UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
https://www.fisheries.noaa.gov/region/southeast

05/24/2021

F/SER31:LW
SERO-2020-03193

Chief, Planning Branch
Savannah District Corps of Engineers
Department of the Army
100 W. Oglethorpe Avenue
Savannah, Georgia 31401

Dear Ms. Garvey:

This letter responds to your request for consultation with us, the National Marine Fisheries Service (NMFS), pursuant to Section 7 of the Endangered Species Act (ESA) for the following action.

Action Agency	SERO Number	Project Type(s)
U.S. Army Corps of Engineers	SERO-2020-03193	Dredging

Consultation History
We received your letter requesting consultation on the proposed Brunswick Harbor Modification Study on November 16, 2020. We requested additional information on January 19, 2021 and March 31, 2021. We received a final response on April 7, 2021 and initiated consultation that day. The project has been assigned a tracking number in our NMFS Environmental Consultation Organizer, SERO-2020-03193. Please refer to this number in any future inquiries regarding this project.

Project Location

Address	Latitude/Longitude	Water body
Glynn County, Georgia	**Turning Basin** 31.133783, -81.535114 31.131533, -81.528753 31.131006, -81.525425 **Bend Widener** 31.106153, -81.455428 31.105619, -81.446825 (North American Datum 1983)	Brunswick Harbor

Brunswick Harbor Staging and Disposal Areas. Image provided by U.S. Army Corps of Engineers.

Existing Site Conditions

The Corps has defined three separate project areas for the Brunswick Harbor Modification Study that include the bend widener, which is located between stations 20+300 to 23+300, the turning basin, which runs along South Brunswick River from stations 0+900 to 5+300, and the St. Simon's meet area that runs from stations -6+800 to 4+300.

Habitats within the project sites consist of submerged unconsolidated estuarine bottom, intertidal flats, and estuarine emergent marsh. Most of the project area is open water that receives semi-diurnal tidal flushing from St. Simons Sound. As a result, the salinity levels tend to be approximately 25 parts per thousand (ppt), depending on tide stage. The average St. Simons Sound tide range is approximately 6.5 feet, and the water in the harbor is well-mixed with a relatively uniform salinity. Substrate analysis from existing boring logs taken within proximity of the proposed areas indicate the presence of clays, silts, and gravels (i.e., weathered limestone rock).

The dredge material at the bend widener consists of poorly graded sands, silty sands, and highly weathered limestone. The dredge material at the turning basin consists of poorly graded sands, clayey sands, sandy clays, highly weathered limestone, and highly plastic clays.

Project Description

The Brunswick Harbor Modification Study dredging proposes to use the cutterhead dredge method, minimizing turbidity by piping away the sediments without having to bring material up through the water column in a bucket or transport them to an offshore location by way of scow. The dredging (cutterhead) portion of the project is anticipated to commence on November 1, 2024, and continue for approximately 12 months.

For the proposed action, the cutterhead barge will be positioned in a fixed location. A floating/submerged pipe will extend from the barge directly to an onshore location (Andrews Island Dredged Material Containment Area [DMCA]). The onshore pipe on the discharge end will sit in the staging area at the DMCA. The barge and pipeline will be placed in this fashion for

both dredging locations. The length of pipe anticipated from the DMCA to bend widener is 16,300 linear feet (lin ft) and 10,100 lin ft from the DMCA to the turning basin.

The proposed Cedar Hammock Range bend widener would widen the Federal Navigation channel by a maximum width of 321 feet (ft) and a length of approximately 2,700 ft. Approximately 205,000 cubic yards (y^3) of material would be dredged to expand the bend widener. The depth at the existing bend widener is 36 ft. The adjacent areas proposed to be widened will be dredged to the same authorized depth of -36 ft plus 2 ft allowable over-depth. The dredged material is to be disposed of at the Andrews Island DMCA.

The proposed expansion of the existing turning basin at the Colonel's Island facility would add to the Federal Navigation channel by a maximum width of 397 ft and a length totaling approximately 4,100 ft. The turning basin expansion would require approximately 346,000 y^3 of dredge material. The depth at the existing turning basin is 36 ft. The areas proposed to be widened will be dredged to the same authorized depth of -36 ft plus 2 ft allowable over-depth. The dredged material is to be disposed of at the Andrews Island DMCA.

Finally, the Corps will create a meeting area at St. Simon's Sound by relocating the Federal navigation channel. Creation of the meeting area will not require dredging or other in-water work.

Once the proposed project is completed, future maintenance will be completed under the South Atlantic Regional Biological Opinion (2020 SARBO, SERO-2019-03111).

Construction Conditions

- The action agency has agreed to adhere to NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* (2006).
- In order to avoid and minimize any impacts to listed species, all relevant Project Design Criteria (PDC) from the 2020 SARBO will be incorporated.
- Apparent cold-stunned sea turtles and/or distressed marine mammals will be immediately reported to the Georgia Sea Turtle Stranding and Salvage Network (1-800-2-SAVE Me or 912-280-6892) or the Georgia Marine Mammal Stranding Hotline (912-269-7587), respectively.
- All personnel shall report giant manta ray sightings to the giant manta ray recovery coordinator at NMFS Southeast Region Protected Resources Division (manta.ray@noaa.gov). Giant manta ray's observations should be photographed and include the latitude/longitude, date, and environmental conditions at the time of the sighting.
- All personnel shall follow observation and reporting observation guidelines of ESA-listed species found in Appendix H in 2020 SARBO.
- Cutterhead dredging shall be monitored for take of sturgeon in accordance with the guidelines outlined in the 2020 SARBO (NMFS 2020a).
- In-water lines (rope, chain, and cable), if used, shall be stiff, taut and non-looping. Flexible in-water lines, such as nylon rope or any lines that could loop or tangle, shall be enclosed in a plastic or rubber sleeve/tube to add rigidity and to prevent the line from looping or tangling. No excess line is allowed in the water. All lines or cables shall be monitored regularly to ensure nothing has become entangled and then immediately

removed upon project completion. Cables or lines with loops used to move pipelines, or buoys shall not be left in the water unattended.

Consultation Approach

The 2020 SARBO programmatically analyzes effects from maintenance dredging of authorized federal navigation channels and material placement in the Southeast. However, the 2020 SARBO provides that modification of existing navigation channels (such as the proposed widening of the harbor bend and turning basin here) requires separate Section 7 consultation. Future maintenance dredging and dredged material placement may then be covered under 2020 SARBO.

This consultation accordingly evaluates those portions and effects of the project not analyzed in 2020 SARBO and incorporates the 2020 SARBO by reference for analysis of effects to ESA-listed species and designated critical habitat resulting from future maintenance of the modified channel in Brunswick Harbor. This approach avoids authorization of duplicate takes or impacts to ESA-managed resources already authorized in the 2020 SARBO, while ensuring that consultation on the entire action has been completed as required by ESA Section 7.

Effects Determination(s) for Species the Action Agency or NMFS Believes May Be Affected by the Proposed Action

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Sea Turtles			
Green (North Atlantic [NA] distinct population segment [DPS])	T	NLAA	NLAA
Green (South Atlantic [SA] DPS)	T	NLAA	NLAA
Kemp's ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NE
Loggerhead (Northwest Atlantic [NWA] DPS)	T	NLAA	NLAA
Hawksbill	E	NLAA	NE
Fish			
Shortnose sturgeon	E	NLAA	NLAA
Atlantic sturgeon (All DPSs)	T/E[1]	NLAA	NLAA
Giant manta ray	T	NLAA	NLAA

Please note abbreviations used in the immediately preceding table: E = endangered; T = threatened; NE = no effect; NLAA = may affect, not likely to adversely affect.

[1] The New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs are listed as endangered; the Gulf of Maine DPS is listed as threatened.

Critical Habitat
The project is not located in designated critical habitat, and there are no potential routes of effect to any designated critical habitat.

Analysis of Potential Routes of Effects to Species
Effects to ESA-listed species identified in the table above include the risk of direct physical impact from construction equipment, vessels, or materials. We believe the risk of physical injury is extremely unlikely to occur due to the species' expected avoidance of construction activities and ability to move away from the project site and into adjacent suitable habitat, if disturbed. NMFS has previously determined in dredging regional Biological Opinions that, while oceangoing hopper-type dredges may lethally entrain ESA-listed species, non-hopper-type dredging methods, such as the cutterhead dredge proposed in this project, are slower and generally unlikely to overtake or adversely affect them (NMFS 2020b). The 2020 SARBO determined that Atlantic and shortnose sturgeon may be entrained in cutterhead dredges in rivers where sturgeon are expected to live and spawn ("sturgeon rivers"), as identified in 2020 SARBO Appendix E. The South Brunswick River is not a sturgeon river listed in Appendix E of 2020 SARBO, and, while we expect that transient sturgeon may be present within the action area, we do not believe that sturgeon would aggregate or spawn in the action area. We therefore believe sturgeon entrainment in a cutterhead dredge during the modification of Brunswick Harbor is extremely unlikely to occur. Additionally, implementation of the construction conditions consisting of conservation measures and best management practices will further reduce the risk to listed species.

ESA-listed species may be entangled by in-water lines and other in-water equipment. However, we believe this is extremely unlikely to occur because the following protective measures are included as part of the proposed action. All in-water lines and other in-water equipment must be properly secured with materials that reduce the risk of entanglement of marine species. Project materials must be designed to reduce the risk of entanglement of marine species. In-water lines (rope, chain, and cable) must be stiff, taut, and non-looping. Examples of such lines are heavy metal chains or heavy cables that do not readily loop and tangle. Flexible in-water lines, such as nylon rope or any lines that could loop or tangle, must be enclosed in a plastic or rubber sleeve/tube to add rigidity and prevent the line from looping and tangling. In all instances, no excess line is allowed in the water. In-water lines and other in-water equipment must be placed in a manner that does not entrap species within the project area or block access for them to navigate around the project area.

ESA-listed species may be adversely affected by their inability to access the project area during the proposed harbor modification and future maintenance dredging. ESA-listed species may temporarily lose access to the immediate area for foraging, refuge, and/or nursery habitat, due to their avoidance of construction activities and related noise. We have determined that these effects will be insignificant. The site does not contain any structure that could be used by ESA-listed species for shelter. As noted above, we do not believe that sturgeon use the South Brunswick River for spawning. It also does not support submerged aquatic vegetation. ESA-listed species may forage in the area but the size of the area from which animals will be excluded is relatively small in comparison to the available similar habitat nearby. In addition, any disturbances to listed species would be temporary. The proposed harbor modification would last

approximately 12 months, after which the site conditions are expected to return to background levels and animals will be able to return.

Based on the proposed action, generally dredging-generated turbidity plumes are limited to an area only a few hundred feet to a few thousand feet and most turbidity settles out quickly once dredging is complete. Suspended solids (either measured as turbidity or total suspended solids) can be carried to adjacent locations and result in sedimentation that can cover or bury nearby non-mobile species and habitat such as prey items. The distance suspended solids can travel outside of the project footprint can vary dramatically depending on the density of the suspended solids (generally referred to as the percent of fines in the material) and local hydrographic patterns, such as the local tides and currents. The velocity of water movement in the area can affect the time that suspended solids remain in the area. For example, riverine environments with an outgoing tide will flush away turbidity quicker than areas with less current such as an estuary with limited tidal flushing. In rivers, the currents also act to compress the turbidity plume as it moves downstream and settles, reducing the overall area/volume affected by it. Higher velocity currents may spread suspended solids to a larger area than if they were to settle out closer to the dredge or material placement footprint. Burton (1993) measured elevated total suspended solid concentrations up to 3,000 ft away from dredge sites in the Delaware River. We anticipate elevated total suspended solid concentrations could travel this distance in rivers within the action area. The suspension of solids in the water can also cause other water quality concerns such as changes in the amount of available DO and temperature.

Cutterhead dredging removes sediment by suction and, as required by the 2020 SARBO, Appendix E Sturgeon PDCs, is not operated until the dredging cutterhead is embedded in the sediment. While they may create a small turbidity plume localized around the dredging head, this plume is expected to be localized and changes in dissolved oxygen (DO) and water temperature would also be expected to be minimal. A recent study (USACE 2019) measuring changes in DO around a cutterhead dredge in the Savannah River noted that the greatest change in DO occurred in the bottom third of the water column where the cutterhead was working. Changes in DO in the bottom of the water column were most notable within 50 meters (m) downstream of the dredge and returned to background levels within 100 m of the dredge with all changes occurring directly downstream and did not extend the width of the river. USACE (2019) measured DO both up and downstream of the cutterhead dredge over multiple days, in multiple locations, using continuous monitoring and handheld equipment. The greatest change measured was from continuous monitoring that showed an average of 0.4 milligrams per liter (mg/L) drop 50 m downstream of the dredge in the bottom of the water column. Specifically, the downstream DO average was 2.7 mg/L (minimum = 1.9, maximum = 3.1) and the upstream average DO was 3.1 mg/L (minimum = 2.3, maximum = 3.3). This minor drop in DO is likely due to the suction nature of cutterhead dredges, which minimize the turbidity plume. Cutterhead dredges also pump water from near the water's surface to the cutterhead blade to assist with dredging. This action draws in at least some water from the surface that is expected to be more oxygen rich and moves it to the sea floor where DO levels are typically lower. USACE (2019) also reported that the cutterhead dredge "Hampton Roads" pumped 480-700 gallons per minute of water from 0.7 m depth down to the cutterhead operating at the bottom of the river. Because of the very small area where cutterhead dredging is removing sediment once embedded in the sediment, turbidity generated and the area of lower DO is localized and returns to normal quickly

in riverine environments due to the water flow and is expected to have an insignificant effect to sturgeon in rivers, outside of seasonal aggregation areas, even during times of poor water quality.

As described above, future maintenance dredging will be conducted in a manner consistent with 2020 SARBO. USACE indicates that maintenance dredging would occur annually as needed. We do not expect effects to the species that may result from the proposed Brunswick Harbor Modification Study in combination with the future maintenance dredging and placement covered under 2020 SARBO to result in effects beyond those identified in 2020 SARBO and this consultation.

Conclusion

Because all potential effects to listed species from the Brunswick Harbor Modification Study were found to be extremely unlikely to occur, insignificant, or beneficial, we conclude that the Brunswick Harbor Modification Study is not likely to adversely affect listed species under NMFS's purview. This concludes your consultation responsibilities under the ESA for species under NMFS's purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action. NMFS's findings on the project's potential effects are based on the project description in this response. Any changes to the proposed action may negate the findings of this consultation and may require reinitiation of consultation with NMFS.

NMFS recommends the USACE consider contacting the University of Delaware – College of Earth, Ocean, and Environment regarding their Real-Time Sturgeon Predictive modeling. The potential expansion of this existing model may provide USACE with insight into when sturgeon interactions with dredge equipment are more probable. This increased awareness may allow the USACE to more effectively deploy relocation trawlers or alter their dredge plans to reduce impacts to sturgeon.

We look forward to further cooperation with you on other projects to ensure the conservation of our threatened and endangered marine species and designated critical habitat. If you have any questions on this consultation, please contact Laura Wright, Consultation Biologist, at (727) 209-5977, or by email at laura.wright@noaa.gov.

Sincerely,

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for David Bernhart
Assistant Regional Administrator
for Protected Resources

File: 1514-22.f.3

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USACE. 2019. Savannah River Harbor cutterhead dredging dissolved oxygen draft project report: Monitoring the effects of hydraulic-cutterhead dredging on dissolved oxygen in the Savannah River Harbor. U.S. Department of Defense, Army Corps of Engineers, Engineer Research and Development Center.