concurs with that assessment based on the results of the HSI analyses; however, in light of the predicted decrease in habitat suitability for shortnose and Atlantic sturgeon (spawning, eggs, larvae, juveniles, and adults) and the lack of sufficient information on the reproductive success and occurrence of certain life stages of these species to fully evaluate project-related impacts, DNR recommends that a detailed monitoring plan for shortnose and Atlantic sturgeon be developed and incorporated into the overall monitoring and adaptive management plan for the Post-45 Project.”

**RESPONSE:** USACE agrees that, in general, reproductive success and occurrence data on shortnose and Atlantic sturgeon would be useful data to have for the Charleston Harbor area. However, the Project’s impact predictions are not specifically tied to occurrence data or reproductive success. Project impacts were predicted based on modeled water quality data, which reflects the best available information. Research on occurrence and reproductive success should be funded or performed by other entities.

**COMMENT:** “Indirect impacts to sturgeon include short-term impacts to foraging and refuge habitat, water quality, sediment quality and disruption of migratory pathways. Recent evidence that Atlantic sturgeon may spawn in the Cooper River during the fall suggests that migratory pathways could be disrupted in both spring and fall. Longer-term impacts could result from project-related changes in factors that determine habitat suitability (see discussion above).”

**RESPONSE:** USACE has proposed two dredging windows that are related to critical spawning areas for commercially important species. DNR’s sturgeon data does indicate a potential fall migration. It is not evident that additional dredging windows would appreciably diminish any short-term impacts. Within the harbor there is adequate room for migratory pathways for sturgeon and other species.

**COMMENT:** “Regarding the Kemp’s ridley sea turtle (*Lepidochelys kempi*), the DIFRIEIS states that Kemp’s ridley sea turtles are not common off the coast of South Carolina; however correctly notes that immature individuals are encountered in nearshore and coastal waters of South Carolina. In fact, the number of stranded Kemp’s ridley sea turtles has increased in recent years, as this species has become more prevalent in our coastal and nearshore waters. This suggests an increasing potential for more encounters with this particular species than have occurred in the past, making specific avoidance measures even more important in planning and executing the proposed deepening project.”

**RESPONSE:** The Final FR/EIS will be revised to include this information. The 22 April 2015 BO includes conservation measures in Section 2.1.3, as well as RPMs and supporting Terms and Conditions in section 9.3 to protect endangered sea turtles such as the Kemp’s ridley.

**COMMENT:** “Some statistics presented in the DIFRIEIS, such as nest numbers, do not reflect more recently collected data. Updated statistics, more recent publications, and additional comments on individual sections of the Draft IFR/EIS addressing sea turtles are included in Attachment 2.”

**RESPONSE:** The Final FR/EIS will be revised to reflect recent data.

**COMMENT:** “Detailed monitoring and adaptive management plans should be developed for freshwater wetlands, shortnose and Atlantic sturgeon and existing intertidal oyster reefs as well as artificial reefs created as compensatory mitigation for impacts to hardbottom habitat. Development and implementation of these plans also should be coordinated with federal and state resource agencies.”

**RESPONSE:** Monitoring and adaptive management plan will be notably revised for the Final IFR/EIS. It should be mentioned that adaptive management will only occur for hardbottom habitat. The reason for this is that it is the only mitigation component that needs to be monitored for success. The wetland preservation will not be monitored (aside from annual visual inspections to ensure functions still being met) and will not need adaptive management because it will be in Forest Service ownership. If results of wetlands, water quality, salinity, and DO monitoring demonstrate increased impacts that are attributable to the project then a “corrective action plan” will be implemented. This will consist of reconvening with the ICT and determining how much additional mitigation is needed for wetlands and what options to proceed with for potential DO mitigation.

**COMMENT:** “DNR supports all appropriate “beneficial uses” of the dredged material, including adding hardbottom substrate to the Charleston Nearshore Artificial Reef, creating more artificial patch reefs than would be required for compensatory mitigation, extending the berm around the ODMDS to contain fine-grained sediments and protect nearby hardbottom habitat

and augmenting the shorelines of Crab Bank and Shutes Folly, two important bird nesting islands, with compatible sediments dredged from the entrance channel.”

**RESPONSE:** USACE appreciates the support for beneficial uses. We hope and expect that DNR understands that perfectly compatible sand is unlikely to be found, but that through natural sorting and mixing processes, beneficial uses can be designed successfully. The incremental cost of disposal for purposes of aquatic restoration or environmental shoreline erosion benefits that exceeds the least cost method of disposal is cost-shared, with a non-Federal sponsor responsible for 25 percent of the costs.. USACE hopes that DNR would consider the potential to partner in any beneficial use project if cost-sharing is required. Factors that may increase cost include: additional detailed modeling of sediment transport, planning studies, environmental reviews, restrictive dredge windows, restrictive construction methods, material segregation, etc.

**COMMENT:** Attachments 1 and 2 consist of editorial comments on sturgeon and sea turtles.

**RESPONSE:** These edits will be incorporated into the final report.

## **27. South Carolina Department of Natural Resources Supplemental Letter (03 December 2014)**

“Previously DNR stated: *In light of the substantially greater environmental impacts of the TSP, DNR recommends the NED plan be considered [emphasis added] as the preferred alternative. Regardless of which plan is ultimately selected, however, compensatory mitigation should be based on projected impacts over the entire 50-year life of the project, not on impacts predicted to occur at the time of construction completion.*

This recommendation was made from the perspective of DNR's analysis of the environmental impacts of the proposed project. In accordance with DNR policy and in order to be consistent with our science based recommendations, DNR always defers to the least environmentally impactful alternative. In this case, DNR stated the NED plan should be *considered* as the preferred alternative; we did not state the NED plan *must be* the preferred alternative. To clarify, DNR is confident the proposed project will be evaluated by the Corps in a balanced manner that *considers* all other decision factors in addition to environmental impacts.

We encourage the Corps to *consider* both the NED plan and the TSP as the preferred alternatives in a balanced manner that evaluates all of the potential benefits of the proposed project, and we defer to the wisdom of the Corps in this regard. DNR has no particular preference over which plan is ultimately selected as long as the environmental effects of the final preferred alternative are adequately mitigated.

We have stated our greatest concern is over impacts to freshwater wetlands. DNR reiterates the recommended path forward to be:

1. Establish necessary funding to achieve the desired landscape-scale mitigation for Post-45 Project impacts to freshwater wetlands, and
2. Plan, prioritize and implement the preservation of Cooper and Wando river basins acreage with significant conservation value- ecological, economic and social.”

**RESPONSE:** Thank you for identifying the 2 primary items from DNR’s perspective on the path forward. USACE agrees with DNR that landscape scale mitigation is the most appropriate. The information in Appendix P and in supplemental information provided to your agency (be included in the Final IFR/EIS) demonstrates the environmental benefit of the wetland preservation to the Cooper/Wando watershed. USACE also agrees with recommendation #2 that planning and implementing preservation along the Cooper/Wando basins will result in significant conservation value. USACE uses tools to identify required mitigation. In the case of this project, we used the Uniform Mitigation Assessment Method. USACE believes that only through a qualitative/quantitative tool such as UMAM can a defensible acreage be determined for mitigation. During the review period, USACE, DNR and other agencies worked together to refine the UMAM scoring based on a workshop and field visit. We believe the result of this is sufficient acreage to mitigate for the indirect affect of changing dominant wetland vegetation.

**COMMENT:**” DNR has enjoyed constructive conversation focusing on wetland mitigation strategies with our state partner, the non-federal sponsor, the South Carolina Ports Authority. We are confident these discussions will continue and be productive

over the coming weeks, to include other agencies and stakeholders, in order that more mitigation detail can be provided by the time the Corps approaches its next Post-45 Project decision milestone.”

**RESPONSE:** The mitigation agreement that the SCPA subsequently reached with the SCCCL and Lowcountry Open Land Trust is not part of the compensatory mitigation for the Post 45 Federal project. The land purchase outlined in that agreement is above and beyond the compensatory mitigation requirements quantified via a certified mitigation assessment tool (UMAM). As a result, the additional wetland purchase is not justified as Project mitigation and will not be included as part of the Federal project.

## **28. US Environmental Protection Agency, Letter (11/24/2014)**

**SUMMARY:** EPA has substantial concerns regarding the proposed wetlands mitigation, monitoring and adaptive management plan, air quality and the environmental justice (EJ) analysis.

**COMMENT:** “Monitoring and Adaptive Management Plan: EPA appreciates the Corps recognizing the importance of developing a monitoring and adaptive management plan. We think the Mitigation, Monitoring and Adaptive Management Plan (MMAMP) as outlined in Appendix P provides a strong basis to build off of; however, we think the MMAMP should be more detailed and inclusive of the ICT post-FEIS. Given the long term uncertainty related to project impacts especially to wetland impacts and water quality (DO and salinity) impacts, EPA recommends the Corps, in mutual collaboration with the Interagency Coordination Team (ICT), develop a MMAMP that provides a solid framework for establishing pre, during and post-construction monitoring plans (to include schedules, frequencies, data parameters and placement), provides for data reporting (both routine and performance related), sets quantifiable performance or success criteria for both impacts and mitigation, and establishes a corrective action plan (CAP). Additionally, the MMAMP should establish continued collaboration with the ICT post-FEIS and post-construction. For NEPA disclosure, EPA thinks the MMAMP should clearly be outlined in the FEIS. Further, EPA recommends the Corps consider using the monitoring and adaptive management plans outlined in Jax Harbor and SHEP as a foundation to build upon.”

**RESPONSE:** USACE will revise the MMAMP to update information and provide more clearly defined collaboration with the ICT. While the District will use the examples of Jax Harbor and SHEP to provide information, it is noted that the nature and scale of impacts and mitigation of those projects differs from the Post 45 project. Therefore, EPA should expect to see differences. The current mitigation plan provides the framework to define how success criteria will be developed, ICT involvement, feedback loops, etc. The Appendix already includes ICT feedback and coordination for every component. There is no monitoring proposed for wetland mitigation because the sites would be preserved and conveyed to USFS for long-term protection, precluding the need to develop success criteria. As discussed with your agency during the review period, USACE will include ICT site visits post construction to qualitatively confirm that wetland functions are being met. There are no success criteria for DO because nothing is being constructed for DO mitigation. The only success criteria would be for hardbottom mitigation and the Draft MMAMP states that this will be refined during the preconstruction engineering and design phase with input from DNR and NMFS. USACE continues to work with EPA and the ICT, and will work with the agencies to revise and expand on this for the Final EIS.

**COMMENT:** “Duration of Post-Construction Monitoring: EPA understands that the Corps proposes to conduct post-construction monitoring for wetlands impacts twice (2<sup>nd</sup> and 4<sup>th</sup> year) and for water quality (DO and salinity) annually for 5 years. The Corps in Savannah and Jacksonville recognized the uncertain nature of deepening projects and will conduct 10 years of post construction monitoring for their respective projects, which was reflected in the FEISs issued for those projects. Given the uncertainty of impacts on both wetlands and water quality, EPA strongly recommends the Corps expand post-construction monitoring for 10 years and document this within the FEIS.”

**RESPONSE:** There are important distinctions between the impact of Post 45 and those in Savannah and Jacksonville. For example, the impacts in Savannah are projected to be significantly greater, and the extended monitoring in Jacksonville is being paid for exclusively by the non-federal sponsor rather than cost-shared with the federal government. The proposed mitigation/monitoring for both projects was determined to be non-compliant with USACE policies and Jacksonville’s non-compliant actions are being paid for by the Port, without federal participation. The USACE believes the proposed time frames are scientifically justified.

EPA has not provided a compelling scientific reason for increasing monitoring to 10 years. USACE has provided scientific rationales for the post construction monitoring durations. The hardbottom monitoring timeframe is due to the anticipated recovery time of the mitigation reefs. The wetlands monitoring timeframe is due to the vegetation change expected to occur within 5 years. The water quality (DO and salinity) monitoring timeframe is due to the fact that changes would occur almost immediately. Additionally, any measured impacts would become increasingly difficult to attribute to the project as opposed to other variables the further monitoring goes into the future.

Unless information to support longer monitoring durations is provided, the Draft IFR/EIS will be revised to include more information to justify 5 years of monitoring. These reasons include: 1. impacts will be felt closer to the time of construction, 2. water quality changes would not take 5 years to occur, 3. After 10 years watershed changes, sea level change, other development, etc. would prevent the monitoring results from being attributed to the project and 4. wetland vegetation changes will occur gradually; however after 10 years the changes attributable to the project will be difficult to differentiate from natural changes and other watershed scale changes.

If, after 5 years, data indicate that further monitoring will allow for a greater understanding of project related impacts to water quality and DO, monitoring will continue for no more than 5 more years. It should be noted that the existing USACE salinity alert monitoring will continue after the 5 years and is available online for anyone interested.

**COMMENT:** "Wetland Mitigation: Regarding wetlands mitigation, EPA has concerns related to the selected mitigation option of acquiring lands to augment the Francis Marion National Forest. There is not enough information in the DRAFT IFR/EIS to establish whether this preservation option is functionally equivalent (as required by the Mitigation Rule) to the impacted wetlands. The information in the DRAFT IFR/EIS doesn't adequately demonstrate the delineation between the upland forests from the forested wetlands and that upland forest acres would be improperly counted toward mitigation credits. Additionally, other mitigation options were eliminated (Ashley River Restoration site, Tuxbury Horse Trail Restoration site and the Cainhoy Plantation site) without adequate analysis and coordination with the ICT. The Corps also didn't adequately evaluate the mitigation options using the compensatory mitigation hierarchy outlined in the Mitigation Rule. EPA recommends the Corps better detail the mitigation plans (especially the selected mitigation option) and commit to continued collaboration with the ICT to establish a better defined and robust mitigation plan."

**RESPONSE:** The UMAM spreadsheets are provided in the Draft FR/EIS App P for the reader to review. These sheets show the functional gain from wetland preservation. It requires 484.55 acres of wetland mitigation (increased by 70% for contingency). As EPA is aware, these numbers changed during the NEPA coordination which EPA participated in. We will expand on the mitigation plan in the Final IFR/EIS. USACE did follow the hierarchy in the mitigation rule, and will demonstrate this more clearly in the Final IFR/EIS. EPA has received a supplemental mitigation document which provides the necessary information to answer some of these concerns. Appendix P will be updated with this information. USACE held an ICT meeting on 28 and 29 January to address these concerns. EPA staff was present. Meeting minutes were circulated.

**COMMENT:** "Air Quality: EPA has concerns regarding the lack of information related to the potential impacts of near-source air toxic exposures (e.g., Sources within 1,500 feet) to sensitive populations (e.g., the old, young and infirmed). EPA also strongly recommends that the Corps and SPA consider 5 years of air toxics monitoring following the completion of the harboring deepening project to ensure that the project assumptions are accurate and increases in port growth or changes in port operations are not having a potentially significant impact on nearby sensitive populations. We are also concerned with the lack of discussion regarding port operations (especially terminal operations) impacts to air quality. EPA understands the SPA has initiated several green initiatives that potentially could reduce air quality impacts and EPA recommends the Corps disclose this information within the FEIS. Additionally, the Corps should describe any potential opportunity for air quality efforts associated with this proposed project in the FEIS."

**RESPONSE:** The analysis demonstrates that the proposed project would result in lower air emissions than the future without project condition. These results apply to the harbor as a whole, and at each individual facility. Without adverse impacts, no monitoring should be required. Port operations are discussed in the air appendix and included in the calculations of emissions. USACE will consider including future SPA "green initiatives" in the Final IFR/EIS for information purposes, but they are not essential to the decision making for this project. The project allows the same amount of cargo to be transported on fewer, larger ships. These larger ships are also more likely to be newer, more efficient, and more likely to apply the latest technological advances to reduce hazardous air emissions.

**COMMENT:** “Environmental Justice (EJ): EPA is concerned that the EJ analysis doesn't adequately identify EJ communities potentially impacted by the proposed project nor does the EJ analysis address potential impacts associated with the proposed project. EPA recommends the Corps refine and expand the EJ analysis to ensure EJ communities are identified and potential impacts are disclosed in the FEIS. EPA is also concerned that the Corps did not sufficiently reach out to EJ communities and recommends that Corps conduct targeted outreach to EJ communities to solicit their feedback and include that feedback in the FEIS. EPA is committed to collaborating with the Corps to ensure meaningful dialogue with the EJ communities is conducted and the EJ analysis informs the public and decision makers.”

**RESPONSE:** The analysis conducted by USACE does not suggest that there will be any disproportionately high and adverse effects from the Project on minority or low income communities. USACE will add to the analysis in the final EIS, but no adverse impacts to EJ communities are anticipated. Over 150 mailers went out to notify communities of the project report and public meetings. To date, the USACE has not been able to identify any areas of disproportionately high and adverse impacts to low income, minority, juvenile or elderly populations. If any are identified, they will be addressed in the final.

**COMMENT:** “EPA rates this DRAFT IFR/EIS EC-2 that is we have environmental concerns and request additional information. Overall, EPA thinks most of these concerns can be resolved through continued collaboration with the Corps and ICT. Additionally, EPA is committed to provide continuing technical assistance to the Corps to address these issues as the project moves forward. Given the above concerns, EPA requests an opportunity to review the preliminary draft FEIS before release of the FEIS to ensure our concerns are fully addressed and would like to follow up with you at your earliest convenience. Additionally, EPA requests that any mitigation commitments and the MMAMP be documented in the Record of Decision (ROD) and/or Chiefs Report.”

**RESPONSE:** USACE will provide portions of the final IFR/FEIS to EPA prior to release, but with no commitment for additional changes prior to release. USACE would appreciate any assistance EPA can provide to improve the documents. However, this is the first study performed completely under new guidance that is intended to generate shorter and more concise documents. Additional material must be scrutinized to ensure that it is meaningfully connected to the project decision. We are being asked to eliminate all material that does not contribute to that decision in an identifiable and meaningful way.

**USEPA Detailed Comments:**

**COMMENT:** “EPA thinks the current MMAMP is not as comprehensive or detailed as other recent Corps deepening projects such as Jacksonville Harbor Deepening Final Integrated General Re-evaluation Report II and Supplemental Environmental Impact Statement, Feb 2014 (Jax Harbor) and the Savannah Harbor Expansion Project Environmental Impact Statement, November 2010 (SHEP).”

**RESPONSE:** USACE believes that the MMAMP for Post 45 is proportionate to the impacts of the Project. Requiring more detail in the MMAMP to make it comparable to other projects is not appropriate. An MMAMP should be based upon the impacts specific to the particular project and the level of detail should be commensurate with the challenges presented. USACE will be revising the MMAMP to add appropriate details where improvements can be made to strengthen the document.

**COMMENT:** “EPA is concerned that the MMAMP was developed without input from the resource agencies (ICT). EPA feels it is important to have meaningful dialogue between resource agencies and the Corps post-FEIS and post-construction to ensure corrective action measures are in place to ensure future (post-construction) DO levels do not exceed state water quality standards or degrade aquatic resources.”

**RESPONSE:** The ICT was included in the development of the hardbottom monitoring and adaptive management activities. USACE notes that limited feedback was offered from the ICT for the monitoring and adaptive management for the wetlands and water quality component. USACE will continue to seek agency input through the ICT to support the revisions to the documents to include post-construction activities.

**COMMENT:** “Additionally, continued discussions post FEIS are needed to ensure corrective action is appropriately taken should wetlands and water quality (DO and salinity) impacts exceed model predictions. The Corps does discuss briefly throughout the MMAMP coordination with the resource agencies, but the coordination of monitoring results with resource agencies are not discussed.”

**RESPONSE:** MMAMP will be edited to make continued coordination, including monitoring results, clear in the report.

**COMMENT:** “On page 38, the Corps discusses establishing a monitoring protocol in conjunction with SCDHEC and other agencies. Who are the other agencies?”

**RESPONSE:** USACE mentions DHEC specifically, since for DO, we are working within their TMDL. Other agencies can participate as desired. There is no requirement for anyone to attend and no requirement for us to abide by any other agency recommendation. USACE will clarify that all ICT agencies will be invited to these meetings.

**COMMENT:** “Will the Corps take the results of the monitoring and mutually and collaboratively work with the resource agencies to develop adaptive management measures to ensure performance criteria are met? Also, will the Corps coordinate with the resource agencies (ICT) regarding wetland and water quality mitigation performance (success or failure)?”

**RESPONSE:** There are no performance criteria for DO or wetlands monitoring. Performance criteria are to test the success of a design or constructed feature, in this case a mitigation design. USACE is not mitigating for DO and wetland mitigation is through preservation and conveyance to the USFS (i.e., no monitoring of success). Water quality parameters will be evaluated to determine if a significant difference exists between pre and post construction conditions. The design will have to factor in natural and anthropogenic changes that could also influence water quality. If there is a significant difference, then detailed modeling may be required and a corrective action may need to be implemented.

**COMMENT:** “EPA is concerned that 5 years of monitoring is insufficient to ensure DO water quality standards are met. Additionally, EPA thinks 4 years is insufficient to fully establish the project's salinity related impacts to wetlands. Given the uncertainty associated with upstream salinity migration, EPA recommends the Corps continue monitoring at least 10 years post-construction.”

**RESPONSE:** As previously stated, USACE does not believe that there is adequate justification for committing to 10 years of monitoring at the outset of the project. USACE has modified wetland monitoring to include vegetation data collection at years' post construction +1, +3 and +5. The further out the monitoring goes, the more the uncertainty there is related to the level of impact that can be attributed to the project. Regarding DO impacts, these changes will occur almost immediately. Monitoring for 10 years will complicate the analysis of impacts by introducing potentially large and unknown scale of variables to the effects. Changes such as land use change, sea level rise, etc all affect DO. USACE made significant changes to the monitoring plan. Please see appendix P in the Final FR/EIS.

**COMMENT:** “The Charleston District recognizes the slow rate of wetlands conversion within the DRAFT IFR/EIS by stating, “The impacts are indirect and would not be immediate because the potential salt stress would slowly change the community structure.”(Main report, pg 5-32) Both SHEP and Jax Harbor commit to 10 years of post-construction monitoring. EPA strongly encourages the Corps to establish continued collaboration (post-FEIS) with the current ICT by implementing a robust CAP (similar to those developed for Jax Harbor and SHEP) to be included within the Final FR/EIS.”

**RESPONSE:** USACE believes that 5 years of post-construction monitoring is sufficient to determine project impacts. As stated in the Draft IFR/EIS, extending to 10 years in the case of Post 45 would result in biased data due to land use/watershed changes and sea level rise (see sea level rise wetland impacts from existing condition to 2022 – a period of 10 years). The Final IFR/EIS commits to 5 years of monitoring, followed by an analysis of the data in cooperation with the ICT in order to determine if additional monitoring is needed.

**COMMENT:** “The Corps does discuss monitoring throughout Appendix P, but isn't consistent with how they will schedule or implement monitoring. For example, on page 36, the Corps discusses anticipating monitoring, but does not disclose the frequency, schedule or parameters to be measured.”

**RESPONSE:** Please see sections further in the MMAMP to see scheduling. The reviewer is referring to this statement in App P: “It is anticipated that as monitoring progresses and is examined by USACE and the resource agencies, additional regulatory and consultation requirements/monitoring may be needed.” This statement comes at the beginning of the explanation of the monitoring plan and USACE believes that it is a correct statement. We have built in check points and review points along the way, predominantly at the end of monitoring. We anticipate that more monitoring may be needed, but it is low risk. USACE will expand this discussion in the Final FR/EIS.

**COMMENT:** “Another example is page 35 (5.2.1 Mitigation Monitoring Plan) for wetlands mitigation monitoring, where the Corps states: “Two types of monitoring will take place to meet these objectives. The first is characterization of the percent

change in the vegetative community. The second is verification of the salinity isopleth changes in the harbor." When will the Corps conduct this monitoring and what will be the frequency?"

**RESPONSE:** The next section of the MMAMP explains that pre and post+2 and post + 4 years are the scheduled years for the vegetation monitoring. This will be revised to +1, +3, and +5 years post dredging.

**COMMENT:** "The Corps does explain that they will coordinate with resource agencies and that "additional regulatory and consultation requirements/monitoring may be needed." However, the Corps doesn't explain how this process will work. EPA recommends the Corps more systematically and holistically develop a monitoring protocol and schedule that is mutually agreed upon by the resource agencies and reflected within the FEIS."

**RESPONSE:** The MMAMP will be revised to further explain the coordination process. USACE disagrees that it has to be mutually agreed upon by the resource agencies. Section 6.20 of the Draft FR/EIS states that the "USACE will commit to coordinating adaptive management related to project impacts and monitoring results with resource agencies."

**COMMENT:** "Monitoring Details: EPA is concerned with the lack of detail regarding the monitoring data to be collected. EPA recommends the Corps proactively engage the ICT in determining the appropriate field data to be collected, which would be reflected in the FEIS. EPA encourages the Corps to refer to Jax Harbor (Appendix E, pg 75-78) as an example to build upon."

**RESPONSE:** USACE will review the specified section of the Jax Harbor MMAMP and make appropriate adjustments to the monitoring data to be collected and will proactively engage the ICT to obtain information and input on decisions. These changes will be included in the final EIS.

**COMMENT:** "Success Criteria. EPA is concerned with the lack of performance or success criteria in the MMAMP. Success or performance criteria are necessary in order to determine when corrective action is necessary, which then should trigger the notification of the resource agencies and initiation of CAP measures. The Corps does list success criteria for Hardbottom Habitat plans (pg 34), but doesn't list a success criteria for other mitigation plans (water quality or wetlands). EPA encourages the Corps to work collaboratively with the ICT to develop appropriate success criteria for each proposed mitigation (to include DO and salinity) and disclose the success criteria in the Final FR/EIS."

**RESPONSE:** USACE only has success criteria for hardbottom because that is the only mitigation feature which requires them. Wetland preservation and conveyance to USFS for long-term protection does not require monitoring for success.

**COMMENT:** "The current MMAMP does not follow the adaptive management process of Predict-Mitigate-Implement-Monitor-Adapt as suggested by CEQ (NEPA Task Force Report to the Council on Environmental Quality: Modernizing NEPA Implementation, Sept 2003). The current MMAMP doesn't have a cohesive approach to ensure monitoring data meet a pre-determined performance criteria and, if they do not, there are adaptive management procedures in place to ensure remedial or corrective actions are accomplished.

**RESPONSE:** USACE disagrees. Impacts were predicted (see app L and sections of the DRAFT IFR/EIS). Mitigation was performed by avoidance, minimization and then compensatory mitigation. Implement means construct the project and mitigation features and that is the intent and hope of USACE. Monitoring is discussed in App P. Adaptive management is also discussed in App P. USACE will clarify this for the Final FR/EIS.

**COMMENT:** "Both the Jacksonville and Savannah Districts recognized the high degree of uncertainty related to increases of salinity and decreases of DO associated with Jax Harbor and SHEP impacts and addressed these uncertainties within their corrective action plans (CAPs) by establishing a system of reporting information to decision makers and the interagency teams within the FEIS. In the case of SHEP, the Corps committed to producing an annual report for interagency coordination. EPA recommends the Corps develop a CAP that includes a decision flow chart (similar to Jax Harbor, Appendix E, pg 91) that displays the corrective actions taken when performance criteria are not met. Further, EPA recommends the Corps build off the Jacksonville and Savannah District CAPs and refer to SHEP (Appendix D, 9 Adaptive Management-Decision Making Process, pg 29) and Jax Harbor (Appendix E, 6.6 Corrective Action Plan, pg 73)."

**RESPONSE:** Charleston also recognizes the uncertainty as indicated in section 5.4.7.1 "The Charleston District is committed to monitoring the impacts of the project and ensuring that they are similar to those predicted by the EFDC model. If monitoring determines that the impacts are greater than predicted, the District has considered several options to mitigate for the excess

DO deficit. Please see Appendix P for a description of these measures and details related to monitoring and adaptive management.”

**COMMENT:** “The DRAFT IFR/EIS does not address any of the aforementioned statements, especially how the Corps has avoided or minimized impacts.”

**RESPONSE:** USACE encourages EPA to read the 8 avoidance and minimization measures mentioned in Section 1.1 of App P, the mitigation, monitoring and adaptive management appendix.

**COMMENT:** “EPA recommends that for each mitigation (wetlands, DO and Salinity) that the Corps outline the planning objectives as required by ER 1105-2-100 and that the planning objectives be coordinated with the ICT, the CAP should support these objectives and reflected in the FEIS.”

**RESPONSE:** Planning objectives for mitigation will be revised to be more clear; however they are currently stated in App P. For example, under wetlands: “The objectives of the plan include:

- Verify the modeling process used in the effects assessment by assuredly quantifying and detecting whether the proposed deepening has negatively affected the salinity regime of the Charleston Harbor system above and beyond that which was predicted by the models, and offset by purchasing conservation lands;
- Include salinity as well as ecological data collection as components of the monitoring plan to confirm or better correlate cause (salinity) and effect (habitat changes);
- Integrate proposed field data collection with other data collection efforts to take advantage of historical and ongoing efforts to avoid redundancy, be cost-effective, and to efficiently build on existing data and studies.
- If needed, integrate modeling within the plan in order to distinguish the impact of project deepening from the impact of other factors (drought, sea level rise, and deepening);

**COMMENT:** “The Corps has not properly established that the selected mitigation option is functionally equivalent to the impacted wetlands nor has the Corps coordinated ICT to solicit feedback on whether the selected mitigation option is appropriate to offset the project wetlands impacts. EPA is also concerned that mitigation options were eliminated without appropriate evaluation and without coordination from the ICT. We are also concerned that the Corps has not demonstrated the functional equivalency of the selected mitigation option in relationship to the impacted impacts. Additionally, the Corps does not discuss contingency mitigation plans should the proposed land acquisition fall through. Below are our specific concerns:”

**RESPONSE:** USACE disagrees with this comment. Significant coordination was performed to establish that the selected mitigation option is functionally equivalent using UMAM. The ICT was involved in both the selection and application of the model. Pre-draft coordination included on-site training in the use of the model, participation in the site scoring process and opportunity to review and comment on the process and results. Since the draft was released, additional coordination has been performed to make adjustments. This included a joint site visit to the proposed mitigation site where each member of the ICT was allowed to submit their own scoring sheets and justifications. The process, as described, defines a process that requires that the functional analysis be performed to demonstrate that the mitigation lift is equivalent to the loss. This model and process can be applied to other parcels, if needed.

**COMMENT:** “On page 36, the Corps states, “The preservation sites will not require monitoring, as they will be conveyed to the USFS for perpetuity.” Will there be any real estate mechanisms associated with these preservation properties (such as conservation easements) placed on the property to ensure the property is not developed or timbered or used in a manner inappropriate for wetland preservation purposes? Also, what agency (USFS, Corps, or SPA) will ensure the property is set aside for preservation and what legally binding agreement ensures this will happen? EPA recommends the FEIS better explain the legal mechanisms that will place the property in preservation and ensure the property is maintained as wetlands. EPA believes monitoring of these preservation sites are important to ensure land use activities (for example, construction activities, timber harvesting or other forest activities) are not impacting the proposed mitigation site. Additionally, EPA encourages the Corps to collaborate with EPA and the ICT to mutually establish a framework that outlines the frequency of monitoring of the preservation site and to document this monitoring schedule/time frame within the FEIS. EPA also recommends the FEIS more fully describe this option as the selected mitigation option.”

**RESPONSE:** USACE does not agree that monitoring is necessary for the selected wetland mitigation alternative. In following up coordination with your agency, USACE and EPA agreed to periodic visual inspections of the mitigation parcel by the ICT. The land will be conveyed to the USFS and managed by the USFS under the soon to be released revised Forest Plan. The USFS has indicated that a special management plan to ensure that the property is maintained as wetlands and subject to appropriate conservation restrictions may be developed for the property. The Final FR/EIS, and the real estate and mitigation appendices, will be revised to address these concerns.

**COMMENT:** "EPA recommends the Corps better describe the unique characteristics of the forested wetlands in relationship to the impacted wetlands, and explain what compensation ratio will be needed to achieve functional equivalency."

**RESPONSE:** More detail will be provided in the Final IFR/EIS as requested.

**COMMENT:** "EPA recommends the Corps better demonstrate functional equivalency of the selected preservation mitigation option as compared to the impacted wetlands. We are concerned that the information in the DRAFT IFR/EIS doesn't adequately demonstrate the delineation between the upland forests from the forested wetlands and that upland forests acres would be improperly counted toward mitigation credits. The narrative also does not clarify the acreage of upland forests versus forested wetlands; however, Table 5 on page 18 does outline the number of acreage. EPA recommends the Corps discuss the acreage numbers in the narrative and refer to Table 5 so as to eliminate any confusion."

**RESPONSE:** Edits will be made to the document to address this recommendation. Additional information related to the proposed mitigation site has been provided to the ICT, separately.

**COMMENT:** "On page 36, (5.2.1 Mitigation Monitoring Plan), the Corps states, "as monitoring progresses and is examined by USACE and the resource agencies, additional regulatory and consultation requirements/monitoring may be needed. There are also opportunities for additional efficiencies to be gained by utilizing/coordinating with newly established monitoring efforts." EPA concurs with the need for continued monitoring, but requests the Corps collaborate with the ICT to mutually establish a framework that outlines monitoring schedules and timeframes, reporting requirements and mechanisms and corrective action approaches before finalizing the FEIS. This updated mitigation plan and monitoring/adaptive management plan should also be included in the FEIS (See Comment #1).

**RESPONSE:** Addressed in responses to comments above.

**COMMENT:** "1. On page 9 (2.5.1.1 Ashley River Restoration Sites (NOAA identified), the Corps states, "At the present time, the extensive amount of time and expense to assess the feasibility and cost for use of these sites preclude consideration of these sites and this option from further analysis." The projected costs of the Ashley River Restoration Site is \$4,705,615 (Table 3, pg 9), which is only .0092% of the projected total project costs for Post 45 (i.e., \$509,260,000.)."

**RESPONSE:** USACE believes the EPA miscalculated the % by a factor of 100.

**COMMENT:** "What is the Corps policy regarding mitigation costs versus total project costs? If the costs of the mitigation goes against Corps policy, then the Corps should disclose this information in the FEIS. EPA recommends the Corps disclose this information and fully discuss this in regards to rationale for eliminating this mitigation option. What methodology was used to determine the potential restoration "lift from this site? What does the cost per credit "lift" look like? EPA recommends the FEIS better describe the methodology for determining the functional lift of the restoration as compared to wetland losses, which can be graphically displayed. EPA also requests that the Corps further consider this as a viable option for mitigation especially since it follows the Mitigation Rule hierarchy of restoration over preservation."

**RESPONSE:** Mitigation costs are included in the total project costs. This is disclosed in the draft FR/EIS and will be in the final as well. Compensatory mitigation is determined based upon impacts to resources, rather than based upon a percentage of total project costs. USACE will explain that the primary reason the Ashley River sites were not pursued further is because they are outside of the watershed where the majority of impacts occur (Cooper River). The preferred mitigation site is in the same Cooper/Wando watershed.

**COMMENT:** "2. On page 10 (2.5.1.2 Tuxbury Horse Trail Restoration) states, "Preliminary UMAM results for this alternative were not conducive to continued consideration of this option as compensatory mitigation for projected wetland functional losses resulting from the proposed project because the functional lift was not equivalent to the functional loss and the option would only restore hydrologic connectivity to existing wetlands." There is no data within the DRAFT IFR/EIS that shows the

functional lift of this mitigation option. EPA recommends that the FEIS disclose the data that demonstrates that this restoration option does not provide enough functional lift to replace wetland losses.”

**RESPONSE:** More explanation will be provided on this site in the Final IFR/EIS. UMAM sheets will not be included as the information is unnecessary to support a decision document.

**COMMENT:** “EPA recommends in the FEIS the Corps clarify the amount of upland forested wetlands versus forested wetland and describe the costs associated with this mitigation option. The Corps should also discuss what compensation ratio will be needed to achieve functional equivalency between the selected mitigation option and the impacted wetlands. EPA also recommends the Corps better describe their rationale for eliminating this mitigation option for further consideration.

**RESPONSE:** Information will be added to the Final FR/EIS. It should be understood that UMAM doesn’t calculate a “ratio”, just a functional loss and functional gain. EPA wetland staff and some NEPA staff have participated in a few UMAM exercises with the District and can help the commenter understand the application of UMAM and the calculations it uses.

**COMMENT:** “EPA appreciates the need to not disclose property location so as to maintain associated property costs; however, more details should be disclosed in the FEIS. EPA also recommends that the FEIS more fully describe the estimated amount of acreage output for this mitigation option and identify an approximate project cost.”

**RESPONSE:** More details will be included in the Final FR/EIS. Significant information about the proposed mitigation site has been provided to the ICT, including EPA, since the draft.

**COMMENT:** “2. On page 16, Table 5, the Corps discusses the cost per unit acre for mitigation alternatives. The table attempts to graphically describe the reasons for the USFS Tracts being selected as the "Best Buy" alternative. The table lists the mitigation costs, but does not list the mitigation acres. What methodology was used to determine this incremental analysis? Also, how does "restoration" option acreage compare to "preservation" options? EPA recommends in the FEIS that the Corps update the table to reflect not only the mitigation costs, but also the estimated acres of each mitigation option.”

**RESPONSE:** Cost effectiveness/incremental cost analysis was used.

**COMMENT:** “EPA recommends that the Corps re-run the UMAM analysis for the proposed selected mitigation option and coordinate with the resource agencies (ICT) before finalizing the FEIS. Additionally, EPA recommends an updated UMAM analysis be included within the FEIS.”

**RESPONSE:** The DRAFT IFR/EIS states that USACE will revise the UMAM on the preferred parcel during PED due to many risk contingencies. Recent events have minimized those risks so we’ll be coordinating with the agencies prior to the Final IFR/EIS and an updated UMAM will be included in the Final IFR/EIS. A 28 and 29 January ICT meeting has resulted in revised UMAM scoring. EPA participated in that effort.

**COMMENT:** “2. The EPA has concerns on how the mitigation sites were scored using UMAM in Attachment 1 found in Appendix P. It is unclear how the mitigation sites presently score a 6 and by preserving them they score a 9. The EPA does not understand how preservation can improve the score by 50%. An improvement of this magnitude would seem to be reserved for restoration of a system. Further, if the current wetlands only score 6, it is unclear if the wetlands are of sufficient quality to be deemed preservation worthy. Within the 2008 Mitigation Rule, preservation as compensatory mitigation may be authorized, but the Rule sets out five very specific requirements that must be met before preservation will be considered. 33 CFR §332.3(h). These requirements are:

- 1) The resources to be preserved provide important physical, chemical, or biological functions for the watershed;
- 2) The resources to be preserved contribute significantly to the ecological sustainability of the watershed. In determining the contribution of those resources to the ecological sustainability of the watershed, the district engineer must use appropriate quantitative assessment tools, where available;
- 3) Preservation is determined by the district engineer to be appropriate and practicable;
- 4) The resources are under threat of destruction or adverse modifications; and
- 5) The preserved site will be permanently protected through an appropriate real estate or other legal instrument (e.g., easement, title transfer to state resource agency or land trust).

**RESPONSE:** EPA appears to have misinterpreted the sheets. The current (or with preservation) score is a 9. Without preservation the score would drop to a 6 due to incompatible development pressures. This is consistent with how UMAM scores the functional value of preservation and is the main reason that preservation of these lands is so valuable to the watershed. USACE believes that EPA wetland section staff understand the assessment, and the details were worked out in our NEPA coordination.

**COMMENT:** "a. Identification of Minority and Low~ Income Populations: In the DRAFT IFR/EIS, minority and low-income populations are identified by comparing a conglomeration of all geographic units of analysis in the affected area against the Tri-County region (Berkely, Dorchester and Charleston Counties). This approach is inconsistent with the Corps' past approach to identifying minority and low-income populations in the North Charleston area (Charleston Naval Complex (CNC), Proposed Construction of a Marine Container Terminal, Cooper River Environmental Impact Statement (Naval Complex EIS), pg. 4-43).

**RESPONSE:** USACE will review the Naval Complex EIS EJ analysis to evaluate differences in methodologies used to determine EJ populations. EPA has presented numerous comments/questions/concerns with the EJ analysis in this study. USACE believes that the EJ analysis is sufficient as presented in the DRAFT IFR/EIS based on the determination of no disproportionately high and adverse impacts to low income, minority, juvenile or elderly populations. Throughout the EPA letter, there is no mention of why EPA believes that EJ is a significant concern for this project, or why EPA believes that there will be disproportionately high and adverse impacts. Based on follow up discussions with the EPA, the EJ analysis will be expanded upon in the Final EIS.

**COMMENT:** "1. EPA recommends that the Corps use the Naval Complex EIS EJ analysis as a model to build upon, since this approach complies with the intent of EO 12898 and the CEQ's *Environmental Justice Guidance under the National Environmental Policy Act, 1997* (CEQ EJ Guidance)."

**RESPONSE:** USACE will review the Naval Complex EIS EJ analysis and incorporate data from it into the FEIS where appropriate. The District believes we have complied with the intent of the cited guidance. The EJ Guidance document for NEPA has 6 guiding principles:

- 1- Agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes.

**RESPONSE:** USACE has done this.

- 2- Agencies should consider relevant public health data and industry data concerning the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical patterns of exposure to environmental hazards, to the extent such information is reasonably available. For example, data may suggest there are disproportionately high and adverse human health or environmental effects on a minority population, low-income population, or Indian tribe from the agency action. Agencies should consider these multiple, or cumulative effects, even if certain effects are not within the control or subject to the discretion of the agency proposing the action.

**RESPONSE:** This was not done by USACE. It represents the next level of a tiered analysis and the District did not determine that there were impacts to any communities.

- 3- Agencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. These factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption on the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community.

**RESPONSE:** USACE considered the nature and degree of impact on the physical and social structure of the communities along the Charleston neck. These communities were determined to not be subject to disproportionately high or adverse affects.

- 4- Agencies should develop effective public participation strategies. Agencies should, as appropriate, acknowledge and seek to overcome linguistic, cultural, institutional, geographic, and other barriers to meaningful participation, and should incorporate active outreach to affected groups.

**RESPONSE:** The District developed an effective strategy (noted by numerous public comments) for public participation. The District held 3 public meetings, evenly spaced throughout the study approximately 18 months apart. Special letters were mailed to EJ groups where other communities did not receive special notice. These meetings had a court reporter to document comments from members of the public who could not, or were unable to, write comments.

- 5- Agencies should assure meaningful community representation in the process. Agencies should be aware of the diverse constituencies within any particular community when they seek community representation and should endeavor to have complete representation of the community as a whole. Agencies also should be aware that community participation must occur as early as possible if it is to be meaningful.

**RESPONSE:** Community participation was sought from the outset of the study process. The NEPA scoping meeting saw some members of various neighborhood groups attend the meeting.

- 6- Agencies should seek tribal representation in the process in a manner that is consistent with the government-to-government relationship between the United States and tribal governments, the federal government's trust responsibility to federally-recognized tribes, and any treaty rights.

**RESPONSE:** Tribes were mailed letters at every stage of the process. These letters were consistent with government to government relations.

**COMMENT:** "3. CEQ's EJ Guidance additionally states "the selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population (CEQ EJ Guidance pg 26). EPA notes that the DRAFT IFR/EIS acknowledges that "Census tracts 34, 55 and 54 contain a high percentage of minorities (80.6%, 89.7% and 74.3%, respectively), as well as a high percentage below the poverty level (23.9%, 54.0% and 30.2%, respectively). These census tracts, located within North Charleston, are identified low-income and minority communities and neighborhoods." (pg 5-64).

**RESPONSE:** Concur. USACE does note that several census tracts contain high percentage of minorities as well as a high percentage below the poverty level. USACE believes the use of Census tracts does not artificially dilute or inflate the affected minority population; however, USACE will revise the EJ section to include census block data as per EPA's recommendation.

**COMMENT:** "a. Combining all the units of analysis in the affected environment clearly dilutes the minority and low-income populations concentrated in the North Charleston area. Using larger geographic units of analysis (census tracts rather than block groups) also dilutes the presence of minority and low-income populations. These practices are inconsistent with CEQ's EJ Guidance and past practice by the Corps in the North Charleston area (Naval Complex EIS)."

**RESPONSE:** As stated in EPA comment 3, CEQ's EJ Guidance state that "the selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population (CEQ EJ Guidance pg 26)." USACE believes the use of Census tracts does not artificially dilute or inflate the affected minority population, but will nevertheless revise the EJ section to include census block data as per EPA's recommendation. USACE does not believe that breaking down the unit of geographic analysis will alter the conclusion that there are not disproportionately high or adverse effects to minority or low income populations. The Naval Complex EIS involved impacts to a more-focused area of the harbor, rather than throughout the harbor and surrounding neighborhoods.

**COMMENT:** "b. EPA recommends the Corps refer to CEQ's Guidance when updating the EJ analysis for the FEIS. EPA recommends that the FEIS should analyze the existence of minority and low-income populations using block groups as the appropriate geographic unit of analysis. The percentage of minority and low-income populations in each block group in the affected environment should then be compared against county and state data. If any block group either exceeds 50% minority population or is meaningfully greater than the county or state data, a minority or low-income population should be identified. If additional units of analysis are used in the demographic table (e.g. national data) then the information should be provided consistently for both low-income and minority populations (where available)."

**RESPONSE:** USACE will apply the CEQ EJ Guidance in the Final EIS.

**COMMENT:** "4. EPA is concerned with the current configuration of the EJ study area for this proposed project as outlined in the DRAFT IFR/EIS because it does not fully encompass the areas of impacts. EPA thinks the EJ study area should also include the

area around the project terminal facilities. EPA understands the Corps' rationale that the dredging activities will not increase the ports terminal operations; however, EPA thinks the Corps needs to disclose these activities because the port terminal operations are directly linked to the proposed project. We believe the proposed project's port deepening will effect and modify the current operations at the port. EPA recommends the Corps better explain and clarify these operations and expand the EJ study area to include the area adjacent to the port terminal facilities within the DRAFT IFR/EIS."

**RESPONSE:** The analysis did include terminal areas. The analysis provided for a 1 mile buffer The TSP will have no direct impact to terminal operations. The economic section and economic appendix of the DRAFT IFR/EIS provide a detailed analysis of the impacts the Tentatively Selected Plan (TSP) would have regarding increases in terminal activities. No increase in terminal activities is anticipated as a result of this project, because the project is not anticipated to induce any more container growth at the Port. Rather than ships having to call on the harbor only at high tide, a more even temporal distribution of ships entering the port is expected. This would likely reduce spikes in truck traffic and improve traffic conditions around the port. The proposed activities have been disclosed extensively to communities adjacent to the port, the terminals, and beyond. USACE has solicited input from communities, churches, and other groups in the area surrounding the terminals beginning with the scoping phase of this study and continuing to the DRAFT IFR/EIS.

**COMMENT:** "5. EPA appreciates that EJ maps are included in the DRAFT IFR/EIS. While the maps provided are good for screening purposes, it would be more helpful to include visuals that show the affected environment, including minority and low-income populations/communities at the appropriate geographical unit of analysis. This information can help inform the public and the Corps' outreach and engagement activities related to EJ."

**RESPONSE:** USACE will revise the maps to show data at the block or tract level as suggested by EPA.

**COMMENT:** "1. On page 2-121, (2.4.23 Socioeconomic Section), the DRAFT IFR/EIS does not discuss efforts to meaningfully engage low-income and minority communities in the decision-making process. It also does not identify or summarize any comments or concerns that have been obtained as a result of outreach and public engagement activities with the community related to environmental justice and the proposed action. EPA recommends that the Corps discuss in the FEIS efforts to meaningfully engage low-income and minority populations in the decision-making process. Particular focus may include block groups and census tracts that have high minority and low income populations, and/or that are located in close proximity to port-related infrastructure. Meaningful engagement with the residents and stakeholders (e.g., community leaders, advocacy groups, and community development groups) of potentially affected low-income and minority communities should encompass adaptive and innovative approaches to both *public outreach* (i.e. disseminating relevant information) and public participation (i.e. receiving community input).

**RESPONSE:** A section will be added to the Final IFR/EIS, that discusses in detail, the meaningful actions the Corps took to reach out to and engage EJ and low income communities.

**COMMENT:** "2. EPA is concerned with the lack of community engagement as described in the DRAFT IFR/EIS and recommends the Corps establish a community advisory board. Effectively and meaningfully engaging the community can play an important role in leveraging the Corps' ability to collect data used to inform the decision-making process. Given that the port is anticipated to continue to grow (with and without the project) and several projects (i.e. New Navy Terminal, Palmetto Railways Intermodal Container Transfer Facility) are anticipated to be located within the vicinity of the port, convening an ongoing community advisory group comprised of residents and stakeholders of potentially affected overburdened and/or low-income and minority communities can enhance the SPA's, the Corps', and the communities' understanding of project benefits and impacts. This advisory board also serves as a valuable public participation and outreach tool, designed to inform the community of the Port's progress and address any questions or recommendations that the surrounding community may have. Additionally, during the SHEP EIS process, the Georgia Port Authority saw the value of establishing a community advisory group and committed to actively engaging the community through that group."

**RESPONSE:** USACE believes the level of community engagement was appropriate, and will more thoroughly detail our efforts to engage EJ and low income communities in the FEIS. While a community advisory is a valuable tool to foster relations between the agency and the community the Corps deemed it was not merited for this study. When comparing this study to SHEP it is import to note that SHEP had impacts to EJ and low income communities via the work proposed at the Garden City terminal. The TSP for this study has no activities that would have the potential for disproportionately high and adverse to low income,

minority, juvenile or elderly populations . This study also has no proposed expansion for any terminals or associated landward infrastructure.

**COMMENT:** "The Draft IFR/EIS indicates that growth is anticipated to continue within the vicinity of the Port. It also provides some analysis based on assumptions about future project impacts (i.e. air) and provides no analysis in other areas like noise. Although we understand the Corps' port growth rationale from previous discussions, we believe the channel deepening will result in operational changes at the port terminals that should be better addressed in the EJ analysis. The Draft IFR/EIS includes a statement indicating there are no disproportionate impacts. EPA recommends that the Corps complete the assessment of project impacts including impacts from port terminal operations (i.e. heavy truck and trains). EPA recommends the Corps re-examine these conclusions after completion of the recommended updated EJ assessment. The FEIS should include the definition of disproportionate impacts that was cited in the Naval Complex EIS (predominantly borne by the EJ community, etc.) and also the factors listed in CEQ's EJ Guidance on pg 26-27 (e.g. experiencing cumulative and multiple impacts, etc)."

**RESPONSE:** USACE directs EPA to the noise analysis that was prepared and is an appendix to the Draft IFR/EIS. As previously stated , the channel improvements will not contribute to growth at the Port, and will instead only allow for ships to enter with fewer tidal delays, thereby spreading the impact out throughout the day, rather than just high tide. USACE EJ analysis is consistent with the definitions and process of current EJ guidance. Based on the available data, USACE continues to believe that the project will not result in disproportionately high and adverse effects on EJ communities, including in the form of cumulative and multiple impacts.

**COMMENT:** "EPA also recommends that a pre and post construction monitoring program (i.e. localized air, traffic, and/or noise) be implemented to assure communities living in close proximity to the harbor deepening activities, terminals, and transportation facilities that they will not experience increased localized impacts (direct, indirect, cumulative) as a result of the proposed project and growth within the vicinity of the Port."

**RESPONSE:** USACE does not plan to perform post construction monitoring of localized air, traffic, and/or noise for the below reasons. Increases in these variables are expected regardless of the proposed project is constructed or not. In fact, a reduction in ship generated emissions is expected when compared to the without project condition. Also, as stated in previous comments, the proposed project will allow for vessels to enter at almost any tide/time; thereby reducing spikes in vessel activity. If the proposed project is constructed the Corps' analysis has shown that the proposed project would not lead to direct or indirect increases to localized air, traffic, and/or noise. Again, the data indicates that there will not be disproportionately high and adverse effects on minority or low income populations.

**COMMENT:** "a. EPA is concerned with the uncertainty associated with the project's impacts to the DO and related impacts to the TMDL. EPA strongly encourages a robust MMAMP as described in comment #1 to ensure water quality standards are met. As discussed in Comment #1, EPA believes a detailed MMAMP would reduce the risks associated with these uncertainties."

**RESPONSE:** Appendix P will be revised as indicated to be more robust.

**COMMENT:** "b. On page 5-22 of the Main Report, (5.4.7.4 Salinity), the Corps states, "The USACE will continue the salinity alert monitoring and the protection of Bushy Park Reservoir." In the next paragraph, the Corps states, "...it is likely that the proposed project would increase the number of salinity alerts for the Bushy Park Reservoir." Has the Corps coordinated with the owner/operators of the Bushy Park Reservoir? Should salinity reach the Bushy Park Reservoir, what corrective action measures will the Corps or the SPA take? There is no mention of monitoring or adaptive management corrective actions for Bushy Park Reservoir discussed in Appendix P. EPA recommends that in the FEIS the Corps better describe any coordination with the owner/operators of the Reservoir and discuss in more detail the salinity monitoring and adaptive management corrective action measures for the Reservoir. Additionally, EPA recommends the Corps add the salinity monitoring and adaptive management for Reservoir in Appendix P."

**RESPONSE:** USACE is an active partner in the Bushy Park water users group. Coordination with Santee Cooper occurred, and USACE received a letter of support from them. Please read Appendix A for more discussion of the salinity alert system and triggers/actions in place to protect it. The DRAFT IFR/EIS will be revised to better describe the alert system or reference Appendix A where the details can be found.

**COMMENT:** "In the Executive Summary, in the "Areas of Controversy and Unresolved Issues", it does not discuss EPA's past requests to conduct a screening level analysis of potential air pollution impacts on neighborhoods that might be affected by

current or future port-related activities. EPA believes that this is an important environmental issue for this proposed project under the NEPA process. It should be noted that this is an unresolved issue. EPA recommends that the Corps and SPA reconsider the use of the air quality screening tool that EPA provided in its scoping comments on October 21, 2011.”

**RESPONSE:** Contrary to this comment, the 21 Oct 2011 EPA letter to USACE does not mention an air quality screening tool. Instead, it states that, “Air toxics source and emissions inventories and a tiered analysis of potential health impacts of the alternatives will be needed.”. The USACE considered the screening tool at the request of EPA. However, based on coordination with EPA air quality staff, it was determined that the tool was not designed for or well suited for application to a project such as the Charleston Harbor Post 45. The USACE followed with an extremely detailed air toxics source and emission inventory as requested in the letter. Results of this show that overall emissions will be lower than without a project because there will be a decrease in the total amount of air pollution resulting from vessels and cargo handling equipment when compared to the future without project (no action) alternative; therefore, using a tiered analysis, as suggested by EPA, no further analysis on potential health impacts was performed.

**COMMENT:** “On page 4-16, (4.3 Mitigation), the Draft IFR/EIS addresses mitigation, but does not discuss any air quality minimization or mitigation efforts associated with the proposed project. EPA understands the SPA is initiating many programs that will potentially reduce air quality impacts from port operations. As a part of NEPA disclosure, EPA strongly recommends that the Corps discuss these 'green' initiatives and any anticipated reductions in air pollutants in the Final IFR/EIS.”

**RESPONSE:** USACE doesn't believe that the SPA air programs are essential to the decision making for this study; however the FEIS will be updated to make reference to the SPA air initiatives. The Air Appendix already uses many of these initiatives in the calculation of emissions. Where applicable, key information will be transferred to the main text of the EIS.

**COMMENT:** “Terminal Operations: EPA is concerned that the Corps did not specifically evaluate the proposed project's port operations for air quality impacts. Significantly larger container vessels may have an impact on temporal operations of the port (length of stay, container loading/unloading rate, queues, truck traffic, etc.) and these changes should be considered when analyzing the impacts of LPP and No Action. EPA recommends the CORPS better describe the port operational changes and their potential impacts to air quality especially relating to air toxics and any localized impacts in the FEIS.”

**RESPONSE:** All landside operations were included in the air emission inventory. This includes cargo handling equipment, trucks, and locomotives.

**COMMENT:** “The DRAFT IFR/EIS does not discuss the potential impacts of near-source air toxic exposures (e.g., Sources within 1,500 feet) to sensitive populations (e.g., the old, young and infirmed) as per EPA's previous scoping comments. EPA recommends the Corps identify nursing homes, day care facilities, schools, hospitals, and other sensitive populations (preferably on a map) that are potentially near existing and major air toxic emission sources (i.e., 1,500 feet or less). Sensitive populations could also potentially be nearby low income and minority neighborhoods.”

**RESPONSE:** USACE took the evaluation of air impacts seriously in our study process, and applied a tiered approach in our analysis of air effects. If emissions were shown to increase as a result of the project, then the EPA suggested health impacts analysis would have occurred. Since the analysis does not indicate that air toxics exposure to sensitive populations would increase compared to the no action alternative, no further analysis is warranted.

**COMMENT:** “In Table 2-38, it is noted that baseline and projected emissions for the no action alternative for several future dates. EPA recommends emission estimates be included for the projected fleet at each of the same times in the future to allow comparisons among the alternatives at those future dates.”

**RESPONSE:** The table shows the existing condition (i.e., “baseline”) and then the no action alternative (i.e., “no action 45 ft”). For each of these conditions, the projected fleet is used in estimating the emissions. Section 2 only presents the existing and future without project conditions. EPA should compare this table to table 5-10 and for details, read the Air Appendix. The same times are already used for each of the alternatives.

**COMMENT:** “On page 3 5, (Section 6.10 Air Toxics (HAPs)), the DRAFT IFR/EIS addresses the emissions of air toxics for the port for the Year 2011. It is not clear whether these emission estimates include those from truck and rail transportation and distribution facilities. Total emissions are listed in Table 6-34. These estimates, in the absence of additional information on source locations, local scale concentrations in areas near the sources, and potential for adverse health effects, do not inform

the decision. EPA recommends that the Corps more fully describe the impacts associated with port operations (i.e. vehicle, rail and vessel emissions).”

**RESPONSE:** All landside equipment was used in these numbers. Please see the Air Emission Appendix for details. The DRAFT IFR/EIS simplifies the discussion and details that are presented in the Appendix. This will be clarified in the Final FR/EIS.

**COMMENT:** “EPA comprehends the Corps underlying assumptions for the proposed harbor deepening project and that ultimate increased efficiencies will potentially improve air quality in the Region in future years. However, as EPA has previously identified, potential air toxic effects are localized in nature and should be considered on sensitive populations with respect to time, distance and concentration. Therefore, EPA strongly recommends that the Corps and SPA consider 5 years of air toxics monitoring following the completion of the harboring deepening project to ensure that the project assumptions are accurate and increases in port growth or changes in port operations are not having a potentially significant impact on nearby sensitive populations.”

**RESPONSE:** USACE does not believe that the Project will result in localized disparities in terms of air toxics effects. The increased efficiencies and reduction in vessel traffic compared to the without project condition are not expected to lead to localized adverse effects. Accordingly, this monitoring does not appear to be necessary. Were monitoring to be conducted, there would be no way to attribute any of the suggested monitoring results to the deepening project. However, the Port has already accounted for impacts of the capacity increases in other documents (including NEPA documents) that included efforts to lower land-based emissions and monitoring for the impacts described in the comment.

#### **29. South Carolina Department of Health and Environmental Control (DHEC), Letter 12/8/2014**

**COMMENT AND COASTAL ZONE CONSISTENCY CONDITIONS:** Based on the Department's review of the enforceable policies of the SCCMP, information provided, the overriding public interest, regional benefit and national interest of the project, the Department concurs that the proposed deepening under the TSP alternative will be conducted in a manner that is consistent to the maximum extent practicable with the enforceable policies of the SCCMP provided the Corps adheres to the following conditions.

1. The Corps shall comply with all terms and conditions of the National Marine Fisheries Service's Final Biological Opinion.
2. The Corps shall implement best management practices to include, but not limited to, efforts to reduce the potential of organism(s) entrainment; (i.e. not turning on suction until draghead is at or near the sea/river bottom).
3. The Corps shall comply with all terms and conditions of the Department's final 401 Water Quality Certification, including but not limited to the final mitigation plan.
4. The Corps shall receive final approval for the expansion of the ODMDS from EPA to allow for adequate disposal of dredged material prior to construction.
5. The final plans for beneficial uses of the dredged spoil material shall be provided to the Department for final approval.
6. The Corps shall continue to work with the Department to provide adequate mitigation for the project. The final, detailed mitigation plan should include, but not be limited to, the following:
  - a) Detailed site description, including location and acreage breakdown of habitat types (i.e. forested wetlands, emergent wetlands, scrub/shrub wetlands, uplands, etc).
  - b) Site protection measures (Restrictive Covenants, Conservation Easement, or other similar legal document) to protect the property in perpetuity.
  - c) Long-term management plan to be implemented by the steward of the property. The management plan should include details for public access, management for invasive species, management of upland buffers, utilization of Best Management Practices for any work needed, agreements for land/ water use and hunting rights on the property.
  - d) Updated Uniform Mitigation Assessment Method (UMAM) calculation worksheets for the mitigation property, which accurately reflect those existing habitats and their potential improvement. These worksheets should include a

detailed explanation for the scoring, and wetland systems should be scored individually based on their own ecological functions and values.

7. An archaeologist should be present on the dredge and should monitor the dredging operation in the vicinity of magnetic anomaly LH1-001. In the event that an inadvertent discovery is made, all work should cease in the immediate area and should not continue until examination and consultation with the South Carolina Institute of Archaeology and Anthropology and the State Historic Preservation Office is complete. Archaeological remains consist of any materials made or altered by man, which remain from past historic or prehistoric times (i.e., older than 50 years). Examples include old pottery fragments, metal, wood, arrowheads, stone implements or tools, human burials, historic docks, structures, or non-recent vessel remains. Paleontological remains consist of old animal remains, original or fossilized, such as teeth, tusks, bone, or entire skeletons. In the event that archaeological or paleontological remains are found during the course of work, the Corps should notify the South Carolina Institute of Archaeology and Anthropology (Mr. James Spirek at 803-777-8170) pursuant to South Carolina Underwater Antiquities Act of 1991, (Article 5 Chapter 7, Title 54, Code of Laws of South Carolina, 1976).

**RESPONSE:** All of the conditions of the CZC will be adhered to.

### **30. South Carolina DHEC, Request for Information 11/25/2014**

**COMMENT:** Please provide the following information about the proposed mitigation property:

1. Updated acreage breakdown (upland and wetlands by type) with map providing approximate locations and boundaries for each
2. Whether the wetlands would be considered in-kind or out of kind for mitigation
3. The existing condition of wetlands on the site listing any impairment and degree of impairments (i.e. ditching, draining, etc.)
4. Potential for wetland restoration or enhancement on-site.

Provide an explanation for the UMAM factors for the mitigation property as shown on Part I1 of the assessment worksheets that sets forth why there is a change in factors for all three criteria from a value of 6 (without preservation) to a 9 (with preservation).

**RESPONSE:** A document providing additional information was provided to DHEC and other agencies on the Interagency Coordination Team (ICT).

### **31. NOAA National Marine Fisheries Service, Letter 11/24/2014**

**COMMENT:** "It would be beneficial for the Final EIS to include a more comprehensive discussion of the impacts from each alternative."

**RESPONSE:** Noted.

**COMMENT:** "The Final EIS also should discuss how each alternative would affect maintenance dredging rates."

**RESPONSE:** This information is provided in Appendix A.

**COMMENT:** "While the local sponsor's willingness to pay is essential to selecting an LPP over a less costly NED plan alternative, net economic benefits and environmental impacts also should be considered."

**RESPONSE:** Benefits and costs as well as environmental impacts are all considering in the LPP vs. NED plans

**COMMENT:** "...the LPP has a lower benefit-to-cost ratio than the NED plan (Figure 1).The LPP is not the optimum plan economically, and the net annual benefits of the LPP may not differ from those of the NED plan when considering the error normally inherent in such estimates."

**RESPONSE:** USACE economics factors in net benefits (not cost benefit ratio) when factoring the NED plan.

### **Summary of NEPA Recommendations**

**COMMENT:** “The Final EIS should provide a likely dredging schedule by channel reach and clarify the advanced maintenance dredging allowed for the six reaches identified in Draft EIS Table 2-22.”

**RESPONSE:** USACE will provide more detail on the advanced maintenance dredging in Section 2 of the final FR/EIS. A likely dredging schedule by reach is not usually determined until plans and specs. Some of this may be included in Appendices.

**COMMENT:** “The Final EIS should provide an overview of the evaluation process and schedule EPA will use for expanding the Charleston ODMDS and how its expansion relates to the Lshaped berm creation.”

**RESPONSE:** USACE will provide more info on the ODMDS modification being evaluated by the EPA under the Section 102 process (Marine Protection Research and Sanctuaries Act).

**COMMENT:** “The Final EIS should include a more robust discussion of the differences in impacts among the alternatives and the differences in expected maintenance dredging requirements.”

**RESPONSE:** USACE believes that the information provided in the Draft IFR/EIS provides enough information for an alternatives analysis. However, based on these and other comments received, we will edit language in section 3 of the report.

**COMMENT:** “The Final EIS should commit to reinitiating consultations with resource agencies if new disposal options are pursued (e.g., beneficial uses of dredged material at Crab Bank, Shutes Folly, and nearshore of Morris Island), contraction dikes are built, or the final dimensions of any turning basin are larger than proposed in the Final IFR/EIS.”

**RESPONSE:** The Draft FR/EIS already commits to re-coordinating with agencies on the beneficial uses and potential contraction dikes. It’s a commitment of the project. See section 6 of the Final IFR/EIS.

**COMMENT:** “The Final EIS should identify the NED plan as the selected alternative given the lower economic efficiency and higher environmental cost of the LPP.”

**RESPONSE:** Comments on which plan USACE should select must be evaluated in light of USACE guidance governing the selection of a preferred alternative.

### **Adequacy of the EFH Assessment**

**COMMENT:** “The project description in the EFH Assessment is unclear and incomplete. The deficiencies in the EFH Assessment project description are the same as those noted for the main body of the Draft IFR/EIS and identified in the NEPA section of this letter. An error that appears limited to the EFH Assessment is the inconsistent identification of the TSP. EFH Assessment page 2 identifies the 50/48 foot alternative as the TSP.”

**RESPONSE:** Thank you for identifying the discrepancy. USACE believes that the project description is sufficiently clear and complete.

**COMMENT:** “Draft EIS Sections 3.0 and 4.0 describe EFH and Habitat Areas of Particular Concern (HAPCs), respectively, and should be revised for the Final EIS. EFH and HAPC designations are made under federal fishery management plans (FMP), and these plans should be used as the organizing framework for the impact evaluation. This approach ensures consistent terminology when describing specific habitats, draws attention to the functions of habitats in supporting federally managed fishery species, and provides a filter for EFH and HAPC evaluations based on the presence/absence of the federally managed species in the project area. Specific errors or inconsistencies in Sections 3.0 and 4.0 include:

- EFH Assessment Section 3.0 should omit discussion of species not federally managed, because they do not have EFH designations. This section also should omit discussion of habitats, such as non-tidal palustrine freshwater wetlands, which are not designated EFH.”

**RESPONSE:** The text in will be revised for the Final FR/EIS.

**COMMENT:** “EFH Assessment Section 3.0 should include discussion of tidal palustrine forested wetlands (see the EFH designation in the South Atlantic Fishery Management Council [SAFMC] FMP for penaeid shrimp).”

**RESPONSE:** The text in will be revised for the Final FR/EIS.

**COMMENT:** "While EFH Assessment Section 4.0 uses federal FMPs to organize HAPC discussion, Section 3.0 does not and has few references to federally managed fishery species. Section 3.0 would be improved by using the same organizational structure as Section 4.0."

**RESPONSE:** USACE acknowledges the editorial suggestion; it is not required for compliance with the Magnuson-Stevens Act.

**COMMENT:** References to "all state-designated habitats of particular importance to shrimp" in Section 4.0 should be replaced with "all state-designated nursery habitats of particular importance to shrimp" to match actual HAPC designation language."

**RESPONSE:** The text will be revised for the Final FR/EIS

**COMMENT:** "References to mangroves and the Oculina Bank in Section 4.0 should be deleted since these HAPCs occur along or off the Florida coast well outside the Charleston Harbor study area."

**RESPONSE:** The text will be revised for the Final FR/EIS

**COMMENT:** "Section 4.0 should be corrected to note the SAFMC FMP for coastal migratory pelagic species lists Broad River (South Carolina) as an HAPC for cobia, not mackerel. The Broad River also is well outside the project study area and could be deleted from the EFH Assessment."

**RESPONSE:** The text will be revised for the Final FR/EIS

**COMMENT:** "The HAPC for summer flounder should be "all native species of macroalgae, seagrasses and freshwater and tidal macrophytes in any size bed as well as loose aggregations."

**RESPONSE:** The text will be revised for the Final FR/EIS

**COMMENT:** "Bluefish should be omitted from the HAPC discussion because no such HAPC occurs in the Charleston Harbor study area."

**RESPONSE:** The text will be revised for the Final FR/EIS

**COMMENT:** "EFH Assessment Section 5.0 first describes groups of federally managed fish generally and then provides more specific information on representative species. This section would be improved by more judicious selection of the representative species based on abundance within the Charleston Harbor study area."

**RESPONSE:** In a meeting with NMFS staff in July 2013, NMFS staff identified the "representative species". This is not an EFH requirement, and was done in a good faith effort to produce a quality document. USACE included those species to accommodate the NMFS recommendation.

**COMMENT:** "The EFH discussions also could be improved by more clearly separating EFH designations made by fishery management councils and NMFS from general habitat discussions in the scientific literature."

**RESPONSE:** Revisions will be considered where appropriate

**COMMENT:** "The EFH Assessment could be improved by describing the life cycles of various federally managed fisheries, use of the inlet to facilitate transport, and how this dredging window will minimize impacts to these species."

**RESPONSE:** USACE and NMFS coordinated via phone call concerning the entrainment and dredging windows. In the case of this EFH assessment, NMFS asked USACE to only focus on "representative species". This information is provided in the report. USACE will make an effort to discuss the benefits of the proposed dredging window and its relationship to federally managed species in order to support the EFH Assessment.

**COMMENT:** "USACE should also investigate best management practices used by other USACE Districts, such as not turning on suction until the draghead is at or near the sea bottom, to reduce the number of organisms entrained."

**RESPONSE:** Will be included in the Final IFR/EIS and EFH assessment.

**COMMENT:** "The USACE should quantify and characterize the amount of shallow water bottom that would be impacted and mitigate based on the severity and duration of the impacts to prey species."

**RESPONSE:** Shallow subbottom habitat has already been evaluated. USACE and NMFS discussed in July 2013 that 2 meters should be the guide since there is no standard for evaluating impacts to shallow subbottom habitat (documentation of this discussion was not found by NMFS or USACE staff. USACE was pursuing 5 feet, but NMFS suggested 2 meters. In follow up coordination, USACE understands that NMFS does not recall this meeting and discussion. No meeting minutes were documented.

**COMMENT:** “NMFS recommends the Final EIS and EFH Assessment include a discussion focusing on the summer months when organisms often experience stressful low DO conditions.”

**RESPONSE:** USACE can add to the DO discussion.

**COMMENT:** “SCDNR has created many intertidal oyster reefs within and near the Wando River, and monitoring these reefs for impacts from the Charleston Harbor project should be part of the monitoring and adaptive management plan.”

**RESPONSE:** Impacts are not anticipated to this habitat type. In fact, more oyster habitat may be created as a result of minor salinity increases. Vessel wake impacts are expected to decrease when compared to the no action alternative. No monitoring for oyster reefs is justified at this time.

**COMMENT:** “As noted in the NEPA section of this letter, impacts under the LPP would be significantly higher than under the NED plan alternative.”

**RESPONSE:** See previous response regarding salinity and vessel wake impacts.

**COMMENT:** “For Charleston Harbor, the USACE has treated the ecological significance of impacts to tidal freshwater marsh and tidal palustrine forest to be the same across all reaches of the Ashley, Wando, and Cooper Rivers. No justification has been provided in the Draft EIS or EFH Assessment for making this decision.”

**RESPONSE:** This is a misinterpretation of the mitigation appendix. USACE evaluated impacts to 2 habitat types in 2 river systems, for a total of 4 different assessment areas. The habitat types were forested wetlands (not just tidal) and emergent freshwater tidal marsh. Please see the UMAM assessment sheets, which determine the impact to those habitats. The scoring is slightly different for these habitat types. Your agency received these sheets in April 2014 for review and we did not receive anything in response. Therefore, we assumed NMFS did not disagree with the scoring. Unrelated to the impact UMAM assessments, subsequent coordination with the ICT concerning the mitigation parcel since the DRAFT IFR/EIS has resulted in new UMAM sheets which will be shown in the Final IFR/EIS.

**COMMENT:** “The mitigation plan for impacts to wetlands should be based on 493.41 acres of lost tidal freshwater wetlands, the UMAM should be redone to provide a sharper focus on the variations between impact areas, and the mitigation should include elements other than purchasing and preserving wetlands.”

**RESPONSE:** USACE evaluated wetland restoration, creation, enhancements and other preservation options. After a full review of approximately 100 various sites, USACE decided that preservation of an ecologically important parcel of land and subsequent conveyance to the USFS is the best option for the watershed.

NMFS was a partner on SHEP, where agencies required that impacts be determined for time of construction. Presumably this is because the SHEP models predicted higher impacts at that time than with a 50 year project life. It’s difficult to see the reasoning for requiring us to evaluate impacts after 50 years of watershed changes and sea level rise when the impacts will (if at all) closer to the time of construction. During our NEPA coordination with the ICT of the draft report, a new method was agree to that evaluates the impacts from 4 different sea level scenarios and averaging the results.

USACE concluded that splitting UMAM into the 4 different assessment areas is appropriate for impacts. This is because they are two different river systems, with 2 different habitat types, that will experience different changes as a result of indirect impacts. In the case of the mitigation site, one assessment area is appropriate because UMAM allows for assessment areas to be defined by their mitigation benefit. In this case the whole parcel is being preserved

**COMMENT:** “In the unlikely event the contractor uses a cutterhead dredge to extend the Entrance Channel, placement of dredge anchors in hardbottom habitat would not be allowed.”

**RESPONSE:** Concur

### **Hardbottom Habitat**

**COMMENT:** “USACE concludes 26.8 acres of hardbottom would be impacted by direct removal and 186.3 acres of hardbottom habitat along channel margins would be indirectly impacted. It is not clear in the Draft EIS how the USACE determined the indirect acreage since all 308.1 acres found were within 75 meters of the channel edge.

**RESPONSE:** 186 acres was hardbottom and “probable”. As discussed in multiple ICT meetings and in the DRAFT IFR/EIS, “possible habitat” was not evaluated as hardbottom, due to the definitions in the CCU report.

**COMMENT:** “The USACE did not survey the bottom of the existing Entrance Channel, much of which was last dredged before passage of the EFH amendment to the Magnuson-Stevens Act. On several occasions, NMFS requested the USACE survey the Entrance Channel for hardbottom and to identify the areas not dredged since enactment of the EFH amendment, but the USACE has not provided this information.”

**RESPONSE:** USACE concurs with the need to survey the affected portion of the Entrance Channel; however, due to budgetary constraints and decision making processes, USACE was not able to perform this survey during the feasibility phase. USACE will survey the impacted areas of the channel in the PED phase, as mentioned in the Draft IFR/EIS. This information will be coordinated with the agencies, including NOAA, in order to better define success criteria.

**COMMENT:** “It is unclear why the USACE would vary the relief between the mitigation reef and the beneficial use reefs and which relief is more disposed to creating hardbottom features that will ecologically resemble the natural reefs off Charleston's coast”

**RESPONSE:** As more topographically diverse site provides more habitat value. That is what we’re trying to create with the 2 mitigation reefs. The other areas will provide habitat benefit but also a least cost disposal option. The affected habitat is low relief in the middle of a navigation channel with large container ships transiting multiple times every day. USACE believes that the varied relief of the mitigation sites and even of the beneficial use sites will create substantial habitat diversity in the offshore Charleston Harbor region.

**COMMENT:** “The USACE Charleston District has not similarly coordinated with agency and university scientists to develop inputs for its HEA.”

**RESPONSE:** USACE disagrees with this statement. In fact, many SCDNR staff, CCU staff, NMFS staff, FL experts, EPA experts, and many others were consulted with in various manners throughout the study process. Additionally, the document was provided in a draft form to NMFS and many other agencies for review. HEA inputs and data used in its development were understood by all parties, even if agreement was not reached on the estimated time to recovery.

**COMMENT:** “NMFS recommends the USACE use a similar team (to those used for Prot of Everglades) to revise the HEA for the Charleston project to include scientifically based levels of ecosystem services for the mitigation reef and the time required for the mitigation reef to achieve that level of services.”

**RESPONSE:** USACE believes that the referenced SE FL team is not as appropriate as the team with whom we currently have discussed this. SE FL has stony corals. SC does not. Also, the HEA can be revised, as mentioned in the MMAMP if results aren’t trending toward recovery. In that case, more mitigation could be needed, and is another reason for USACE creating the two mitigation reefs and other reefs as a contingency measure and because this diverse habitat is desirable in the Charleston region.

**COMMENT:** “The Final EFH Assessment should better describe the quality of hardbottom impacted by the project, and use in the HEA literature-based colonization and growth rates for the more ecologically significant species in the hardbottom community. The USACE should not discount the possibility of using more than one rate in the HEA based on differences in species composition between low-relief hardbottom and high-relief hardbottom.”

**RESPONSE:** USACE refers NMFS to Appendix I on Hardbottom habitat. In this appendix, USACE provides a detailed description of the reasoning for selecting 3.5 years to recovery. USACE evaluated the growth rate of one of the most common octocorals off Charleston, SC (*Leptogorgia virgulata*). This species was used based on discussions with SCDNR biologists. A growth rate of 61mm/year was taken from a review of literature. Applied over 3.5 years, this suggests that *L. virgulata* would be about 8 inches tall. Based on preliminary video of the impacted habitat, USACE believes this is fairly representative of the impacted

corals. Regarding using multiple HEA's, USACE evaluated this request and will include the results for a possible 10 year recovery time in the Final IFR/EIS.

### **Monitoring and Adaptive Management**

**COMMENT:** "If monitoring reveals a divergence from model predictions or hardbottom success criteria (percent cover by sessile invertebrates, sessile species size, abundance, and diversity, and fish assemblage abundance and diversity) are not met at the end of four years, the USACE commits to consulting with the resource agencies to identify if corrective actions are needed and, if so, develop adaptive management plans. NMFS believes this approach is reasonable and is available for such plan development.

**RESPONSE:** Noted.

**COMMENT:** "NMFS finds the proposed dredging will adversely affect EFH. Section 305 (b )(4)(A) of the Magnuson-Stevens Act requires NMFS to provide EFH conservation recommendations when an activity is expected to adversely affect EFH. Based on this requirement, NMFS provides the following:"

**"EFH Conservation Recommendation:** The final proposed project depths shall be those in the NED plan alternative."

**RESPONSE:** While USACE can appreciate this suggestion, USACE is required to select alternatives based on USACE policy. Locally preferred plans (LPPs) may be smaller or larger than the NED plan. In this case, the project sponsor, the South Carolina State Ports Authority, has chosen to request an LPP that is larger (in terms of cost and environmental impacts) than the NED. The environmental impacts of the LPP have been disclosed fully in the draft and Final IFR/EIS. While the impacts of the LPP are greater than the NED plan, the benefits and costs as well as environmental impacts are all considered in the evaluation of the LPP vs. NED plans. All appropriate mitigation has been provided.

**"EFH Conservation Recommendation:** Spatial restrictions on simultaneous dredge operations shall be evaluated to minimize impacts to federally managed species from turbidity and entrainment."

**RESPONSE:** Concur. This conservation recommendation will be adopted. USACE included 2 spatial and temporal dredging windows in the proposed project. Both of these were discussed with NMFS and agreed that they were a viable solution to minimize entrainment of sensitive species even if not specifically designed around the protection of managed species. They can be found in the environmental commitments section of the draft and Final IFR/EIS.

**"EFH Conservation Recommendation:** Dredge operators shall not turn on suction until the draghead is on the seafloor bottom and shall turn off suction as close to the seafloor bottom as practicable."

**RESPONSE:** Concur. This conservation recommendation will be adopted.

**"EFH Conservation Recommendation:** Mitigation for hardbottom impacts from dredging the Entrance Channel shall account for direct and indirect impacts. The mitigation amount shall be based on a HEA that uses scientifically defensible input variables for the percent of services replaced and the time period necessary for the rock piles to reach that level of services."

**RESPONSE:** Concur. This conservation recommendation will be adopted. The DRAFT IFR/EIS already accounts for both direct and indirect impacts. The current HEA uses scientifically defensible variables. The Charleston District justifies the use of a 3.5 year estimated time to recovery very thoroughly within Appendix I: Hardbottom Habitat. Two sections of this appendix cite multiple sources of peer reviewed literature about regional hardbottom reef recovery (sections 4.5 and 5.2). After citing many examples of recovery rates, the District uses an intermediate recovery time of 3.5 years based on a DNR report from 1988. The use of the intermediate recovery time was justified because of the location of the impacted hardbottom and assumptions about the quality of that habitat. Since the impacted habitat occurs in the middle of a navigation channel and is affected multiple times per day by prop wash and pressure wakes, the District assumes that the habitat within the channel is not pristine, stable, nor undisturbed. The mitigation sites will be located in a more undisturbed environment facilitating a recovery to the condition of the impacted sites in a shorter period of time.

The District agrees with NMFS that to achieve a viable, fully functional reef, 8-10 years is probably an accurate time period (using the same literature the District used). The Final IFR/EIS includes a 10 year recovery HEA to disclose what the required mitigation could be if success isn't met in 4 years. The Charleston District has built in a couple monitoring and adaptive management strategies to address uncertainty and the potential for the mitigation site to not meet success criteria. First, the

District will perform a survey of the impacted hardbottom prior to construction in order to develop success criteria. Second, the District will meet with resource agencies to develop success criteria (DNR and NMFS included). Third, the District will monitor the mitigation reef for 4 years. If, at the end of 4 years, success has not been achieved, the HEA will be rerun with a new anticipated recovery period. Results of this may show that additional reefs created from the deepening material will need to be deemed mitigation reefs. Forth, monitoring will continue into this new time period as necessary.

**“EFH Conservation Recommendation:** Mitigation for impacts to tidal freshwater wetlands shall be based on the project caused impacts forecasted to occur during the 50-year planning life of the project. Mitigation for these impacts shall not be solely based on preservation.”

**RESPONSE:** Potential environmental impacts are assessed by comparing the with and the without project conditions, generally over a 50-year period of analysis. Section 3 provides the analysis of alternatives to the without project condition. In the case of this project, USACE believes that reasonable assumptions should be made regarding impacts resulting from the project. The Principles and Guidelines state that consideration should be given to environmental factors that may extend beyond the period of analysis.

The wetland impact assessment explains that, "Because most (as a proportion, relative to impacts from SLR) of the impacts (via changes in pore-water salinity and wetland vegetation) will occur nearer to construction than 50 years following it, these numbers were ultimately used to determine compensatory mitigation requirements." It's difficult to see the reasoning for requiring us to evaluate impacts after 50 years of watershed changes and sea level rise when the impacts will (if at all) closer to the time of construction. The impacts are basically driven by the modeled prediction of the 0.5 ppt isopleth at a certain time (2022 or 2071, or any year in between). Depending on the river morphology in the area of the isopleths, the shift could be more or less. USACE will clarify in the final EIS that the 2071 results do not factor in an annualized analysis of impacts over 50 years, and rather are calculated as the impacts that would occur if the project were constructed when sea level is predicted to be higher 50 years in the future. It is more defensible and justifiable to estimate impacts that would occur closer to the time of construction. However, USACE recognizes in the DRAFT IFR/EIS that there is no exact location for any isopleth, and that is why the "wetlands per river foot" method was used.

The District's resolution for the issue it to perform a sensitivity analysis on the impacts by factoring in all 3 rates of sea level rise and the impacts at the time of construction and then average those results. This was vetted to the agencies at a meeting on 1/28 and was met with general agreement.

Regarding the emphasis on preservation in the proposed mitigation, there are four basic methods for providing compensatory mitigation: restoration, enhancement, establishment, and preservation. Under USACE civil works guidance and the Mitigation Rule, restoration should be the first method considered. However, preservation may be considered if a) the aquatic resources provide important physical, chemical, or biological functions for the watershed; b) the resources to be preserved contribute significantly to the ecological sustainability of the watershed; c) preservation is appropriate and practicable; d) the resources are under threat of destruction or adverse modification; and, e) the preserved site will be permanently protected. Other factors to be considered in evaluating whether preservation is environmentally preferable include a site's location in or near an urban area, the inclusion of riparian areas and upland buffers that help protect or sustain the aquatic resources, and whether the preservation will remove or reduce stressors on the watershed in the long term.

Preservation of the proposed tracts meets all of the criteria of the Mitigation Rule. It offers strategic value within the watershed and provides important physical, chemical and biological functions to the Cooper River Basin. It is consistent with the Charleston Harbor Special Area Management Plan (SCDHEC 2000), which emphasized ecosystem-level planning and prioritized non-tidal freshwater wetlands (the Plan states that, "although tidal wetlands have been relatively well protected, significant losses have occurred in freshwater non-tidal areas"). The USFS tracts will make a significant contribution to the sustainability of the watershed based on the assessment above. Among other things, they will help ensure that the functions of bottomland hardwood and emergent wetlands on these properties are protected in perpetuity, and will also enhance lands already within the Francis Marion National Forest by functioning as a buffer to future development. Permittee-responsible mitigation (PRM) in the form of preservation by the USFS in this case is a low risk, practicable option. Continued population growth, industrial/commercial development, and changes in land use in the Charleston metropolitan area put these resources at risk of destruction and adverse modification. This mitigation proposal would permanently protect these at-risk resources by appropriate fee or conservation restrictions, and transfer to the USFS. In addition, the inclusion of riparian areas and adjacent

uplands will help protect, buffer and sustain the aquatic resources, and removing these lands from the pool of potential development will reduce stressors on the watershed in the long term.

**“EFH Conservation Recommendation:** Mitigation shall be provided for the impacts to river bottom less than 20 feet deep.”

**RESPONSE:** For mitigation purposes, USACE determined impacts to shallow sub bottom habitat to be those areas where dredging would occur in waters shallower than -2 m MLLW. USACE recalls this number from a meeting with NMFS staff. Through coordination with NMFS, USACE understands that NMFS staff do not recall this conversation, and the meeting minutes were not documented. However, USACE provides these comments to further substantiate its decision to use -2m MLLW to define shallow sub bottom habitat rather than the NMFS recommended -20 ft.

Shallow subbottom habitat is EFH for peneaid shrimp as per the South Atlantic Fishery Management Council’s EFH Designations (<http://safmc.net/EFH/EFH%20Table.pdf>; Accessed numerous times, lastly 02 February, 2015). Intertidal and shallow sub tidal are important nursery habitat for penaeid shrimp and other juvenile fishes. USACE was determined to ensure that impacts to these important nursery habitats were avoided and/or minimized and mitigated for. There is no guidance in the Fishery Management Plans for delineating these habitats, so after determining that -2m MLLW was an appropriate method (based on undocumented conversations with NMFS staff in July 2013), a GIS analysis was performed to determine where these impacts would occur. Finding definitions of shallow bottom habitat is difficult; however, in a 1991 classification of estuarine critical nursery habitat, Noble and Monroe used -2 m as a guide to classify primary and secondary nursery habitats. Additionally, NMFS has routinely asked that USACE regulatory require permittees to evaluate impacts to shallow bottom habitat at -2m.

Noble, Elizabeth B., and Robert J. Monroe. 1991. Classification of Pamlico Sound Nursery Areas: Recommendations for Critical Habitat Criteria. Prepared by NC Department of Environment, Health and Natural Resources.

#### **Fish and Wildlife Coordination Act**

**COMMENT:** “The HSI model does not take into account water depth and it is not clear if the substrate inputs in the model reflect sandbars. Finally, the HSI model for foraging habitat does not account for the habitat benefits the sandbars provide shortnose sturgeon. Because shortnose sturgeon are salinity sensitive, it is unclear if they will remain where river conditions provide the best prey base and nursery habitat or move upstream to less suitable habitat. The USACE should undertake a more thorough analysis of potential shortnose sturgeon impacts with respect to habitat shifts.”

**RESPONSE:** USACE has considered the recommendation. The analysis of shortnose sturgeon habitat is a very detailed depiction based on Habitat Suitability Indices and modeled data for the input parameters. This analysis is sufficiently detailed to support a determination of impacts. USACE revised the discussion on shortnose impacts based on comments from your agency and SCDNR. The outcome is still “may affect, not likely to adversely affect”.

**COMMENT:** “The Final EIS should more thoroughly examine effects of the project on water releases from Pinopolis Dam and the effects of those water releases on competing demands for water at the Wilson Dam and St. Stephen Hydropower Project.”

**RESPONSE:** USACE has considered the recommendation. However, the discharge from Pinopolis is controlled via a congressionally-mandated agreement. Increasing flows from Pinopolis increases shoaling in Charleston Harbor. Cost savings of the reduced flows from Pinopolis (based on the average flows before rediversion of 15,600 cfs to the current 4500 cfs weekly average) is estimated to be \$9.3 million dollars a year in O&M costs. The discharge from Pinopolis is controlled as part of the agreement between Santee Cooper and USACE. It is part of the Cooper River Rediverison Project to reduce shoaling in Charleston Harbor, which was caused by the annual average of 15,600 cfs freshwater flows from Pinopolis. There is no competing demand from St. Stephens, which was constructed to offset the loss of power production of Pinopolis when flow requirements at Pinopolis have been met. Wilson Dam has only one small unit for power production and its primary use is for release of flood flows, thus it also does not have a competing demand. Any changes to flow requirements at Pinopolis would require a system wide evaluation of the three facilities. However, no changes are recommended at this time.

**32. Southern Environmental Law Center representing the South Coastal Conservation League, Letter and Email  
11/26/2014**

**SUMMARY:** Our comments are organized into five sections. First, our comments include procedural questions about how the Corps is applying WRRDA 2014 and prior WRDA requirements to this study. Second, the DFR/EIS does not provide sufficient information for the public to assess the modeling efforts that are relied on throughout the study for purposes of NEPA. Third, the DFR/EIS is incomplete under NEPA because it includes a number of study-wide assumptions to limit the analyses of environmental impacts, overstate the benefits of the project, and restrict the Corps consideration of alternatives. Fourth, the DFR/EIS raises concerns under NEPA, the CWA, the ESA, and other laws and regulations by not adequately analyzing specific environmental impacts. Fifth and finally, the DFR/EIS segments analysis of this project from ongoing evaluations by the U.S. Environmental Protection Agency ("EPA") regarding the expansion of the Charleston Ocean Dredged Material Disposal Site.

**COMMENT:** "...the DFR/EIS is unclear on whether the Corps is applying the WRRDA 2014 streamlining procedures to the Charleston deepening, and if so, which procedures it is applying. Regardless, the Corps must fully comply with NEPA, as WRRDA 2014 is clear that "[n]othing in [the streamlining provisions] preempts or interferes with any obligation to comply with the provisions of any Federal law, including the National Environmental Policy Act of 1969 and any other Federal environmental law."

**RESPONSE:** Corps initiatives to streamline the planning process were endorsed by Congressional action in the Water Resources Reform and Development Act of 2014 (WRRDA 2014). Section 1001(a) of WRRDA 2014 codified, generally, Corps' planning parameters limiting the duration, cost, and agency approval process for future feasibility studies. Section 1003(1) of WRRDA 2014 required that the Corps "expedite the completion of any on-going feasibility study for a project initiated before the date of enactment of this Act." The Corps has applied these provision by ensuring that appropriate parameters are maintained on the duration, cost, and agency approval process for the FR/EIS for the Project. The environmental review process acceleration provisions of Section 1005 have not been applied to the FR/EIS for the Project. USACE recognizes the need to comply with NEPA, and believes that the project is fully NEPA compliant.

**COMMENT:** "Is the Corps submitting this DFR/EIS for mandatory, independent peer-review, as required by WRDA 2007 and modified by WRRDA 2014? See 33 U.S.C. § 2343(a)(3) (any project over \$200,000,000 "shall be subject to peer review"). If so, has the Corps cooperated with the National Academy of Sciences or other appropriate institutions to establish an independent peer review panel or provided adequate notice of its actions to Congress and the public? See 33 U.S.C. § 2343(c). If not, has the Corps provided adequate notice to Congress and the public including its reasons for not subjecting this study to peer review? See 33 U.S.C. § 2343(b)(3)."

**RESPONSE:** Yes, the Draft FR/EIS underwent independent peer review, concurrent with public review. The process was thoroughly coordinated through our IEPR (Independent External Peer Review) process.

**COMMENT:** "Is the Corps applying the streamlining provisions and procedures from Section 1005 of WRRDA 2014, codified at 33 U.S.C. § 2348, to this DFR/EIS? If so, has the Corps secured all necessary approvals from the Secretary to apply the streamlining procedures to this study? See 33 U.S.C. § 2348(b)(1)(B)."

**RESPONSE:** "No. The provisions of Section 1005 accelerating the environmental review process have permissive application to the Project, to the extent determined appropriate by the Secretary of the Army. At this time, the Corps has not applied these provisions to this study. The District is awaiting the development of agency implementation guidance which would guide any possible, permissive application to remaining Project phases."

**COMMENT:** The DFR/EIS Does Not Provide Sufficient Information to Allow the Public a Meaningful Opportunity to Review and Comment on this Proposal for Purposes of NEPA."

**RESPONSE:** USACE disagrees with this statement. The Draft FR/EIS and associated appendices provide all the relevant methodology used in the use of this model and others. There is no requirement in NEPA to make all the model input files, output files, etc available. USACE believes this overstates what is required by NEPA.

**COMMENT:** "...the DFR/EIS indicates that a model convergence test was performed to identify the most appropriate level of horizontal and vertical grid resolution. App. A at 105-06. However, in describing the conclusions from the convergence testing,

the study fails to summarize the outcomes or even the degree to which horizontal cell resolution was tested. Without this information, this modeling discussion (and possibly the testing itself) is deficient.

**RESPONSE:** All calibration and validation testing is included in the Appendix A. USACE relies on internal agency technical review and the independent external peer review (IEPR) process to assist in determining deficiencies in the technical aspects of the report.

**COMMENT:** “another example can be found in Section 3.3.4 of the Engineering Appendix, which includes a discussion of how the modeling approach represented large intertidal marsh areas in the Harbor. This section reads as if the Corps had to artificially include inaccurate elevations in large areas of intertidal marsh in order to stabilize the model and to get salinity predictions to calibrate. The DFR/EIS should make clear the extent of artificially modified marsh cells in the final model and include a description of how this affects the hydrodynamic output.

**RESPONSE:** As explained in Appendix A, the cells used to represent the marsh areas were included to address the impact marsh areas have on the magnitude and time of tidal flows through the main stem of the river. The purpose is to capture the storage they contribute to the system. This allowed for better calibration of the model. USACE believes that Appendix A does explain the extent of how they were modified and the calibration shows the results of how it affects the hydrodynamic output.

**COMMENT:** Regarding the use of UMAM, “Although the DFR/EIS summarizes some of this information, the DFR/EIS does not include sufficient underlying data used to evaluate the functional losses and mitigation options. Without additional information, including hydrodynamic modeling results, interagency comments, and recommended UMAM scores, it is difficult for the public to rigorously review the Corps' conclusions with respect to wetlands mitigation.”

**RESPONSE:** The Draft FR/EIS provided the relevant, detailed information necessary in support of a full and fair discussion of environmental impacts for public review. In part, CCL/SELC is requesting essentially the underlying metadata for the data. USACE disagrees that including technical data of this nature would have provided any meaningful advantage to the public during the Draft FR/EIS review period. USACE notes that the only request for this underlying data it received was from CCL/SELC, and that request was withdrawn before it could respond. The data regarding the determination of scores, along with interagency and public comments and USACE responses regarding the mitigation proposal, is presented in the Final FR/EIS and associated appendices.

**COMMENT:** “Simply put, without the underlying data, a rigorous review of the modeling exercises undertaken for major components of the DFR/EIS, including fundamental issues related to wetland impacts and mitigation, lowering of dissolved oxygen, salinity intrusion, and impacts to threatened and endangered species, to name a few, is not possible at this time. The decision not to include this information with the DFR/EIS undermines the ability of interested members of the public to meaningfully review the draft studies. As such, the Corps has not achieved NEPA's goal of informed agency decision-making through informed public participation.”

**RESPONSE:** The Draft FR/EIS provided the relevant, detailed information necessary in support of a full and fair discussion of environmental impacts for public review. USACE disagrees that including technical data of this nature would have provided any meaningful advantage to the public during the Draft FR/EIS review period. USACE notes that the only request for this underlying data it received was from CCL/SELC, and that request was withdrawn before it could respond. Voluminous and highly technical metadata, model input and output files, etc., are best made available upon request under consistent information release parameters.

**COMMENT:** “The DFR/EIS Uses a Number of Flawed Study-wide Assumptions to Limit Analysis of Environmental Impacts, Misallocate the Benefits of the Project, and Constrict the Consideration of Alternatives.... We question the Corps' reliance on the assumption that deepening the Harbor will not contribute to the growth of the Port of Charleston.... This assumption and its limits affect many of the economic and environmental analyses of the DFR/EIS.

**RESPONSE:** USACE disagrees with this statement. The Corps does not rely on an “assumption” that the deepening of the Harbor “will not contribute to growth of the Port of Charleston.” Rather the Corps’ economic analysis which included consideration of commodity forecasts, competing ports, east coast port capacities, and land side costs to hinterland origins and destination proved to a reasonable degree that deepening of the Harbor would have little to no affect on the total amount of cargo shipped through the port. As explained in the commodity forecasts for the East Coast of the U.S., container traffic is anticipated to grow from 13 million TEUs in 2011 to over 50 million TEUs in 2037. That increase in volume is far too much to be

handled by any one or two ports. All the ports work as part of a system. The global fleet of container ships is already moving to larger vessels requiring deeper harbors (some of these larger container ships are already calling on the Port of Charleston). Charleston Harbor currently operates under physical constraints and inefficiencies which limit the port's ability to efficiently serve the forecasted vessel fleet and process the forecasted cargo volumes. The proposed modifications will benefit national economic development by improving the efficiency of the navigation system to serve the increased volume of containers and bigger container ships.

**COMMENT:** "When the Corps first explained the need to deepen the Charleston Harbor, the Corps set forth a rationale for deepening that is inconsistent with the no-growth assumption ultimately included in the DFR/EIS. In its original notice of "Intent to Prepare a Draft Environmental Impact Statement (EIS) for a Study on the Feasibility of Deepening Charleston Harbor," the Corps stated that industry patterns suggested an increase in the size of ships calling on Charleston's port such that deepening the harbor would be necessary to maintain the port's existing business and projected growth: (cite USACE Notice of Intent)... .Now the Corps says that current Panamax vessels will continue calling on Charleston Harbor--and, in fact, more Panamax size vessels will call on Charleston--even if the Harbor stays at its current depth, so deepening is not required to serve existing users or sustain future growth.... The purpose of the deepening, the Corps now claims, is only to allow larger ships to serve the harbor more efficiently. Without explanation or even acknowledgement, the Corps' view of this project moved from a necessary improvement to maintain the competitiveness of the port to an exercise that is unrelated to maintaining or growing the port's business, but is intended to reduce "transportation inefficiencies" that will "not induce additional growth.""

**RESPONSE:** USACE disagrees with this statement. The "Corp's view of this project moved..." as a result of carefully prepared and interpreted analysis, and the basis for and results of that analysis were presented in the Draft FR/EIS. The Notice of Intent stated that the Corps reconnaissance investigation did "not constitute a complete analysis," and that "[d]etailed analyses are expected to be conducted in the proposed feasibility phase" which would "investigate modification of the existing Charleston Harbor project in the interest of navigation improvements." As stated above, the Corps' conclusions regarding the relationship between the proposed navigation improvements and growth are the result of economic analysis that has occurred during the feasibility phase, rather than an assumption that deepening Charleston Harbor would or would not contribute to growth.

**COMMENT:** "Given its substantial effect on the Corps' environmental analysis, this change in perspective is questionable, particularly since the SPA-the project's sponsor and the Corps' local partner-sees the project to deepen the harbor as a necessary and essential prerequisite to the continued growth of the port, its business, and its related infrastructure. For example, (cite numerous politicians, SPA, etc)

**RESPONSE:** USACE disagrees with this statement regarding the "change in perspective" – see the previous response. The Corps acknowledges the expressed views and perspectives of the project sponsor, political interests, and many other interest groups in favor of or questioning harbor improvements. The Corps' position is grounded in detailed economic analysis. The Corps is in agreement with various interests that the proposed navigation improvements will be an economic benefit. The Corps stands by the validity of its analysis that such growth will occur in both the without and with project condition.

**COMMENT:** "The Corps stands alone in its assumption that the deepening of the Harbor "would not induce additional growth" of the port. This growth will happen, and it will have significant impacts on land use, water quality, and air quality-impacts that are unaccounted for in the DFR/EIS."

**RESPONSE:** See previous three responses. USACE agrees that growth in port container traffic and ship size will occur – with or without deepening. Substantial investments are already being made to handle the projected growth and development. Conversion of a portion of the former Charleston Navy Base to a new container terminal and improvements to increase capacity at existing terminals are examples. The Corps stands by the validity and results of its economic analysis.

**COMMENT:** "Experience teaches that the Corps' assumption on this critical point is incorrect: deepening ports is related to growing a port's underlying business and generally results in construction and infrastructure development that has significant environmental impacts. In considering the environmental impact of deepening the port in Savannah, Georgia, the Corps used the very same assumption about cargo demand that they use in Charleston: "Future growth in cargo movements and accompanying air emissions are expected at Savannah. These increases would be the result of increasing demand for the goods which move through the port and not a result of a harbor deepening." Draft General Re-evaluation Report for the Savannah Harbor Expansion Project Chatham County, Georgia and Jasper County, South Carolina, November 2010 at 5-108; see also *id.* at 5-156. Likewise, the Georgia Ports Authority and other stakeholders made statements that the deepening of the harbor was an

essential prerequisite for the growth of the Savannah Port, directly contradicting the Corps conclusion in its environmental impact statement. In comments, SELC questioned this assumption and made the Corps aware of the contradictory statements of the local sponsors of the project. Yet, the Corps carried its assumption that the harbor deepening would not contribute to the growth of the port's underlying business in its final environmental impact statement and neglected to consider a number of important environmental impacts, including the secondary growth fueled by deepening. Final Environmental Impact Statement for Savannah Harbor Expansion Project Chatham County, Georgia, and Jasper County, South Carolina, January 2012 (Revised July 2012) at 5-136. Subsequently, on July 31, 2014, the Charleston District issued a public notice regarding a proposal to develop a new interstate interchange off of I-95 and "one of the largest logistics and industrial sites in the Southeast" called RiverPort. The purpose of the RiverPort project was to, in the Corps' words, "handle some of the increased container traffic into the Savannah port resulting from the introduction of the significantly larger post-Panamax Canal ships" that would not have reached the port had it not been deepened. Thus, the Corps' own experience in Savannah belies its assumption that deepening Charleston's Harbor will not contribute to the growth of the port and induced development.

**RESPONSE:** USACE disagrees with this statement. This comment suggests that "the Corps' own experience in Savannah" is exemplified by the RiverPort project. The phrase, "that would not have reached the port had it not been deepened," is *not* the Corps' characterization in the public notice for the RiverPort project, but represents the commentor's own conclusion. The stated cause in the RiverPort public notice for the increased container traffic is "the introduction of the significantly larger post-Panamax Canal ships." That introduction is well underway. Section 3.00 of the Final Final Environmental Impact Statement for the Savannah Harbor Expansion Project recognized the fact that these "larger container ships ... are already calling at the Port and ... are projected to use the Port in larger numbers in the near future." Many factors affect port growth and competitiveness such as land side development and infrastructure, location of distribution centers for imports, source locations for exports, population distribution and income growth, port logistics and fees, business climate and taxes, carrier preferences, labor stability or volatility, and business relationships. Harbor depth can also be a factor, but as previously noted, the increase in container vessel size and capacity is already underway in Charleston Harbor and elsewhere. See previous four responses.

**COMMENT:** "This flawed assumption that deepening the Harbor is unrelated to the port's underlying business and "would not induce additional growth" infects the Corps' entire environmental analysis of the Charleston Harbor deepening. It arbitrarily constricts the Corps review, consideration, and presentation of the full range of environmental effects of this project, and skews the public's ability to evaluate the costs and benefits of deepening the Harbor. Thus, the DFR/EIS is inadequate under NEPA and contrary to the Corps' duties under the law."

**RESPONSE:** USACE disagrees with this statement. This comment does not present any new information. Please see the previous five responses.

**COMMENT:** "Each project, when combined with others, will cause cumulative and synergistic impacts on the nation's environment, including its major rivers and estuarine and marine systems. The projects in the south Atlantic together present heightened risks to endangered species such as the right whale and shortnose sturgeon. Additionally, these projects are proposed in multiple rivers and marine systems on the East Coast and would negatively impact rare tidal wetlands and marshes of national importance, fisheries, and populations of various federally protected species."

**RESPONSE:** USACE does not agree that "the south Atlantic" is an appropriate geographic boundary for cumulative impact assessment. The Cumulative Impact Assessment is in Appendix O of the FR/EIS. Consistent with CEQ guidance, these are impacts that will occur in the proposed project impact zone. It is highly unlikely that the Project will meaningfully contribute to cumulative effects on the right whale. USACE new work and maintenance dredging operations in Charleston Harbor have never resulted in the lethal take of a right whale due to a variety of factors, including: the dredging of channels and harbors comprises a tiny subset in time and area of total vessel traffic; an active program to avoid strikes including on-board observers; slow speed when whales are observed, in bad weather, and when actively dredging; and, the education/awareness of personnel. Increased efficiency for container ship operations should reduce the number of larger ships. Regarding the Shortnose sturgeon, since the NMFS considers the Cooper River Shortnose sturgeon to be a distinct population based on reproductive isolation, the Cooper River and tributaries is the geographic scope of the Post 45 analysis. It is noted that the NMFS Biological Opinion that addresses both right whales and the Shortnose sturgeon involves that agency's assessment of cumulative impact. For purposes of the impact on tidal wetlands and marshes, the geographic scope for these impacts is the harbor and tributary rivers (Ashley, Cooper and Wando). An assessment of the cumulative effects on tidal wetlands appears in Appendix O of this FR/EIS.

**COMMENT:** "Because each project is being pursued and examined separately, there is a distinct possibility that the combined impact of each of these projects would result in far more harm than good. For example, without a comprehensive analysis of the proposed projects, the country could end up with unnecessary port expansions that provide marginal benefits while resulting in significant impacts on the environment. Under NEPA, where "several proposals for [projects] that will have cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together." *Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976). The Corps "must give a realistic evaluation of the total impacts and cannot isolate a proposed project, viewing it in a vacuum." *Grand Canyon Trust v. Fed. Aviation Admin.*, 290 F.3d 339, 342 (D.C. Cir. 2002). Isolating projects with regional impacts undermines two of NEPA's key objectives: informed public participation and informed agency decision-making. By analyzing only how deep to dredge Charleston Harbor and not evaluating which port or ports in the Southeast make the most sense to deepen from an economic and environmental standpoint, the Corps ignores an important part of the NEPA process."

**RESPONSE:** USACE disagrees with this comment. In terms of the economics of the proposed navigation improvements, the Corps has performed an appropriate multi-port analysis involving ports in the Southeast (Norfolk, Wilmington, Savannah, and Jacksonville, in addition to Charleston) and concluded that a deepening at Charleston (or other ports in the Southeast) will not cause a shift of cargo from one port to another. The idea that there could be marginal benefits as a result of deepening Charleston Harbor is also contradicted by the economic analysis (see Appendix C to the FR/EIS), and the fact that projected growth in container traffic throughout the Southeast will necessitate expansion and new developments at multiple ports. A comprehensive Regional Port Analysis in which all ports are considered together to, in theory, identify the most cost-efficient location(s) to make navigation modifications, is properly beyond the authorized scope and funding (Federal and non-federal) for this study, and is not required by the Principles and Guidelines (P&Gs) for water resource project planning. It is worth noting that, in order for the notion of a "regional port" to have some conceptual appeal, broad assumptions regarding economics, logistics, physical capacity limitations, and institutional constraints are required. Regarding cumulative environmental impacts, see the previous response.

**COMMENT:** "The Corps' "multipart analysis" is inadequate to satisfy these requirements. See App. C *Id.* at 87. For one, the multiport analysis considered "only the commodities affecting benefits" and did not consider the costs and environmental impacts of the various deepenings on the region. Second, the multi port analysis was flawed by the same no-growth assumption discussed above. The multipart analysis only looked for shifts in existing and projected cargo demands presuming that all of the ports are deepened. This approach misses the point. The point is to consider whether the benefits of deepening the Charleston Harbor outweigh the economic and environmental costs in light of expanded capacity at nearly every other East Coast port. The Corps should be asking whether a deeper Charleston Harbor will serve a specific national benefit that the other deeper ports cannot, and not whether Charleston will keep its existing business in a new status quo. Instead, the multipart analysis concludes that, "[i]n all, no shift in [cargo] is expected between ports because, over time, most ports have deepened." *Id.* at 88. Ensuring that the deepening has not resulted in a shift in cargo between ports is not the same as considering the regional need and impact of deepening Charleston's Harbor. In all, the DFR/EIS as written is inconsistent with the Corps obligations' under the law."

**RESPONSE:** The commenter is partially correct in that the Corps' economic analysis should, and does, consider the specific contributions that the proposed navigation improvements at Charleston Harbor will make to national economic development. USACE makes such a determination by applying uniform criteria and evaluation procedures, rather than by attempting to focus on the unique contributions of a particular port. In so doing, USACE is mindful of the role that Congress plays in deciding whether to authorize and appropriate funds for multiple port developments within a region (however the regional area might be defined). See the previous two comments, as well.

**COMMENT:** Another shortcoming of the Corps' analysis is that it does not address who is going to benefit from the harbor deepening. According to the Corps, the harbor deepening will result in cost savings through transportation efficiencies rather than increases in cargo throughput. Assuming the Corps is right, who will benefit from these alleged cost savings? Will these cost savings be passed on to the American consumer in the form of lower consumer prices or will they be pocketed by foreign manufacturers and foreign shipping lines? In short, by deepening our harbors, the United States could be making it less expensive for foreign countries to sell their goods in America rather than benefiting the American economy. The Corps explicitly refuses to answer this question, stating that "[a]ttributing benefits to specific entities would be extremely complex and speculative." DFR/EIS at 3-11. As a result, the Corps "express[es]" the benefits of the project "in terms of transportation costs

saved by all parties on all goods, whether they are imported and exported." DFR/EIS at 3-11. But this assumption unreasonably inflates the benefits of this project to the United States taxpayer who will shoulder the bill and the Charleston resident who will suffer the environmental impacts. If, for example, foreign shipping companies internalize half of these cost-savings in their profit margins-which would make sense, given that the shipping companies are pushing the move to larger ships-that would dramatically change the purported benefits to the American taxpayer that justify the project. At best, the Corps' analysis in the DFR/EIS is incomplete without addressing or controlling for this important question; at worst, it is flawed.

**RESPONSE:** USACE disagrees with this comment. The question is subjective as it attempts to isolate aspects of the economic analysis. For example, the inquiry focuses on reducing costs to importers, but does not mention the reduction of costs to exporters who may benefit by increased competitiveness. In the case of imports, the inquiry acknowledges the prospect for lower cost consumer goods, but focuses on the benefit to importers rather than any cost savings to consumers. The question also fails to recognize that in the global economy, many U.S. firms are owned as least in part by foreign interests or shareholders, and many U.S. persons have comparable investments in foreign firms. However, USACE followed the methods and procedures required by the P&Gs and based its measurement of benefits on transportation cost savings. While the P&Gs neither require nor suggest that analysis be performed to determine all those to whom those cost savings benefits directly accrue, it is worth noting that transportation costs contribute to the price of virtually every consumer good – exports and imports. The proposed navigation improvements contribute to the economic development of the nation, including by significant transportation cost savings benefits.

**COMMENT:** The same assumptions described above also improperly limit the consideration of alternatives in the DFR/EIS in a way that conflicts with NEPA. Although the DFR/EIS identifies various project depths as "alternatives," the DFR/EIS gives only cursory-and often repetitive analysis of the environmental impacts of these various depths. See DFR/EIS at 3-34 to 3-41, Table 3-5. SPA's identification of the 52/48 depth as the locally preferred plan leads the Corps to focus almost exclusively on the environmental impacts of the 52/48 depth rather than explain and compare the various alternatives in a robust and useful way as required by NEPA. As a result, the Corps obscures significant differences between the environmental impacts of each alternative, especially the differences in impacts between the 50/48 NED plan and the 52/48 TSP. See, e.g., App. L at 19, Table 2. In this regard, we believe that NEPA and the Clean Water Act require the Corps to take a harder look at the impacts of each alternative.

**RESPONSE:** All alternatives were evaluated and compared in Section 3 of the EIS. The referenced tables provide a side-by-side comparison of all the alternatives against the future without project or no action alternative. After selecting an alternative, the EIS describes in more detail the impacts of the recommended plan.

**COMMENT:** We are troubled by the Corps' decision to not engage in a rigorous review of the impacts of deepening the Harbor on saltwater intrusion into Charleston's primary drinking water source, the Bushy Park reservoir. The lack of analysis regarding threats to the Bushy Park reservoir renders this DFR/EIS incomplete. Given the increased risk of saltwater intrusion to this critical water supply, the DFR/EIS should have included an evaluation of the costs and impacts of protecting or relocating the Bushy Park reservoir intake. According to the Charleston Water System, the Bushy Park reservoir is "the primary source" of drinking water for Charleston. Numerous industrial users also rely on the Bushy Park reservoir as a crucial source of freshwater. Simply waiting to see if saltwater will intrude into this important reservoir is an abrogation of the Corps' duty to study, explain, and mitigate all environmental impacts of this project.

**RESPONSE:** USACE disagrees with the question's characterization of the USACE approach to Bushy Park. As explained in Appendix A, Engineering, USACE has a salinity alert system in place for the protection of Bushy Park Reservoir. This system has been in place since 1985 as part of the Rediversion Project, which was implemented for the benefit of navigation in Charleston Harbor. At that time, relocation of the water intake was considered but rejected in favor of a system to monitor and provide notification of situations requiring additional freshwater releases from Pinopolis Dam. The system of tide and water quality gages provides advance warning of a salinity threat to the reservoir. The system is monitored 24 hours a day, 7 days a week by USGS with a validation by USACE staff. The system has successfully protected Bushy Park Reservoir from salinity intrusion over a 30-year period which included multiple droughts and a direct hit of major hurricane (Hugo) in 1989. This system will continue to be used in the future for the protection of Bushy Park. The costs associated with the salinity alert system are already part of the contract between SCPSA and USACE and the most probable increase in alerts would be due to sea level change, regardless of the deepening project, and are thus accounted for under our existing O&M program.

**COMMENT:** First, as an initial matter, the Corps has failed to make available sufficient information to allow the public to determine whether the impact analysis for wetlands was reasonable. Like other aspects of the DFR/EIS, the wetland impact analysis relies heavily on the EFDC model. In modeling a dynamic system like the Charleston Harbor, the accuracy of the model output is highly dependent on the quality of the input data. This fact appears to have been recognized by the authors of the DFR/EIS, who stated that it is possible that the actual observed isopleths could actually be further upstream or downstream of the model-predicted isopleths. The DFR/EIS indicates that the modeling approach has taken this variability into account; however, it is unclear from the available documentation in the DFR/EIS how these variations were addressed.

**RESPONSE:** Appendix L provides the methodology used to predict the indirect impacts to wetland systems within the Charleston Harbor and its' tributaries. This methodology explains a number of conservative assumptions used to account for model variability. One is the use of the low flow model year. Low flow conditions typically impact wetland systems more than the typical flow years. Since the flows in the Cooper River are regulated, low flow conditions aren't as common and represent a conservative estimate of impacts. One of the main examples of accounting for model variability comes from the use of an average number of acres of wetlands per river-foot. This method accounts for the potential for the baseline salinity isopleth to be in different locations of the river. Also, in the final FR/EIS an averaging method will be used to account for model variability. Four different sea level rise and time period scenarios will be averaged together to estimate impacts. This method provides another means to account for movement of the isopleths which occurs daily, hourly, and by the second. There is no completely accurate way to account for these indirect impacts. The method presented in the report is a result of extensive interagency coordination and is the best scientific approach that was identified in the study phase.

**COMMENT:** In addition, after determining that the Charleston District Regulatory Division's

Guidelines for Preparing a Compensatory Mitigation Plan could not adequately capture the impacts associated with a shift from one dominant type of wetland vegetation to another, the Corps selected UMAM as the tool for determining compensatory mitigation for indirect wetlands impacts resulting from this project. App. Pat 5-6. According to the DFR/EIS, the UMAM evaluation was based on site assessments, vegetation data, assumptions on vegetation changes, and hydrodynamic modeling results. App. P at 7. Although the DFR/EIS summarizes some of this information, the DFR/EIS does not include sufficient information to evaluate the Corps' conclusions with respect to functional losses and mitigation options. For example, the DFR/EIS states that comments and recommended UMAM scores were received from the interagency review team, compiled by Corps staff, and incorporated into the UMAM scoring sheets. Yet, only the resulting UMAM scoring sheets are provided in the EIS. The DFR/EIS should have included the interagency review comments and recommended UMAM scores and other underlying information so that the public could fully comment on the Corps' wetland analyses.

**RESPONSE:** USACE believes that sufficient information has been included. The Draft FR/EIS provided the relevant information at an appropriate level of detail necessary for a full and fair discussion of the mitigation proposal. Updated data regarding the determination of scores, along with interagency and public comments and USACE responses regarding mitigation, will be presented in the Final FR/EIS and associated appendices. The final EIS will be updated to make it clear that resource agencies contributed to the UMAM scoring through site visits and associated materials.

**COMMENT:** Second, the DFR/EIS assumes that direct wetland impacts (due to dike construction at the southern end of Daniel Island near the Wando Welch Terminal) would be minimal, but the exact acreage of these impacts is not provided. In spite of the fact that the "exact acreage of these impacts is not yet determined," the Corps should include a reasonable estimate of these direct impacts in the DFR/EIS and also set out a proposed mitigation plan for addressing those impacts so that the public can have the opportunity to comment on these features of the project.

**RESPONSE:** The dikes on the Wando are not part of the proposed project. They will only be considered in PED phase after the ship simulation is complete. If they are proposed as part of the Post 45 project, impacts will be assessed and supplemental NEPA documentation will be performed and provided for comment, as necessary.

**COMMENT:** Third, the "without project" (also referred to as the "FWOP") condition is not the current condition. The model assumes that the project will be completed in 2022 and appears also to factor in a decade of sea level rise anticipated between now and then. This has the effect of raising the baseline salinity condition and could result in an underestimation of the indirect impacts of the project to brackish and freshwater wetlands.

**RESPONSE:** Impacts to wetlands prior to 2022 would be due to natural occurrence not the project. The Corps assesses impacts with and without project, to determine what is attributable to the project over what would occur naturally.

**COMMENT:** Fourth, in devising the wetlands mitigation plan, the Corps relies on the forecast of impacts predicted to occur right after construction in 2022 (280.96 acres) as opposed to the forecast of wetland impacts (493.41 acres) projected over the entire 50-year life of the project. DFR/EIS, App. L at 19-22. The decision to focus on year 2022 (as opposed to the 50-year scenario) is troublesome since the Corps evaluates other aspects of the project through a 50-year time frame. In addition, impacts to wetlands from saltwater intrusion are likely to occur gradually over a period of years as opposed to immediately after construction, so evaluating negative effects to wetlands over the full life of the project is required.

**RESPONSE:** During the comment/response period, USACE coordinated this issue with resource agencies and developed a method to account for model variability and the stochastic events that make indirect impact determination difficult. In summary, the method averages the impacts resulting after the time of construction (year 2022) and 50 years of historic, intermediate and high sea level rise (year 2071). While potential environmental impacts are assessed by comparing the with and without project conditions, generally over a 50-year period of analysis, reasonable assumptions should be made regarding impacts specific to the particular project. In the case of the post 45 deepening, USACE believes that the method used is the best projection of project-induced environmental impacts. USACE also notes that this emphasis on impacts at the time of construction is consistent with the conclusions reached by interagency coordination teams on other harbor deepening projects. See also response #26, first comment and response.

**COMMENT:** Fifth, the wetland analysis assumes that negative impacts would only occur in response to the shift in the 0.5 ppt salinity contour. Accordingly, the study was focused on wetlands occurring between the "without project" 0.5 ppt isopleth and the "with project" 0.5 ppt isopleth. As such, potential impacts upstream of this section of the river (e.g., salinity changes between 0.1 ppt and 0.4 ppt) are not addressed. The failure to evaluate and provide mitigation for shifts in salinity in these other sections of the Harbor is unreasonable.

**RESPONSE:** Wetland vegetation is suited for a wide range of conditions, ranging from dry to wet and varying levels of salinity. The wetland impact method factors in numerous conservative estimates from scientific literature and bases impacts on knowledge from a well established wetland classification system (Cowardin 1979, see App L). The Cowardin system indicates that the 0.5ppt is a threshold between brackish and freshwater tidal wetlands. The USACE approach factors in the in-situ data that clearly shows that there is no definitive change from salt to brackish or from brackish to freshwater (see Reif 2013). This means that freshwater vegetation may be found in brackish and salt water wetlands and saltwater vegetation may be found in freshwater wetlands. It is interesting to note these changes, especially in the Cooper River. USACE factored this in by assigning "assessment reaches" in the various rivers. Each river has a "transitional area" between salt and brackish wetlands and brackish and freshwater wetlands. The Reif 2013 report shows a figure that displays the vegetation changes as one moves up the river. This is a natural transition but the history of the Cooper River may play a part, too. Historically, the river was a tidal slough, meaning it had little freshwater input and many of the tidal wetlands were likely saltwater or brackish wetlands. The diversion of the Santee River changed the river flows and subsequently the wetland vegetation to more freshwater species. This project is now causing a slight increase in salinity with differences between the without project and the with project at 0.1 ppt or less in the Bushy Park area. This change is almost scientifically immeasurable as it's within the range of error of any instrumentation to measure it.

USACE dedicated a lot of time and coordination to this issue. There are obviously other ways to evaluate the impact and we don't discount that fact; however a defensible approach needed to be developed through use of existing and newly collected data and models. This method was agreed to and supported by resource agencies. With the method outlined in Appendix L, it would not be reasonable to calculate impacts on the one tenth increments in a system that is tidal and dynamic.

**COMMENT:** Sixth, as noted previously, the Corps has selected UMAM - a methodology used in Florida - to devise the wetlands mitigation plan. It is our understanding that UMAM is not typically used as a tool to devise mitigation for indirect impacts associated with salinity intrusion. For that reason, we are concerned about its application here.

**RESPONSE:** UMAM was approved for use in Charleston Harbor by HQUSACE. The model is technically sound and the categories of scoring (landscape support, water environment, and community structure) are theoretically sound and can be applied to any ecological community. USACE evaluated many different tools to determine compensatory mitigation including ratios based on wetland functions lost, habitat evaluation procedures, habitat suitability index models, the Charleston District regulatory SOP,

habitat equivalency analysis, wetland valuation assessment, hydrogeomorphic method, and UMAM. These methods were briefly described with pros and cons to the resources agencies. USACE made a determination that UMAM would best capture the impacts of the project. While there were issues to work out, resource agencies generally concurred with its use. Nothing within UMAM makes it suitable only to FL.

**COMMENT:** Seventh, the UMAM assessment was very preliminary and conceptual in a number of respects. Appendix P of the DFR/EIS references multiple parcels as potential mitigation sites but the UMAM assessment provided is based on an "example parcel." The location of the example parcel is not disclosed due to "complexities in the real estate transactions and because of uncertainty of property availability." The EIS states that the Corps will assess available properties for potential mitigation, re-run the UMAM analysis, and coordinate again with resource agencies to ensure that the assumptions in the UMAM are appropriate and meet the environmental commitments of the project. Thus, it appears the proposed mitigation and corresponding UMAM assessment are simply placeholders and cannot be objectively reviewed for appropriateness or sufficiency at the present time.

**RESPONSE:** We understand your concern on the Draft FR/EIS proposed mitigation and we presented various reasons why disclosing the property early on could introduce real estate complications in the future. While the plan presented in the Draft FR/EIS did not disclose the exact parcel, it did provide the general location and important quantitative data. The Draft FR/EIS also mentioned that the lands would be USFS priority parcels within the proclamation boundary of the Francis Marion National Forest. The Final FR/EIS will be revised to disclose the precise property to the public.

**COMMENT:** Eighth, based on UMAM descriptions, it appears that there are 14 different wetland types in the impact area. Without regard to the diversity of wetland types, the UMAM scores developed for the anticipated impacts are based on lumping all of these wetland types into two groups (assessment areas) on the Ashley River and two groups on the Cooper River. This is contrary to guidance in the UMAM method, which states that an assessment area be sufficiently homogeneous in character, impact, or mitigation benefits to be assessed as a single unit. It is likely that different wetland types will respond differently to increased salinity and some wetland types will be impacted more than others. This variability is masked, however, by lumping wetland types.

**RESPONSE:** USACE made a very reasonable judgment call in determining assessment areas. We used different river systems and then different wetland systems. The definition you cited is one that we internally deliberated over and discussed with other Districts as well as resource agencies. The UMAM definition really leaves the determination of an assessment area up to the user. It can be by character type, impact type OR mitigation benefits. USACE tried to use this definition to reasonably define assessment areas and we believe that was fairly done in the Draft FR/EIS. The marshes and forested wetlands may be affected differently so we accounted for that by splitting them up. Presumably the commenter is asking for saltwater wetlands, and all the other intertidal emergent marshes to be assessed differently. Since these other wetland types are adapted for such wide-ranging salinity conditions, they weren't evaluated as an impact area.

**COMMENT:** Ninth, for palustrine forested wetlands, the DFR/EIS notes that conversion to nonforested wetlands may occur. In the Cooper River, it is also recognized that invasion by Phragmites (a salt-tolerant nuisance exotic species) is more likely to occur. It is not clear from the study why this same potential threat is not recognized for the Ashley River.

**RESPONSE:** Thank you for noting this inconsistency. The report and UMAM sheets will be revised to correct this, as well as to note that increasing salinity could decrease the threat of Phragmites invasion. Studies have shown that increasing salinity can decrease growth of seedlings and overall biomass, which would be a positive effect. Additionally, many of the freshwater plant species in the Cooper River are invasive species (*hydrilla*, *eichhornia*, *alternanthera*, *egeria*, etc), so increasing salinity could impede the spread of invasive species.

**COMMENT:** Tenth, for the freshwater tidal marshes, the anticipated change in vegetation composition is scored based on an observation that the incidence of freshwater vegetation in downstream brackish communities is 20 percent less than in the upstream freshwater communities. Based on this 20 percent difference, the "with impact" score for community structure is reduced 20 percent from the "without project" score. While this may be a mathematically convenient way to derive a "with impact" score, it may have no relationship to the actual effect on fish and wildlife dependent on the freshwater habitat and associated vegetation community.

**RESPONSE:** This is a good point. For this study, USACE contemplated how and if we should incorporate fauna into the impact studies. The Draft and Final IFR/EIS present an assessment of impacts to fishes (5.4.14), birds (5.4.15), and benthic habitat (5.4.11.1). The commenter is referring to the UMAM scoring sheets and the determination of the functional loss resulting from the project. In these studies, we try to use indicators to determine impacts to overall communities. In this case, vegetation change is used as an indicator of wetland flora and therefore fauna changes. The community structure scoring within the UMAM rule (FL 62-345.500) is assessed based on, "Each impact and mitigation assessment area is evaluated with regard to its characteristic community structure. In general, a wetland or other surface water is characterized either by plant cover or by open water with a submerged benthic community." The rule goes on to define how to score vegetation and structural habitat. Scoring is based on "reasonable scientific judgement". In the case of this study, USACE provided a more quantitative means to base our scoring and therefore provided adequate justification to base a drop in the score.

**COMMENT:** Eleventh, the DFR/EIS explains that UMAM scoring for the Ashley River wetlands was based, in part, on "assumptions on vegetation changes based on expected outcomes on the Cooper River." The resulting impact deltas were the same for the Ashley and Cooper rivers. The validity of this assumption should be addressed in the study.

**RESPONSE:** More details will be provided in the Final EIS. These details will explain that the systems are similar in vegetation. While not exactly the same, the same principles of gradual vegetative changes holds in both of these tidal systems.

**COMMENT:** The Corps' conclusion that deepening the Harbor will not result in a decrease of dissolved oxygen greater than .1 mg/L, which is the applicable antidegradation standard under South Carolina law is unsound. The Corps attempts to show compliance with the .1 mg/L anti degradation standard by using a different modeling technique to modify the standard originally promulgated and applied by DHEC to Charleston Harbor. If that is the case, the Corps has only demonstrated that this project will comply with Corps' own version of the .1 mg/L standard, not the .1 mg/L standard that this project must comply with under South Carolina law and the Clean Water Act.

**RESPONSE:** The assessment of dissolved oxygen impacts and their consistency with the TMDL antidegradation rule were performed in consultation with, and with the approval of, DHEC and EPA. Extensive coordination with DHEC occurred on the modeling of cumulative DO impacts. Although the methodology used in the TMDL is common wasteload allocation practice, the TMDL is conservative because it was calculated based on the assumption that all of the discharges are constantly and simultaneously discharging at the maximum permitted load. This assumption does not recognize the time-varying nature of the individual point-source discharge loading rates, which is particularly important for a system with multiple point-source dischargers. In general, point-source discharges tend to have a wide range of discharge rates that occur over time. The probability of all discharges being at the maximum load at the same point in time is extremely small, and it is even less likely that these discharges would be sustained at that constant maximum permitted load over the entire TMDL analysis time period. Although DHEC used the conservative assumption of constant discharges for the purposes of establishing the WLA for the TMDL, the modeling technique was coordinated through DHEC and EPA to provide a more accurate approach to characterize the point-source discharges. Specifically, in order to incorporate the time-varying nature of the point-source discharges, the Corps analysis used time-varying discharge loading rates input to the TMDL model that were based on measured daily discharge data collected by the existing dischargers. The measured data were used to project a 50-year discharge record which was then evaluated in the model.

It is important to note that the TMDL wasteload allocations are unchanged and, therefore the TMDL does not need to be revised. USACE provided SCDHEC data and an analysis to provide reasonable assurance that the current TMDL is protective of the DO standard in SC 48-1-83.

**COMMENT:** First, the conclusion that South Carolina law permits decreases in dissolved oxygen up to .149 mg/L is dubious. South Carolina law states that DHEC "shall not allow a depression in dissolved oxygen concentration greater than 0.1 mg/l." S.C. Code Ann. § 48-1-38(A). DHEC has never explicitly interpreted the .1 mg/L standard to allow for reductions up to .149 mg/L, in the TMDL or elsewhere. Nor has any court interpreted section 48-1-38 to permit reductions up to .149 mg/L. If the Corps is incorrect regarding its interpretation of South Carolina law, even by one hundredth of a milligram per liter, then its analysis of the project's impact on dissolved oxygen is flawed.

**RESPONSE:** The commenter refers to "SC Code 48-1-38". USACE believes that the correct section of the code is 48-1-83. DHEC's, Water Classifications and Standards Regulations (R.61-68), provide that, in naturally low dissolved oxygen waters such as the Charleston Harbor, "the quality of the surface waters shall not be cumulatively lowered more than 0.1 mg/l for dissolved

oxygen from point sources and other activities..." This is referred to as the .1 Rule and DHEC has consistently applied the standard to allow for a depression in dissolved oxygen of up to .149mg/L. This amount is consistent with the rules for significant figures which allows for rounding and, thus, 0.149 mg/L rounds down to 0.1 mg/L and is, therefore, considered equivalent. It should be noted that the instrumentation used to measure DO in-situ is at best typically only accurate within 0.1 mg/L and therefore, these minor reductions in DO are scientifically insignificant at a systems level. Recognizing that the deepening of the Federal channel is not a traditional load, capturing the effects of the project and compliance with the TMDL required additional coordination with DHEC and resulted in a method that more accurately assesses the existing TMDL using a time-variable loading approach. The impacts are evaluated under the existing TMDL; however the time-variable approach provides a more realistic evaluation of loading and reasonable assurance that the project and dischargers will not cumulatively violate the antidegradation rule.

**COMMENT:** As discussed above, additional information is needed to evaluate the use of the hydrodynamic and water quality modeling efforts; but even assuming the Corps' modeling efforts were more accurate than the modeling performed by DHEC to support development of the Harbor's TMDL, the Corps cannot unilaterally change the substance of a promulgated DHEC standard. DHEC regulations require formal public notice and opportunity for comment before the TMDL for dissolved oxygen can be amended. The Corps cannot select its own modeling approach to re-write the TMDL

**RESPONSE:** USACE did not act unilaterally nor did it somehow change the DHEC standard. USACE acted based on its direct coordination with DHEC and EPA. The analysis used the existing TMDL and applied a time-variable approach to the actual loading that occurs in practice. The results indicate that the existing TMDL wasteload allocations are protective of the standard even when combined with the effects of the harbor deepening. The TMDL wasteload allocations are unchanged. DHEC has indicated that the time-variable analysis is compliant with the existing TMDL and that, when combined with the Project's monitoring and adaptive management plan, it provides them reasonable assurance that the existing TMDL will not be violated.

**COMMENT:** The Draft IFR/EIS relies on an email-that was not included in the Draft IFR/EIS itself-from DHEC personnel to the Corps where DHEC endorses the Corps' modeling for purposes of the harbor deepening study. But even DHEC personnel cannot authorize the Corps to make an end run around the TMDL. South Carolina law requires specific procedures, including public notice and the opportunity to comment, if DHEC wishes to amend or revise a TMDL. *See* S.C. Code Ann. Regs. 61-110(G) (2005) ("The Department may revise an approved TMDL to accommodate new information. Revisions to load or waste load allocations in approved TMDLs shall be subject to the same public participation and administrative appeal processes set forth herein."). Both DHEC and the Corps must present their modeling and data to the public and stakeholder community in a clear, open, and thorough way so that all interested parties can fully vet any change in how DHEC regulates the waters of Charleston Harbor. DHEC may not change the TMDL via e-mail, and the Corps cannot reasonably rely on a standard relaxed via e-mail.

**RESPONSE:** USACE defers to DHEC as the State agency promulgating and administering the TMDL for DO. DHEC did not revise the load or wasteload allocation such that Regulation 61-110(G) is implicated. DHEC responded to a scientific analysis of cumulative impacts on DO and concurred that the method provides assurance that the impacts won't violate the DO TMDL. The TMDL wasteload allocations are unchanged. DHEC's 401 Water Quality Certification will be included in the Final IFR/EIS, and explains DHEC's rationale and conclusions regarding the DO TMDL and USACE compliance.

**COMMENT:** The Draft IFR/EIS presents an inaccurate picture of the project's impact on dissolved oxygen levels in Charleston Harbor. It is indisputable that deepening the Harbor will result in reductions in dissolved oxygen, and DHEC has already determined that the entire allowable oxygen demand loading in the Harbor has already been allocated. No additional capacity is available. Accordingly, it seems near certain that the Harbor deepening will result in a violation of South Carolina's water quality standards for dissolved oxygen. Moreover, the Corps' Section 404(b) Guidelines under the CWA specifically prohibit authorization of discharges that would "cause or contribute to significant degradation of the waters of the United States." 40 C.F.R. § 230.10(c).

The Guidelines state that such effects include, among other things, significant adverse effects of the discharge on "life stages of aquatic life" and on "aquatic ecosystem diversity, productivity, and stability." *Id.* The same impacts giving rise to the violations of state water quality standards also violate the Section 404(b) Guidelines.

**RESPONSE:** Please see responses to the four previous comments. USACE agrees with the commenter that the morphologic changes resulting from this project will contribute to reduced oxygen in the harbor; however, the predicted amount is so small that it is insignificant in the broader picture. It is almost impossible to evaluate a statistically significant difference of 0.1mg/L

with current oxygen sensors. USACE also evaluated the effects of water quality changes on various fish species (6 of them), using habitat suitability index models. Some of these models have DO as a parameter. While the minor changes in DO resulted in both negative and in some cases positive changes to the species, the level of impact is almost imperceptible within any level of accuracy.

**COMMENT:** By failing to acknowledge the near certainty that deepening the harbor will reduce dissolved oxygen below the legal standard as applied by DHEC in the 2013 Charleston Harbor TMDL, the DFR/EIS ignores a significant environmental impact of this project and fails to provide necessary mitigation.

**RESPONSE:** Please see the responses to the previous five comments. USACE disagrees that the Post 45 project's impact on DO is significant. USACE has documented that the TMDL and the project will not violate the standard, and will result in minor or insignificant impacts. However, it is the intent of USACE to work with our agency partners to develop a program to monitor DO impacts.

**COMMENT:** One of our primary concerns with the DFR/EIS, as well as the biological assessment, is that we do not yet have enough information to determine the accuracy of the Corps' hydrodynamic modeling, which is informing many of the Corps' assumptions, including the assumptions about impacts to sturgeon and their habitat. Until we have the underlying data and can test the accuracy of the modeling, it is difficult, to sufficiently comment on impacts to sturgeon. We are also troubled that the BA completely ignores potential threats to any listed species from increased container ship traffic related to the harbor deepening. Presumably, the Corps ignored these impacts because of its underlying conclusion that ship traffic will decrease as a result of increased efficiency, but this conclusion is flawed. The SPA's own statements confirm that ship traffic is expected to increase as a result of the port deepening, and the potential threats to right whales, turtles, manatees, and other species will increase correspondingly. The Corps should have considered these potential impacts, and its failure to do so renders its ESA analysis deficient.

**RESPONSE:** USACE disagrees with this comment. Please review Appendix K and Appendix F. First, the Draft FR/EIS provided the relevant, detailed information necessary in support of a full and fair discussion of environmental impacts such as these for public review. USACE disagrees that including technical data of this nature would have provided any meaningful advantage to the public during the Draft FR/EIS review period. USACE notes that the only request for this underlying data it received was from SCCCL/SELC, and that request was withdrawn before it could respond. Voluminous and highly technical metadata, model input and output files, etc., are best made available upon request under consistent information release parameters. Second, as stated in the Draft FR/EIS, the project will not cause container traffic to increase – an increase in container volume and in the size of ships will occur with or without a project. The only difference will be that those ships can load more cargo thereby allowing for fewer of these ships to enter the harbor than if the project were not constructed. USACE has completed Section 7 consultation with the NMFS resulting in the issuance of a 22 April 2015 Biological Opinion to USACE. This BO will be the guiding document for decisions related to compliance with the Endangered Species Act. We will update the Final FR/EIS with information from the BO.

**COMMENT:** The Corps' analysis regarding potential impacts from dredging operations is flawed. First, the Corps has previously acknowledged the risk to right whales from dredging operations. In fact, the Corps has explained that right whales "are particularly vulnerable to ship strikes by dredges during their calving season .... " To address threats associated with dredging operations, the Corps has explained further that the "Whale Early Warning System" is ... utilized during current dredging projects ... to alert dredge captains and other vessels in the coastal channel of whale activity in the area." *Id.* The Corps has concluded that "[a]s a result of proactive and protective systems in place, no accounts of injuries or mortalities to right whales from dredging activities have been documented." *Id.* The problem here is that the early warning system in South Carolina is no longer being funded. Our understanding is that whatever aerial survey effort remains in South Carolina is limited to informing on population demographics and general trends in habitat use and is not designed at this juncture for early warning of vessels. Since the early warning system is no longer in place in South Carolina, the Corps has erred by relying on its continued applicability for purposes of evaluating impacts from dredging operations.

**RESPONSE:** Disagree. USACE takes very seriously the potential to adversely affect endangered species and we have a strong history of implementing protective measures to reduce incidental take (lethal or non-lethal) from occurring. USACE new work and maintenance dredging operations in Charleston Harbor have never resulted in the lethal take of a right whale due to a variety of factors, including: the dredging of channels and harbors comprises a tiny subset in time and area of total vessel

traffic; an active program to avoid strikes including on-board observers; slow speed when whales are observed, in bad weather, and when actively dredging; and, the education/awareness of personnel. Regarding the right whale, Section 2.1.3.2 of the BO contains sufficient and effective Right Whale Avoidance Measures.

**COMMENT:** The BA is also flawed because it does not even consider possible impacts to right whales resulting from increased container ship traffic. Presumably, the Corps omitted any such analysis based on its assumption that "[s]ince the project economics indicate that the project would not result in a greater number of vessels than the No Action Alternative, the chance of vessel strikes is not anticipated to increase." DFR/EIS at 5-48. However, SPA's statements to the contrary confirm that shipping-related activities are, in fact, predicted to increase, resulting in more, larger ships traveling into and out of the Charleston Harbor. Clearly, this will result in a higher risk of ship strikes to right whales, and as the Corps has acknowledged, any future right whale injury or mortality is detrimental to the species' chances of survival and recovery. The Corps' failure to even consider the possibility of ship strikes undermines the ESA and renders the BA deficient.

**RESPONSE:** Disagree. Please see the responses to the previous two comments. As stated in the Draft FR/EIS, the analysis demonstrates that the project will not cause container traffic to increase. In fact, it is predicted that the large ships will call on Charleston Harbor with or without a project. The only difference will be that those ships can load more cargo thereby allowing for fewer ships to enter the harbor than if the project were not constructed.

**COMMENT:** Further, the information in the BA upon which the Corps bases its assumptions and conclusions is outdated. Specifically, the Corps states that "[s]ighting surveys from the eastern Atlantic Ocean suggest that right whales present in this region are rare" and that "[t]he data indicates the primary calving area for this species is south of Charleston." App. F at 91. These statements are simply not true. As previously described, *supra*, footnote 9, the best available data shows that the waters off South Carolina are in what NMFS considers to be part of the right whale's core calving habitat.

**RESPONSE:** We have considered this information. USACE is has completed Section 7 consultation with the NMFS resulting in the issuance of a 22 April 2015 Biological Opinion to USACE. This BO will be the guiding document for decisions related to compliance with the Endangered Species Act. Section 2.1.3.2 of the BO contains sufficient and effective Right Whale Avoidance Measures. We will update our analysis for the Final IFR/EIS.

**COMMENT:** Finally, for purposes of this study, the Corps should consider the fact that an exemption from the speed restrictions put in place to protect right whales has been requested in the Charleston Harbor and other federally-maintained navigation channels. In addition to considering the increased container ship traffic that will result from the project, the Corps must also consider what the effect would be if those ships do not have to comply with existing speed restrictions.

**RESPONSE:** USACE recognizes that there is an exemption for federal vessels or vessels under contract to the federal government. Vessels engaged in USACE new work and maintenance dredging operations in Charleston Harbor have never resulted in the lethal take of a right whale. We believe this is due to a variety of factors, including: the dredging of channels and harbors comprises a tiny subset in time and area of total vessel traffic; an active program to avoid strikes including on-board observers; slow speed when whales are observed, in bad weather, and when actively dredging; and, the education/awareness of personnel. As previously stated, the shift to larger container ships will occur with or without this Project. However, because these ships will be able to handle more cargo with a deeper channel, fewer of these ships will enter the harbor than if the project were not constructed. By removing tidal restrictions, vessels will not have to speed up to take advantage of favorable tides. Also, widening measures allow for more flexibility and allow two way traffic in some areas of the channel. No additional mitigation is warranted. However, despite the exemption, USACE has voluntarily agreed to observe a 10-knot speed provision for dredge-related vessels from November 1 through April 30 (see Section 2.1.3.2 of the BO).

**COMMENT:** Given all of these projected impacts, we believe it is imperative that consideration be given to the use of sonar throughout the project construction and/or a camera near the draghead cutter operations to better monitor for turtles.

**RESPONSE:** NMFS provided a Biological Opinion to USACE on 22 April 2015. This BO will be the guiding document for decisions related to compliance with the Endangered Species Act. We will update the Final IFR/EIS with information from the BO.

**COMMENT:** As with right whales, the BA completely ignores the threat to turtles from ship strikes despite the fact that this has been identified as a significant and growing threat to sea turtles. Boat collisions can cause immediate death to turtles or severely debilitate them, leading to infection and decreased reproductive fitness. The frequency of injury from propellers and collisions is higher in areas where recreational boating and vessel traffic are intense. Recovery Plan for U.S. Population of

Atlantic Green Turtle (1991) at 9 and Recovery Plan for U.S. Population of Loggerhead Turtle, Second Revision (2008) at I-56. Again, we assume the Corps ignores the threat of boat strikes due to its conclusion that the project will result in fewer, not more, ships over time. However, as discussed above, this conclusion is flawed and the Corps must consider the increased threat of boat strikes in order to comply with the ESA.

**RESPONSE:** As stated in the Draft FR/EIS, the project will not cause container traffic to increase. In fact, it is predicted that the large ships will call on Charleston Harbor with or without a project. The only difference will be that those ships can load more cargo thereby allowing for fewer of these ships to enter the harbor than if the project were not constructed. The Project should not increase the use of the harbor by recreational vessels.

**COMMENT:** As with right whales and sea turtles, the BA fails to assess the potential impacts of increased shipping activities resulting from the project. Our concerns with this approach which are discussed above also apply to manatees, and the Corps must consider the potential impacts of container ship and related vessel traffic in order to ensure compliance with the ESA.

**RESPONSE:** As stated in the Draft IFR/EIS, the project will not cause container traffic to increase. In fact, it is predicted that the large ships will call on Charleston Harbor with or without a project. The key difference will be that those ships can load more cargo thereby allowing for fewer ships to enter the harbor than if the project were not constructed. We note the USFWS concurrence that the Project is not likely to adversely affect the West Indian manatee and the standard manatee conditions will be adhered to.

**COMMENT:** As discussed previously, it is difficult at this time to fully comment on the Corps' analysis relating to impacts to sturgeon. So much of the analysis, including the lowering of DO and increasing salinity, depends on the adequacy of the hydrodynamic modeling. Because sufficient information on the hydrodynamic modeling has not been included with the DFR/EIS, it is difficult at this time to comment on this study's assessment of impacts to sturgeon.

**RESPONSE:** Please review Appendix K and Appendix F. See previous responses to this commenter addressing the inclusion of modeling data in the FR/EIS.

**COMMENT:** That said, it appears that this proposal is likely to adversely affect shortnose and Atlantic sturgeon by causing a reduction in available habitat; requiring these species to find new foraging habitats if they avoid the project altogether or leaving these species without a source of food due to the elimination of benthic prey from the large-scale dredging; and causing these species to suffer physiologically from potential changes in water quality, including lower dissolved oxygen, increased turbidity and pollutants caused by re-suspension of sediments, and increased salinity. The Corps seems to assume that these species will simply move upstream and find suitable new habitats as saltwater intrudes, yet this is a dubious assumption. We agree with the recommendation contained in the comments submitted by the South Carolina Department of Natural Resources ("SCDNR") letter that a detailed monitoring plan for shortnose and Atlantic sturgeon be developed and incorporated into the overall monitoring and adaptive management plan for this project. See Letter from Robert D. Perry, SCDNR to Lt. Col. John T. Litz, U.S. Army Corps of Engineers (Nov. 24, 2014) at 6.

**RESPONSE:** Overall, SCDNR concurred with our assessment that most changes in habitat suitability were determined to be the result of small changes in water quality parameters (DO, salinity, temperature, velocity), and none were considered to be significant enough to require mitigation based on the results of the Habitat Suitability Impact analyses. Those analyses provide a very detailed depiction which is sufficient to support a reliable determination of impacts. As noted in the 22 April 2015 BO, shortnose sturgeon do not frequently utilize the lower 22 miles (approximate) of the Cooper River, and are rarely found in the project area. There is no evidence of Atlantic sturgeon spawning in the Cooper River in recent history. The taking of sturgeon by mechanical and hydraulic cutterhead dredges appears to be exceedingly rare with none observed occurring in the Charleston area. The best available information indicates that project impacts do not significantly alter sturgeon habitat and therefore do not justify mitigation or monitoring.

**COMMENT:** First, it appears from the DFR/EIS that the Corps did not consider or test for perfluoroalkyl substances, or "PFASs." These substances, like the PCBs and other bioaccumulating chemicals the Corps did look for, are industrial chemicals that settle in the bottom of the channel, exposing the lowest levels of the food web and amplifying effects on protected animals and people. PFASs are a special concern in the Charleston Harbor, as recent research shows that the Harbor's dolphins have higher accumulated levels of PFASs than any other dolphin population on the East Coast—levels high enough to be dangerous to animal

health and of concern to human health. 13 Dredging could exacerbate exposure to PFASs, just like any other toxic stored in the sediment. The Corps should test for this toxic chemical.

**RESPONSE:** Prior to preparing our draft sediment sampling plan, we consulted with multiple natural resource agencies during an Interagency Coordination Team (ICT) Meeting in November 2011. The agencies consulted included U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, NOAA-National Marine Fisheries Service, NOAA Center for Coastal Environmental Health and Biomolecular Research (CCEHBR), South Carolina Department of Health and Environmental Control, and South Carolina Department of Natural Resources among others. These agencies were also given the opportunity to review our Draft Work Plan for the sampling effort prior to the commencement of sediment sampling

During the November 2011 ICT Meeting, NOAA-CCEHBR recommended adding the flame retardant polybrominated diphenyl ethers (PBDEs) to our list of planned contaminants that we would test for. Our contaminated list consisted of metals, PAHs, organo-chlorine pesticides, PCBs, organotins, dioxins/furans, and total petroleum hydrocarbons—the standard list of chemicals for testing dredged material. PBDEs fall under a general list of chemicals that are commonly known as emerging contaminants. As a result of NOAA-CCEHBR's recommendation, PBDEs were added to our list.

Perfluoroalkyl substances (PFASs) are a subset of a class of chemicals known as perfluorinated chemicals (PFCs). Like PBDEs, PFCs are also considered to be emerging contaminants. Concerns about biomagnifications of PFCs in marine mammals and other apex predators have been known to the scientific community for over 10 years, including within Charleston Harbor. Unlike PBDEs, PFCs were not mentioned as a concern during the November 2011 ICT Meeting.

Since the existence of PFCs in Charleston Harbor is not new information, and since PFCs were not identified as a concern by the natural resource agencies that were consulted during the planning efforts for the sediment testing, we have concluded that no additional sediment testing is necessary.

**COMMENT:** Second, we question the Corps' decision to analyze the toxicity of sediment to be dredged using composite samples rather than individual, location specific samples. As the Corps explained, samplers collected roughly five or six sub-samples from each of 21 separate locations within the proposed dredge operations. App. J at 9-10. These locations are large. The Rebellion Reach, Bennis Reach, and Horse Reach areas, for example, were all treated as one sampling "location," despite accounting for almost three million cubic yards of dredge spoil. The Corps took six separate samples along these three reaches but analyzed them all as one composite sample, mixing the individual samples together. App. J at 9-10. The Corps' decision to mix its samples together may skew the analysis by averaging out any potentially dangerous toxic concentrations over a broad area. Any individual toxic sites stirred up by dredging would still be a danger to any aquatic life exposed in that one area, while the Corps' analysis masks those individual sites in its data. And there is good reason to question the DFR/EIS on this point; the Corps' analysis of the composite samples shows lower concentrations of PCBs, metals, PAHs, and pesticides than information collected by SCDNR over the last ten years. As currently written, the DFR/EIS contains an incomplete evaluation of potential toxic contaminants in dredge spoil, which undermines the study, inhibits the ability of the public to understand the environmental costs of the project, and violates the Corps' duties under NEP A.

**RESPONSE:** The dredging units to be sampled were determined in conjunction with SCDNR, EPA and other resource agencies based on reasonable judgments made from past sediment sampling events and potential sources of contaminants. Sample compositing is a recognized technique for sampling dredged material. While there is a possibility that sample compositing could mask an area with higher contaminant levels, the opposite is also possible; sample compositing could also result in an area with lower contaminant levels appearing to be higher, and not passing the testing protocols. As noted by the commenter, there are some units that represented large volumes of material. In any sampling design, samples are taken to represent certain conditions to allow for either comparisons between similar or dissimilar areas. In this case, we attempted to use existing data to define separable dredging units. We have many years of sampling history from the Charleston Harbor Federal Navigation channel, and the results obtained from the recent sampling effort are consistent with previous results. Therefore, we do not believe that our sampling methodology skewed the results in either direction (i.e., neither higher nor lower). The areas of the lower harbor are relatively far removed from potential sources of contaminants and have all historically tested as being suitable for ocean disposal through USEPA requirements. Therefore, USACE composited samples from these areas and had smaller dredging units in portions upstream of the lower harbor (Wando and Cooper rivers). This is an acceptable sampling design and it was approved by the EPA. Certainly more data is informative, but in this case there is a reasonable basis for concluding that more data would not have changed the decision. Sediment sampling is also subject to reasonable cost limitations.

Concerning the comparison to previous sampling performed by SCDNR, sampling performed by SCDNR is typically grab samples of surficial sediments collected from random locations throughout the harbor and in tidal creeks; whereas, our samples were 5-foot to 7-foot deep cores collected only from the navigation channel. Because of the different sampling techniques and the different locations where the samples were collected, direct comparisons are not valid. In addition, SCDNR reviewed our sampling results and did not raise any concerns with the validity of our results.

Based on the above, we have concluded that no additional sediment sampling is necessary.

**COMMENT:** Similarly, we are concerned with the Corps' plans for disposing of dredge spoil, especially the management of the Ocean Dredged Material Disposal Site ("ODMDS") and the plan to use dredged material on Crab Bank and other habitat projects. Regarding the ODMDS, it appears that the Corps may not be planning to monitor disposal of material into the ODMDS. The Corps should coordinate with the SCDNR on regular diving and monitoring in order avoid damage to benthic communities in the ODMDS, as well as provide annual reports of this monitoring.

**RESPONSE:**USACE will revise the Final FR/EIS to discuss the monitoring that always occurs on ocean disposal projects.

**COMMENT:** Regarding Crab Bank and the other habitat enhancement projects using dredge spoil, we question whether the Corps has undertaken sufficient analysis to ensure that the dredge spoil is suitable for use as habitat. Given the Corps' inadequate toxicity analysis discussed above, we are concerned that using dredge spoil from this deepening on Crab Bank, Shutes Folly, or to create whole new bird nesting island could result in dangerous levels of toxic exposure to these areas and the animals that use these areas.

**RESPONSE:** The commenter's suggestion about "dangerous levels of toxic exposure" is inconsistent with the data. Much of the material that would be removed from the lower harbor is new work material and hasn't been exposed to potential contaminants. Charleston Harbor has been dredged for well over a century and the build-up of contaminants just doesn't occur due to the regular maintenance dredging. Beneficial uses will be further explored during the PED phase and any new information will be publicly disclosed prior to a decision being made. Public comments from NEPA scoping indicate a strong public desire to use material to protect Crab Bank.

**COMMENT:** In addition, it does not appear from the DFR/EIS that the Corps intends to monitor for wave action and erosion of Crab Bank and other habitat projects. We believe such monitoring is essential and that the Corps should coordinate with SCDNR to maintain ongoing monitoring of erosion effects.

**RESPONSE:** Erosion of Crab Bank is an existing, long-term problem. The proposed project is not projected to worsen the potential erosion of Crab Bank compared to the no action alternative; however, USACE is committed to perform analyses to validate the assumptions of the project and ascertain whether the project impacts significant resources or not. Additionally, if those islands are pursued as sites for beneficial use of dredged material, USACE will monitor the success of those projects.

**COMMENT:** It appears that the Corps is planning to put off practical questions about the use of dredge spoil as habitat enhancement until the PED Phase. *See, e.g.,* DFR/EIS at 4-16. But claiming Crab Bank and other projects as "beneficial uses" of dredge spoil without determining whether the spoil can actually be used for these beneficial purposes undermines the analysis of the report. As illustrated in correspondence received by the Corps, Crab Bank is an issue of special concern to the public. *See generally,* App. Q. By postponing this evaluation until after the DFR/EIS stage, confidence in the Corps' promise to support Crab Bank and other habitats is eroded, and we request that this analysis be undertaken now so that concrete plans regarding beneficial uses of dredge spoil can be shared with the public.

**RESPONSE:** USACE disagrees that the analysis is undermined. In fact, USACE fully disclosed the existing relevant information on beneficial uses. USACE states that beneficial uses are a priority during PED and has indicated this as an "environmental commitment" of the project in section 7 of the FR/EIS. While in the past this work would typically have been performed during the feasibility phase, because the outcome doesn't affect the decision-making of the project, USACE decided to perform a detailed analysis in the PED (Planning, Engineering and Design) phase. At that time, more concrete plans will be shared with the public.

**COMMENT:** The Corps used "side-scan sonar, sub-bottom profiling, and magnetometer equipment coupled with ground-truthing via towed video transects" to determine areas of no hardbottom, "possible hardbottom," "probable hardbottom," and hardbottom. DFR/EIS at 2-73. While this analysis revealed large amounts of hardbottom, it also revealed larger areas of

"probable" hardbottom. See Figures 2-31,2-32 at DFR/EIS 2-74. Yet, the Corps does not report any "possible" hardbottom. We question the precision and adequacy of the Corps' method, given that it resulted in identifying more "probable" hardbottom than actual hardbottom, and seemingly could not distinguish "possible" hardbottom from anything else. Instead, we believe that using divers to more accurately characterize the hardbottom resources is a feasible option that would better represent the environmental impacts of the project. As written, the DFR/EIS does not explain why the Corps did not use divers to accurately assess hardbottom resources impacted by the project. For more information on the assessment process, the text of the DFR/EIS refers the reader to Appendix I, DFR/EIS at 2-73, and Appendix I refers the reader to "the Cultural Resources Appendix," which we could not find among the appendices to the DFR/EIS. App. I at 4. The Corps should use divers to accurately assess hardbottom resources affected by the project, or at least the DFR/EIS should include an explanation for why the Corps did not use divers.

**RESPONSE:** Please see Appendix I, Hardbottom Habitat, which states the reasons for excluding "possible hardbottom habitat." USACE did not use divers because a vast area was being explored. For large scale studies, divers are not an efficient means of surveying. Thank you for noting the citation error. The report is also cited as "Gayes et al 2013", and a link to the report is provided. This will be edited in the Final FR/EIS.

**COMMENT:** the Corps' conclusion that "impacts from turbidity as a result of the construction phase will result in negligible to minor adverse temporal impacts" on hardbottom habitat and benthic communities seems dubious. App. I at 17. This conclusion is based on studies (performed in 2011 and earlier) of beach nourishment projects that showed either "no effect" or uncertain effects of dredging on nearby benthic communities. App. I at 17. However, more recent studies have provided "empirical evidence linking turbidity and sedimentation with elevated levels of coral disease and other indicators of compromised coral health."<sup>14</sup> Likewise, the Corps recently settled a federal lawsuit by agreeing to remediate and repair multiple miles of hardbottom habitat destroyed or damaged by dredging activities deepening the channel into the Port of Miami. Both recent scholarship as well as the Corps' own experience undermines the conclusion that turbidity will have negligible impacts on hardbottom habitat, and we ask the Corps to reconsider this conclusion.

**RESPONSE:** Text will be revised where relevant to state the HEA inputs which use an indirect impact of 5% on nearby hardbottom habitat. USACE cautions making broad assumptions about habitat by comparisons between SE FL projects and Post 45. Charleston nearshore hardbottom habitat does not have similar species to SE FL. This is why USACE relied on more local, state and regional literature to guide assumptions for the project.

**COMMENT:** Third, the analysis in the DFR/EIS is flawed because it does not consider the growing patterns of hardbottom benthic communities in determining how much habitat is sufficient to mitigate the harms caused by dredging. The Corps uses a methodology called Habitat Equivalency Analysis ("HEA"), which determines mitigation based on replacement of "ecological services (e.g., functions and values)." App. I at 1. As the Corps explains, this "perspective recognizes that not all parcels of habitat are of equal quality or yield the same quantity of services." App. I at 1. Acknowledging the influence of time on the ability of hardbottom habitat to provide ecological services, the unit of HEA is the "service acre-year," meaning the amount of services one acre provides over one year. App. I at 3. Under HEA,

"[t]he public is considered to have been made whole [for ecological losses when the scale of restoration needed to offset losses of resources and services is achieved]"; thus, the Corps set out to determine proper mitigation by determining how many acres of hardbottom habitat it must create to replace the ecological services provided each year by the hardbottom habitat the project will destroy. App. I at 3. Subject to the concerns we've laid out above, the Corps determined that 28.6 acres of hardbottom would be directly impacted by the dredging, while 186.3 acres will be indirectly impacted by the dredging. Using HEA, the Corps determined that 29.8 acres is the proper mitigation amount, but that, given the sheer amount of dredge spoils the project will create, the Corps is going to create eight 33-acre reefs, totaling 264 acres of mitigation (the Corps says only one of the eight reefs is needed as mitigation).

**RESPONSE:** USACE disagrees that the analysis is flawed. Hardbottom mitigation is a very important environmental benefit of the project. USACE is mitigating for the loss of a disturbed acreage of habitat at the bottom of a navigation channel that is subject to daily ship traffic. The mitigation being offered and additional beneficial use will use unexposed limestone rock from underneath the channel and create pockets of higher relief hardbottom habitat. These reefs will support soft corals and many fish species, and will be located outside of the shipping channel where they are not subject to disturbance by shipping and dredging.

USACE refers CCL/SEL to Appendix I on Hardbottom habitat. In this appendix, USACE provides a detailed description of the reasoning for selecting 3.5 years to recovery. USACE evaluated the growth rate of one of the most common octocorals off Charleston, SC (*Leptogorgia virgulata*). This species was used based on discussions with SCDNR biologists. A growth rate of 61mm/year was taken from a review of literature. Applied over 3.5 years, this suggests that *L. virgulata* would be about 8 inches tall. Based on preliminary video of the impacted habitat, USACE believes this is fairly representative of the impacted corals. After coordination with SCDNR and NMFS, USACE will include the results for a possible 10 year recovery time in the Final IFR/EIS.

**COMMENT:** By relying on insufficient surveying techniques, faulty assumptions, and improper methodologies, the current DFR/EIS misrepresents the damage caused to hardbottom habitat by the project, which is contrary to NEPA regardless of how large the Corps' mitigation plan is. To rectify this deficiency, the Corps should properly characterize the hardbottom habitat in the area with divers and in a manner that accounts for the damage of turbidity on hardbottom communities, which may increase the amount of directly and indirectly impacted areas. In addition to properly accounting for the growth patterns of hardbottom communities and the services they provide, the current mitigation plan is likely not adequate to replace the lost hardbottom habitat communities.

**RESPONSE:** USACE disagrees with the commenter's conclusion that the surveying techniques, assumptions, and methods misrepresent the damage to hardbottom habitat. While there is some uncertainty in the analysis, the USACE monitoring plan provides for pre-construction impact site refinements and a process to re-evaluate mitigation needs if assumptions don't hold. Moreover, USACE is creating over 700 areas of hardbottom habitat from previously unexposed rock that will more than mitigate for the impacted acreage - whether the most likely area of 28.6 acres, as indicated in the report, or the entire area that could conceivably be hardbottom (~100 acres).

**COMMENT:** As explained above, the assumption that this project is unrelated to the growth of the port's business is unreasonable and inconsistent with statement by the project's proponents and the Corps' duties to assess environmental impacts under NEPA. It is also contradicted by the experience in Savannah where the prospect of deepening has fueled significant port-related developments, like River Port, which will contribute to greater air emissions in the greater Savannah area. Here, the Corps must acknowledge that this project is likely to result in more ship traffic and that the deepening will induce development that will impact air quality in the region. Specifically, the Corps should include an analysis of regional air pollution impacts using detailed dispersion modeling assessment of emissions with a risk-based assessment of health effects associated with the project, as well as localized impacts of those living and working closest to port-related activities. Such an examination should include analysis regarding increased chronic respiratory, heart diseases, and cancer risk, and increased health care costs. The Corps should consider in more detail mitigation strategies, such as requiring the use of cleaner fuels and shorepower.

**RESPONSE:** As stated in the Draft IFR/EIS, the project will not cause container traffic to increase. In fact, it is predicted that the large ships will call on Charleston Harbor with or without a project. The only difference will be that those ships can load more cargo thereby allowing for fewer ships to enter the harbor than if the project were not constructed. The reduction in the number ships entering the harbor and the ability of, newer, more efficient container ships to enter the harbor with greater ease without having to wait on favorable tides would lead to improved air quality when compared to the without project condition. See also numerous previous responses regarding the relationship between the proposed navigation improvements and growth.

**COMMENT:** First, excluding the impacts of the ODMDS expansion from the environmental analysis of the harbor deepening is project segmentation prohibited by NEPA. It is well-settled that breaking a project "into small component parts" to avoid reviewing them together, "is to engage in illegal 'segmentation.'" See *New River Valley Greens v. US. Dep't of Transp.*, 161 F.3d 3, 3 (4th Cir. 1998)(unpublished)(quoting 40 C.F.R. § 1508.27(b)(7)). This conclusion is based in the regulations implementing NEPA, which provide that "proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement," including actions that "are interdependent parts of a larger action" and actions that "automatically trigger" other actions. 40 C.F.R. §§ 1502.4(a), 1508.25(a). Both the Corps and EPA explain that the ODMDS is being expanded to account for the dredge spoils of the harbor deepening. The ODMDS expansion is thus an "interdependent part[] of [the] larger action" of deepening the harbor. *Id.* Because the ODMDS would not need expanding if the harbor is not deepened, and the harbor cannot be deepened unless the ODMDS is expanded to contain the dredge spoils, the two actions are "in effect, a single course of action [that] shall be evaluated in a single impact statement." *Id.* The DFR/EIS therefore violates NEPA by not including the environmental impacts of the ODMDS expansion.

**RESPONSE:** The segmentation argument is not applicable, here. First, USACE did not segment the proposed navigation improvements into smaller parts and thereby avoid preparation of an EIS. An EIS is being performed, and the commenter has reviewed the Draft FR/EIS. Second, EPA's separate NEPA document for the ODMDS is referenced in the Draft FR/EIS and does not evade a thorough NEPA analysis, but simply reflects the EPA's ultimate authority to designate, manage, and monitor ocean disposal under Section 102 of the MPRSA (EPA oversees numerous ODMDS sites in the Southeastern U.S.). EPA published in the December 31, 2012 Federal Register a Notice of Intent to prepare an environmental assessment for the expansion of the Charleston ODMDS. This approach does not offend the general proposition for which the commenter cites the *New River Valley Greens* case (the case is also of uncertain precedential value - see Local Rules of the Fourth Circuit, R. 32.1). See *Coalition for Advancement of Regional Transp. v. Federal Highway Admin.*, 959 F.Supp.2d 982 (W.D.Ky., 2013) (NEPA was not violated where ROD stated that borrow sites and excess construction material disposal sites were TBD at a later time). Even so, USACE will incorporate the EA for the ODMDS by reference in the Final FR/EIS if it is available at that time.

**COMMENT:** Second, the potential ramifications and environmental impacts of the ODMDS decision are important to the public's understanding of the harbor deepening project. For example, the Corps provides no alternative location for disposal if the EPA decides not to expand the site or if the expanded site cannot accommodate all of the spoil. Reallocation of any amount of dredging spoil inland would have environmental effects that are not accounted for in the DFR/EIS.

Likewise, maps provided by the Corps suggest that the boundaries of the ODMDS, both the existing boundaries and the proposed expansion, are surrounded by identified and probable hardbottom habitat. See DFR/EIS at 4-11. The Corps represented in discussions with NMFS that expanding the ODMDS "likely will result in a detailed monitoring program to ensure sensitive resources in the area of the ODMDS are not impacted." Letter from Southeast Regional Office, NMFS to Lt. Col. Edward P. Chamberlayne, Corps of Engineers (Nov. 2, 2011), attached Memorandum for Record (March 2, 2011) at 2. Because the expansion of the ODMDS is triggered by the harbor deepening, the impacts and monitoring required to mitigate those impacts should be included in the DFR/EIS in order to accurately present the impact of the project to the public.

**RESPONSE:** The modification of the ODMDS is related to the existing concerns with capacity and exacerbated by the potential new volume of new work dredged material. EPA is the action agency of the proposed ODMDS modification. The hardbottom maps referenced in the comment show that the ODMDS modification will avoid hardbottom habitat. Additionally, USACE proposes to construct a rock berm around the perimeter of the ODMDS to provide protection to these resources. The berm concept is supported by SCDNR. It is not likely that mitigation will be required. Monitoring will be consistent with the previous Site Management and Monitoring Plan (available at EPA website). Should EPA decline to expand the ODMDS as requested resulting in disposal at an alternative location, USACE will evaluate the need for additional NEPA analysis. USACE will incorporate the EA for the ODMDS by reference in the Final FR/EIS if it is available at that time.

**COMMENT:** Third, the DFR/EIS unreasonably relies on the benefits of expanding the ODMDS. The DFS/EIS considers "an 'L' shaped berm along the south and west perimeters of the ODMDS" among the beneficial uses of dredge spoil from the deepening project. DFR/EIS at 4-11. These beneficial uses are intended to provide environmental benefits that will mitigate damage to other environmental resources. In the case of the berm, it will "protect hard bottom habitat, from being buried by sediment migrating from the ODMDS" by building a wall out of larger stone that had been hardbottom habitat before it was dredged out of the channel. DFR/EIS at 4-11. The Corps provides no guarantee that the EPA will include this berm if it decides to expand the ODMDS. Likewise, the Corps forgoes any detailed study of the impacts or benefits of this berm until the PED phase after the environmental assessment is complete. DFR/EIS at 4-11. Thus, the DFR/EIS relies on the benefits of expanding the ODMDS with the Corps' desired berm without any assurances that the Corps' picture of the environmental costs and benefits are accurate or even probable. This skews the DFR/EIS's presentation of the environmental impact of the harbor deepening, and hinders the public's ability to understand and comment on the project

**RESPONSE:** The commenter states, the ODMDS berm will be built, "by building a wall out of larger stone that had been hardbottom habitat before it was dredged out of the channel." This is a misrepresentation of the information presented in the report. To clarify, just because there is a large volume of rock does not mean that it's all hardbottom habitat. The majority of the rock is buried below either existing rock or a surficial layer of sand or other material. The comment exaggerates the impact on hardbottom habitat. USACE and EPA are currently working to modify the ODMDS. The most up-to-date information on that process will be included in the Final FR/EIS. EPA will provide a letter to USACE indicating the status of the Section 102 (MPRSA) modification. This will be included in the Final FR/EIS.

### **33. National Association for the Advancement of Colored People, Letter 10/10/2014**

**SUMMARY:** As members of the Charleston Branch NAACP, we are supportive of economic development and infrastructure improvements that equitably benefit all of those in and beyond the Greater Charleston community, for the port system is tied to one out of every 11 jobs statewide. It is our expectation, and a critical element in our support, that meaningful, tangible and measurable strategies be employed at every point in the process to assure minority employment and opportunities for minority vendor and business participation that go beyond gender to ethnicity. It is equally critical that the project be done in an environmentally sensitive manner that does not damage the quality of life of any community.

**RESPONSE:** Thank you for your comments. We will to continue include the NAACP in the process as the project moves forward and work to ensure the project does not have negative impacts to the quality of life of any community.

### **34. US Fish and Wildlife Service CAR, Letter 10/14/2014**

**SUMMARY:** "The U.S. Fish and Wildlife Service (Service) is pleased to provide, for your review, the enclosed Final Fish and Wildlife Coordination Act Report (Report) for the Charleston Harbor Post 45 Deepening Project, Charleston, South Carolina. The Report includes 16 recommendations intended to balance the impacts resulting from the project with natural resource conservation."

**RESPONSE:** We enjoyed working with you on the report. Virtually all of the recommendations can be implemented.

#### **RECOMMENDATIONS FROM COORDINATION ACT REPORT:**

1. "USACE must make all practicable efforts to avoid collisions between dredging equipment (and support vessels) and West Indian manatee, particularly during construction activities occurring during summer months, and engage measures to minimize the risks of collisions. Measures may include the use of task-dedicated marine mammal observers/spotters on all vessels who alert vessel operators of the presence of the species. Any collision with and/or injury to a manatee shall be reported immediately to Jim Valade of the U.S. Fish and Wildlife Service, North Florida Field Office, at (904) 731-3116."

**RESPONSE:** Concur. This measure will be implemented.

2. "USACE must make all practicable efforts to avoid collisions, entrainment in dredging equipment, and other disturbances affecting loggerhead, green, leatherback, and Kemp's Ridley sea turtles. In the event that a turtle is injured or killed, USACE must contact the SCDNR stranding hotline in Charleston at 1-843-633-1639."

**RESPONSE:** Concur. This measure will be implemented.

3. "USACE must make all practicable efforts to avoid collisions, entrainment in dredging equipment, and other disturbances affecting the shortnose sturgeon and Atlantic sturgeon, and adopt measures to minimize the risk of such disturbances and any resulting casualties."

**RESPONSE:** Concur. This measure will be implemented.

4. "USACE must make all practicable efforts to avoid noise and other disturbances affecting wood stork, particularly during its nesting season (March through August), and adopt measures to minimize the risk of such disturbances."

**RESPONSE:** Concur. This measure will be implemented. Disturbance to wood storks will be minimal due to the nature of the dredging and its location/distance from foraging areas.

5. "USACE must make all practicable efforts to avoid effects to piping plover due to dredging and disposal activities (noise and other disturbances, as well as habitat alteration) within or near potential wintering areas, and adopt measures to minimize the risk of such effects."

**RESPONSE:** Concur. This measure will be implemented. Disturbance to piping plover will be minimal due to the nature of the dredging and its location/distance from wintering critical habitat.

6. "USACE must make all practicable efforts to avoid effects to the red knot, as it is proposed for listing under the ESA and may gain full federal protection prior to construction of the proposed project."

**RESPONSE:** Concur. This measure will be implemented. Disturbance to red knots will be minimal due to the nature of the dredging and its location/distance from wintering critical habitat.

7. USACE reconsider the option to construct contraction dikes, as these may result in barriers for sturgeon and manatee movement.

**RESPONSE:** USACE will make every effort to minimize unnecessary widening measures and turning basin size during the PED phase. Any reductions will likely decrease shoaling in the Wando and potentially minimize the need/benefit for contraction dikes.

"Furthermore, USFWS recommends the following for implementation throughout the project area:"

8. USACE should coordinate with local, state, and federal resource agencies to investigate opportunities for reusing non-contaminated, dredged material to restore coastal habitats such as Crab Bank, Castle Pinckney (Shutes Folly), and Morris Island.

**RESPONSE:** Concur. This is a commitment of the project as identified in the DRAFT IFR/EIS.

9. USACE should continue to use the Unified Mitigation Assessment Method (UMAM) in order to determine functional value of wetlands to be affected by brackish water intrusion and to calculate compensation for the anticipated functional loss of wetlands. Adaptive management techniques for use following construction should be in part based on the UMAM effort to ensure adequate compensation and long-term consistency in determining both impacts and mitigation success.

**RESPONSE:** Concur. USACE coordinated with the resource agencies between Draft EIS and Final EIS to ensure agreement/resolution on issues related to the use of UMAM. USACE appreciates USFWS participation in this effort. The monitoring plan will be modified to be more detailed in the Final EIS.

10. To minimize effects on migratory birds during nighttime dredging activities, all lighting for dredge equipment, barges, and support vessels must be directed downward toward the work area. No omni-directional or skyward pointed lights may be utilized.

**RESPONSE:** Concur; however, OSHA safety standards will be adhered to. Contractors will always differ to human safety.

11. USACE should reconsider the option to construct contraction dikes, as these may result in navigation safety issues, unpredictable sedimentation and erosion effects, and oyster and wetland impacts.

**RESPONSE:** See response to #7.

Pursuant to the Magnuson-Stevens Act, USFWS recommends the following:

12. USACE will seek consultation with NMFS Habitat Conservation Division if EFH is adversely affected in order to develop EFH avoidance and minimization measures. Where avoidance and minimization is not feasible, restoration for lost EFH or improvements to existing EFH should be considered and implemented.

**RESPONSE:** Concur. An EFH Assessment was prepared at the release of the DRAFT IFR/EIS. NMFS submitted conservation recommendations pursuant to the Magnuson-Stevens Act.

Pursuant to coordination with the state of South Carolina, USFWS recommends the following:

13. USACE must provide assurances that the deposition of sediments in spoil areas will not exceed the boundaries of the spoil areas either directly or via subsequent overflow/repose of material.

**RESPONSE:** Concur.

14. USACE must provide that it will use best available technology to confine any fine material to designated Confined Upland Disposal Facilities (CDFs) if upland disposal is determined to be necessary for the project.

**RESPONSE:** Concur. USACE will notify the resource agencies of any changes to the disposal operations from what is identified in the Final EIS.

15. USACE must never use any unconfined areas for spoil disposal (except for renourishment at such areas as Crab Bank, Castle Pinckney, or Morris Island (using dredged material comparable to the native sediments in grain-size, mineralogy, and organic carbon content. Only beach compatible sand should be used for Morris Island).

**RESPONSE:** Concur. USACE intends to explore opportunities for beneficial use of dredged material during PED phase. Exact matching of sand grain size is unlikely, but through natural sorting processes USACE anticipates multiple options. Resource agency cooperation will be vital.

16. USACE should limit dredging in sensitive areas (i.e. The Grillage) to the cooler months of the year to protect juvenile shrimp, crabs and finfish, as well as to avoid periods of peak recreational fishing activity near the inlet, the Grillage and other congregating areas.

**RESPONSE:** Concur. Please see DRAFT IFR/EIS environmental commitments. The dredging window at the Charleston harbor inlet will meet this condition.

### **35. Earthworks Planning and Design Consultants, Letter 10/24/2014**

#### **COMMENT SUMMARY:**

“Our concern with the Mitigation Plan at present is based upon the perceived lack of adherence by the USACE in following their own regulations pertaining to wetland mitigation. While we understand many of the questions surrounding the credit type and availability, we are able to see why the USACE would choose to consider other mitigation alternatives for the CHFNP. The USACE has made the purchase of credits from a bank in a given projects primary service area a priority consideration for compensatory mitigation. The current USACE, Charleston District Guidelines for Preparing a Compensatory Mitigation Plan (sect 2.3 Mitigation Rule) states that *“If a proposed project is located within the primary service area of an existing mitigation bank or in lieu fee program, the permit applicant will normally be required to purchase the necessary mitigation credits.”*

With no details provided in section 2.5 of the Mitigation Plan for a serious consideration of using a bank for mitigation (and lack of attempted coordination with our bank), we feel as though the USACE fails to acknowledge the amount of time and effort involved in the creation and operation of a mitigation bank. Private individuals and business risk a lot of time and money in the attempt to establish a mitigation bank. The USACE benefits from having operational mitigation banks, and as such they attempted to encourage development of new banks with the pay off of an approved bank being that the agency will heavily prefer impacts be mitigated through credit sales. By failing to thoroughly investigate the option to purchase credits for this project by the very agency that is supposed to enforce these regulations, the current and prospective mitigation bankers lose faith that the investment into a bank will be worth it if the USACE themselves fail to consider credit purchases.

Our opinion that a combination of this land acquisition in conjunction with a purchase of a percentage of the required credits from approved mitigation banks in the target area would serve to show that the USACE holds themselves accountable to follow the same regulatory guidelines it enforces upon the public. We believe that purchasing a percentage of credits for the project mitigation would also present an opportunity for the USACE to enhance the agency's public image and promote interest (and incentive) for potential investors to pursue the development of new mitigation banks throughout the state.

Our comments do not seek to prohibit the USACE from pursuing the mitigation efforts described in the TSP. Rather, we feel that the addition of a purchase of mitigation credits from Congaree Carton would enhance the Mitigation Plan by exhibiting a degree of adherence to regulations and by promoting conservation/preservation through analogous private ventures. We would like the opportunity to discuss the details of a potential credit purchase with USACE staff to enhance the proposed Mitigation Plan and TSP. “

**RESPONSE:** USACE has determined that for the Post 45 compensatory mitigation, the value of new USFS lands is greater than a conservation easement through a mitigation bank based upon the UMAM spreadsheets for the proposed project. Under the Mitigation Rule, where mitigation bank or in-lieu fee program credits within the watershed are either unavailable or would be

substantially exhausted, or where PRM involves an outstanding resource, the preference hierarchy may be overridden in favor of PRM. The degree of risk is also a factor to be considered in applying the preference hierarchy.

### **36. The Nature Conservancy, Letter 11/24/2014**

**SUMMARY:** "In reviewing the EIS for the Charleston Harbor Deepening Project, The Nature Conservancy recommends strengthening the wetlands mitigation proposal and notes numerous opportunities to develop data collection protocols and sharing, improve and streamline impact monitoring, and bolster the adaptive management approach. Further, we offer our expertise in both marine ecology and conservation land acquisition to assist in developing the following recommended improvements.

We disagree that the 0.5 ppt salinity isopleth is the correct threshold for wetland impact determination (page 5-28 of the main EIS; last paragraph). The 0.5 ppt boundary is in fact a good measure of the true freshwater habitat boundary. However, wetland plant diversity declines with salinization along a continuum, as opposed to a fixed salinity point."

**RESPONSE:** USACE recognizes the gradual movement of salinity up the river and the gradual changes to wetland vegetation when moving up a river system. In fact, this was the whole premise of working with the Interagency Coordination Team (ICT) to develop a method that isn't based on a fixed salinity point. Appendix L provides great detail on the methodology. Essentially, the relative change of the 0.5 ppt isopleth movement is used to obtain a river-foot of change. This number is multiplied by the number of acres of wetlands per river foot in order to average the effect over the river/wetland complex. This method takes into consideration model variability and the scientific understanding that there is no fixed salinity point at any given day, hour, minute, or second. It's constantly changing. Through ICT coordination, the team agreed to evaluate 0.5 ppt.

**COMMENT:** "As a general recommendation, The Nature Conservancy encourages the USACE to explore opportunities to apply consistent monitoring methodologies and approaches for multiple p01t manipulations currently underway in the Southeastern United States. TNC encourages the USACE to increase the duration and detail of pre- and post-construction monitoring of impacts to hardbottom habitat, sediment removal, and water quality (e.g., dissolved oxygen), and to specifically define elements of mitigation success."

**RESPONSE:** USACE will work to revise the MMAMP to include more detail in the Final FR/EIS.

**COMMENT:** "We recommend increasing opportunities for local expert opinion to be incorporated in future planning and design by soliciting both regulatory agency and non-agency scientist participation. The Nature Conservancy requests that our organization be considered for membership in the Preliminary Engineering Teams and adaptive management planning for this project."

**RESPONSE:** We will engage with TNC, and have done so during the review period. USACE has also solicited outside advice from non-regulatory scientists throughout the study process.

### **37. Charleston County public Works Department, Letter 10/10/2014**

**SUMMARY:** "The CCMCP is currently reimbursed by the controlling agencies for mosquito suppression activities on the existing dredged material disposal sites (also referred to as "Confined Disposal Facilities") pertaining to Charleston Harbor. Dredged material disposal sites can produce up to 80 million mosquitoes per acre per rainfall event. The mosquito species breeding on these sites can easily fly several miles and adversely affect quality of life and public health and disrupt commerce, military, tourism, and other significant activities in Charleston, Berkeley, and neighboring counties.

Without continued reimbursement for mosquito suppression activities on the existing and/or any newly created sites, an undue burden would be placed on the taxpaying citizens of the previously mentioned counties to provide mosquito control, if, in fact, funds could be acquired. Failure to fund mosquito control for these manmade sites will cause the aforementioned severe adverse impacts."

**RESPONSE:** USACE will continue to fund mosquito suppression consistent with its authorities and available O&M funding.

**38. Jesse Sullivan, Comment Card (DATE)**

**SUMMARY:** Concerns about deeper ships causing congestion on the Cooper River. Suggest Limiting larger ships when Panama Canal improvements are finished.

**RESPONSE:** Analysis indicates that deepening the harbor would allow fewer ships to transport the forecasted cargo volumes. This is expected to result in less congestion.

**39. Julie Husey, Comment Card (DATE)**

**SUMMARY:** Appreciated displays and information at the public meeting.

**RESPONSE:** Thank you for your comment

**40. US Department of the Interior, USFWS comments, Letter 12/9/2014**

**COMMENT:** "The Department agrees with the Corps determination that the dredging activity will not affect the seabeach amaranth (*Amaranthus pumilus*), American wood stork (*Mycteria americana*), piping plover (*Charadrius melodus*), or the red knot (*Calidris canutus rufa*) as no suitable habitat for these species will be directly impacted. We will officially list the red knot as "threatened" in December 2014. However, re-use of the dredged material to enhance either Shutes Folly or Crab Bank may affect habitat for the American wood stork, piping plover, and the red knot. If the Corps determines that enhancement of these areas with dredged material is preferred in the Planning and Engineering Design (PED) phase of the Post 45 project additional consultation with the Department will be required."

**RESPONSE:** Acknowledged.

**COMMENT:** "Based on our review of the project as described in the Draft IFR/EIS, the Department concurs with your determination that the proposed activity is not likely to adversely affect the West Indian manatee. Further, no designated critical habitat for occurs for the manatee within the project boundaries. Please note that due to obligations under the ESA potential impacts of this project must be reconsidered if: (1) new information reveals impacts of this identified action may affect any listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner, which was not considered in this assessment; or (3) a new species is listed or critical habitat is designated that may be affected by the identified action."

**RESPONSE:** Acknowledged.

**COMMENT:** "For informational purposes only, the Department includes an inventory of species that have been petitioned for listing under the ESA as well as Candidate Species. These species are collectively referred to as "At-Risk Species" (ARS). We have included a list of the ARS that may occur in Berkeley and Charleston Counties, South Carolina. Although there are no Federal protections afforded to ARS, please consider including them in future project development. Incorporating proactive measures to avoid or minimize harm to ARS may improve their status and assist with precluding the need to list these species. Additional information on ARS can be found at: <http://www.fws.gov/southeast/candidateconservation>."

**RESPONSE:** We will include ARS information where relevant and practicable at this stage.

**COMMENT:** "Upon review of the UMAM process and through a trial application of the procedures using habitats within the Cooper River, the Department does not object to the use of UMAM and finds that it should adequately foster a suitable compensation package."

**RESPONSE:** Noted.

**COMMENT:** In discussions with SCDNR and the NMFS, the Department is concerned whether the Corps has calculated the appropriate amount of credits for the project impacts over the life of the project. In Table 3 of Appendix L, the Corps calculated the Post 45 project will affect over 280 acres of wetlands due to salinity changes at the time of construction completion in the year 2022. This acreage was used to determine the amount of mitigation for the Post 45 project using the UMAM process. However, Table 2 in Appendix L shows a much higher amount of impacted wetlands (493 acres) when the 50-year life of the

permit is taken into account. This a significant difference in anticipated impacts resulting from the Post 45 project, as recognized by the Corps. As such, the current mitigation calculations may need to be revised to account for all potential wetland impacts. We believe it is prudent for the ICT to reconvene in order to discuss this issue.

**RESPONSE:** USACE convened an ICT meeting during the review period and addressed most of the issues noted above. The wetland impact assessment explains that, "Because most (as a proportion, relative to impacts from SLR) of the impacts (via changes in pore-water salinity and wetland vegetation) will occur nearer to construction than 50 years following it, these numbers were ultimately used to determine compensatory mitigation requirements." It's difficult to see the reasoning for evaluating impacts after 50 years of watershed changes and sea level rise when the impacts will occur (if at all) closer to the time of construction. The impacts are basically driven by the modeled prediction of the 0.5 ppt isopleth at a certain time (2022 or 2071, or any year in between). Depending on the river morphology in the area of the isopleths, the shift could be more or less. USACE will clarify in the final EIS that the 2071 results do not factor in an annualized analysis of impacts over 50 years, and rather are calculated as the impacts that would occur if the project were constructed when sea level is predicted to be higher 50 years in the future. It is more defensible and justifiable to estimate impacts that would occur closer to the time of construction. However, USACE recognizes in the Draft and Final IFR/EIS that there is no exact location for any isopleth, and that is why the "wetlands per river foot" method was used.

The District's resolution for the issue it to perform a sensitivity analysis on the impacts by factoring in all 3 rates of sea level rise and the impacts at the time of construction and then average those results. This was vetted to the agencies at a meeting on 28 January 2015 and was met with general agreement.

**COMMENT:** "Migratory Birds - The Corps has committed to evaluating impacts upon Shutes Folly and Crab Bank and we look forward to close coordination with the Corps and SCDNR during the Preconstruction, Engineering, and Design (PED) phase of the Post 45 project."

**RESPONSE:** The USACE intends to pursue this beneficial use of dredged material for its ecological benefits. USACE will provide clarification in the Final EIS that USACE is committed to evaluating the assumptions that there will be no additional impact to shorelines in Charleston Harbor.

**COMMENT:** "Dredging and Spoil Activates – The Department is concerned that dredging activities may adversely affect sensitive aquatic resources and activities. The Corps does not provide a clear time frame for the Post 45 project's actual dredge and spoil activities but does indicate a 95- month period is needed for the construction to be completed (Table 4-5). Normally, we would recommend that all dredging activities be conducted during the winter months. However, due to the nature, magnitude, and importance of the Post 45 project, the Department finds that limiting the dredging window may not be practical. Absent a standard dredging window, the Corps should consider limiting the time of year that dredging takes place in sensitive areas (i.e. The Grillage) to the cooler months of the year when possible. In addition, we recommend limiting the use of hopper dredges to winter months to avoid or minimize impacts to the manatee and sea turtle. The PED should develop a specific dredging plan including time frames and methods and the Department requests the opportunity to provide input, along with SCDNR and NMFS."

**RESPONSE:** The 22 April 2015 BO issued to USACE by NMFS includes hopper dredging windows. USACE looks forward to continuing to work with USFWS, SCDNR, NMFS and other agencies and stakeholders during the PED phase to consider all practical and prudent measures to protect natural resources in the development of a dredging plan, consistent with its authorities.

**COMMENT:** "To minimize effects on migratory birds during nighttime dredging activities, the Department recommends that all lighting for dredge equipment, barges, and support vessels will be directed downward toward the work area. No omnidirectional or skyward pointed lights should be utilized."

**RESPONSE:** The USACE will work with the USFWS to attempt to incorporate their recommendations into the project contract documents to the extent that they are practical to implement and will comply with all mandatory requirements.

#### 41. US Department of the Interior, National Park Service

**COMMENT:** “We are concerned that due to the low-lying elevation of Fort Sumter, the potential for adverse impacts to the Fort is greater than estimated in the DRAFT IFR/EIS. The potential for additional impacts from USACE planned Charleston Harbor deepening may place Fort Sumter at increased risk of inundation and threaten the integrity of the Fort walls. Deeper water depths adjacent to the shores of Fort Sumter and Fort Moultrie may allow greater erosion from wind driven waves and currents.”

**RESPONSE:** Ft Sumter is 3000 feet from the federal channel and depths decrease as one approaches Ft. Sumter. Ft Moultrie is approximately 1300 ft from the edge of the federal channel. Adjacent areas outside the federal channel by Ft. Moultrie is naturally deep – often deeper than the proposed channel. The depths within this reach are often deeper than the authorized channel depth and as such deepening will range from 2.5 to 6 feet during construction. The area of the channel represents only 12 percent of the width of the harbor in this area. Analysis documented in Appendix A, demonstrates that the impacts due to deepening the federal channel do not increase risk of vessel wake, and actually decreases due to the ability to use the full range of tides to pass. Fetch is not changing due to the federal project, thus wind generated waves are not altered by the federal project.

**COMMENT:** “The visitor experiences at National Parks are directly linked to the sensory experience, in this case at a nationally significant historic site. The undetermined impact of large vessels hindering the view from Fort Moultrie (and impacting the view to and from Fort Sumter) are not addressed in the DRAFT IFR/EIS. The Department recommends additional analysis or monitoring to provide data to adequately assess the visual effects to the visitor experience at both locations.”

**RESPONSE:** USACE has agreed to enter into a Programmatic Agreement (PA) with the SC Department of Archives and History and the National Park Service to perform monitoring to address uncertainties with the analysis. In conjunction with this PA, USACE will agree to perform analyses to validate the assumptions of the project and ascertain whether the project impacts significant resources or not.

**COMMENT:** “The Department transports staff and visitors by ferry to Fort Sumter. The presence of larger and increased vessels could impact the timing and routes of Fort Sumter boats. The impact to ferry operators is also not addressed in the DRAFT IFR/EIS and should be analyzed in the Final Environmental Impact Statement (FEIS).”

**RESPONSE:** Concur that increased port traffic calling on Charleston Harbor may impact the ferry operations to Fort Sumter. However, with the growth in commodities transported through the harbor in the future, the number of vessels calling on the harbor will increase with or without the channel modifications. The analysis demonstrates that a reduced number of additional vessels will be needed to meet the demand of the harbor with the channel modification.

**COMMENT:** “Section 6-6 of the main document does not explain how obligations of Section 106 of the National Historic Preservation Act (NHPA) will be met by the USACE. Is this EIS combining NEPA compliance with Section 106 of the NHPA? If so, correspondence and explicit citation should be included in the FEIS.”

**RESPONSE:** Section 106 compliance is being conducted concurrently with NEPA compliance. Separate documentation has been exchanged. Documentation of 106 compliance will be provided in the Final IFR/EIS.

**COMMENT:** “It should be noted that the Charleston Historic District, the USS Clamagore, and the USS Yorktown are National Historic Landmarks, which means that Section 110(f) of the NHPA applies as well as 36 CFR 800.10. Please correct this in the FEIS.”

**RESPONSE:** Text will be added/edited as requested.

**COMMENT:** “Table 3-5, Page 3-41 of the DRAFT IFR/EIS concludes that there will be no effect of the dredging and associated change in boat traffic on the integrity of Fort Sumter. This conclusion is based on the reference: McCartney, A., Scully, B. 2014. Use of AIS and AISAP for Analysis of Vessel-Wakes in Charleston Harbor: A Case Study. Unpublished. USACE Coastal and Hydraulic Laboratory. ERDC/CHL TR. The McCartney and Scully (2014) reference is not available for public or agency review. Please provide a copy of the reference for review and clarify in the FEIS if this reference incorporated sea level rise in the study.

**RESPONSE:** The majority of the report was incorporated into the Engineering appendix. The science is sound and understandable. This is an ERDC document and as such is not reviewed by public or agencies. It will be available for public use

as soon as it is published by ERDC. As documented in Appendix A and in the text of the Draft and Final IFR/EIS, sea level rise was incorporated into the overall plan development.

**COMMENT:** “The source for the vessel predictions presented in Figure 2.5.13 in Appendix A is not presented and needs to be included in the FEIS. Table 2.5.2.5 of Appendix A – The Department recommends including wave effects to shoreline at low tide and high tide in the FEIS.”

**RESPONSE:** The vessel forecasts are based on the vessel forecast described in the economics appendix.

The USACE believes that the wave effects analysis presented in the draft is based on the best available information and accurately predicts the most likely outcome based on that information. However, the USACE acknowledges that the actual results of complex wave interactions depend on numerous factors that cannot be precisely forecasted. Based on the uncertainties inherent in the forecasts and the significance of the natural and historical resources within Charleston Harbor, the USACE agrees to perform monitoring before, during and for five years after construction to validate the assumptions and information used in the wave effects analysis and attempt to confirm the associated results.

**COMMENT:** “As mitigation for potential impacts from this project, the Department requests that hard rock dredged from the mouth of the Harbor at Charleston Jetties be relocated to Fort Sumter to form a new breakwater as was initially recommended in the 1999 USACE report.”

**RESPONSE:** No project-related adverse impacts are anticipated and no hard rock would be dredged. However, limestone will be dredged from portions of the entrance channel. The 1999 report recommended a breakwater at Fort Sumter constructed with large granite armor stone having a high density and compressive strength. The use of dredged limestone material to construct that breakwater or supplement armor stone as a simple replacement for the granite is not advisable. However, the USACE will consider the beneficial use of dredged material at Fort Sumter during the PED phase.

**COMMENT:** “Due to concerns over exacerbating impacts to the Fort, the Department requests monitoring of wave impacts on Fort Sumter walls and substrate foundation.”

**RESPONSE:** The study is intended to address a without versus a with-deepening project condition. The analysis supports the conclusion that wind generated waves present a larger contribution to existing and future problems than vessel generated waves. Additionally, with a project, larger vessels would have the ability to transit at lower tides thereby reducing the impacts that presently exist or may exist for a without project condition. However, based on the uncertainties inherent in the forecasts and the significance of the natural and historical resources within Charleston Harbor, under a Programmatic Agreement, the USACE agrees to perform monitoring before, during and for five years after construction to validate the assumptions and information used in the wave effects analysis and attempt to confirm the associated results.

**COMMENT:** “The park currently has a sophisticated three dimensional survey monitoring system in place that associates 67 points in the masonry structure with a deep benchmark reference point. The Department requests USACE to assist semi-annual repetitions of the survey to ascertain any instability in the structure possibly caused by the dredging project.”

**RESPONSE:** The stability of the structure is already in being monitored due to existing concerns that are not related to the proposed project. Under the Programmatic Agreement, USACE will work with our partners at SCDAH and the NPS to develop a monitoring program that will determine what, if any, impacts could be attributable to the proposed project.

**COMMENT:** “Changing hydrology due to dredging can potentially affect how storm surge impacts Fort Sumter. We are concerned that waves caused by large ships in conjunction with storm surge may increase damage to Fort Sumter.”

**RESPONSE:** Storm surge modeling will be done consistent with FEMA modeling to insure compliance with EO 11988. It is unlikely that large container ships would be entering the harbor during storms or that the vessel wakes would be comparable to those of a large storm.

**COMMENT:** “The Department recommends including storm surge modeling that incorporates effects of climate change and dredging on Fort Sumter.”

**RESPONSE:** Storm surge modeling will be done in compliance with FEMA modeling to insure compliance with EO 11988. This modeling does not include the affects of climate change in order to be in compliance with EO 11988.

**COMMENT:** “NPS is performing a long-term study in partnership with the University of Colorado to create a series of maps to depict how 117 of our coastal parks will be impacted by storm surge and sea level. The Department requests that this information be considered in the FEIS.”

**RESPONSE:** If there is any impact to water surface elevations under the FEMA compliance evaluation and the University of Colorado study is complete, we may consider it during the PED phase analysis.

**COMMENT:** “No consideration was otherwise given to impacts to wetlands from changes in boat traffic wakes, possibly exposed shallow marsh soils, erosion, loss of soils due to possibly extended oxidation periods from exposure that can increase decomposition of organics, or impacts to the fauna living in the shallow salt marsh habitat near the Fort. “

**RESPONSE:** The analysis concluded that the project would reduce these impacts as compared to the no-action alternative. Under a Programmatic Agreement, USACE has agreed to perform monitoring before, during and for five years after construction to validate the assumptions and information used in the wave effects analysis and attempt to confirm the associated results.

**COMMENT:** “The Department recommends the use of dredged material beneficially to protect the Fort, elevate the surrounding marsh which can offset impacts of sea level rise, extend the life of the marshes or the shallow tidal bottoms.”

**RESPONSE:** USACE will assess beneficial uses of dredge material during the PED phase, so long as they are in compliance with state and federal requirements for placement.

#### **42. South Carolina Archives and History Center, Letter 12/3/2014**

**COMMENT:** “A map of the APE (both direct and indirect effects) with identified historic properties would be helpful to accompany the description of the APE on Pages 2-11 and 5-57.”

**RESPONSE:** USACE will add a map of the APE with historic properties identified.

**COMMENT:** “In addition to the ten properties on page 2-117 are any other historic properties on Sullivan’s island in the APE for indirect effects, including: Atlanticville Historic District, fort Moultrie Quartermaster and Support Facilities Historic District, Moultrieville historic District, Sullivan’s Island Historic District, U.S. Coast Guard Historic District, Battery Jasper and Battery Logan (associated with the National Monument), Dr. John B. Patrick House, 1820 Middle Street, Battery Thomson, and Battery” Gadsden

**RESPONSE:** Additional properties were included in the Final IFR/EIS based on this comment.

**COMMENT:** “On page 2-119, in the discussion of the development of the Charleston Navy yard, note that three historic districts are listed in the National register of Historic Places that encompass portions of the former Navy yard: Charleston navy and Historic District, Charleston Navy yard Officers’ Quarters Historic District, and Charleston naval Hospital Historic District. Are these in the APE for indirect effects?”

**RESPONSE:** An improved map that more clearly identifies the direct and indirect APEs will be included in the FEIS.

**COMMENT:** “Please note that the USCGS Ingham (WHEC-35) was recently moved from Patriots Point and is now located in Key West, Florida (page 2-117).”

**RESPONSE:** Noted. Appropriate edits will be made to the Final EIS.

**COMMENT:** “In the last paragraph on the page 5-57, please clarify that no cultural resources are located within the APE of direct effects. Previous discussions have already established cultural resources are present in the overall APE, for example, page 2-117.”

**RESPONSE:** Appropriate edits will be made to the Final IFR/EIS.

**COMMENT:** “Given the national significance of Fort Sumter and Fort Moultrie, a system of ongoing monitoring is needed, and plan for mitigation should be developed in case monitoring finds accelerated erosion. This monitoring program and plan should

be developed in close consultation with the NPS. Therefore we request additional consultations occur with the NPS to address concerns about erosion related to wave action and increased vessel traffic at Fort Sumter and Fort Moultrie.”

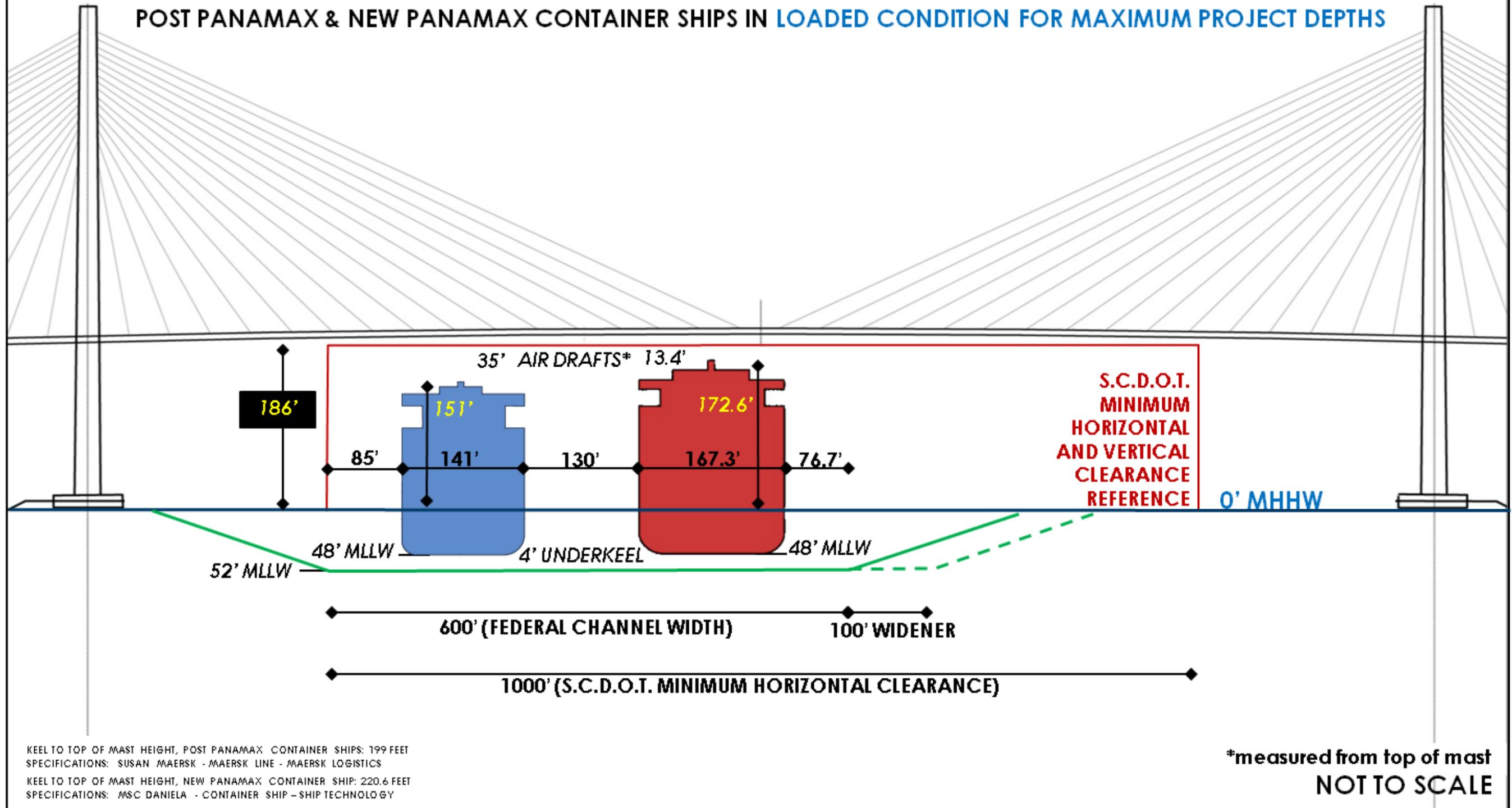
**RESPONSE:** Additional consultation with SCDAH and the NPS occurred. Under a Programmatic Agreement, USACE has agreed to perform monitoring before, during and for five years after construction to validate the assumptions and information used in the wave effects analysis and attempt to confirm the associated results. If adverse impacts from the project are identified, corrective action would be performed.

**COMMENT:** “Pages 4-11 to 47-15 describe the potential to place dredged material for beneficial uses, including placement around Castle Pinckney and/or Morris Island. The USACE has an existing shoreline protection project at the Shutes Folly and Castle Pinckney site, designed and constructed primarily to protect Castle Pinckney. We support the concept to provide protection to Castle Pinckney, and look forward to ongoing consultation as the size and scope of the process are developed. The DRAFT IFR/EIS also notes that the option to place dredged material offshore near Morris Island would be determined during the PED phase of the project.”

**RESPONSE:** Beneficial use of dredged material options will be explored in more detail during PED. We will fully coordinate these options with your office.

# RAVENEL FIXED BRIDGE CLEARANCES WITH PROJECT

POST PANAMAX & NEW PANAMAX CONTAINER SHIPS IN LOADED CONDITION FOR MAXIMUM PROJECT DEPTHS



KEEL TO TOP OF MAST HEIGHT, POST PANAMAX CONTAINER SHIPS: 199 FEET  
 SPECIFICATIONS: SUSAN MAERSK - MAERSK LINE - MAERSK LOGISTICS  
 KEEL TO TOP OF MAST HEIGHT, NEW PANAMAX CONTAINER SHIP: 220.6 FEET  
 SPECIFICATIONS: MSC DANIELA - CONTAINER SHIP - SHIP TECHNOLOGY



Catherine B. Templeton, Director

*Promoting and protecting the health of the public and the environment*

December 08, 2014

**VIA ELECTRONIC MAIL**

Lt. Col. John T. Litz  
District Commander  
U.S. Army Corps of Engineers, Charleston District  
69A Hagood Avenue  
Charleston, SC 29403

Re: Charleston Harbor Post-45 Federal Navigation Project Draft Integrated Feasibility Report and Environmental Impact Statement

Dear Lt. Col. Litz,

The South Carolina Department of Health and Environmental Control Division of Ocean and Coastal Resource Management (the Department) has reviewed the Draft Integrated Feasibility Report and Environmental Impact Statement (DIFR/EIS) placed on public notice by the U.S. Army Corps of Engineers (Corps) on October 10, 2014 in accordance with its responsibilities under 15 C.F.R. § 930 Subpart C and the enforceable policies of the South Carolina Coastal Management Program (SCCMP).

The stated purpose of the Post-45 project is to implement navigation improvements to increase efficiency and accommodate deeper drafting container ships. The study evaluates six alternatives that considered deepening to various depths of the upper harbor and the lower harbor. Of the six alternatives, two were identified as the National Economic Development plan (NED), the 50/48 alternative and the Tentatively Selected Plan (TSP), 52/48 alternative.

The TSP, also identified as the Locally Preferred Plan, consists of deepening the existing entrance channel from a project depth of -47 to -54 feet, extending the entrance channel approximately three miles seaward from the existing location, deepening the inner harbor from the existing project depth of -45 to -52 feet, enlarging both the existing turning basins to 1800 feet diameter at the Wando Welch Facility and at the new State Ports Authority terminal to accommodate Post Panamax Generation 2 and 3 container ships, enlarging the North Charleston terminal turning basin to 1650 feet diameter to accommodate the Post Panamax Generation 2 container ships, and placing dredged material and raising dikes at the existing upland Confined Disposal Facilities (CDF) and expanding and placing dredged material in the existing Ocean Dredged Material Disposal Site (ODMDS).

Based on the Department's review of the enforceable policies of the SCCMP, information provided, the overriding public interest, regional benefit and national interest of the project, the Department **concurs** that the proposed deepening under the TSP alternative will be conducted in a manner that is consistent to the maximum extent practicable with the enforceable policies of the SCCMP provided the Corps adheres to the following conditions:

1. The Corps shall comply with all terms and conditions of the National Marine Fisheries Service's Final Biological Opinion.
  - **Referenced SCCMP policy:** Chapter III, Section C.II. Guidelines for Evaluation of all Projects:
    - (6) The extent to which the development could affect the habitats for rare and endangered species of wildlife or irreplaceable historic and archaeological sites of South Carolina's coastal zone.
  - **Referenced SCCMP policy:** Chapter IV, Section A. Geographical Areas of Particular Concern:
    - (8) Threatened or Endangered Species Habitats. Priority of Uses:
      - (1) Uses which are compatible with all regulations and management programs developed to protect any designated habitat area under the Federal or State Endangered Species Acts;
      - (2) Uses which maintain the natural functions of areas identified or designated as critical habitat areas of species listed on the State or Federal threatened or endangered species lists;
      - (3) Non-structural, non-intensive uses which do not create irretrievable damage to any species listed as a threatened species.
2. The Corps shall implement best management practices to include, but not limited to, efforts to reduce the potential of organism(s) entrainment; (i.e. not turning on suction until draghead is at or near the sea/river bottom).
  - **Referenced SCCMP policy:** Chapter III, Section C.II. Guidelines for Evaluation of all Projects:
    - (3) The extent to which the applicant's completed project would affect the production of fish, shrimp, oysters, crabs or clams or any marine life or wildlife or other natural resources in a particular area including but not limited to water and oxygen supply.
3. The Corps shall comply with all terms and conditions of the Department's final 401 Water Quality Certification, including but not limited to the final mitigation plan.
  - **Referenced SCCMP policy:** Chapter III, Section C.I. Guidelines for Evaluation of all Projects:
    - (3) The extent to which the project will protect, maintain, or improve water quality, particularly in coastal aquatic areas of special resource value, for example, spawning areas or productive oyster beds.
    - (9) the extent and significance of impact on the following aspects of quality or quantity of these valuable coastal resources:
      - (i) unique natural areas – destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resources segment of the SCCMP), degradation of existing water quality standards.

4. The Corps shall receive final approval for the expansion of the ODMDS from EPA to allow for adequate disposal of dredged material prior to construction.
  - **Referenced SCCMP policy:** Chapter III, Section VIII.B. Dredged Material Disposal:
    - (1)(a) To the maximum extent feasible, dredged material must not be placed on high value natural habitats such as salt, brackish or freshwater wetlands; submerged vegetation; oyster reefs or tidal guts. Where upland disposal is not possible, areas of relatively low productivity should be utilized, or ocean disposal should be employed.
  
5. The final plans for beneficial uses of the dredged spoil material shall be provided to the Department for final approval.
  - **Referenced SCCMP policy:** Chapter III, Policy Section C.VIII.B. Dredged Material Disposal:
    - (1)(a) To the maximum extent feasible, dredged material must not be placed on high value natural habitats such as salt, brackish or freshwater wetlands; submerged vegetation; oyster reefs or tidal guts. Where upland disposal is not possible, areas of relatively low productivity should be utilized, or ocean disposal should be employed.
  
6. The Corps shall continue to work with the Department to provide adequate mitigation for the project. The final, detailed mitigation plan should include, but not be limited to, the following:
  - a) Detailed site description, including location and acreage breakdown of habitat types (i.e. forested wetlands, emergent wetlands, scrub/shrub wetlands, uplands, etc).
  - b) Site protection measures (Restrictive Covenants, Conservation Easement, or other similar legal document) to protect the property in perpetuity.
  - c) Long-term management plan to be implemented by the steward of the property. The management plan should include details for public access, management for invasive species, management of upland buffers, utilization of Best Management Practices for any work needed, agreements for land/ water use and hunting rights on the property.
  - d) Updated Uniform Mitigation Assessment Method (UMAM) calculation worksheets for the mitigation property, which accurately reflect those existing habitats and their potential improvement. These worksheets should include a detailed explanation for the scoring, and wetland systems should be scored individually based on their own ecological functions and values.
  - **Referenced SCCMP policy:** Chapter III, Section C.XII. Activities in Areas of Special Resource Significance. E. Wetlands (Outside the Critical Areas):
    - 1) Project proposals which would require fill or other significant permanent alteration of a productive freshwater marsh will not be approved unless no feasible alternative exists or an overriding public interest can be demonstrated, and any substantial environmental impact can be minimized.

- **Referenced SCCMP policy:** Chapter III, Section C.XIV. Mitigation Guidelines. B. Types and Requirements of Mitigation:
    - 1) Protection and enhancement of wetland systems (buffering).
      - c) Assurances of protection. Assurances for the protection of preserved wetlands, created wetlands, and buffers will be provided by the applicant as part of the application/certification process. This may take the form of deed restrictions, conservation easements, or other assurances of protection.
      - d) Drawings. A site plan must be submitted showing all wetlands and their associated buffers. Open water buffers must include a cross section of the system with the seasonal high groundwater elevation and supporting documentation. Buffer areas and their protected wetlands must be platted and recorded, along with a description of the restrictions.
7. An archaeologist should be present on the dredge and should monitor the dredging operation in the vicinity of magnetic anomaly LH1-001. In the event that an inadvertent discovery is made, all work should cease in the immediate area and should not continue until examination and consultation with the South Carolina Institute of Archaeology and Anthropology and the State Historic Preservation Office is complete. Archaeological remains consist of any materials made or altered by man, which remain from past historic or prehistoric times (i.e., older than 50 years). Examples include old pottery fragments, metal, wood, arrowheads, stone implements or tools, human burials, historic docks, structures, or non-recent vessel remains. Paleontological remains consist of old animal remains, original or fossilized, such as teeth, tusks, bone, or entire skeletons. In the event that archaeological or paleontological remains are found during the course of work, the Corps should notify the South Carolina Institute of Archaeology and Anthropology (Mr. James Spirek at 803-777-8170) pursuant to South Carolina Underwater Antiquities Act of 1991, (Article 5 Chapter 7, Title 54, Code of Laws of South Carolina, 1976).
- **Referenced SCCMP policy:** Chapter III, Section C.I. Guidelines for Evaluation of all Projects:
    - (8) The extent and significance of negative impacts on Geographic Areas of Particular Concern (GAPCs). The determination of negative impacts will be made by the [Department] in each case with reference to the priorities of use for the particular GAPC. Applications which would significantly impact a GAPC will not be approved or certified unless there are no feasible alternatives or an overriding public interest can be demonstrated, and any substantial environmental impact is minimized.

The conditions listed above are to ensure the project is conducted in a manner which will not have a significant impact on South Carolina's coastal resources and uses. Pursuant to 15 C.F.R. § 930.4, please be advised that if the Corps does not incorporate the conditions above into the project, this conditional concurrence letter will serve as the Department's objection.

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Lt. Col. John T. Litz  
December 8, 2014

Thank you for your attention to this matter, and the Department looks forward to continued coordination of the above coastal zone consistency conditions. You may reach Blair N. Williams at 843-953-0232 or [williabn@dhec.sc.gov](mailto:williabn@dhec.sc.gov) with any questions.

Sincerely,



Sara P. Bazemore  
Deputy Director, DHEC OCRM

cc: Jeff Payne, Acting Director, NOAA Office for Coastal Management  
Rheta DiNovo, Regulatory Program Division Director, DHEC OCRM  
Heather Preston, Water Quality Division Director, DHEC BOW  
Elizabeth Dieck, Director of Environmental Affairs, DHEC

STAFF ASSESSMENT  
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (SCDHEC)  
DIVISION OF WATER QUALITY  
WATER QUALITY CERTIFICATION AND WETLANDS SECTION

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**I. Background Information**

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**Applicant:** US Army Corps of Engineers, Charleston District (Corps) P/N Number: 2014-Post 45

**P/N Date:** October 9, 2014 **Date Received:** October 9, 2014 **P/N Close:** November 24, 2014

**Section of Applicable Federal Law:** (x) Section 10 (x) Section 404 (x) Section 401

**Section of Applicable State Law:** ( ) Coastal Zone Consistency (x) Construction in Navigable Waters Permit

**Brief explanation and purpose of activity:** The proposed activity consists of deepening and widening the federal navigation channel in Charleston Harbor. The purpose of the activity is to increase the efficiency of navigation within the Charleston Harbor.

**Waterbody Name:** Ashley, Cooper and Wando River

**Water Classification:** SA and SB

**Waterbody Location:** Charleston County, South Carolina

**Waterbody on 2012 303(d) List?**

(x) Yes, the lower Charleston Harbor is impaired for aquatic life and recreational uses, due to copper, dissolved oxygen and fecal coliform bacteria. A Total Maximum Daily Load (TMDL) for dissolved oxygen was developed in 2013 for the Charleston Harbor. However, the applicant has provided reasonable assurance that this project will not cause or contribute to further impairment of the waterbody.

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**II. Project Description**

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**A. Description**

The proposed work consists of dredging the federal channel in Charleston Harbor. The proposed project consists of the following navigation improvements; deepening of the existing entrance channel from a project depth of -47-feet to -54-feet over the existing 800' bottom width, while reducing existing stepped 1,000' width to 944' from an existing depth of -42-feet to a depth of -49-feet. In addition, the applicant plans to extend the entrance channel approximately three miles seaward from the existing location to a depth contour including a -54-foot project depth plus overdepths. There are also plans to deepen the inner harbor from an existing project depth of -45 feet to -52 feet to the Wando Welch container facility on the Wando River and the new SCSPA container facility on the Cooper River, and -48-feet for the reaches above that facility to the Northern Charleston container facility (over expanded bottom widths from 400-1,800 feet). There are plans to enlarge the existing turning basins to an 1800-foot diameter at the Wando Welch and new SCSPA terminals to accommodate Post Panamax Generation 2 and 3 container ships. Along those same lines there is a proposal to enlarge the North Charleston Terminal turning basin to 1650-foot diameter for Post Panamax Generation 2 container ships. The project also includes 50 years of maintenance dredging. Maintenance dredging would utilize the same placement areas as those utilized for existing conditions, and the duration and frequency of dredging events would be within the range occurring under current conditions.

The project is hereafter referred to as the Post 45 Project or Project.

**B. Fill**

1. Is fill required? ( ) Yes (x) No

If no, proceed to Section II. C.

Amount	cubic yards	acres
Total	-	-
Wetlands	-	-
Open Waters of U. S.	-	-

2. Is the fill temporary? ( ) Yes ( ) No

**C. Excavation**

1. Is excavation required? (x) Yes ( ) No

If no, proceed to Section II. D.

Amount	cubic yards	acres
Total	40.4 million	-
Wetlands	-	-
Open Waters of U. S.	40.4 million	-

2. Is dredge spoil site adequately sized for the amount of material?  
(x) Yes, the Corps plans to raise dikes at the existing dredge material containment areas and also utilize and expand the Ocean Dredged Material Disposal Site (ODMDS).  
( ) No

**D. Other Impacts: (x) Yes ( ) No**

The Post 45 Project will result in indirect wetland impacts primarily resulting from salinity changes within the various wetland types adjacent to the project area. The Project is anticipated to potentially impact 323 acres of wetlands along the Ashley and Cooper Rivers combined. These impacts would be to both palustrine forested wetlands and tidal freshwater marshes. The impacts are indirect and would not be immediate because the potential salt stress would slowly change the community structure from more freshwater dominant vegetation to more salt tolerant vegetation. All wetland functions would remain, but community structure would be slightly altered.

The Project will not have an adverse effect on water quality in the Charleston Harbor. Many of the waters in the Charleston Harbor area are known to experience naturally low dissolved oxygen (DO) levels. A DO Total Maximum Daily Load (TMDL) was developed for the Charleston Harbor most recently in 2013. The 2013 DO TMDL revised and combined the existing 2002 Cooper River-Wando River-Charleston Harbor TMDL and the 2003 Ashley River TMDL. The revised TMDL is for Charleston Harbor, Cooper, Ashley and Wando Rivers. The basis for this revision is a new 3-Dimensional Environmental Fluid Dynamics Code (EFDC model) covering the entire system completed in 2008.

The Corps performed an evaluation of DO throughout the Project area to ensure compliance with the TMDL. According to the Draft EIS, EFDC modeling results indicated that the Project would not have significant effect on the TMDL waste load allocation. The TMDL is conservative because it is calculated based on the assumption that all the discharges are constantly and simultaneously discharging at the maximum permitted load.

After modeling the DO impacts resulting from the time varying discharges, the impacts were combined with the impacts resulting from the Post 45 project in order to estimate cumulative effects on DO. Post 45 impacts were based on the 52-48 Alternative, which represents the maximum deepening and widening alternative under consideration in the Draft EIS. The results indicated that the cumulative DO impacts resulting from both point source pollution discharges into the estuary and the Post 45 Project navigation channel expansion will not cause cumulative DO impacts greater than the 0.1 mg/L allowed by Regulation 61-68, *Water Classifications and*

*Standards.* The greatest cumulative impact is estimated to be 0.14mg/L; this is less than the 0.1499 mg/L allowed in practice.

Some impacts to fisheries will also occur from the Project. Direct impacts due to construction are anticipated to be minimal. Motile species can avoid the dredge equipment. However, there will be some entrainment of slow-moving benthic individuals as well as larvae and eggs (for both fishes and shellfishes) suspended in the water column. When practicable, seasonal “windows” for dredging will be observed by Corps contractors in order to ensure the availability of critical spawning and foraging locations and periods.

**E. Project Modification**

**Was the project modified from the original public notice?**

The proposed work was not modified; however, at the request of the resource agencies, the overall wetland impacts were re-evaluated using an average of four different sea level rise and project scenarios. This new method results in a more defensible approach because it accounts for model uncertainty and interannual natural river fluctuations. The method results in an increase in impacts from 281 acres to 323.72 acres.

**F. Compensatory Mitigation**

**Is compensation required by SCDHEC?**

(x) Yes, The Corps utilized the Uniform Mitigation Assessment Method (UMAM) to determine the amount of mitigation required to offset the project impacts. The UMAM was developed in response to a State of Florida mandate [subsection 373.414(18) F.S.] which required the establishment of a uniform mitigation assessment method to determine the amount of mitigation needed to offset adverse impacts to wetlands and other surface waters. The UMAM provides a standardized procedure for assessing the ecological functions provided by wetlands/surface waters, the amount that those functions are reduced by a proposed impact, and the amount of mitigation necessary to offset that loss. This standardized methodology also is used to determine the degree of improvement in ecological value of proposed mitigation bank activities. The UMAM was recently used by the Jacksonville District for calculating wetland mitigation needs resulting from similar wetland impacts for Jacksonville Harbor. This method was selected by the Corps and agreed to by the Interagency Coordination Team (ICT) for the Post 45 project.

The original amount of proposed mitigation required, according to the UMAM calculations, was 484.55 acres. The resource agencies and the Department expressed concerns with the amount of acreage calculated. This resulted in a joint meeting and a site visit with the Corps, SCDHEC and the resource agencies. The purpose of the meeting and site visit was for each Agency to evaluate the reference sites on the mitigation parcel using UMAM and submit the results to the Corps. Based on input from the site visit, the Corps adjusted the UMAM scores resulting in an increase in the required mitigation from 484.55 acres to 665 acres. According to the Corps’ wetland survey of the mitigation site submitted to the Department on February 12, 2015, there are 725 acres of wetlands on the proposed mitigation site that will be preserved. The proposed project would indirectly impact approximately 323 acres of wetlands due to changes in salinity and approximately 29 acres of hard bottom habitat in the footprint of the entrance channel.

While the Corps avoided some impacts to hard bottom, a beneficial use plan for placement of rock involves constructing 8 new, 33-acre reef sites to mitigate for hard bottom areas not previously dredged and within the navigation channel as a result of deepening and or extending the entrance channel beyond its current depth. Four of the new reefs would be along the north side of the entrance channel and four would be located along the south side of the entrance channel. At the request of the South Carolina Department of Natural Resources Artificial Reef Program, the Corps agreed to place approximately 240,000 CY of rock material at the 25 acre Charleston Nearshore Reef site.

**G. Remediation**

**Is remediation required?                    ( ) Yes (x) No                    ( ) N/A**

**H. Nonpoint Source Concerns**

1. Are water quality impacts from nonpoint sources expected?

Yes

**Temporary**, water quality impacts from non-point sources will be minimized and should not contravene the water quality standards or existing and classified uses of the involved waterbody, if the applicant adheres to the conditions in Section VIII of this staff assessment during and after the project.

No

2. Has the applicant addressed nonpoint source concerns?  Yes  No  N/A

3. Are any enforceable nonpoint controls required by SCDHEC?

**Yes**, water quality impacts from nonpoint sources will be minimized and should not contravene the water quality standards or existing and classified uses of the involved waterbody, if the applicant adheres to the conditions in Section VIII of this staff assessment during and after the project.

No

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**III. Environmental Assessment**

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A. Is the proposed activity water dependent?  Yes  No

B. Are there feasible alternatives to the proposed activity?

**No**, According to the applicant, the marine vessel fleet is continuing to trend to larger, deeper-draft vessels, particularly for containerships. The Federal channels serving Charleston Harbor's major terminals are currently authorized to a depth of 45 feet mean lower low water (MLLW). When the existing channel was authorized in 1996, it was designed to serve Panamax and similar size container vessels limited to a draft of 42 feet. Those vessels accounted for about 80 percent of the containership capacity in the world fleet at that time. Since then, larger Post Panamax and PPX3 classes of vessels have accounted for increasing percentages of new-build vessels and the world fleet. The containership fleet currently calling on the Port of Charleston consists mostly of Panamax, Post-Panamax Generation 1, and Post-Panamax Generation 2 vessels (containership classifications are based on a combination of vessels attributes including beam range and twenty-foot equivalent units or TEUs).

While the existing channel depths can accommodate vessels drafting up to 48 feet, at that depth they are limited to a tide window of about 2 hours per day while maintaining the necessary under keel clearance. Vessels drafting more than 42-feet may experience delays based on the tide conditions at the time they arrive or depart. To reach port terminals, these vessels must either be light loaded, wait for favorable tide conditions, or both. The depth limitation causes some vessel operators to utilize smaller vessels and forego the cost savings that would otherwise be realized with the use of large vessels.

Thus, the need for modifications to the existing navigation system in the Harbor is generated by physical constraints and associated inefficiencies that limit the system's ability to safely and efficiently serve the forecasted vessel fleet and process forecasted cargo. The primary planning objective is to reduce transportation costs of import and export trade through the Harbor and contribute to the National Economic Development (NED), reduce navigation safety related constraints and operating practices (including limited one way traffic in some reaches), and develop an alternative that is environmentally acceptable and sustainable.

The applicant investigated several alternatives, including a No Action alternative, and six alternatives that looked at different dredge depths scenarios throughout the Harbor. The alternative with the least environmental impacts is Alternative 48/48 and the alternative with the maximum environmental impact is the one proposed of 52/48 (the numbers refer to the different depth scenarios for the harbor depth and Cooper River depth to the North Charleston Terminal). However, the goal of the project is to increase the efficiency of navigation within the Charleston Harbor. The scenario that most efficiently meets these goals is the 52/48

alternative. The impacts resulting from increased depths affect various resources. These impacts to wetlands, DO, fish habitat, and hardbottom habitat would be unavoidable if any of the six dredge depth alternatives were constructed.

There is a predicted increase in the amount of cargo moving through the port over time. That increase is expected to occur with or without navigation improvements. Without improvements, more vessels would be required to transport the increased cargo volumes that are forecasted. However, with the implementation of the 52/48 scenario the total number of vessels would be less than the no action or any of the shallower action alternatives. The 52/48 alternative would have the lowest number of vessel transitioning the harbor compared to the other alternatives.

Furthermore, alternative plans were formulated considering four criteria: completeness, effectiveness, efficiency, and acceptability. Appropriate mitigation for adverse impacts was incorporated into each alternative. Two alternatives (50-48 & 52-48) met selection criteria with the 52-48 alternative generating about \$2M more net cost savings per year than the 50-48 alternative. When two plans generate similar net benefits and meet all other selection criteria, federal policy allows either plan to be recommended but the lower cost plan is normally identified as the NED Plan and the project sponsor can choose to pursue the more expensive alternative, as a Locally Preferred Plan (LPP), if they are willing to pay 100 percent of the cost difference. The project sponsor requested that the Corps recommend a Locally Preferred Plan (LPP) of 52-48. That request was reviewed and vetted through the entire Corps chain of command and approved by the Assistant Secretary of the Army for Civil Works and the LPP was identified as the Recommended Plan.

SC Regulation 61-101 indicates that certification will be denied if, "there is a feasible alternative to the activity, which reduces adverse consequences on water quality and classified uses." While the tentatively identified NED plan has smaller environmental impacts and addresses most of the problems, the LPP has greater net transportation cost savings benefits (after subtracting the additional construction, maintenance and mitigation costs) and is the only plan that fully addresses all the problems identified in Section 3.1 of the DEIS and meets all study objectives identified in Section 3.2 of the DEIS. The LPP fully meets the study objectives because it allows both Generation II and III container vessels access to Charleston Harbor terminals without tidal restriction. The tentatively identified NED plan does not. While both the NED plan and the LPP provide similar net benefits, the LPP is more efficient (based on greater transportation cost savings).

In addition to the quantifiable benefits mentioned above, the LPP also provides several additional benefits over the tentatively identified NED Plan such as a greater margin of safety (based on greater underkeel clearance and less tide related congestion) and less shoreline impacts (based on fewer overall vessel transits and less concentrated vessel traffic during high tides when vessel wakes are more likely to over-wash low lying areas and damage vegetation).

**C. Water Quality Assessment**

**Numeric Standards Contraventions?**

Yes

**Temporary**, the proposed work may cause a temporary increase in turbidity levels, but ambient conditions should resume once the work is completed. Water quality standards will not be contravened and designated uses will not be changed. Potential adverse impacts to water quality can be minimized through the use of best management practices, and the conditions described in Section VIII of this staff assessment.

No

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**IV. Public Comments Received and Summary of Comments**

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**S. C. Department of Natural Resources (SCDNR)**

**Date: November 24, 2014 & December 3, 2014**

**Does not object to the project provided the applicant adheres to the conditions in Section VIII.**

In their letter dated November 24, 2014, SCDNR encouraged mitigation to be based on projected impacts over the entire 50-year life of the project and an opportunity to coordinate with the Corps on the compensatory mitigation plan. The Corps has adjusted the overall impacts to take in to consideration an average of 4 different scenarios (discussed in the mitigation section) increasing the impacts to 323 acres.

They also encouraged the development of a monitoring and adaptive management plans for freshwater wetlands, shortnose sturgeon, Atlantic sturgeon and existing intertidal oyster reefs. The Department agrees that the DEIS does not provide a sufficiently robust Mitigation, Monitoring and Adaptive Management Plan (MMAMP) and will require the Interagency Coordination Team (ICT) to reconvene 90 days following the issuance of the record of decision to specifically address this issue. If the monitoring data collected and reviewed by the ICT demonstrates that further monitoring is required, the Department will require more data to be collected.

SCDNR also supports the “beneficial uses” of the dredged material. In a letter dated December 3, 2014, SCDNR encouraged the Corps to consider both the NED and TSP plan as preferred alternatives in a balanced manner. However, SCDNR expressed no preference over which plan was ultimately selected as long as the environmental effects are adequately mitigated. Following the publication of the DEIS, the Department and other agencies, along with SCDNR, had numerous meetings with the applicant and also had other opportunities to visit the mitigation site. The applicant has provided revised mitigation information that the Department believes has satisfied these concerns

#### **U. S. Fish and Wildlife Service (USFWS)**

**Date: October 14, 2014**

**(x) Does not object to the project provided the applicant adheres to the conditions in Section VIII.**

USFWS concluded that the implementation of the Tentatively Selected Plan may impact fish and wildlife resources directly and indirectly as a result of dredging. The fish and wildlife resources likely to be directly and indirectly affected include the estuarine water column, freshwater tidal wetlands, low-relief hardbottom, and unconsolidated bottom habitat. USFWS has proposed that the Corps avoid and minimize potential adverse effects through dredging (if that activity proves necessary) to a shallower depth, vacating plans for in-stream contraction dikes, and the implementation of listed species protection plans during construction activities. USFWS also encourages the Corps to develop measures for improving DO conditions in Charleston Harbor, although it is acknowledged that many methods may be outside their jurisdiction. Protection of recreational opportunities (i.e., fishing) is another priority for USFWS, and avoiding dredging near sportfish congregating and spawning areas during critical periods is strongly encouraged.

Finally, USFWS recommends the development of a comprehensive (pre-, during, and post-project) environmental monitoring program to verify that project impacts do not exceed model predictions and to ensure that the mitigation areas are performing to a level where habitat replacement values are maintained. Monitoring for effects on water quality and protected species should be part of the proposed project, as well as for success of proposed wetland and hardbottom mitigation.

The Department agrees that the DEIS does not provide a sufficiently robust MMAMP with respect to wetland vegetation and water quality monitoring and will require the ICT to reconvene 90 days following the issuance of the record of decision to specifically address this issue. If the monitoring data collected and reviewed by the ICT demonstrates that further monitoring is required, the Department will require more data to be collected up to 10 years post-construction.

The Department also agrees that the DEIS did not provide enough information with respect to the wetland mitigation to determine if the impacts had been fully mitigated. Following the publication of the DEIS, the Department and other agencies, along with USFWS, had numerous meetings with the applicant and also had other opportunities to visit the mitigation site. The applicant has provided revised mitigation information that the Department believes has satisfied these concerns. These details will be included in the Final EIS.

#### **United States Environmental Protection Agency (EPA)**

**Date: November 24, 2014**

**(x) Does not object to the project.**

Although the EPA does not specifically object to the project, the agency does have some concerns. The letter from EPA listed several concerns including the need for a more robust MMAMP that provides a solid framework for

establishing pre, during and post-construction monitoring plans (to include schedules, frequencies, data parameters and placement), provides for data reporting, sets success criteria and establishes a corrective action plan. EPA also expressed concern about the length of time proposed in the DEIS for monitoring for wetlands impacts and water quality. They felt that monitoring for wetlands impacts twice during year 2 and year 4 post-construction was not sufficient and also that the 5 years of monitoring that was proposed for water quality monitoring was similarly insufficient. Further, EPA was also concerned that there had not been enough information provided in the DEIS to establish whether the wetland mitigation proposed for the Project was sufficient. Finally, EPA expressed concerns about potential air quality and environmental justice issues that are outside of the scope of this water quality certification review.

The Department agrees that the DEIS does not provide a sufficiently robust MMAMP with respect to wetland vegetation and water quality monitoring and will require the ICT to reconvene 90 days following the issuance of the record of decision to specifically address this issue. If the monitoring data collected and reviewed by the ICT demonstrates that further monitoring is required, the Department will require more data to be collected up to 10 years post-construction.

The Department also agrees that the DEIS did not provide enough information with respect to the wetland mitigation to determine if the impacts had been fully mitigated. Following the publication of the DEIS, the Department and other agencies, along with EPA, had numerous meetings with the applicant and also had other opportunities to visit the mitigation site. The applicant has provided revised mitigation information that the Department believes has satisfied these concerns.

#### **National Marine Fisheries Service (NMFS)**

**Date: November 24, 2014**

NMFS has several concerns with the proposed project. They were concerned with possible entrainment of aquatic organisms, shallow water habitat, dissolved oxygen concentrations, the indirect impact of the conversions of tidal freshwater wetlands to brackish marsh, hardbottom habitat, fish habitat and that the final EIS should look closer at the freshwater releases from Pinopolis Dam. The Corps has proposed mitigation for impacts to hardbottom habitat by building eight new reefs, totaling 264 acres of reef habitat.

NMFS also expressed concerns about DO concentrations. The Corps performed an evaluation of DO throughout the project area to ensure compliance with the TMDL. EFDC modeling results indicate the proposed project would not violate the state water quality standard for DO. The entrainment, shallow water and fish habitat concerns will be addressed in the Biological Opinion.

NMFS, expressed concerns about the proposed mitigation in the DEIS. The Department shared similar concerns and felt the DEIS did not provide enough information with respect to the wetland mitigation to determine if the impacts had been fully mitigated. Following the publication of the DEIS, the Department and other agencies, along with NMFS, had numerous meetings with the applicant and also had other opportunities to visit the mitigation site. The applicant has provided revised mitigation information that the Department believes has satisfied these concerns.

#### **United States Department of the Interior (DOI)**

**Date: December 9, 2014**

**(x) Does not object to the project**

The DOI does not object to the project but does have some concerns. The DOI has some concerns about the mitigation and encouraged the Corps to continue their investigation into the re-use of dredge spoil material. The DOI expressed concerns about erosion at Fort Sumter. The Corps plans to continue investigating the use of the dredge spoil material. However, with respect to concern about erosion, the applicant states that the current TSP would result in fewer (while larger) ships to make the port of call. The ships would also have access during low tide, which they currently do not have. This would in turn result in fewer ships and less wave action and erosion than under current conditions.

**National Park Service (NPS)**

**Date: November 10, 2014**

**(x) Does not object to the project**

The NPS expressed concerns that, due to the low lying elevation of Fort Sumter, the potential for adverse impacts to the Fort could be greater than what was estimated in the DEIS. According to the applicant, the current TSP would result in fewer ships to make the port of call. The ships would also have access during low tide, which they currently do not have. This would in turn result fewer ships and less wave action and erosion than under current conditions.

**The Nature Conservancy (TNC)**

**Date: November 24, 2014 & January 16, 2015**

**(x) Does not object to the project**

In a letter dated November 24, 2014, TNC expressed some minor concerns over the wetland assessment and mitigation. They also stated that the Corps should explore opportunities to apply consistent monitoring. TNC, submitted a letter on January 16, 2015, commending the Ports authority for their historic agreement to advance land conservation and environmental protection as part of the overall plan for the harbor deepening.

**Southern Environmental Law Center (SELC) on behalf of the Coastal Conservation League (CCL)**

**Date: November 26, 2014 & January 20, 2015**

**(x) Does not object to the project**

The SELC submitted a detailed letter, on behalf of the CCL, dated November 26, 2014, with several exhibits listing a wide range of concerns about the Project. The organization objected to the Project and has substantial concerns that the Project does not comply with federal regulations, including Section 401 of the Clean Water Act. However, in a letter dated January 20, 2015, the CCL stated that the Ports Authority had engaged in outreach on the project and provided a better understanding of the Project and its impacts. Additionally, the Ports Authority committed to significant additional mitigation measures above and beyond the proposed mitigation. CCL then stated they supported moving forward with all necessary governmental approvals and authorizations for the TSP.

**City of Folly Beach**

Several emails were received from the City of Folly Beach. The City feels that the entrance channel to the Harbor is responsible for most of the downdrift erosion on Morris and Folly Islands. Therefore, the City believes that improvements or modifications to the entrance channel will exacerbate downdrift erosion.

According to the applicant, beach erosion is a natural process that occurs due to storms, hurricanes, sea level rise and other complex and interconnected contributions. Beach erosion occurs on beaches whether or not they are adjacent to federal navigation projects. Analysis by the Waterways Experiment Station (now Engineering Research and Development Center –ERDC – division of the Corps) in 1987 concluded that the jetties at Charleston Harbor contributed to the erosion of Folly Beach and Morris Island by blocking the littoral transport of sediment from the north. It is important to note that, while the jetties are necessary for the stabilization of the federal navigation channel, there are no changes being proposed to the jetties through the Post 45 Project.

The proposed changes to the entrance channel, when viewed in perspective of both the historical changes and large expanse of the ocean, are expected to result in negligible changes to the waves and currents that transport sediment. The Corps is committed to assessing whether the proposed action will impact the shoreline and the analysis in PED phase will be done to verify that it does not. PED phase will revise costs, benefits and mitigation of the recommended plan if the results of coastal erosion analysis indicate significant impacts.

**Charleston Waterkeeper**

**Date: November 26, 2014 and February 25, 2015**

In a letter dated, November 26, 2014, the Charleston Waterkeeper listed a number of concerns about the Post 45 Project including the concern that the assimilative capacity for the Charleston Harbor is already fully allocated to point source dischargers via the 2013 DO TMDL and, thus, no additional loading capacity is available for the Project. Further, the Waterkeeper is concerned that the DO impacts from the Project were not analyzed within the context of the DO TMDL and that there was no public notice provided for the revised waste load allocation. The Waterkeeper also expressed concern that the “time variable” modeling analysis eliminates the margin of safety needed for the TMDL and uses the 90<sup>th</sup> percentile as the target output and, thus, allows for periodic violations of the DO standard.

The Waterkeeper is correct that the 2013 DO TMDL fully allocates the assimilative capacity identified in the TMDL; however, although the methodology used in the TMDL is common wasteload allocation practice, the TMDL is conservative because it was calculated based on the assumption that all of the discharges are constantly and simultaneously discharging at the maximum permitted load. This assumption does not recognize the time-varying nature of the individual point-source discharge loading rates, which is particularly important for a system with multiple point-source dischargers. In general, point-source discharges tend to have a wide range of discharge rates that occur over time. The probability of all discharges being at the maximum load at the same point in time is extremely small, and it is even less likely that these discharges would be sustained at that constant maximum permitted load over the entire TMDL analysis time period.

Although DHEC used the conservative assumption of constant discharges for the purposes of establishing the WLA for the TMDL, a new method was coordinated through DHEC and EPA that provides a more accurate approach to characterize the point-source discharges. Specifically, in order to incorporate the time-varying nature of the point-source discharges, the Corps analysis uses time-varying discharge loading rates input to the TMDL model that are based on measured daily discharge data collected by the existing dischargers. The measured data were used to project a 50-year discharge record which was then evaluated in the model.

After modeling the DO impacts resulting from the time varying discharges, the impacts were combined with the impacts resulting from the Post 45 project in order to estimate cumulative effects on DO. The results indicated that the cumulative DO impacts from both point source pollution discharges and the proposed Post 45 will meet the allowable deficit of 0.1 mg/L.

With respect to the concern about the lack of public notice for the TMDL revision, it is important to note that the TMDL wasteload allocations are unchanged and, therefore the TMDL does not need to be revised. Thus, no public notice for a TMDL revision was provided. It should be noted; however, that there is public input on the new modeling assumptions through the public notice for the Post 45 Project.

With respect to the concern about the margin of safety, as noted above, the TMDL wasteload allocations have not been revised and the NPDES permit limits are unchanged. The applicant has simply used a time-variable model to provide a more accurate representation of the discharges and has demonstrated that the cumulative impacts meet the DO standard. Thus, the margin of safety has not been eliminated; rather there is less uncertainty due to extensive characterization of actual effluent discharge patterns.

Finally, with respect to the concern that the modeling analysis uses the 90<sup>th</sup> percentile as the target output, these exceedence frequencies for cumulative DO impacts are essentially the same as the exceedence frequency used, and approved, in the 2013 DO TMDL and are considered to be an appropriate modeling target.

On February 25, 2015, the Waterkeeper submitted a letter stating that, after consulting with the Corps, DHEC and the State Ports Authority, they believe that the proposed project and mitigation will meet state water quality standards.

**Governor Nikki R. Haley**

Governor Haley submitted a letter in support of the project.

**Representative Steve Moss**

Representative Moss submitted a letter in support for the project.

**Senator Hugh Leatherman**

Senator Leatherman submitted a letter in support of the project.

**Senator Lindsey Graham, Senator Tim Scott, Congressman James Clyburn, Congressman Joe Wilson, Congressman Mark Sanford, Congressman Trey Gowdy, Congressmann Jeff Duncan, Congressman Mick Mulvaney and Congressman Tom Rice**

Members of the South Carolina Congressional Delegation submitted a letter in support of the project.

**Representative Todd Rutherford**

Representative Rutherford submitted a letter in support of the project.

**Representative Robert Ridgeway**

Representative Ridgeway submitted a letter in support of the project.

**Senator Creighton Coleman**

Senator Coleman submitted a letter in support of the project.

**Representative Joseph Daning**

Representative Daning submitted a letter in support of the project.

**Representative Christopher Murphy**

Representative Murphy submitted a letter in support of the project.

**Representative Kirkman Finlay**

Representative Finlay submitted a letter in support of the project.

**Senator Nikki Setzler**

Senator Setzler submitted a letter in support of the project.

**Senator Kent Williams**

Senator Williams submitted a letter in support of the project.

**Senator John Matthews**

Senator Matthews submitted a letter in support of the project.

**South Carolina Department of Commerce**

The S.C. Department of Commerce submitted a letter in support of the project.

**South Carolina Chamber of Commerce**

The S.C. Chamber of Commerce submitted a letter in support of the project.

**South Carolina Conference of Black Mayors**

The S.C. conference of Black Mayors submitted a letter in support of the project.

**City of Aiken, City of Easley, City of Gaffney, City of Orangeburg, Town of Summerville, City of Goose Creek, City of Newberry, Town of Lexington, City of Beaufort, City of Greenville, City of Greer, City of Cayce, City of Sumter, City of North Charleston, Town of Mount Pleasant, City of Charleston, City of Rock Hill, City of Mauldin, Edgefield County, Beaufort Regional Chamber of Commerce, Charleston Metro Chamber of Commerce, Greater Irmo Chamber of Commerce, Greater Florence Chamber of Commerce, S.C. Hispanic Chamber of Commerce, and the Greater Hartsville Chamber of Commerce**

Numerous municipalities submitted letters in support of the project

**Low Country Open Land Trust**

The Low Country open Land Trust submitted a letter of support for the project and commended the collaborative agreement between business and the conservation community on the mitigation projects.

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**V. Consistency with the Coastal Zone Management Program, R. 48-39-10 et seq.**

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*Staff of the SCDHEC Office of Ocean and Coastal Resource Management (OCRM) concurred, with conditions, with the Army Corps of Engineers Charleston District determination that the project will be conducted in a manner that is consistent to the maximum extent practicable with the policies of the South Carolina Coastal Zone Management Program in a letter dated December 8, 2014.*

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**VI. Conclusion on Water Quality Impacts and Classified Uses**

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When evaluating the proposed work, the SCDHEC followed procedures for implementing State 401 Water Quality Certification regulations pursuant to Section 401 of the Clean Water Act, 33 U.S.C. Section 1341, and the requirements of Regulation 61-101, Water Quality Certification, and Regulation 19-450 et seq., 1976 Codes of Laws, *Construction in Navigable Waters Permitting Program*.

Charleston Harbor is located in a natural tidal estuary, formed by the confluence of the Cooper, Ashley, and Wando rivers. It is an intertidal estuarine system, characterized by highly variable salinity and dissolved oxygen (DO) concentrations. Water quality within the Harbor is classified as SB. Many ambient monitoring stations in the Charleston Harbor are listed as impaired for DO based on impacts from point sources or the activities that cause more than a 0.1 mg/L DO depression. A DO Total Maximum Daily Load (TMDL) has been developed for the Charleston Harbor. Some of the concerns brought up during the public notice period were erosion around Fort Sumter and at Folly Beach, concerns regarding fish entrainment, concerns about impacts to DO levels in the Harbor resulting from the deepening and mitigation for impacts to wetlands.

**Erosion:**

The DOI and NPS expressed concerns that, due to the low lying elevation of Fort Sumter, the potential for adverse impacts to the Fort could be greater than what was estimated in the DEIS. According to the applicant, the TSP would result in fewer ships calling on the Port of Charleston than under the current navigational levels. Further, the TSP would provide access for these ships during low tide, unlike the current conditions. Thus, the result would be fewer ships and less wave action and erosion.

The City of Folly Beach feels that the entrance channel to the Harbor is responsible for most of the downdrift erosion on Morris and Folly Islands. According to the applicant, beach erosion is a natural process that occurs due to storms, hurricanes, sea level rise and other complex and interconnected contributions. Beach erosion occurs on beaches whether or not they are adjacent to federal navigation projects. Analysis by the Waterways Experiment Station (now Engineering Research and Development Center or ERDC – a division of the Corps) in 1987 concluded that the jetties at Charleston Harbor contributed to the erosion of Folly Beach and Morris Island by blocking the littoral transport of sediment from the north. While the jetties are necessary for the stabilization of the federal navigation channel, it is important to note that there are no changes being proposed to the jetties.

The proposed changes to the entrance channel, when viewed in perspective of both the historical changes and large expanse of the ocean, are expected to result in negligible changes to the waves and currents that transport sediment. The Corps is committed to assessing whether the proposed action will impact the shoreline and the analysis in the PED phase will be done to verify that it does not. The PED phase will revise costs, benefits and mitigation of the recommended plan if the results of coastal erosion analysis indicate significant impacts.

**Entrainment:**

The NMFS expressed some concerns over possible fish entrainment. They made several recommendations on how to limit entrainment. The Corps has agreed to these recommendations and they have been incorporated into the conditions of the Final EIS. NMFS will also be conducting a Biological Opinion to determine Project impacts on Rare, Threatened and Endangered Species. The applicant will be required to comply with the recommendations put forth in the Biological Opinion.

**Dissolved Oxygen:**

Section 303(d) of the Clean Water Act (CWA) and EPA's Water Quality Planning and Management Regulations (40 CFR Part 130) require states to develop total maximum daily loads (TMDLs) for water bodies that are included on the §303(d) list of impaired waters. A TMDL is the maximum amount of pollutant a water body can assimilate while meeting water quality standards for the pollutant of concern. All TMDLs include a wasteload allocation

(WLA) for all National Pollutant Discharge Elimination System (NPDES) – permitted discharges, a load allocation (LA) for all nonpoint sources, and an explicit and/or implicit margin of safety (MOS).

The 2013 dissolved oxygen (DO) TMDL revises and combines the existing 2002 Cooper River-Wando River-Charleston Harbor TMDL and the 2003 Ashley River TMDL. The revised TMDL is for Charleston Harbor, Cooper, Ashley and Wando Rivers (Charleston Harbor TMDL). The basis for this revision is a new 3-Dimensional Environmental Fluid Dynamics Code model (EFDC model) covering the entire system completed in 2008.

The Corps performed an evaluation of DO throughout the project area to ensure compliance with the TMDL. EFDC modeling results indicate the Project would not effect the TMDL waste load allocation (WLA). Although the methodology used by DHEC is common wasteload allocation practice, the TMDL is conservative because it was calculated based on the assumption that all of the discharges are constantly and simultaneously discharging at the maximum permitted load. This assumption does not recognize the time-varying nature of the individual point-source discharge loading rates, which is particularly important for a system with multiple point-source dischargers. In general, point-source discharges tend to have a wide range of discharge rates that occur over time. The probability of all discharges being at the maximum load at the same point in time is extremely small, and it is even less likely that these discharges would be sustained at that constant maximum permitted load over the entire TMDL analysis time period (March through October).

Although DHEC used the conservative assumption of constant discharges for the purposes of establishing the WLA for the TMDL, a new method was coordinated through DHEC and EPA that provides a more accurate approach to characterize the point-source discharges. Specifically, in order to incorporate the time-varying nature of the point-source discharges, the Corps analysis uses time-varying discharge loading rates input to the TMDL model that are based on measured daily discharge data collected by the existing dischargers. The measured data were used to project a 50-year discharge record which was then evaluated in the model.

After modeling the DO impacts resulting from the time varying discharges, the impacts were combined with the impacts resulting from the Post 45 project in order to estimate cumulative effects on DO. Post 45 impacts were based on the 52-48 Alternative, which represents the maximum deepening and widening alternative under consideration in the DEIS. The results indicated that the cumulative DO impacts from both point source pollution discharges into the estuary and the proposed Post 45 project navigation channel expansion will not cause cumulative DO impacts greater than the 0.1 mg/L allowed by Regulation 61-68, *Water Classifications and Standards*. The greatest cumulative impact is estimated to be 0.14mg/L; this is less than the 0.1499 mg/L allowed in practice. As a result, mitigation for DO impacts is not required to offset project impacts.

The model predicts that the DO impacts due to the Post 45 project are de minimis. The applicant proposed pre-construction and post construction monitoring, in addition to monitoring while the project is being carried out. The pre-construction monitoring protocol will be developed in conjunction with the Department and other agencies in order to define spatially and temporally explicit protocol evaluating water quality impacts resulting from the proposed project. This will provide baseline data to determine if there is significant difference between pre- and post-construction conditions.

The Corps, US Geological Survey and BCDCOG and other cooperators currently operate a system of water quality data collection station within the Charleston Harbor system using 15-minute data collection at mid-depth. Data includes velocity, temperature, gage height, specific conductance and dissolved oxygen. Information from these stations will be used to evaluate future DO levels in Charleston Harbor. In addition to existing gages, four additional gages will be established in the system. The new gages will be maintained through construction and for a period of 5 years after dredging is complete. One gage will be strategically located between the Goose Creek and the Mobay gage in order to capture salinity in the area of an anticipated salinity shift in the Cooper River. Another gage to collect DO will be located in the brackish to freshwater transitional area of the Ashley River. A third gage with DO will be added to the Hwy 41 bridge on the Wando River. A fourth gage with DO will be added between Filbin Creek and Daniel Island on the Cooper River as this is the area that is projected to see the greatest cumulative DO deficit.

All gages will be equipped to monitor the following parameters: specific conductivity (salinity can be derived from conductivity), DO, temperature, water level, and pH. Continuous data collection of mid-depth and bottom

salinity and DO at high and low tides will be collected for at least one year before construction. Monitoring will continue during construction and after construction for a period of 5 years throughout the estuary, including the Ashley, Cooper and Wando Rivers. The Corps will provide a written report of the water quality data and reports will be provided to the resource agencies for review and comment. The Corps, in consultation with the Department and the Interagency Coordination Team (ICT) will develop a methodology to use the continuous data to test for a statistically significant drop in DO between pre-, during-, and post-construction monitoring years.

As noted above, the Corps has committed to monitoring water quality impacts of the project for a period of 5 years post-construction. If, based on this data, the Department determines that additional data is required; the Department will require collection of up to 5 additional years of monitoring data.

In assessing the water quality impacts of a project, the Department is required in Regulation 61-101 to address and consider several factors. One of these factors requires consideration of all potential water quality impacts, including the impact on existing and classified uses. Regulation 61-68, *Water Classifications and Standards*, was promulgated in accordance with Section 303 of the Clean Water Act. This regulation contains antidegradation rules that were established to ensure the protection of existing uses and water quality. Regulation 61-68 requires existing water uses and the level of water quality necessary to protect these existing uses to be maintained and protected regardless of the water classification. Regulation 61-101 requires the Department to certify that there is reasonable assurance that the activity will be conducted in a manner that will not violate applicable water quality standards. Cumulative DO impacts resulting from both point source pollution discharges into the estuary and the proposed Post 45 project navigation channel expansion should not cause cumulative DO impacts greater than the 0.1 mg/L allowed by Regulation 61-68, *Water Classifications and Standards*. The Department concludes that the cumulative impacts of the proposed project and NPDES dischargers are within the 0.1 mg/L DO deficit provided for by regulations.

In a letter dated, November 26, 2014, the Charleston Waterkeeper listed a number of concerns about the Post 45 Project including the concern that the assimilative capacity for the Charleston Harbor is already fully allocated to point source dischargers via the 2013 DO TMDL and, thus, no additional loading capacity is available for the Project. Further, the Waterkeeper is concerned that the DO impacts from the Project were not analyzed within the context of the DO TMDL and that there was no public notice provided for the revised waste load allocation. The Waterkeeper also expressed concern that the "time variable" modeling analysis eliminates the margin of safety needed for the TMDL and uses the 90<sup>th</sup> percentile as the target output and, thus, allows for periodic violations of the DO standard.

As noted above, the applicant provided additional data and modeling to demonstrate that the TMDL wasteload allocation, when combined with the Project impacts, meets the water quality standard for DO. Further, because the TMDL wasteload allocations are unchanged, the TMDL does not need to be revised and, therefore, no public notice for a TMDL revision was provided. With respect to the margin of safety, it has not been eliminated; rather there is less uncertainty due to extensive characterization of actual effluent discharge patterns. Finally, with respect to the concern that the modeling analysis uses the 90<sup>th</sup> percentile as the target output, these exceedence frequencies for cumulative DO impacts are essentially the same as the exceedence frequency used, and approved, in the 2013 DO TMDL and are considered to be an appropriate modeling target.

**Mitigation:**

Indirect impacts from the proposed project are expected to occur through a shift from fresh/brackish marsh to brackish/salt marsh as a function of salinity changes altering vegetative composition, soils, and habitat function of the system. The majority of these effects will occur within tidal freshwater systems, as these systems are not typically adapted to high salinity concentrations at increased frequencies or durations. Plants that cannot tolerate higher salinities will be replaced by those that can.

The nature of the impacts required the Corps to find an appropriate method to accurately determine the number of acres of potential impacts and mitigation for those impacts. In order to determine the functional loss of the predicted impacts, the Corps and the ICT evaluated many methods and models; ultimately the Corps recommended the Uniform Mitigation and Assessment Method (UMAM). The ICT agreed to this approach that was recently used by the Jacksonville District for calculating wetland mitigation needs resulting from similar wetland impacts for Jacksonville Harbor. Nothing in the methodology limits it to application only in Florida.

The UMAM rule was developed in response to a State of Florida mandate [subsection 373.414(18) F.S.] which required the establishment of a method to determine the amount of mitigation needed to offset adverse impacts to wetlands and other surface waters. The UMAM provides a standardized procedure for assessing the ecological functions provided by wetlands/surface waters, the amount that those functions are reduced by a proposed impact, and the amount of mitigation necessary to offset that loss. This standardized methodology also is used to determine the degree of improvement in ecological value of proposed mitigation bank activities.

UMAM assesses the function of an area based on three categories, scored on a scale from 0 to 10: 1. Location and landscape support, 2. Water environment; and 3. Community structure. Location and landscape support assesses ecological functional value based on the assessment area's position within the landscape and relationship with surrounding areas. The second category, water environment assesses hydrologic alterations, which improve or impact ecological functions. Finally, community structure is the evaluation of the conditions, which support functions that provide optimal benefits to fish and wildlife.

During the public and agency review period, several comments were received that recommended that the project account for the impacts predicted based on the 2071 historic sea level rise scenario rather than the time of construction (year 2022) in order to maintain consistency with the economic benefits of the project being factored in over the 50 year life of the project. After reviewing the comments and the model results, the Corps developed a plan to perform a sensitivity analysis on the modeled results that would account for the modeled variability that occurs depending on the year and scenario that is modeled. Since the movement of an isopleth is affected by many model variables, including river morphology, sea level/water surface elevation, river gradient, etc., it is important to evaluate a range of scenarios to average out anticipated impacts. Impacts were calculated under four different sea level rise and project scenarios:

1. Impacts at the time of construction based on 10 years of sea level rise from the model base year (year 2022)
2. 50 years of historic sea level rise. These impacts were used to evaluate alternatives.
3. 50 years of intermediate sea level rise.
4. 50 years of high sea level rise.

The four scenarios were then averaged to determine the average amount of impacts anticipated to occur over the life of the project. The averaging resulted in an increase in the amount of acres impacted from 281 to 323.72.

The original amount of proposed mitigation required, according to the UMAM calculations was 484.55 acres. The resource agencies and the SCDHEC expressed concerns with the amount of acreage calculated. This resulted in a joint meeting and a site visit with staff from the Corps, SCDHEC, NMFS, SCDNR, EPA, and USFWS. The purpose of the meeting and site visit was for each Agency to evaluate the reference sites on the mitigation parcel using UMAM and submit the results to the Corps. As a result of that meeting and site visit, the Corps adjusted the UMAM scores resulting in an increase in the required mitigation from 484.55 acres to 665 acres. According to the Corps' wetland survey of the mitigation site submitted to the Department on February 12, 2015, there are 725 acres of wetlands on the proposed mitigation site that will be preserved.

As mentioned in the Draft EIS and the related Appendices, the watershed approach was proposed to provide mitigation for unavoidable project impacts. Wetland impacts will be mitigated through the preservation of the US Forest Service tract identified as parcel B-2B in Appendix P of the DEIS. The parcel is located within the same 8-digit HUC as the impacted wetlands. Also, the B-2B tract, meets all of the criteria of Section 332.3(h)(1)(i-v) of the Mitigation Rule. It provides important physical, chemical and biological functions to the Cooper River Basin and will also enhance lands already within the Francis Marion National Forest by functioning as a buffer to future development. Additional information will be provided in the Final EIS.

The proposed project would indirectly impact approximately 323 acres of wetlands due to changes in salinity and approximately 29 acres of hard bottom habitat in the footprint of the entrance channel. Impacts to wetlands were based upon changes in the salinity regime of the harbor. There will be pre-construction and post-construction vegetation monitoring. Prior to construction, wetlands in the Cooper River will be characterized again using the same methodology as described in the Wetlands Characterization Report in the DEIS. Briefly, two field surveys of the study area will be conducted to collect site data for training (supervised classification) and validation (accuracy assessment) to correspond with the seasonal timeframes of the most up to date multispectral imagery (minimum 8-

band). Ideally, two seasons (e.g., summer and winter) will be used in order to minimize seasonal differences between field and image data.

In years 1, 3 and 5 after the construction of the project, the same methods will be used to further characterize the plant species. Data will be compared to the characterizations pre construction. The percent change of freshwater dominant vegetation will be compared in the impact assessment reaches and reports will be generated and coordinated with the resource agencies and DHEC. If DHEC finds that additional monitoring is required, DHEC will require additional biannual monitoring during years 7 and 9 as needed.

Furthermore, if the results of the vegetation monitoring determine that the wetland impacts are greater than those initially determined by the Corps, the State Ports Authority has provided \$5,000,000 to be used to preserve additional sites within the Cooper River Corridor. The Ports Authority was commended by many entities on their cooperative agreement to compliment the mitigation plan. This agreement was entered into with CCL, LOLT, and the Ports Authority. Preliminary jurisdictional determinations will be conducted at the properties purchased with these funds and, if additional mitigation is required, these properties will be evaluated for mitigation purposes.

While the Corps avoided some impacts to hard bottom, a beneficial use plan for placement of rock involves constructing 8 new 33-acre reef sites to mitigate for hard bottom areas not previously dredged and within the navigation channel as a result of deepening and or extending the entrance channel beyond its current depth. Four of the new reefs would be along the north side of the entrance channel and four would be located along the south side of the entrance channel. At the request of the SCDNR Artificial Reef Program, the Corps agreed to place approximately 240,000 CY of rock material at the 25 acre Charleston Nearshore Reef site.

The need for modifications to the existing navigation system in the Harbor is generated by physical constraints and associated inefficiencies that limit the system's ability to safely and efficiently serve the forecasted vessel fleet and process forecasted cargo. The primary planning objective is to reduce transportation costs of import and export trade through the Harbor and contribute to the National Economic Development (NED), reduce navigation safety related constraints and operating practices (including limited one way traffic in some reaches), and develop an alternative that is environmentally acceptable and sustainable.

The water quality impacts of the proposed project will be temporary provided the applicant adheres to the conditions in Section VIII. SCDHEC has reasonable assurance that the water quality standards of Regulation 61-68 will not be contravened as a result of the proposed work. The proposed activity will result in no significant degradation to the aquatic ecosystem, nor will it remove existing and classified uses of the Ashley, Cooper or Wando River and is in compliance with the above regulations provided the applicant adheres to the conditions in Section VIII. The above assessment also ensures that the proper sequencing of avoidance, minimization, and appropriate compensation for unavoidable impacts has been demonstrated. Information about the technical aspects of this application is available from Erin Owen, the project manager, by calling 803-898-4243 or by e-mailing owenen@dhec.sc.gov.

SCDHEC reserves the right to impose additional conditions on this Certification/Permit to respond to unforeseen, specific problems that might arise and to take any enforcement action necessary to ensure compliance with State water quality standards.

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## **VII. Staff Recommendation**

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Issue 401 Water Quality Certification pursuant to R.61-101 *Water Quality Certification*, including conditions pursuant to R. 19-450, *Permits for Construction in Navigable Waters*.

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## **VIII. Conditions to be placed on the Water Quality Certification**

1. No more than 90 days after the issuance of the Record of Decision (ROD), the Corps shall convene the Interagency Coordination Team (ICT) to develop the Mitigation, Monitoring and Adaptive Management Plan (MMAMP) for wetland vegetation monitoring. The Corps will work with the ICT to solicit input and develop the

framework for wetland vegetation monitoring to include monitoring schedules, frequencies, data parameters, monitoring placement and data reporting. The Corps shall also work with the ICT to determine the corrective action plan should the wetland impacts exceed those predicted by the Draft Environmental Impact Statement (DEIS).

2. Wetland vegetation monitoring shall be conducted during years 1, 3 and 5 post construction. If DHEC determines, based on review of the data reported as required in condition #1 above, that additional monitoring is required, DHEC will require additional biannual monitoring during years 7 and 9 as needed.

3. No more than 90 days after issuance of the ROD, the Corps shall convene the ICT to develop the MMAMP for DO water quality monitoring. The Corps will work with the ICT to solicit input and develop the DO monitoring framework to include monitoring schedules, frequencies, data parameters, placement of monitors and data reporting. The Corps shall work with the ICT to determine the corrective action plan should the DO impacts exceed those predicted in the DEIS.

4. Four new water quality monitors shall be installed as discussed in the DEIS to monitor for specific conductivity, dissolved oxygen, temperature, water level and pH. The monitors will be maintained for a period of 5 years post-construction. If DHEC determines, during review of the data reported as required in condition #3 above, that additional monitoring is required, DHEC shall require up to 5 additional years of monitoring.

5. Mitigation for wetland impacts from the project shall be provided through the preservation of the US Forest Service tract identified as parcel B-2B in Appendix P of the DEIS. No more than 90 days after the issuance of the ROD, DHEC shall be provided with a copy of the signed recorded plats and conservation easements for the mitigation property.

6. The permittee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel must monitor water-related activities for the presence of manatees during May 15-October 15.

7. Any collisions with and/or injury to manatee shall be reported immediately to Jim Valade of the U.S. Fish and Wildlife Service, North Florida Field Office, at (904) 731-3116.

8. If manatee(s) are seen within 100 yards of the active construction area, all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operations of all moving equipment no closer than 50 feet to a manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment.

9. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the Marine Mammal Protection, act of 1972 and the Endangered Species Act.

10. Any siltation barriers used during the project shall be made of material in which manatees cannot become entangled and must be properly secured, and regularly monitored to avoid entrapment.

11. All vessels associated with the project shall operate at "no wake/idle" speeds to the extent practicable while in the construction area in the water where the draft of the vessel provides less than four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

12. When practicable, the use of hopper dredges should be limited to winter months to avoid impacts to manatees and sea turtles.

13. Dredging of ecologically sensitive areas should be limited to cooler months, when possible.

14. Dredge operators shall not turn on suction until the draghead is at or near the sea/river bottom and shall turn off suction as close to sea/river bottom as possible.

15. The Corps shall comply with all terms and conditions of the National Marine Fisheries Service's (NMFS) Final Biological Opinion.

16. To the greatest extent practicable, all lighting for dredging equipment, barges, and support vessels should be directed downward toward the work during nighttime dredging activities, to minimize the effects on migrating birds.

17. Monitoring of the hard bottom reefs will occur within 6 months of completion of the reefs and will continue once a year for 4 years. If success criteria are not met by the end of 4 years, the Corps will meet with South Carolina Department of Natural Resources and the NMFS to determine corrective actions.

18. The final plans for beneficial uses of the dredged spoil material shall be provided to the DHEC for final approval prior to finalizing the Pre-construction Engineering and Design or PED.

19. If the Tentatively Selected Plan as identified in the DEIS (54-52-48 foot plan, which will deepen the entrance channel to -54 feet, the harbor channel to the Wando Welch and Navy Base terminals to -52 feet, and the channel to the North Charleston terminal to -48 feet) is selected as the recommended plan in the Final Environmental Impact Statement, the following conditions shall apply:

i. No later than 60 days after the issuance of the ROD, the South Carolina State Ports Authority (SCSPA) shall provide the South Carolina Aquarium with the sum of One Hundred Twenty-five Thousand Dollars (\$125,000) to be dedicated to public education about sea turtles in the Charleston Harbor area and/or turtle rehabilitation.

ii. No later than 90 days after initiation of dredging, the SCSPA will provide DHEC with documentation of the deposit of Five Million Dollars (\$5,000,000) in an escrow account or other acceptable security along with an irrevocable letter of credit.

iii. The \$5,000,000 identified above shall be utilized for preservation efforts within the Cooper River Corridor. The SCSPA shall provide DHEC with an accounting of the land preservation efforts secured with such funds within 90 days after all such funds are expended.

iv. The information reported to DHEC above shall include a preliminary jurisdictional determination specifying the quantity and type of wetland at each preservation site.

v. If DHEC determines, after reviewing the wetland vegetation impact data required in condition #1, that there is insufficient wetland mitigation, the preservation sites identified above shall be evaluated for mitigation purposes.

Prepared by: *Eric Owen*

Date: *2/27/15*

Reviewed & Approved by: *Stacy S. Probst*

Date: *2/27/15*



W. Marshall Taylor Jr., Acting Director

*Promoting and protecting the health of the public and the environment*

Public Notice # 2014-POST-45

Public Notice Date: February 27, 2015

**NOTICE OF DEPARTMENT DECISION  
WATER QUALITY CERTIFICATION**

The Department, acting on an application for Water Quality Certification pursuant to Section 401 of the Federal Clean Water Act and pursuant to R. 19-450. et. Seq., 1976 SC Code of Laws, *Permits for Construction in Navigable Waters*.

Corps of Engineers  
Deeping the Federal Navigational Channel in Charleston Harbor  
Ashley, Cooper and Wando River  
Charleston County  
P/N 2014-POST-45

After reviewing the project plans, Department Staff determined that there is a reasonable assurance that the project will be conducted in a manner consistent with the certification requirements of Section 401 of the Federal Clean Water Act and the permitting requirements of R. 19-450. et. Seq., 1976 SC Code of Laws. Accordingly, the Department certifies the project with conditions as follows:

1. No more than 90 days after the issuance of the Record of Decision (ROD), the Corps shall convene the Interagency Coordination Team (ICT) to develop the Mitigation, Monitoring and Adaptive Management Plan (MMAMP) for wetland vegetation monitoring. The Corps will work with the ICT to solicit input and develop the framework for wetland vegetation monitoring to include monitoring schedules, frequencies, data parameters, monitoring placement and data reporting. The Corps shall also work with the ICT to determine the corrective action plan should the wetland impacts exceed those predicted by the Draft Environmental Impact Statement (DEIS).
2. Wetland vegetation monitoring shall be conducted during years 1, 3, and 5 post construction. If DHEC determines, based on review of the data reported as required in condition #1 above, that additional monitoring is required, DHEC will require additional biannual monitoring during years 7 and 9 as needed.
3. No more than 90 days after issuance of the ROD, the Corps shall convene the ICT to develop the MMAMP for DO water quality monitoring. The Corps will work with the ICT to solicit input and develop the DO monitoring framework to include monitoring schedules, frequencies, data parameters, placement of monitors and data reporting. The Corps shall work with the ICT to determine the corrective action plan should the DO impacts exceed those predicted in the DEIS.
4. Four new water quality monitors shall be installed as discussed in the DEIS to monitor for specific conductivity, dissolved oxygen, temperature, water level and pH. The monitors will be maintained for a period of 5 years post-construction. If DHEC determines, during review of the data reported as required in condition #3 above, that additional monitoring is required, DHEC shall require up to 5 additional years of monitoring.
5. Mitigation for wetland impacts from the project shall be provided through the preservation of the US Forest Service tract identified as parcel B-2B in Appendix P of the DEIS. No more than 90 days after the issuance of the ROD, DHEC shall be provided with a copy of the signed recorded plats and conservation easements for the mitigation property.

6. The permittee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel must monitor water-related activities for the presence of manatees during May 15-October 15.

7. Any collisions with and/or injury to manatee shall be reported immediately to Jim Valade of the U.S. Fish and Wildlife Service, North Florida Field Office, at (904) 731-3116.

8. If manatee(s) are seen within 100 yards of the active construction area, all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operations of all moving equipment no closer than 50 feet to a manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment.

9. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the Marine Mammal Protection, act of 1972 and the Endangered Species Act.

10. Any siltation barriers used during the project shall be made of material in which manatees cannot become entangled and must be properly secured, and regularly monitored to avoid entrapment.

11. All vessels associated with the project shall operate at "no wake/idle" speeds to the extent practicable while in the construction area and while in the water where the draft of the vessel provides less than four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

12. When practicable, the use of hopper dredges should be limited to winter months to avoid impacts to manatees and sea turtles.

13. Dredging of ecologically sensitive areas should be limited to cooler months, when possible.

14. Dredge operators shall not turn on suction until the draghead is at or near the sea/river bottom and shall turn off suction as close to sea/river bottom as possible.

15. The Corps shall comply with all terms and conditions of the National Marine Fisheries Service's (NMFS) Final Biological Opinion.

16. To the greatest extent practicable, all lighting for dredging equipment, barges, and support vessels should be directed downward toward the work during nighttime dredging activities, to minimize the effects on migrating birds.

17. Monitoring of the hard bottom reefs will occur within 6 months of completion of the reefs and will continue once a year for 4 years. If success criteria are not met by the end of 4 years, the Corps will meet with South Carolina Department of Natural Resources and the NMFS to determine corrective actions.

18. The final plans for beneficial uses of the dredged spoil material shall be provided to the DHEC for final approval prior to finalizing the Pre-construction Engineering and Design or PED.

19. If the Tentatively Selected Plan as identified in the DEIS (54-52-48 foot plan, which will deepen the entrance channel to -54 feet, the harbor channel to the Wando Welch and Navy Base terminals to -52 feet, and the channel to the North Charleston terminal to -48 feet) is selected as the recommended plan in the Final Environmental Impact Statement, the following conditions shall apply:

- i. No later than 60 days after the issuance of the ROD, the South Carolina State Ports Authority (SCSPA) shall provide the South Carolina Aquarium with the sum of One Hundred Twenty-five Thousand Dollars (\$125,000) to be dedicated to public education about sea turtles in the Charleston Harbor area and/or turtle rehabilitation.
- ii. No later than 90 days after initiation of dredging, the SCSPA will provide DHEC with documentation of the deposit of Five Million Dollars (\$5,000,000) in an escrow account or other acceptable security along with an irrevocable letter of credit.

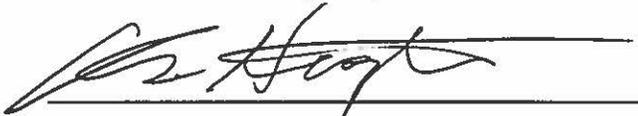
- iii. The \$5,000,000 identified above shall be utilized for preservation efforts within the Cooper River Corridor. The SCSPA shall provide DHEC with an accounting of the land preservation efforts secured with such funds within 90 days after all such funds are expended.
- iv. The information reported to DHEC above shall include a preliminary jurisdictional determination specifying the quantity and type of wetland at each preservation site.
- v. If DHEC determines, after reviewing the wetland vegetation impact data required in condition #1, that there is insufficient wetland mitigation, the preservation sites identified above shall be evaluated for mitigation purposes.

The SC Department of Health and Environmental Control reserves the right to impose additional conditions on this Certification/Permit to respond to unforeseen, specific problems that might arise and to take any enforcement action necessary to ensure compliance with State standards.

A copy of the staff assessment and related file information are available for review. For a copy of the staff assessment, contact Erin N Owen, the project manager, at 803-898-4243.

The final Water Quality Certification will be issued pursuant to Section 401 of the Federal Clean Water Act including conditions pursuant to the permitting requirements of R. 19-450, *Permits for Construction in Navigable Waters*, unless there is a timely request for review of the Department Decision based on water quality or water use impacts.

The issuance of this Notice of Department Decision represents a final staff decision that may be appealed. Please see the attached appeal procedures for details.



Chuck Hightower, Manager  
Water Quality Certification  
and Wetlands Section





W. Marshall Taylor Jr., Acting Director

*Promoting and protecting the health of the public and the environment*

March 16, 2015

Bret Walters  
Corps of Engineers  
69 A Hagood Ave  
Charleston SC 29403

Re: Certification in Accordance with Section 401 of the Clean Water Act, as amended,  
with conditions pursuant to R. 19-450 et. seq., 1976 SC Code of Laws,  
*Permits For Construction in Navigable Waters*

Corps of Engineers  
Deepening the Federal Navigation Channel in Charleston Harbor  
Ashley, Cooper and Wando Rivers  
Charleston County  
P/N 2014-POST-45

Dear Sir or Madam:

The South Carolina Department of Health and Environmental Control (Department) has reviewed plans for this project and determined that there is a reasonable assurance that the proposed project will be conducted in a manner consistent with the Certification requirements of Section 401 of the Federal Clean Water Act, as amended, and the permitting requirements of R. 19-450 et. seq., 1976 SC Code of Laws.

In accordance with the provisions of Section 401, we certify that this project, subject to the indicated conditions, is consistent with applicable provisions of Section 303 of the Federal Clean Water Act, as amended. We also hereby certify that there are no applicable effluent limitations under Sections 301(b) and 302, and that there are no applicable standards under Sections 306 and 307.

This certification is subject to the following conditions:

1. No more than 90 days after the issuance of the Record of Decision (ROD), the Corps shall convene the Interagency Coordination Team (ICT) to develop the Mitigation, Monitoring and Adaptive Management Plan (MMAMP) for wetland vegetation monitoring. The Corps will work with the ICT to solicit input and develop the framework for wetland vegetation monitoring to include monitoring schedules, frequencies, data parameters, monitoring placement and data reporting. The Corps shall also work with the ICT to determine the corrective action plan should the wetland impacts exceed those predicted by the Draft Environmental Impact Statement (DEIS).
2. Wetland vegetation monitoring shall be conducted during years 1, 3, and 5 post construction. If DHEC determines, based on review of the data reported as required in condition #1 above, that additional monitoring is required, DHEC will require additional biannual monitoring during years 7 and 9 as needed.
3. No more than 90 days after issuance of the ROD, the Corps shall convene the ICT to develop the MMAMP for DO water quality monitoring. The Corps will work with the ICT to solicit input and develop the DO monitoring framework to include monitoring schedules, frequencies, data parameters, placement of monitors and data reporting. The Corps shall work with the ICT to determine the corrective action plan should the DO impacts exceed those predicted in the DEIS.

4. Four new water quality monitors shall be installed as discussed in the DEIS to monitor for specific conductivity, dissolved oxygen, temperature, water level and pH. The monitors will be maintained for a period of 5 years post-construction. If DHEC determines, during review of the data reported as required in condition #3 above, that additional monitoring is required, DHEC shall require up to 5 additional years of monitoring.
5. Mitigation for wetland impacts from the project shall be provided through the preservation of the US Forest Service tract identified as parcel B-2B in Appendix P of the DEIS. No more than 90 days after the issuance of the ROD, DHEC shall be provided with a copy of the signed recorded plats and conservation easements for the mitigation property.
6. The permittee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel must monitor water-related activities for the presence of manatees during May 15-October 15.
7. Any collisions with and/or injury to manatee shall be reported immediately to Jim Valade of the U.S. Fish and Wildlife Service, North Florida Field Office, at (904) 731-3116.
8. If manatee(s) are seen within 100 yards of the active construction area, all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operations of all moving equipment no closer than 50 feet to a manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment.
9. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the Marine Mammal Protection, act of 1972 and the Endangered Species Act.
10. Any siltation barriers used during the project shall be made of material in which manatees cannot become entangled and must be properly secured, and regularly monitored to avoid entrapment.
11. All vessels associated with the project shall operate at "no wake/idle" speeds to the extent practicable while in the construction area and while in the water where the draft of the vessel provides less than four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
12. When practicable, the use of hopper dredges should be limited to winter months to avoid impacts to manatees and sea turtles.
13. Dredging of ecologically sensitive areas should be limited to cooler months, when possible.
14. Dredge operators shall not turn on suction until the draghead is at or near the sea/river bottom and shall turn off suction as close to sea/river bottom as possible.
15. The Corps shall comply with all terms and conditions of the National Marine Fisheries Service's (NMFS) Final Biological Opinion.
16. To the greatest extent practicable, all lighting for dredging equipment, barges, and support vessels should be directed downward toward the work during nighttime dredging activities, to minimize the effects on migrating birds.
17. Monitoring of the hard bottom reefs will occur within 6 months of completion of the reefs and will continue once a year for 4 years. If success criteria are not met by the end of 4 years, the Corps will meet with South Carolina Department of Natural Resources and the NMFS to determine corrective actions.

18. The final plans for beneficial uses of the dredged spoil material shall be provided to the DHEC for final approval prior to finalizing the Pre-construction Engineering and Design or PED.
19. If the Tentatively Selected Plan as identified in the DEIS (54-52-48 foot plan, which will deepen the entrance channel to -54 feet, the harbor channel to the Wando Welch and Navy Base terminals to -52 feet, and the channel to the North Charleston terminal to -48 feet) is selected as the recommended plan in the Final Environmental Impact Statement, the following conditions shall apply:
  - i. No later than 60 days after the issuance of the ROD, the South Carolina State Ports Authority (SCSPA) shall provide the South Carolina Aquarium with the sum of One Hundred Twenty-five Thousand Dollars (\$125,000) to be dedicated to public education about sea turtles in the Charleston Harbor area and/or turtle rehabilitation.
  - ii. No later than 90 days after initiation of dredging, the SCSPA will provide DHEC with documentation of the deposit of Five Million Dollars (\$5,000,000) in an escrow account or other acceptable security along with an irrevocable letter of credit.
  - iii. The \$5,000,000 identified above shall be utilized for preservation efforts within the Cooper River Corridor. The SCSPA shall provide DHEC with an accounting of the land preservation efforts secured with such funds within 90 days after all such funds are expended.
  - iv. The information reported to DHEC above shall include a preliminary jurisdictional determination specifying the quantity and type of wetland at each preservation site.
  - v. If DHEC determines, after reviewing the wetland vegetation impact data required in condition #1, that there is insufficient wetland mitigation, the preservation sites identified above shall be evaluated for mitigation purposes.

The Department reserves the right to impose additional conditions on this Certification to respond to unforeseen, specific problems that may arise and to take any enforcement action necessary to ensure compliance with State water quality standards.

Sincerely,

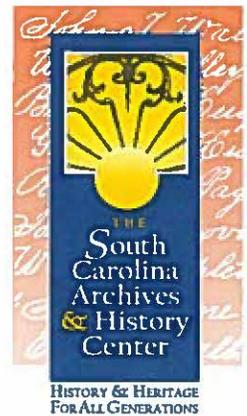


Heather Preston, Director  
Division of Water Quality  
Bureau of Water

cc: SC DHEC, Charleston EQC Office  
SC DHEC-OCRM

April 17, 2015

Bret L. Walters  
Department of the Army  
Charleston District, Corps of Engineers  
69A Hagood Avenue  
Charleston, SC 29403-5107



Re: Charleston Harbor Post 45 Project  
Charleston County, South Carolina  
SHPO Project Number: 10-CW0455

Dear Mr. Walters:

Thank you for your letter of April 14, 2015, which we received on April 15, regarding the above-referenced project. The State Historic Preservation Office (SHPO) is providing comments to the U.S. Army Corps of Engineers (Corps) pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800. Consultation with the SHPO is not a substitution for consultation with Tribal Historic Preservation Offices, other Native American tribes, local governments, or the public.

Our office concurs with the **no adverse effect** determination of the Corps for this project, based on the implementation of the proposed Programmatic Agreement among the Corps, our office, and the National Park Service regarding the Charleston Harbor Post 45 Feasibility Study Proposed Deepening of Charleston Harbor.

If you have any questions, please contact me at (803) 896-6168 or [emjohnson@scdah.state.sc.us](mailto:emjohnson@scdah.state.sc.us).

Sincerely,

A handwritten signature in black ink, reading 'Elizabeth M. Johnson', is positioned above the typed name and title.

Elizabeth M. Johnson  
Director, Historical Services, D-SHPO  
State Historic Preservation Office

cc. James Spirek, SCIAA



UNIVERSITY OF SOUTH CAROLINA

SOUTH CAROLINA INSTITUTE OF ARCHAEOLOGY AND ANTHROPOLOGY

3 October 2013

Mark Messersmith  
Planning and Environmental Branch  
US Army Corps of Engineers  
Charleston District  
69A Hagood Avenue  
Charleston SC 29403

Dear Mark,

Our office has reviewed the draft report entitled *Diver Identification and Assessment of Anomalies in the Lower Harbor of the Charleston Harbor Post 45 Study Area, Charleston, South Carolina* prepared by Panamerican Consultants, Inc., to identify three magnetic anomalies (LH1-001, LH1-009, and LH5-013). The investigations were part of the proposed channel deepening and modification of the Charleston Harbor Project, or Post 45 study. The report is a very thorough assessment documenting the historical and archaeological context of the project area by which to interpret magnetic or acoustic anomalies bearing potential archaeological significance. The anomaly refining and diving investigations were appropriate for identifying these three anomalies.

We concur with the contractor's recommendations that no additional cultural investigations are required at the three anomalies. However, as mentioned previously, while the main magnetic area of anomaly LH1-001 appears well-out of the planned APE, the magnetic record suggests the presence of ferro-magnetic materials drifting towards the planned top of slope. While the magnetic anomaly may represent dredge cable as proposed by the contractor—due to negative contact from the sub-bottom profiler and hydro-probing—we do concur with the contractor that an archaeologist should monitor dredge operations when working in the vicinity of this anomaly. They should be especially attentive to observing spoil from the clam-shell or cutter head operations. In the event archaeological materials are impacted, i.e., wood structure, iron objects, ceramics, etc. during dredging operations please cease activities in that area until inspections may reveal the source of this material. Additionally, in the final report please have the contractor add the refined coordinates for anomaly LH1-001, rather than re-using the original coordinates in Gayes et al. 2013.

Our office has no objections from a submerged cultural resources viewpoint for dredging operations to occur as part of the Charleston Harbor Project or Post-45 study. We do, however, request that any inadvertent discovery of potential archaeological materials, i.e., wood structure, prehistoric lithics, ceramics, etc. during dredging

operations in the project area cease from that vicinity until inspections may reveal the source of this material. Please contact my office or the SHPO for further guidance in this instance, or if plans change.

Thank you for this opportunity to review the report and your support of preserving the submerged archeological legacy in South Carolina waters. If you have any questions, comments, etc. about this matter please contact me.

Sincerely,



James D. Spirek  
State Underwater Archaeologist  
Maritime Research Division

cc: Emily Dale, SC SHPO

**FINAL PROGRAMMATIC AGREEMENT**  
**BETWEEN THE US ARMY CORPS OF ENGINEERS, CHARLESTON DISTRICT, THE**  
**SOUTH CAROLINA STATE HISTORIC PRESERVATION OFFICER, AND THE**  
**NATIONAL PARK SERVICE**

**CHARLESTON HARBOR POST 45 FEASIBILITY STUDY**  
**PROPOSED DEEPENING OF CHARLESTON HARBOR**

WHEREAS, the US Army Corps of Engineers, Charleston District (Charleston District), proposes navigation channel improvements to Charleston Harbor Federal Navigation Channel (Post 45 Project) by deepening the existing inner harbor navigation channel from -45 ft to up to -52 ft mean lower low water (MLLW) and by widening portions of the channel to allow for two-way traffic and/or increased navigation safety (the “Charleston Harbor Post 45 Project” or “the undertaking”); and

WHEREAS, the Charleston District has defined the undertaking’s direct and indirect areas of potential effects (APE) as illustrated in Attachment 1; and

WHEREAS, the Charleston Harbor Post 45 Project lies entirely within the State of South Carolina, and the Fort Sumter National Monument (which includes Fort Sumter and Fort Moultrie) is located in Charleston Harbor; and

WHEREAS, the Charleston District determined that the proposed undertaking, including all individual aspects of the undertaking, would not have an adverse effect upon historic properties included in or eligible for inclusion in the National Register of Historic Places and consulted with the National Park Service (NPS) and the South Carolina State Historic Preservation Officer (South Carolina SHPO) pursuant to regulation 36 CFR, Part 800 implementing Section 106 of the National Historic Preservation Act (NHPA), as amended (54 U.S.C. 306108, previously codified at 16 U.S.C. 470f); and

WHEREAS, the fleet and cargo forecasts predict that more cargo and more and larger vessels will transit Charleston Harbor in the future with or without the undertaking; and

WHEREAS, the Charleston District’s analysis, presented in the Environmental Impact Statement (EIS), concludes that the undertaking would reduce future adverse effects from vessel wakes by enabling fewer vessels to transport the forecasted cargo volumes and distributing vessel wake energy over a wider range of tides; and

WHEREAS, the NPS and the South Carolina SHPO believe that some of the cumulative, indirect effects of the undertaking cannot be fully determined at this time, regarding the undertaking's potential effects on particularly significant historic properties, including the Fort Sumter National Monument, and, in turn, have proposed this agreement in accordance with 36 C.F.R. § 800.14(b)(1)(ii); and

WHEREAS, the NPS concerns associated with the undertaking's potential effects to historic properties, including Fort Sumter, are related to: 1) an existing structural integrity concern; 2) an existing concern about the current riprap protecting Fort Sumter; and 3) the opinion that the deepening of the harbor combined with other factors may place historic properties at greater risk for adverse effects than if the undertaking did not occur; and

WHEREAS, using survey techniques consistent with the standards and guidelines developed by the South Carolina SHPO and in accordance with provisions of Section 106 of the NHPA and the Abandoned Shipwreck Act of 1987, the Charleston District has located a property requiring further investigation to determine National Register eligibility (Anomaly LH1-001 in Gayes et al., 2013 and the Post 45 EIS) in the lower Charleston Harbor; and

WHEREAS, The national significance of Fort Sumter and concerns related to uncertainties surrounding the Post 45 vessel wake impacts analysis warrant monitoring to satisfy Charleston District's Section 106 responsibilities for individual aspects of the undertaking; and

WHEREAS, the parties to this agreement collectively agree that compliance with the procedures established by this agreement satisfies the Charleston District's NHPA Section 106 responsibilities for all individual aspects of the undertaking until the agreement expires or is terminated; and

NOW THEREFORE, the Charleston District, South Carolina SHPO and the NPS (the "parties") collectively agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account concerns associated with uncertainties related to the analysis of potential effects of the undertaking on historic properties:

The Charleston District will ensure the following measures are carried out:

1. In consultation with the South Carolina SHPO and the NPS, the Charleston District shall prepare and implement a monitoring plan to confirm the accuracy of the assumptions and analysis associated with the predicted changes in the wave climate in Charleston Harbor that would result from the undertaking. The plan shall meet all requirements contained in the Monitoring Plan section of this agreement.

2. The Charleston District will review the information, conclusions and recommendations presented in the 1999 report “Fort Sumter Armor Stone and Outer Wall Structural Study” prepared by the Charleston District for Fort Sumter National Monument. The Charleston District will assess the conclusions and recommendations in the report to determine if material dredged for the undertaking could be used as recommended in the report or in another manner to address the erosion-related concerns. If dredged material could be used to address the concerns, the Charleston District will prepare conceptual construction cost estimates for the beneficial use of dredged material that will identify what portion of the project the Charleston District would commit to funding and what portion of the funding would be the responsibility of the NPS. This work will be completed prior to dredging the rock and sediments that that could be used to implement a beneficial use of dredge material project. Cost sharing arrangements will be sought by the South Carolina SHPO and the NPS if any options are identified that are mutually agreed to by the parties.
3. Anomaly LH1-001, which is about 150 feet outside the dredging footprint, will be monitored by an archaeologist meeting the Secretary of Interior’s Professional Qualifications (48 FR 44716) during dredging activities in its vicinity. In the event of an inadvertent discovery during construction, all work would cease in the immediate area. The Charleston District would be notified immediately and would not restart work within the area of the finding until examination and consultation by the Charleston District and the South Carolina SHPO is complete.

### **Monitoring Plan: Brief Description of Issue**

The NPS and the South Carolina SHPO have identified concerns about erosion and structural stability at Fort Sumter and believe that the proposed deepening of the navigation channels in Charleston Harbor may exacerbate existing erosion and stability problems at Fort Sumter. Their specific concerns are that the deepening of Charleston Harbor would result in changes in shipping traffic, sediment transport and potentially change the degree to which climate-change associated parameters (*e.g.*, sea level rise, storm surge) impact NPS resources at Fort Sumter National Monument. The NPS believes that the deepening of the harbor combined with these other factors may place historic properties at greater risk for adverse effects than if the project did not occur. The NPS is concerned that sediment transport changes will result in: (1) increased erosion and deepening in the shallow near-shore areas in the vicinity of Fort Sumter and Fort Moultrie; and (2) potential effects on their long-term structural integrity. Although the Charleston District provided predictions about how the deepening would reduce impacts to NPS resources, uncertainties associated with each of these areas of change remain.

The Charleston District’s analysis presented in the Feasibility Report/Environmental Impact Statement (FR/EIS) concludes that more cargo and more vessels will transit Charleston Harbor

in the future under both the with- and without-project conditions. Further, constructing the undertaking would enable fewer larger vessels to transport the forecasted cargo volumes and distribute the vessel wake energy over a wider tidal range resulting in lower overall vessel wake impacts to Fort Sumter as well as other inner harbor resources and shorelines. Any existing erosion problems could get worse and the existing stability problems will get worse in the future whether the undertaking is constructed or not.

Monitoring for potential erosion and stability impacts of the undertaking is complicated by the fact that the impacts of vessel traffic are very small relative to the other factors that contribute these problems in Charleston Harbor. Under existing conditions, the total annual energy imparted by wind generated waves is approximately 1000 times the energy imparted by vessel generated waves. Additionally, the appearance of erosion based on shoreline position change is to some degree attributable to sea level change.

### **Monitoring Plan**

In an effort to address the concerns of the NPS and South Carolina SHPO and to evaluate the extent to which changes, over time, may be attributable to the deepening project, a monitoring program has been developed by the parties to this agreement. It is summarized below and will be refined through incorporation of additional information and coordination efforts. The parties to the agreement will convene to exchange data and adjust data collection efforts, if needed, approximately annually beginning when the undertaking is authorized until data collection is complete (approximately 5 years after construction is complete).

1. Bathymetric Changes: Concurrent with surveys of the Federal Navigation Channel, acquire multibeam sonar surveys of the lower harbor area to the shores of Fort Sumter and Fort Moultrie, including the historic erosion control measures. This information will be used to compare to historic surveys and used in conjunction with the other monitoring efforts to inform a conclusion about whether or not erosion of the nearshore and/or shoreface has increased after construction and if all or part of it is due to the undertaking.
  - Schedule:
    - Pre-construction: quarterly starting from initiation of Charleston District pre-construction, engineering and design phase until start of construction
    - Construction-concurrent: quarterly
    - Post-construction: quarterly for 5 years
2. Topographic/Shoreline Changes: Near the shore, use ship-based Lidar system to capture the three-dimensional shoreline around the perimeter of Fort Sumter and other historic properties. These data should be collected concurrently and integrated with bathymetric change data (#1).
3. Wave and Current Changes Resulting from the Project: Collect data related to wave and current dynamics before, during, and after construction. Since the primary concern about

the undertaking is related to the potential for it to result in larger and more frequent vessel wakes that would adversely impact important resources, monitoring of ship wakes would capture important data. The Draft Integrated Feasibility Report and Environmental Impact Statement for the undertaking predicted that vessel wake energy will increase in the future regardless of whether the undertaking is constructed or not, but also that the undertaking would decrease the total annual vessel wake energy versus the no action alternative. Thus, an increase in the size and/or frequency of vessel wakes, alone, cannot be used to attribute an impact to the undertaking. Instead, an effort that measures wave and wake energy propagating from the navigation channel and associates it with specific vessels that utilize the physical changes associated with the undertaking to varying degrees would be most appropriate to validate or refute the assumptions used to predict the wave related changes of the undertaking.

- Timeframe: Continuous from one year prior to construction through 5 years post-construction.
  - Sampling Plan: Details on monitoring locations will be jointly developed by the consulting parties. Monitoring equipment would be located to detect potential impacts on a broad scale to allow evaluation of impacts to multiple locations within the harbor.
    - Potential equipment may include a pressure transducer to measure wave heights and/or an Acoustic Doppler Velocimeter or Acoustic Doppler Current Profiler to measure current dynamics.
    - Cameras will be used to document ships passing in the channel to directly relate measured data to specific vessels, tidal data, as well as vessel draft and cargo data.
    - The Automatic Identification System (AIS) will be used, to the maximum extent practicable, to identify only the transits and associated wave energy imparted by the vessels able to benefit from the undertaking.
    - Baseline wave energy, not resulting from commercial cargo vessels using the channel, would be subtracted from total wave energy to estimate vessel wake energy from the channel.
  - Analysis: Since wave energy is expected to increase with or without the undertaking, changes in ship wakes would be normalized to one or more constants such as specific vessel size classes or containers and include time, depth utilization, and tidal components.
4. Reporting: Annual reports, presenting the data collected over a given 12 month period and preliminary analysis will be provided to the South Carolina SHPO and NPS beginning 16 months after preconstruction monitoring begins (allowing 4 months to retrieve, compile and perform preliminary analysis for the annual report). At the end of

the 5<sup>th</sup> year of post-construction monitoring, the Charleston District will prepare a detailed analysis of the data and submit draft and final reports to the South Carolina SHPO and the NPS.

5. Threshold for action: All data must be evaluated together in order to determine if an action needs to be taken to mitigate for unanticipated adverse impacts of the undertaking. The Charleston District will convene a meeting with the South Carolina SHPO and the NPS at the end of the pre-construction monitoring period to evaluate the data collected along with other pertinent data to define pre-construction baseline conditions and establish specific threshold values for action. Additional annual meetings will occur to continue to evaluate data collected during construction and post-construction periods and determine whether corrective action is needed. Some factors that will be considered include:
  - Does measured erosion exceed the natural variability or the magnitude that can be attributed to variations in sea level or factors other than the undertaking?
  - Have wave and current dynamics changed significantly compared to the pre-construction baseline conditions or what would have occurred without the undertaking and can they be attributed to the vessels utilizing the physical changes associated with the undertaking?
  - Has the energy attributable to vessel wakes increased more than would have occurred without the project?
  - Is any increase in wake energy significant?
  - Have the forecasted fleet changes occurred and have the largest vessels utilized the increased depths and distributed the energy from vessel wakes over a wider range of tide stages, as anticipated?

**General Stipulations:**

- 1) Any party to this agreement may request that it be amended, whereupon the parties will consult in accordance with 36 CFR, Part 800.6(c)(7) to consider amendment.
- 2) This agreement will expire if its terms are not carried out within five (5) years from the date that construction associated with the undertaking has been completed. Prior to such time, the Charleston District may consult with the other parties to reconsider the terms of this agreement and amend it in accordance with Stipulation 1 above.
- 3) The South Carolina SHPO, and NPS may monitor activities carried out pursuant to this agreement, and the Advisory Council on Historic Preservation (“ACHP” or “Council”) will review such activities if so requested. The Charleston District will cooperate with the Council, the South Carolina SHPO, and the NPS in carrying out their monitoring and review responsibilities.
- 4) The parties to this agreement shall consult annually to review implementation of the terms of this agreement and determine if revisions are needed. If revisions are needed, the parties

- to this agreement will consult in accordance with 36 CFR, Part 800 to make such revisions.
- 5) Any party to this agreement may terminate it by providing 30 days notice to the other parties, provided that the parties will consult during the period prior to termination to resolve objections and seek agreement on amendments or other actions that would avoid termination. In the event of termination, the Charleston District will comply with 36 CFR, Parts 800.4 through 800.6 with regard to individual aspects of the undertaking covered by this agreement.
  - 6) Should the South Carolina SHPO, the NPS, or the Council object within 45 days to any actions proposed pursuant to the agreement, the Charleston District shall consult with the objecting party to resolve the objection. If the Charleston District determines that the objection cannot be resolved, the Charleston District shall request further comments of the Council pursuant to 36 CFR, Part 800.7. Any Council comment provided in response to such a request will be taken into account by the Charleston District in accordance with 36 CFR, Part 800.7 with reference only to the subject of the dispute; the Charleston District's responsibility to carry out all actions under this agreement that are not the subjects of the dispute will remain unchanged.
  - 7) At any time during implementation of the measures stipulated in this agreement, should an objection to any such measure be raised by a member of the public, the Charleston District shall take the objection into account and consult as needed with the objecting party, the South Carolina SHPO, the NPS, or the Council to resolve the objection.
  - 8) In the event the Charleston District does not carry out the terms of the agreement, the Charleston District will comply with 36 CFR, Parts 800.4 through 800.6 with regard to individual aspects of the undertaking covered by this agreement.
  - 9) Execution and implementation of this agreement evidences that the Charleston District has satisfied its NHPA Section 106 responsibilities for all individual aspects of the undertaking.
  - 10) Nothing herein shall constitute, or be deemed to constitute, an obligation of future appropriations by the United States.
  - 11) The Anti-Deficiency Act, 31 U.S.C. §1341, prohibits federal agencies from incurring an obligation of funds in advance of or in excess of available appropriations. Accordingly, the parties agree that any requirement for obligation of funds arising from the terms of this agreement shall be subject to the availability of appropriated funds for that purpose, and that this agreement shall not be interpreted to require the obligation or expenditure of funds in violation of the Anti-Deficiency Act. If compliance with the Anti-Deficiency Act alters or impairs the Charleston District's ability to implement the stipulations of this agreement, the Charleston District shall conduct supplementary consultation under the agreement with the parties. If an amendment is necessary, Stipulation 1, above, shall be followed.
  - 12) This agreement may be executed in counterparts. A copy with all original executed signature pages affixed shall constitute the original agreement. The date of the agreement execution shall be the date of the signature of the last party to sign.

# FINAL PROGRAMMATIC AGREEMENT

BETWEEN THE US ARMY CORPS OF ENGINEERS, CHARLESTON DISTRICT, THE  
SOUTH CAROLINA STATE HISTORIC PRESERVATION OFFICER, AND THE  
NATIONAL PARK SERVICE

CHARLESTON HARBOR POST 45 FEASIBILITY STUDY  
PROPOSED DEEPENING OF CHARLESTON HARBOR

## SIGNATORIES:

Department of the Army, Corps of Engineers, Charleston District

 , May 13, 2015

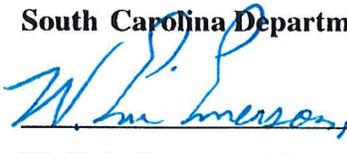
LTC John T. Litz, District Commander

U.S. Department of the Interior, National Park Service, Southeast Regional Office

\_\_\_\_\_, 2015

Stan Austin, Regional Director

South Carolina Department of Archives and History

 , May 13, 2015

W. Eric Emerson, Director, and State Historic Preservation Officer

**FINAL PROGRAMMATIC AGREEMENT**  
**BETWEEN THE US ARMY CORPS OF ENGINEERS, CHARLESTON DISTRICT, THE**  
**SOUTH CAROLINA STATE HISTORIC PRESERVATION OFFICER, AND THE**  
**NATIONAL PARK SERVICE**

**CHARLESTON HARBOR POST 45 FEASIBILITY STUDY**  
**PROPOSED DEEPENING OF CHARLESTON HARBOR**

**SIGNATORIES:**

**Department of the Army, Corps of Engineers, Charleston District**

\_\_\_\_\_, 2015

**LTC John T. Litz, District Commander**

**U.S. Department of the Interior, National Park Service, Southeast Regional Office**

*for*  \_\_\_\_\_, 2015  
**Stan Austin, Regional Director**

**South Carolina Department of Archives and History**

\_\_\_\_\_, 2015

**W. Eric Emerson, Director, and State Historic Preservation Officer**



Preserving America's Heritage

May 13, 2015

Mr. Bret L. Walters  
Chief, Planning and Environmental Branch  
Charleston District, Corps of Engineers  
1835 Assembly Street, Room 865 B-1  
Columbia, SC 29201

**Ref: *Proposed Charleston Harbor Deepening Project  
Charleston, South Carolina***

Dear Mr. Walters:

The Advisory Council on Historic Preservation (ACHP) recently received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on properties listed on and eligible for listing in the National Register of Historic Places. Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800) does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or another party, we may reconsider this decision. Additionally, should circumstances change, and you determine that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR 800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the South Carolina State Historic Preservation Officer (SHPO) and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the Agreement and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with your notification of adverse effect. If you have any questions or require further assistance, please contact Brian Lusher at 202-517-0221, or via email at [blusher@achp.gov](mailto:blusher@achp.gov).

Sincerely,

Raymond V. Wallace  
Historic Preservation Technician  
Office of Federal Agency Programs



# United States Department of the Interior



IN REPLY REFER TO:  
SER-CRD

NATIONAL PARK SERVICE  
Southeast Regional Office  
Atlanta Federal Center  
1924 Building  
100 Alabama St., SW.  
Atlanta, Georgia 30303

MAY 13 2015

Bret L. Walters  
U. S. Army Corps of Engineers  
Charleston District  
69A Hagood Avenue  
Charleston, South Carolina 29403

Dear Mr. Walters:

Thank you for consulting with the National Park Service (NPS) in compliance with Section 106 of the National Historic Preservation Act regarding the Charleston Harbor Post 45 project to deepen and construct navigation improvements in Charleston harbor. After reviewing the Draft and Final Integrated Feasibility Report and Environmental Impact Statement, the NPS expressed concerns that the effects of the undertaking on historic properties were not adequately addressed to consider erosion or the structural stability of historic properties at Fort Sumter National Monument (FOSU). Through consultation among the U.S. Army Corps of Engineers, Charleston District, the South Carolina State Historic Preservation Office, and the NPS, we agreed to enter into a Programmatic Agreement (PA) as a consulting party in accordance with 36 C.F.R. §800.14(b)(1)(ii). The PA includes a monitoring plan to address NPS concerns and will measure bathymetric changes, topographic and shoreline changes, and wave and current changes in the vicinity of Fort Sumter and Fort Moultrie. The PA also includes a commitment to assess the extent to which beneficial use of dredged material from the project could be used as part of a future project to address erosion-related concerns.

Enclosed are signed copies of the signature page for the final PA. We appreciate working with you on the protection of the nationally significant resources at FOSU.

Sincerely,

for Stan Austin  
Regional Director  
Southeast Region

Enclosure



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

SEP 08 2014

Mr. Bret Walters, Chief  
Planning and Environmental Branch  
U.S. Army Corps of Engineers  
Charleston District  
69A Hagood Ave.  
Charleston, South Carolina 29403-5107

Dear Mr. Walters:

This letter is in response to your request of April 10, 2014, for concurrence on the proposed disposal of maintenance dredged material from the Charleston Harbor Federal Navigation Project (FNP) and new work from the proposed deepening of this project (Post45), into the Charleston Ocean Dredged Material Disposal Site (ODMDS).

Pursuant to Section 103(c) of the Marine Protection, Research, and Sanctuaries Act, as amended (MPRSA), concurrence from the Environmental Protection Agency is based upon compliance with the criteria, conditions and restrictions established pursuant to MPRSA Sections 102(a) [environmental criteria] and 102(c) [disposal site designation and management]. Based upon our review of the MPRSA Section 103 Evaluation and Testing report, we concur that the proposed dredged material meets the criteria for ocean disposal, as proposed.

This concurrence includes both maintenance material and new work material (upon Congressional authorization of Post45) from the Charleston Harbor FNP as outlined in the Section 103 Evaluation Report (Evaluation) submitted for review. Proposed dredged material from maintenance of the FNP is estimated to be approximately 1.36 million cubic yards (annual average) including advanced maintenance and allowable overdepth. Project depth in the Entrance Channel is -47 feet with 2 feet of advance maintenance and 2 feet of allowable overdepth. Project depth in the remaining portions of the FNP is -45 feet with 2 feet of advance maintenance and 2 feet of allowable overdepth. As described in the Evaluation, specified areas in the FNP occasionally receive up to 6 feet of advanced maintenance and 2 feet of allowable overdepth. New work associated with Post45 is estimated to add an additional 43.0 million cubic yards of material. As currently defined, Post45 project depths are -54 feet in the Entrance Channel, -52 feet throughout the Lower Harbor to the new Naval Base terminal, and -48 feet in the Upper Harbor. Advanced maintenance and allowable overdepth figures are expected to remain unchanged. The Anchorage Basin has an authorized depth of -35 feet and Shem Creek Channel is dredged to -12 feet.

Dredging of maintenance and new work material both are anticipated to involve mechanical and hydraulic methods, depending upon where the work occurs. The outer portion of the Entrance Channel (seaward of Station 450+00) met the criteria by fulfilling the requirements of the Exclusionary Criteria, 40 CFR §227.13b(3). Subsequently, disposal of any material from this portion of the FNP can only occur within the portions of the ODMDS represented by comparison boring stations. The following table specifies maximum load volumes and type of dredge to be used, if any, based upon compliance with the criteria through the STFATE model results.

DESCRIPTION	Maximum Load Volume	Dredge Type
Entrance Channel – from 0+00 to 450+00 – Exclusionary Criteria	No restriction	No restriction
Entrance Channel 1	13,500	Hydraulic
Entrance Channel 2	13,500	Hydraulic
Mount Pleasant Range	No restriction	No restriction
Rebellion Reach, Bennis Reach, & Horse Reach	9,000	Mechanical
Hog Island Reach	9,000	Mechanical
Drum Island Reach, Meyers Bend, & Drum Island Reach Widener	9,000	Mechanical
Wando River Lower Reach	9,000	Mechanical
Wando River Upper Reach & Wando River Turning Basin	9,000	Mechanical
Daniel Island Reach	9,000	No Restriction
Daniel Island Bend, Clouter Creek Reach, & Clouter Creek Reach Widener	9,000	No Restriction
Navy Yard Reach & North Charleston Reach	9,000	No Restriction
Port Terminal Reach, Filbin Creek Reach, & Ordnance Reach	9,000	No Restriction
Ordnance Reach Turning Basin & Ordnance Reach Turning Basin Widener	9,000	No Restriction
Bennis Reach Widener	9,000	Mechanical
Hog Island Reach Widener	9,000	Mechanical
Wando River Turning Basin Widener	9,000	Mechanical
Daniel Island Reach Widener	9,000	No Restriction
Wando River Lower Reach Widener	No Restriction	No Restriction
North Charleston Reach & Filbin Creek Reach Wideners	9,000	No Restriction
Anchorage Basin	9,000	Mechanical
Shem Creek	9,000	No Restriction

Due to the known issues with capacity for Post45 Improvements at the Charleston ODMDS, efforts are underway to expand the boundaries of the site. Because the estimated 43 million cubic yards of new work from Post45 Improvements would exceed the current site's capacity, we are conditioning our concurrence of that material on the completion of the site expansion. As with all concurrences provided by this office, our concurrence on the disposal of this material is contingent upon compliance with all specifications and conditions of the Charleston ODMDS Site Management and Monitoring Plan (Plan). As specified in the Plan, verification of the suitability of the dredged material for ocean disposal by the U.S. Army Corps of Engineers and

the EPA is valid for a 3-year period. Accordingly, the EPA's concurrence of the proposed disposal is effective for three years from the date of this letter.

If you have any questions concerning this letter, please contact me at (404) 562-9345, or have a member of your staff contact Mr. Gary Collins at (404) 562-9395.

Sincerely,



James D. Giattina  
Director  
Water Protection Division



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

APR 28 2015

Mr. Bret Walters  
Chief  
Planning and Environmental Branch  
U.S. Army Corps of Engineers  
Charleston District  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Mr. Wilbert V. Paynes  
Chief  
Planning and Policy Division  
U.S. Army Corps of Engineers  
Programs Directorate, South Atlantic Division  
Room 10M10  
60 Forsyth Street, S.W.  
Atlanta, Georgia 30303

Dear Mr. Walters and Mr. Paynes:

As you requested, we are issuing this letter to outline the U.S. Environmental Protection Agency's current perspective regarding the status and next steps for the modification of the Charleston Harbor Ocean Dredged Material Disposal Site (ODMDS) located offshore Charleston, South Carolina, as required by the Marine Protection, Research, and Sanctuaries Act (MPRSA).

The EPA designated the Charleston Harbor ODMDS in 1987 for a prior deepening and maintenance dredging project for the Charleston Harbor federal navigation channel. In 2012, the U.S. Army Corps of Engineers (USACE) requested that the EPA modify the boundaries of the existing ODMDS to accommodate additional new work dredged material for the proposed Charleston Harbor Post 45 Deepening Project. Since this initial request, the EPA and the USACE have published a Notice of Intent, conducted site specific studies, dredged material evaluations and related work to develop an Environmental Assessment (EA) in accordance with the EPA's National Environmental Policy Act (NEPA) policy regarding ODMDS modifications.

The EPA continues to coordinate with the staff at the USACE Charleston District office on the remaining steps in the process of modifying the ODMDS. In the next several weeks, my staff intends to work with the USACE Charleston District staff to finalize the draft EA and to provide the draft to other state and federal resource agencies for their review and comment. This includes initiating formal consultations with the National Marine Fisheries Service (NMFS) Habitat Conservation Division regarding the potential impacts of the ODMDS modification to Essential Fish Habitat (EFH); NMFS Protected Resources Division pursuant to Section 7 of the Endangered Species Act; and the State of

South Carolina on consistency with the enforceable policies of the South Carolina Coastal Zone Management Program. The draft EA will also be released for public comment. Additional coordination will include responding to comments on the draft EA in preparation of the final EA, finalization of the Site Management and Monitoring Plan and preparation of the draft rulemaking package regarding the propose modification of the ODMDS.

If you have any questions concerning this matter, please contact me at (404) 562-9345 or Mr. Gary Collins of my staff at (404) 562-9395.

Sincerely,



James D. Giattina  
Director  
Water Protection Division



## United States Department of the Interior



### FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407

October 14, 2014

Lt. Colonel John T. Litz  
District Engineer  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, SC 29403-5107

Attn: Mark Messersmith

Dear Colonel Litz:

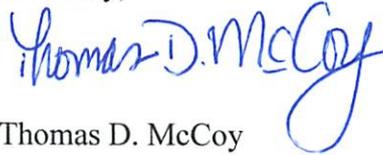
The U.S. Fish and Wildlife Service (Service) is pleased to provide, for your review, the enclosed Final Fish and Wildlife Coordination Act Report (Report) for the Charleston Harbor Post 45 Deepening Project, Charleston, South Carolina. The Service submits the Report in accordance with section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*). This Report was prepared in cooperation with the U.S. Army Corps of Engineers (USACE), the National Marine Fisheries Service (NMFS), and the South Carolina Department of Natural Resources (SCDNR), which provided valuable review and recommendations.

Charleston Harbor is an Atlantic Coast tidal estuary located at Charleston, South Carolina, approximately 100 miles southeast of Columbia, the State capital, and 140 miles southwest of the entrance to North Carolina's Cape Fear River. Multiple port terminals are established in Charleston Harbor receiving bulk or containerized cargo comprised of many commodities including agricultural products, consumer goods, machinery, metals, vehicles, chemicals, and many other products. In addition to harboring a robust variety of commercial traffic, Charleston Harbor contains bountiful natural resources and offers tremendous recreational opportunities for the general public.

The proposed deepening of Charleston Harbor will provide the opportunity for the Port of Charleston to keep pace with changing shipping technologies and remain competitive in the global market. While the Service understands the need to move forward with the Project, we emphasize the equally important need to protect and conserve the area's abundant resources for the benefit of everyone. The Report includes 16 recommendations intended to balance the impacts resulting from the project with natural resource conservation.

The Service expresses its appreciation to the NMFS, SCDNR, and the USACE in the development of this Report. If you have any questions or wish to discuss our recommendations, please contact Mr. Mark Caldwell at 843-727-4707 ext. 215.

Sincerely,



Thomas D. McCoy  
Acting Field Supervisor

TDM/MAC



**United States Department of the Interior  
OFFICE OF THE SECRETARY**

**Office of Environmental Policy and Compliance**

**Richard B. Russell Federal Building  
75 Spring Street, S.W., Suite 1144  
Atlanta, Georgia 30303**



ER 14/0657  
9043.1

December 9, 2014

Lt. Colonel John T. Litz  
District Engineer  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, SC 29403-5107

Attn: Mark Messersmith

Re: Comments and Recommendations on Charleston Harbor Deepening, Post 45, Draft  
Integrated Feasibility Report and Environmental Impact Statement, Charleston, County,  
South Carolina

Dear Colonel Litz;

The United States Department of the Interior (Department) has reviewed the Draft Integrated Feasibility Report and Environmental Impact Statement (DIFR/DEIS) regarding the proposal to deepen the Charleston Harbor entrance channel (Post 45) in Charleston, South Carolina (SC).

Briefly, the US Army Corps of Engineers (Corps) proposes to deepen and extend the Charleston Harbor entrance channel to accommodate navigational needs for the existing and future commercial shipping industry in Charleston, SC. The draft IFR/EIS is submitted pursuant to the National Environmental Policy Act of 1969 (NEPA), the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (ESA), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

As described in the draft IFR/EIS, the existing Charleston Harbor entrance channel will be deepened from 47 feet to 54 feet over the channel's 800-foot bottom width. The entrance channel will be extended approximately three miles seaward maintaining the 54-foot depth. The existing stepped 1,000-foot channel width will be reduced to 944 feet and deepened to 49 feet. The inner harbor channel will be deepened from 45 feet to 52 feet up to the Wando Welch container facility on the Wando River and the new SC State Ports Authority (SPA) Terminal currently under construction on the Cooper River. The remainder of the channel will be deepened to 48 feet up to the North Charleston container facility on the Cooper River. The existing turning basins at the Wando Welch and the SC SPA terminal will be enlarged to

an 1,800-foot diameter to accommodate Post Panamax Generation 2 and 3 container ships. The North Charleston Terminal turning basin will be enlarged to 1,650-foot. Dredged material will either be placed in existing upland confined disposal facilities such as Clouter Creek, Yellow House Creek, Daniel Island facilities, or placed in the Ocean Dredged Material Disposal Site.

The Post 45 project is anticipated to impact approximately 281 acres of wetlands due to changes in salinity which will require mitigation by protecting an estimated 831 acres of wetlands. In addition, approximately 29 acres of direct impacts to hardbottom areas within the footprint of the new entrance channel will require mitigation. Compensation for impacts to hardbottom habitat will consist of the construction of two 33-acre hardbottom habitat mitigation reefs. Six similar 33-acre hardbottom habitat reefs will be constructed as a beneficial re-use of dredged material feature of the project. Additionally, dredged material from the entrance channel will be used to enhance the SC Department of Natural Resources' (SCDNR) Charleston Nearshore Reef.

The Department along with other resource agencies, have participated in early coordination with the Corps over the past several years regarding the Post 45 deepening project. At the interagency coordination meetings (ICT), we discussed potential impacts and appropriate compensation including threatened and endangered species, fish stock implications, increased salt influence in the Ashely and Cooper Rivers, hard bottom habitat, beneficial re-use of dredge spoil, type and location of mitigation area, etc. During this early coordination, our correspondences were submitted to the Corps (March 2, 2011 and November 4, 2011) which provided our resource concerns for the potential project. Additionally, pursuant to section 2(b) of the FWCA we fostered a Coordination Act Report (Report) analyzing the existing harbor environment, the various deepening alternatives, provided preliminary concerns, recommendations, and the Department's position on the project. For this submission, we find it prudent and appropriate to echo our findings in the Report. To provide clarification and specificity for several of the issues put forth in the Report, we submit the following comments for your consideration.

### **Threatened and Endangered Species**

A biological assessment (BA) was incorporated into Post 45 draft IFR/EIS as Appendix F. The BA encompassed each of the federally threatened and endangered species known to occur in Charleston County and its nearshore waters.

The Department agrees with the Corps determination that the dredging activity will not affect the seabeach amaranth (*Amaranthus pumilus*), American wood stork (*Mycteria americana*), piping plover (*Charadrius melodus*), or the red knot (*Calidris canutus rufa*) as no suitable habitat for these species will be directly impacted. We will officially list the red knot as "threatened" in December 2014. However, re-use of the dredged material to enhance either Shutes Folly or Crab Bank may affect habitat for the American wood stork, piping plover, and the red knot. If the Corps determines that enhancement of these areas with dredged material is preferred in the Planning and Engineering Design (PED) phase of the Post 45 project additional consultation with the Department will be required.

The Department agrees with the Corps that there is a potential to affect sea turtle species via

dredging operations. Project impacts for this project may include vessel strikes, turtle uptake into the dredge pipes, or nighttime disorientation due to equipment lighting. While both of these potential impacts are associated with in-water operations endangered species consultation under section 7 of the ESA falls under the jurisdiction of the National Marine Fisheries Service (NMFS).

The West Indian manatee (*Trichechus manatus*) is a seasonal visitor to the Charleston area during the warmer months of the year, usually from May through October. The manatee is a slow moving marine mammal and is susceptible to vessel strikes, particularly in commercially and recreationally active coastal areas. The BA provides for consideration of potential effects to the manatee via collisions with dredging equipment and commits to implementing the Department's standard protection guidelines throughout the project. These guidelines, which apply to all dredging activities and support vessels, are designed to avoid impacts to the manatee.

Based on our review of the project as described in the draft IFR/EIS, the Department concurs with your determination that the proposed activity is not likely to adversely affect the West Indian manatee. Further, no designated critical habitat for occurs for the manatee within the project boundaries. Please note that due to obligations under the ESA potential impacts of this project must be reconsidered if: (1) new information reveals impacts of this identified action may affect any listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner, which was not considered in this assessment; or (3) a new species is listed or critical habitat is designated that may be affected by the identified action.

For informational purposes only, the Department includes an inventory of species that have been petitioned for listing under the ESA as well as Candidate Species. These species are collectively referred to as "At-Risk Species" (ARS). We have included a list of the ARS that may occur in Berkeley and Charleston Counties, South Carolina. Although there are no Federal protections afforded to ARS, please consider including them in future project development. Incorporating proactive measures to avoid or minimize harm to ARS may improve their status and assist with precluding the need to list these species. Additional information on ARS can be found at: <http://www.fws.gov/southeast/candidateconservation>.

### **Resource Impact Compensation**

The Corps will rely upon the Unified Mitigation Assessment Methods (UMAM) instead of the Charleston District's 2010 Standard Operating Procedures to determine the appropriate amount of compensation for the anticipated wetland alterations in the Cooper and Ashley Rivers. Although UMAM is being utilized for the Corps' harbor deepening in Jacksonville FL, it has not been applied to projects in South Carolina. Several ICT meetings were dedicated to discuss the use of UMAM in the Post 45 project. Upon review of the UMAM process and through a trial application of the procedures using habitats within the Cooper River, the Department does not object to the use of UMAM and finds that it should adequately foster a suitable compensation package.

In discussions with SCDNR and the NMFS, the Department is concerned whether the Corps has

calculated the appropriate amount of credits for the project impacts over the life of the project. In Table 3 of Appendix L, the Corps calculated the Post 45 project will affect over 280 acres of wetlands due to salinity changes at the time of construction completion in the year 2022. This acreage was used to determine the amount of mitigation for the Post 45 project using the UMAM process. However, Table 2 in Appendix L shows a much higher amount of impacted wetlands (493 acres) when the 50-year life of the permit is taken into account. This a significant difference in anticipated impacts resulting from the Post 45 project, as recognized by the Corps. As such, the current mitigation calculations may need to be revised to account for all potential wetland impacts. We believe it is prudent for the ICT to reconvene in order to discuss this issue.

### **Migratory Birds**

The Department also implores the Corps to continue their investigation into the re-use of spoil material to enhance Shutes Folly and Crab Bank. Both Shutes Folly and Crab Bank are considered as very important bird-nesting sites. Shutes Folly is a small island inside Charleston Harbor upon which sits the remnants of Castle Pinckney, identified in the National Register of Historic Places. Castle Pinckney and the land surrounding it is frequented by many species of migratory wading birds and shorebirds including the brown pelican, least tern, American oyster catcher, and Wilson's plover, all of which are considered as high priority conservation species in South Carolina. Crab Bank contains equally, if not more important, habitat for migratory birds and has been designated as an Important Bird Area by the Audubon Society. Due to its importance, SCDNR designated Crab Bank as a Seabird Sanctuary and regulates public access to minimize disturbance.

Several ideas for beneficial use of the spoil material have been proposed over the course of this project's development including, but not limited to: renourishment of the highly eroded Morris Island; creation of a new island near the Charleston jetties; and refurbishment of Shutes Folly and Crab Bank. The Department commends the Corps for their consideration of the latter possibility over traditional disposal methods. Restoration and enhancement of nesting bird habitat, such as that found on Shutes Folly and Crab Bank will provide a larger overall benefit to wildlife resources, particularly migratory birds, water birds, and shorebirds than the other options. Refurbishment of Shutes Folly and Crab Bank is especially important, as the Post 45 project will provide passage for larger ships that may generate larger, more erosive waves and increase the loss of these already dwindling habitats. The Corps has committed to evaluating impacts upon Shutes Folly and Crab Bank and we look forward to close coordination with the Corps and SCDNR during the Preconstruction, Engineering, and Design (PED) phase of the Post 45 project.

### **Dredging and Spoil Activities**

In review of the draft IFR/EIS, the Department is concerned that dredging activities may adversely affect sensitive aquatic resources and activities. The Corps does not provide a clear time frame for the Post 45 project's actual dredge and spoil activities but does indicate a 95-month period is needed for the construction to be completed (Table 4-5). Until a specific plan is finalized, we must assume that, once started, dredge and spoil activities will be continuous

throughout the 95-month period. Normally, we would recommend that all dredging activities be conducted during the winter months. Dredge operations in warm water temperatures tend to result in a reduction of dissolved oxygen in the water column and may adversely affect aquatic species spawning that occurs throughout the late spring to fall seasons.

However, due to the nature, magnitude, and importance of the Post 45 project, the Department finds that limiting the dredging window may not be practical. Absent a standard dredging window, the Corps should consider limiting the time of year that dredging takes place in sensitive areas (i.e. The Grillage) to the cooler months of the year when possible. In addition, we recommend limiting the use of hopper dredges to winter months to avoid or minimize impacts to the manatee and sea turtle. The PED should develop a specific dredging plan including time frames and methods and the Department requests the opportunity to provide input, along with SCDNR and NMFS.

To minimize effects on migratory birds during nighttime dredging activities, the Department recommends that all lighting for dredge equipment, barges, and support vessels will be directed downward toward the work area. No omnidirectional or skyward pointed lights should be utilized. If you have any questions or need clarification for the above comments, please contact Mark Caldwell at (843) 727-4707 ext. 215.

In addition, Fort Sumter National Monument and Charles Pinckney National Historic Site are located within three different cities, Charleston, Mount Pleasant, and Sullivan's Island, in Charleston County, South Carolina. Fort Sumter National Monument is comprised of three separate and unique sites: Fort Sumter, constructed on a man-made island that sits at the mouth of the Charleston Harbor; Fort Moultrie and Life Saving Station located on the southeast end of Sullivan's Island, and Liberty Square located at the east end of Calhoun Street in downtown Charleston. The park is bordered by private and commercial lands as well as Charleston Harbor and/or the intercoastal waterway.

We are concerned that due to the low-lying elevation of Fort Sumter, the potential for adverse impacts to the Fort is greater than estimated in the DEIS. We believe that climate changes, leading to increased storm surges and sea level rise, will affect park resources and values at Fort Sumter. The potential for additional impacts from USACE planned Charleston Harbor deepening may place Fort Sumter at increased risk of inundation and threaten the integrity of the Fort walls. The Fort is already experiencing significant erosion issues as documented in previous studies and work with the USACE. Deeper water depths adjacent to the shores of Fort Sumter and Fort Moultrie may allow greater erosion from wind driven waves and currents.

The visitor experiences at National Parks are directly linked to the sensory experience, in this case at a nationally significant historic site. The undetermined impact of large vessels hindering the view from Fort Moultrie (and impacting the view to and from Fort Sumter) are not addressed in the DEIS. The Department recommends additional analysis or monitoring to provide data to adequately assess the visual effects to the visitor experience at both locations. Although boat traffic continues to define Charleston Harbor as it did historically, the size, quantity and frequency of the vessel traffic should be studied near these National Park Service (NPS) sites.

The visitor experience may be diminished and adjustments to the schedule may mitigate concern, i.e., limiting some vessels to non-peak visitation hours.

The Department transports staff and visitors by ferry to Fort Sumter. The presence of larger and increased vessels could impact the timing and routes of Fort Sumter boats. The impact to ferry operators is also not addressed in the DEIS and should be analyzed in the Final Environmental Impact Statement (FEIS).

### **Specific Comments**

Section 6-6 of the main document does not explain how obligations of Section 106 of the National Historic Preservation Act (NHPA) will be met by the USACE. Is this EIS combining NEPA compliance with Section 106 of the NHPA? If so, correspondence and explicit citation should be included in the FEIS.

Page 2-117 - It should be noted that the Charleston Historic District, the USS Clamagore, and the USS Yorktown are National Historic Landmarks, which means that Section 110(f) of the NHPA applies as well as 36 CFR 800.10. Please correct this in the FEIS.

Table 3-5, Page 3-41 of the DEIS concludes that there will be no effect of the dredging and associated change in boat traffic on the integrity of Fort Sumter. This conclusion is based on the reference: McCartney, A., Scully, B. 2014. Use of AIS and AISAP for Analysis of Vessel-Wakes in Charleston Harbor: A Case Study. Unpublished. USACE Coastal and Hydraulic Laboratory. ERDC/CHL TR. The McCartney and Scully (2014) reference is not available for public or agency review. It is not clear whether or not McCartney and Scully (2014) incorporated sea level rise in their study. This is important because they are stating that the newer, larger boats will have a lower blockage if the channel is deepened. Please provide a copy of the reference for review and clarify in the FEIS if this reference incorporated sea level rise in the study. The source for the vessel predictions presented in Figure 2.5.13 in Appendix A is not presented and needs to be included in the FEIS.

Table 2.5.2.5 of Appendix A – It appears that the wave height quantified to estimate effects to shoreline presented is based on low tide only. Based on the economic analysis of the value of reducing tide restriction, it is of value to quantify effects at both low and high tide. The Department recommends including wave effects to shoreline at low tide and high tide in the FEIS.

Section 2.4.2.1 (Cultural and Historic Resources on pages 2-117 of the DEIS) states the Fort Sumter National Monument, located approximately 2,925 feet from the navigation channel, has been experiencing erosion, with the south and east faces of the Fort particularly exposed to wave action. The DEIS refers to a letter to the USACE in September 2011 in which the Department indicated that a gap in the existing stone breakwater allows waves to crash directly against the brick masonry walls, especially at high tide. The exposure of the Fort to wave action was also discussed in a 1999 structural study report by the USACE. The study of the armor stone and outer wall of Fort Sumter National Monument was undertaken by the USACE in 1998-1999 to

determine the condition of the existing armor stone revetment protecting the Fort and the condition of the brick facing on the outer wall and recommend necessary remedial action. The study report stated that the east side (left and right faces) of the Fort are particularly exposed to wave action from wind and passing cargo vessels, and that a portion of the left face was unprotected by armor stone. In addition, the armor stone had been placed directly against the Fort's outer wall, causing some damage to the brick facing. The report recommended the existing armor stone be moved away from the wall, and a new breakwater constructed with this and additional stone on the east (left and right faces) and southeast sides of the Fort. This new breakwater would also fill in the current gap of existing armor stone (left face). (Reference: USACE, 1999, Armor Stone and Outer Wall Structural Study, Fort Sumter National Monument, South Carolina. Report to NPS. 20 pages). As mitigation for potential impacts from this project, the Department requests that hard rock dredged from the mouth of the Harbor at Charleston Jetties be relocated to Fort Sumter to form a new breakwater as was initially recommended in the 1999 USACE report.

Appendix P indicates USACE is committed to a variety of monitoring functions during Preliminary Engineering and Design and post construction. Due to concerns over exacerbating impacts to the Fort, the Department requests monitoring of wave impacts on Fort Sumter walls and substrate foundation. The park currently has a sophisticated three dimensional survey monitoring system in place that associates 67 points in the masonry structure with a deep benchmark reference point. The Department requests USACE to assist semi-annual repetitions of the survey to ascertain any instability in the structure possibly caused by the dredging project.

DEIS Page 5-9 Relative Sea Level Change (Section 5.4.4) - The DEIS refers to EC-1165-2-212 which requires USACE to incorporate sea level change into their analysis of dredging projects. Based on this, the USACE concludes that "The proposed project itself would not appreciably alter sea level (water surface elevation)." However, it is also stated that "the proposed project would cause a small incremental increase in high tide water levels along the Cooper River." The USACE estimate is 0.07 feet or less increase in 99th percentile water level.

Changing hydrology due to dredging can potentially affect how storm surge impacts Fort Sumter. We are concerned that waves caused by large ships in conjunction with storm surge may increase damage to Fort Sumter. The Department recommends including storm surge modeling that incorporates effects of climate change and dredging on Fort Sumter.

We are performing a long-term study in partnership with the University of Colorado. The purpose of this study is to create a series of maps to depict how 117 of our coastal parks will be impacted by storm surge and sea level. These maps were created to illustrate how much of a park would be flooded if struck by a hurricane. The maps were generated using a sea, lake, and overland surge from hurricanes (SLOSH) model created by NOAA. For Fort Sumter, the maps indicate that with a Category 2 hurricane at high tide, the Fort area would be at risk from a storm surge elevation of approximately 10 ft. With a Category 3 hurricane at high tide, the Fort would be at risk from a storm surge elevation of more than 12 ft.

Images of Fort Sumter storm surge for Category 1-5 hurricanes at mean and high tide are

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available at: <https://www.flickr.com/photos/125040673@N03/sets/72157645643578558/>. [The Department requests that this information be considered in the FEIS.](#)

Marsh impacts seem to center around salinity changes that can potentially change the plant community. However, no consideration was otherwise given to impacts from changes in boat traffic wakes, possibly exposed shallow marsh soils, erosion, loss of soils due to possibly extended oxidation periods from exposure that can increase decomposition of organics, or impacts to the fauna living in the shallow salt marsh habitat near the Fort. Marsh life can be extended and the Fort protected if dredged materials can be used beneficially to enhance the salt marsh near Fort Sumter. The Department recommends the use of dredged material beneficially to protect the Fort, elevate the surrounding marsh which can offset impacts of sea level rise, extend the life of the marshes or the shallow tidal bottoms.

Thank you for considering our comments on the DEIS. We look forward to working with your office in the development of the FEIS on this important project. If you have questions or need further information regarding these comments, contact Anita Barnett at (404) 507-5706. I can be reached on (404) 331-4524 or via email at [joyce\\_stanley@ios.doi.gov](mailto:joyce_stanley@ios.doi.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "J. Stanley", with a long horizontal flourish extending to the right.

Joyce Stanley  
Regional Environmental Protection Specialist

cc:

Christine Willis – FWS

Anita Barnett – NPS

Gary Lecain – USGS

Robin Ferguson – OSRME

OEPC - WASH