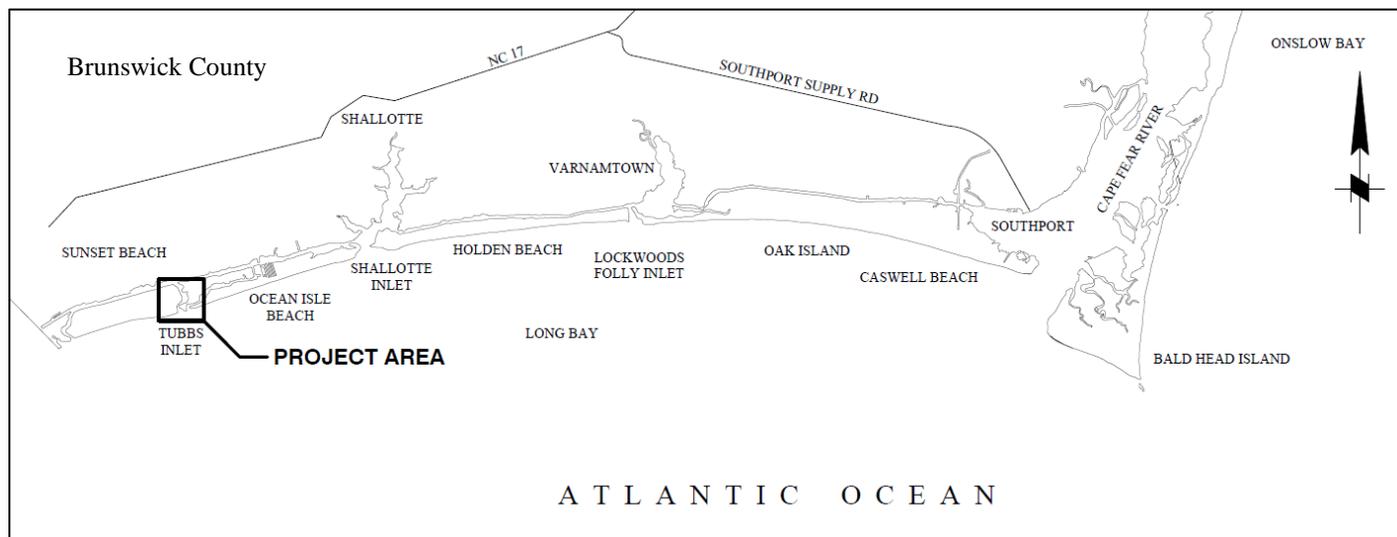


# Town of Sunset Beach Navigation Project Maintenance Dredging of South Jinks Creek, the Bay Area, & the Feeder Channel Nearshore Placement Narrative

## INTRODUCTION

The Town of Sunset Beach (Town) intends to modify the existing CAMA Permit 79-19 to allow nearshore placement of beach compatible material dredged from south Jinks Creek. The modification request stems from the Town's attempts to maintain compliance with the North Carolina General Statutes and avoid property rights issues with beach front property owners. Permit 79-19 allows navigational dredging in the water bodies known as south Jinks Creek, the Bay Area, and the Feeder Channel system within the Town of Sunset Beach. Sunset Beach lies in Brunswick County, along the southern coastal border of North Carolina, adjacent to Ocean Isle Beach. The proposed navigational dredging will occur along the eastern border of Sunset Beach, within the interior waters of Tubbs Inlet. Figure 1 shows the proposed project area in relation to Brunswick County.



**Figure 1. Project Vicinity Map**

South Jinks Creek comprises a portion of the Jinks Creek connector channel that extends from the Atlantic Intracoastal Waterway (AIWW) to Tubbs Inlet and the Atlantic Ocean. The navigation project in south Jinks Creek will also include the Bay Area and Feeder Channel system positioned in the east portion of Sunset Beach. However, only south Jinks Creek contains beach compatible material. Therefore, this modification request does not alter any portion of the project as permitted for the Bay Area, which includes 1 residential canal, or the Feeder Channel system, which includes one (1) main channel connected to four (4) residential finger canals referenced as Canals A – D. In addition, the modification only proposes to change the material placement location for the south Jinks Creek portion of the navigation project. The modification does not propose to change any aspect of the proposed dredging in south Jinks Creek. **This modification only requests to change the material placement site for the beach compatible material dredged from south Jinks Creek from the beach front between 5<sup>th</sup> and 12<sup>th</sup> Street on Sunset Beach (originally authorized), to the nearshore zone between 3<sup>rd</sup> and 13<sup>th</sup> Street.**

An estimated 40,500 cubic yards (CY) of beach compatible material will be dredged from south Jinks Creek. The beach compatible material will be hydraulically placed as beneficial reuse in the nearshore

along approximately 2,000-ft of shoreline seaward of 3<sup>rd</sup> Street to 13<sup>th</sup> Street on Sunset Beach. The beneficial reuse material will be placed in an approximate 200-ft wide template in water depths ranging between approximately -9-ft to -13-ft MLW. The final grade for the placed material will not exceed -6.0-ft MLW in height. As proposed in the original permit 79-19, the non-compatible material from the Feeder Channel and Bay Area will be mechanically dredged and placed in a permitted upland landfill facility. Figure 2 shows the work areas and estimated dredge volumes for the overall maintenance dredging project.



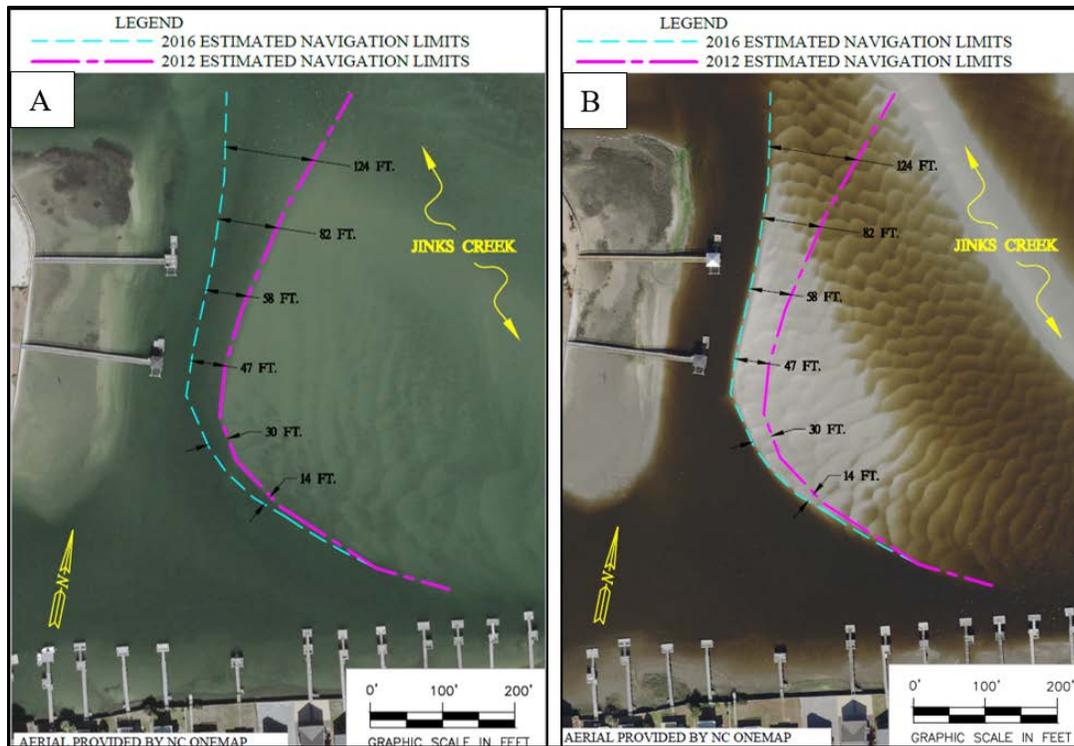
**Figure 2. South Jinks Creek, the Bay Area, and Feeder Channel Work Area**

### **PROJECT PURPOSE & NEED**

The maintenance dredging project will provide a long-term management solution to restore navigation access in south Jinks Creek, the Bay Area, and the Feeder Channel system. Restoring the navigation depths will provide sustainable recreational boating opportunities to visitors and residents of Sunset Beach while also helping to safeguard the small rental businesses and property values at risk within the project area. The maintenance dredging project will also provide a management tool for future land development through the establishment of a pier head alignment.

Since approximately 2010, the Town of Sunset Beach has been diligently working to establish and maintain a navigable channel within the project area. In recent years, south Jinks Creek has incurred significant shoaling perceivably from sediment transport entering Tubbs Inlet. The shoaling and material infilling has constricted navigable access in south Jinks Creek. Figure 3 shows a comparison of the navigable widths

estimated from 2012 and 2016 aerial photography. The measurements shown in Figure 3 provide the change in navigable widths in south Jinks Creek on 100-ft intervals during lower tide stages. The measurements indicate south Jinks Creek has experienced a reduction in navigable access averaging approximately -14.8-ft per year. The pinch point in the navigable waterway, adjacent to a residential dock, experienced an approximate -11.8-ft annual reduction over the 4-year period (47-ft / 4- yr = 11.8 ft/yr).



**Figure 3. Estimated Navigational Limits of S. Jinks Creek (A) February 2012, (B) February 2016**

More recent photos captured in July 2020 show the navigable waterway in south Jinks Creek has minimized to unsafe conditions. Figure 4 shows a ground level image of the above referenced pinch point, encompassing two (2) dock structures in south Jinks Creek. Figure 4 (a) shows the sediment shoaling has extended closer to the dock structures as compared to the 2016 aerial image shown in Figure 3. Figure 4 (b) shows small vessel navigation has been forced to travel through or under the dock system in efforts to find sufficient water depths during low tide events.

The reduced navigable pathway has already impacted the Sunset Beach local economy as annual renters have declined to return to the vacation destination due to the lack of recreational boating access. The deteriorating conditions have become common knowledge for some potential renters and local fishermen who have historically enjoyed the opportunity and environment offered by Sunset Beach. Rental agencies now notify potential renters interested in boating of the limited access, so all parties understand the current conditions<sup>1</sup>. If left unmanaged, the continued shoaling will bring greater impacts on investment and quality of life for the residents and visitors of Sunset Beach as navigation access will be completely severed. As the shoaling continues to accumulate, the habitat will transform to a more intertidal and supratidal condition. As the new habitat forms, maintenance opportunities will diminish due to the transformation and

<sup>1</sup> Ward, Al. (2020) Personal communication. Sunset Properties, 22-July-2020.

establishment of coastal grasses and similar resources which are protected under the North Carolina dredge and fill requirements.

The proposed project will restore navigable passage through south Jinks Creek to conditions similar to 2008. Figure 5 shows a plan view image of south Jinks Creek from October 2008. The increased channel widths, from current conditions, will provide access through south Jinks Creek within the municipal limits of Sunset Beach. This will promote recreational fishing and navigation in the area, which in turn will help sustain the local economy of Sunset Beach under similar conditions as those prior to the 2010 to present shoaling events.



**Figure 4. July 2020 South Jinks Creek Conditions** [Photo (a) shows sediment shoaling near the fixed docks in south Jinks Creek and photo (b) shows boaters traveling under or through a dock system to obtain sufficient navigation depth.]



**Figure 5. October 2008 Aerial of South Jinks Creek**

The dredging will also help the Town of Sunset Beach to control or manage future development. The documented channel alignment shown in Tab E (Permit Drawings) will serve towards a pier head alignment. The pier head alignment will allow the Town to monitor future dock construction, so the structures do not impede navigation access. Unregulated dock construction can result in non-uniform structures when residents build to accommodate migrating deep water paths. However, with an established pier head alignment, all future docks will maintain consistency with the established channel limits.

## **MODIFICATION BACKGROUND**

The following section describes the modification request and reasoning to change the beneficial reuse site for beach compatible material to the nearshore region. Tab F (Previous Permits) provides Permit 79-19, which authorizes beach placement of the south Jinks Creek material. The Town originally intended to place the beach compatible material along the beachfront between 5<sup>th</sup> and 12<sup>th</sup> Street on Sunset Beach. However, due to property rights concerns, the Town does not feel beach placement provides a feasible alternative. Specifically, residents were unwilling to risk how the state may enforce NCGS 146-6 (d), which states “...the title to land in or immediately along the Atlantic Ocean raised above the mean high water mark by publicly financed projects which involve hydraulic dredging or other deposition of spoil materials or sand vests in the State.” Since state grants would help finance this project, upland property owners felt they would lose the designation of “beach front” ownership if they allowed material placement on their property. As a result, the property owners refused to provide the temporary construction easements necessary to allow equipment and personnel on their property to complete the work.

The referenced NCGS does not apply for projects that do not receive public funding. However, public assistance on this project equals 2/3<sup>rd</sup>s of the overall costs, including engineering, construction, and monitoring. For the construction cost to dredge south Jinks Creek alone, the grant funding is estimated at approximately \$570,000, and that excludes the engineering and monitoring costs.

The Town also considered transporting the beach sand from south Jinks Creek to an adjacent beach, such as the eastern end of Ocean Isle Beach, or Oak Island. However, DCM determined that these options would violate NCGS 113-229 and therefore could not be allowed. For reference, NCGS 113-229 (h1) & (h2) state “...dredgings of beach-quality sand may be placed on the affected downdrift ocean beaches or, if placed elsewhere, an equivalent quality and quantity of sand from another location shall be placed on the downdrift ocean beaches. Clean, beach quality material dredged from navigational channels within the active nearshore, beach or inlet shoal systems shall not be removed permanently from the active nearshore, beach or inlet shoal system. This dredged material shall be disposed of on the ocean beach or shallow active nearshore area where it is environmentally acceptable and compatible with other uses of the beach”.

Several conversations and interpretations have been offered towards implementation of the referenced NCGS. Therefore, to ensure evaluation of the appropriate actions or alternatives, the Town requested a legal interpretation of the referenced NCGS. The North Carolina Division of Coastal Management (DCM) provided the following legal interpretation:

*“The language in the NC Dredge and Fill Law at 113-229(h2) is very clear that: “Clean, beach quality material dredged from navigational channels within the active nearshore, beach or inlet shoal systems shall not be removed permanently from the active nearshore, beach or inlet shoal system. This dredged material shall be disposed of on the ocean beach or shallow active nearshore area where it is environmentally acceptable and compatible with other uses of the beach.”*

*We do not interpret subsection (h1) to be allow flexibility with respect to the mandate in (h2). However, as we have previously suggested, we may be able to allow temporary storage of the beach-compatible sand*

*on high ground until it can be beneficially placed on an eroding beach or nearshore area in the same inlet system. Because the D&F language says “the” active nearshore, beach or inlet shoal system, we interpret this to mean that the sand must stay in the system where the dredging is occurring”.*<sup>2</sup>

Therefore, the beach compatible material must be maintained in the Tubbs Inlet littoral complex to provide consistency with the NCGS. The NCGS does allow for the temporary stockpiling of the beach compatible material in an upland facility. However, the material must be maintained and eventually returned to the Tubbs Inlet littoral complex. As a result, the Town abandoned the alternative for beach placement because (1) it could not be constructed based on the unwillingness for beach front owners within the Tubbs Inlet littoral zone to grant construction access to their property, (2) the option to place the beach material outside of the Tubbs Inlet littoral zone is not allowable under State Law, and (3) stockpiling the beach sand in an upland facility would only delay the action of placing the material along the beach or nearshore while increasing the project cost significantly.

### **NEARSHORE PLACEMENT REASONING**

Although nearshore placement is not a widely used option for non-federal stakeholders, the alternative provides a beneficial reuse option for placement of the beach material from south Jinks Creek. Nearshore placement also provides an environmentally acceptable and least cost alternative that meets the purpose and need of the project. The Town evaluated nearshore placement as a last resort for balancing the property owner concerns with beach placement and maintaining consistency with NCGS 113-229.

In regards to federal initiatives, the USACE Wilmington District conducts nearshore placement of beach compatible material at nearby Lockwoods Folly Inlet and Carolina Beach Inlet. The USACE implements nearshore placement as the most effective available option for maintaining the navigable channels of the referenced inlets. Figure 6 shows the location of Lockwoods Folly Inlet in relation to Sunset Beach. Lockwoods Folly Inlet lies between Oak Island to the east, and Holden Beach to the west. Other sites in North Carolina where nearshore placement routinely occurs under federal authority include Morehead City Harbor, Oregon Inlet, and Hatteras Inlet.

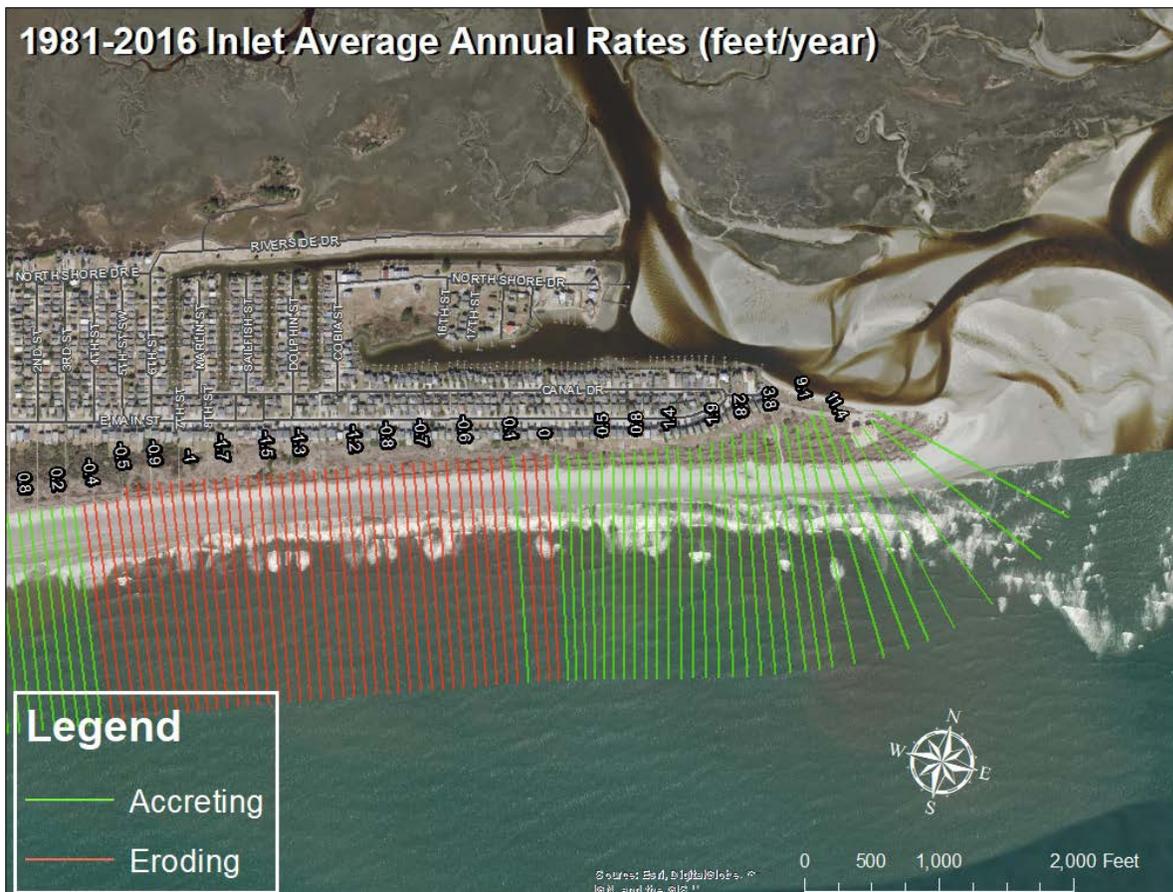
In efforts to identify the most beneficial location for the nearshore placement, the Town of Sunset Beach evaluated recent hurricane impacts. The Town experienced noticeable erosion impacts in the beach and dune system along their central shoreline region extending between 3<sup>rd</sup> Street and 13<sup>th</sup> Street on Sunset Beach. Although the Town did not document the beach and shoreline impacts, data obtained from the DCM corroborates the general consensus of erosion concerns in the area of 3<sup>rd</sup> through 13<sup>th</sup> Streets. Figure 7 shows long-term erosion rates calculated by DCM for the Sunset Beach shoreline. The DCM calculated rates show the shoreline between 3<sup>rd</sup> Street and 15<sup>th</sup> Street experienced a landward shoreline recession between 1981 and 2016. Although the recession rate experienced seems minimal, the data shows the shoreline between 3<sup>rd</sup> Street and 15<sup>th</sup> Street as the most susceptible to erosion forces. Therefore, the Town elected to place the nearshore material seaward of this shoreline in efforts of providing a secondary benefit from the navigation project. The placement of beach-compatible sand placed in the nearshore will add to the sediment supply in the active profile and increase the protection level afforded against wave and current driven shoreline erosion.

---

<sup>2</sup> Davis, B. (2020). Sunset Beach – Jinks Creek Question. Personal email: [Braxton.Davis@NCDENR.gov](mailto:Braxton.Davis@NCDENR.gov) (01-June-2020).



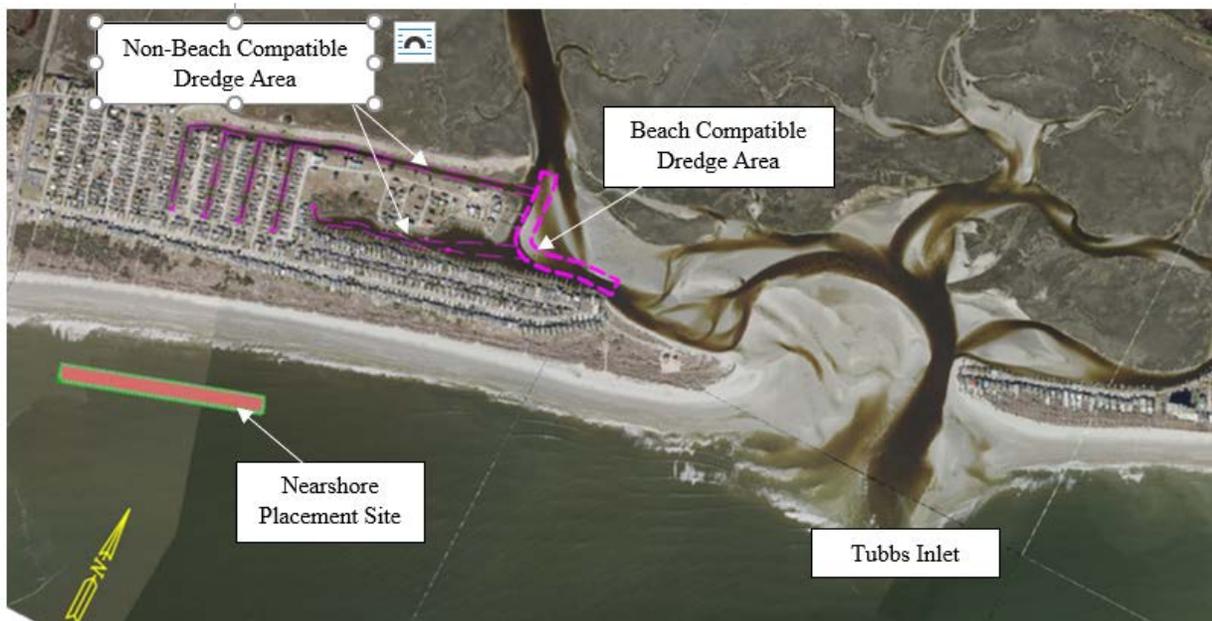
**Figure 6. Lockwoods Folly Inlet Location in Relation to Sunset Beach**



**Figure 7. DCM Shoreline Migration Rates for the East End of Sunset Beach (1981-2016)<sup>3</sup>**

<sup>3</sup> Richardson, K. (2020). NC DCM – maps showing erosion on Sunset Beach. Personal email: [ken.richardson@ncdenr.gov](mailto:ken.richardson@ncdenr.gov) (20-February-2020).

Figure 8 shows the nearshore placement area in relation to the Sunset Beach shoreline and Tubbs Inlet. The placement area initiates approximately 6,000-ft west of Tubbs Inlet and 600-ft offshore of the MHW contour. The placement site lies in the nearshore region between 3<sup>rd</sup> Street and 13<sup>th</sup> Street on Sunset Beach. The placed material can be expected to migrate in a westward direction as a function of the wave driven transport. Historically the dominant long-shore transport for Sunset Beach has progressed to the west, towards Little River Inlet. Figure 9 shows the historical wave directions and significant wave height offshore of Sunset Beach through a wave rose with the frequency of occurrence designated by the circular bars on the figure. The USACE maintains the publicly available data represented in the wave rose diagram. The wave rose shows that approximately 60% of the wave cases observed in 2014 propagated towards the west, with the largest percentage coming from the south southeast and southeast direction. If portions of the nearshore material migrated back to Tubbs Inlet, it could not be distinguished from the existing sediment supply already available in the ebb shoal system and nearshore area closer to Tubbs Inlet. Therefore, the relatively small quantity of material proposed for nearshore placement will not create adverse shoaling impacts for Tubbs Inlet or erosion impacts along Sunset Beach.



**Figure 8. Nearshore Placement Vicinity to Tubbs Inlet, South Jinks Creek, Feeder Channel, and the Bay Area**

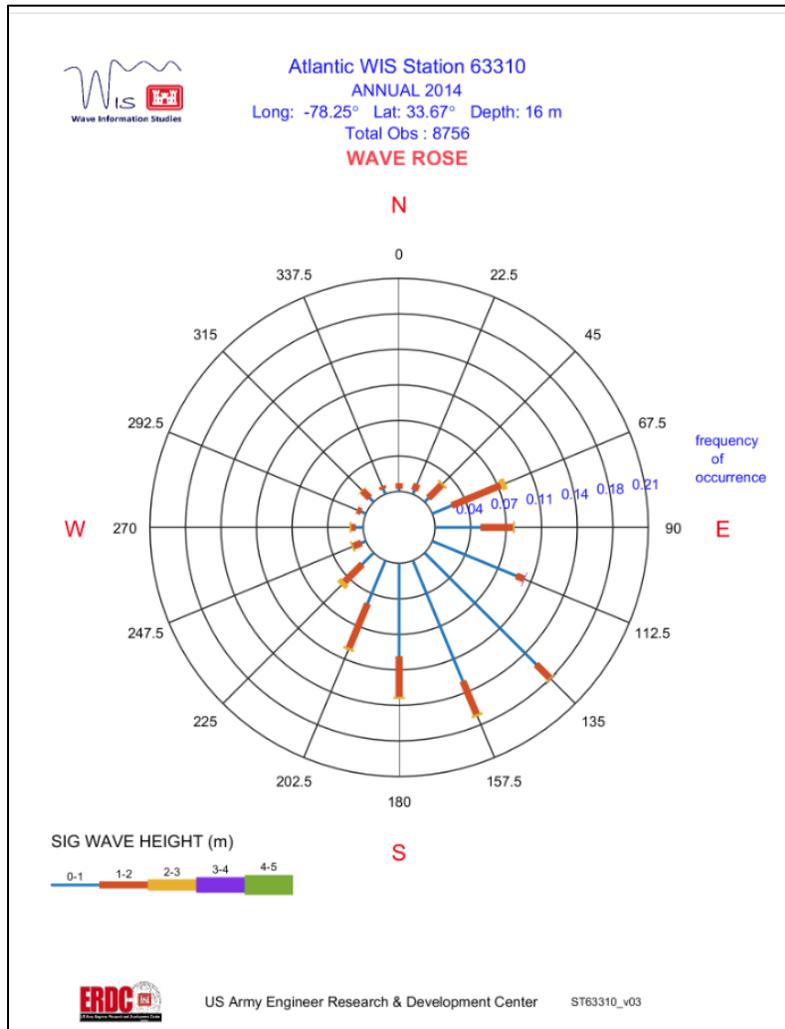


Figure 9. Wave Rose for Sunset Beach

### SEDIMENT COMPATIBILITY

The Town conducted a significant effort to determine the sediment composition of the dredge material in south Jinks Creek, the Bay Area, and the Feeder Channel system. The Town also sampled the native material along the shorefront to determine the compatibility of the south Jinks Creek material. The effort entailed collection of multiple vibracores spaced on approximate five-hundred-foot intervals throughout the dredge area, as well as grab samples along the beach face in accordance with NCAC requirements. Figure 10 shows the sediment sample locations in the respective work areas and Tab G (Sediment Analysis) shows the grain size analysis including the individual gain size results for each sample.

A total of 6 sediment samples were collected from the proposed south Jinks Creek dredge area (borrow area) in efforts to define the beach compatible material. The calculated sediment characteristics from the dredge area were compared with composite characteristics of 65 samples analyzed from the recipient beach and nearshore zone. Table 2 shows the analysis results for the dredge material and recipient placement site in accordance with the 15A NCAC 07H.0312. Specifically, 15A NCAC 07H.0312 provides the following guidelines for determining if material dredged from navigation projects may be placed on the beach or in the nearshore as a project alternative.

- The average percentage by weight of fine-grained sediment (less than 0.0625 millimeters) shall not exceed the average percentage by weight of fine-grained sediment of the recipient beach characterization plus five percent;
- The average percentage by weight of granular sediment (greater than or equal to 2 millimeters and less than 4.76 millimeters) shall not exceed the average percentage by weight of coarse-sand sediment of the recipient beach characterization plus 10 percent;
- The average percentage by weight of gravel (greater than or equal to 4.76 millimeters and less than 76 millimeters) in a borrow site shall not exceed the average percentage by weight of gravel-sized sediment for the recipient beach characterization plus five percent;
- The average percentage by weight of calcium carbonate in a borrow site shall not exceed the average percentage by weight of calcium carbonate of the recipient beach characterization plus 15 percent; and,
- Sediment and shell material with a diameter greater than or equal to three inches (76 millimeters) is considered incompatible if it has been placed on the beach during the beach fill project, is observed between MLW and the frontal dune toe, and is in excess of twice the background value of material of the same size along any 50,000-square-foot (4,645 square meter) section of beach.

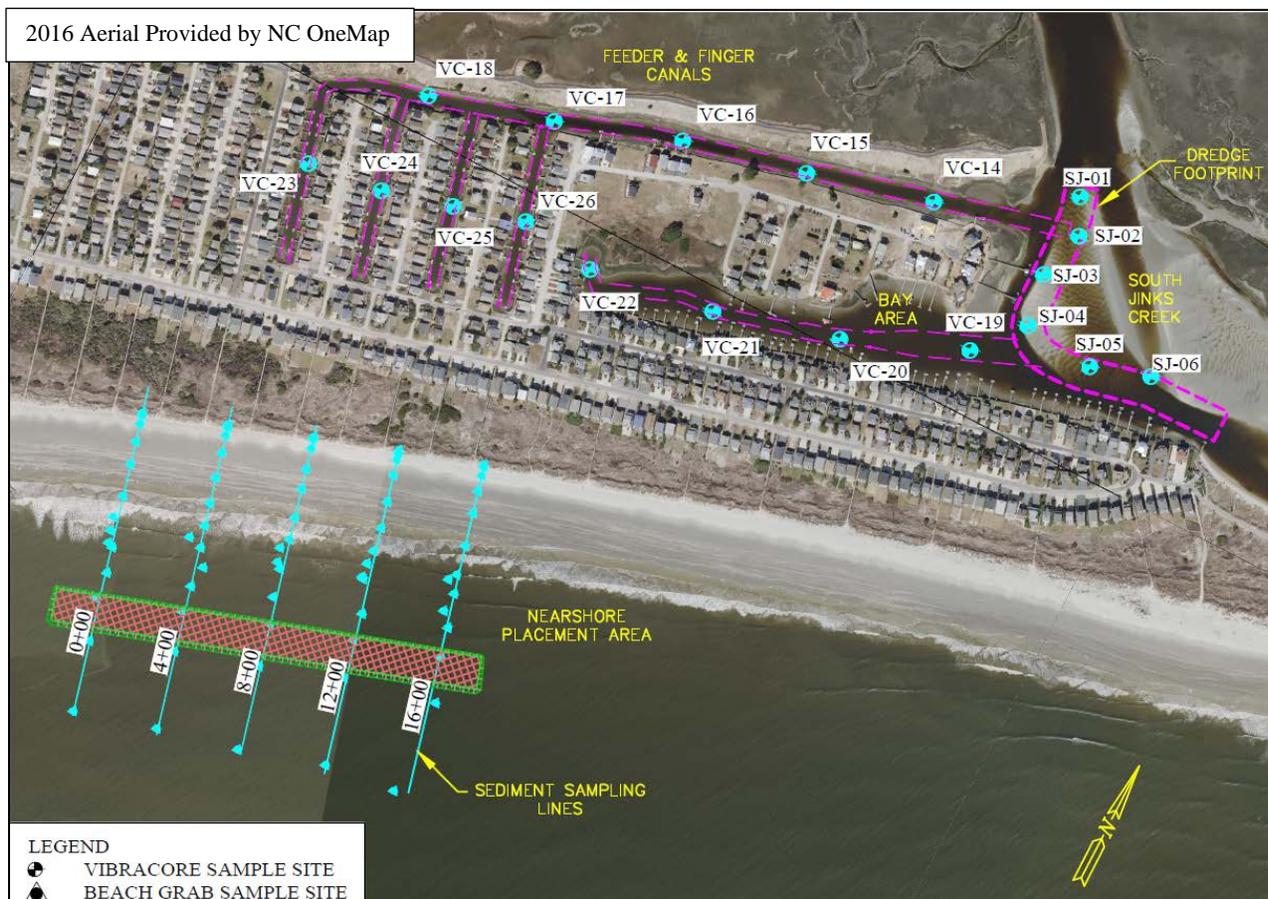


Figure 10. Sediment Sampling Locations

**Table 1. Sediment Comparison (South Jinks Creek & Nearshore Site)**

Analysis Area	Gravel (%)	Granular (%)	Sand (%)	Fines (%)	Calcium Carbonate
<b>South Jinks Creek</b>	0.00%	0.01%	98.38%	1.60 %	5%
<b>Recipient Beach</b>	0.07 %	0.55 %	98.15%	1.23%	2%

■ Note: Sediment classifications determined in accordance with NCAC 15a07h.0312.

*Beach Compatible Material Placement*

The material within south Jinks Creek will be hydraulically dredged and placed in the nearshore between approximate 3<sup>rd</sup> Street and 13<sup>th</sup> Street on Sunset Beach. The material will be placed along a 2,000-ft by approximately 200-ft wide template in water depths ranging from approximately -9-ft MLW to -13-ft MLW. The material will be placed to a maximum (highest) elevation of -6.0-ft MLW. While no State standards exist for sediment compatibility for nearshore placement, the material has been determined to be compatible with the characteristics of the immediately adjacent native beach. It can therefore be assumed that the placement material is also compatible with the sediment characteristics of the recipient nearshore area.

The hydraulic dredging work will be conducted on a 24-hr per day schedule by a cutterhead dredge between November 16<sup>th</sup> and March 31<sup>st</sup>, in accordance with the USFWS August 2017 Statewide Programmatic Biological Opinion (SPBO) shown in Tab H. The beneficial reuse material will be transported through an approximate 7,000-ft hydraulic pipeline for nearshore placement. The pipeline will most likely be anchored within south Jinks Creek immediately behind the hydraulic dredge plant and shall be marked with reflective buoys as recommended by the USCG. Once the floating pipeline traverses landward of MHW, it will not be allowed to meander back into navigable waters. However, the shore pipe may be forced to cross navigable waterways at the Bay Area and Feeder Channel confluence with Jinks Creek. The pipeline will be anchored to the channel bottom to avoid creating a marine hazard at each crossing. The pipeline will also cross navigable waterways perpendicular to the directions of travel to minimize the pipeline length within the navigation channel. The pipeline will be anchored in the deepest depth available so as to not block navigation and will have buoys attached approximately every 25-feet within the crossings. Signage will also be provided and visible from both directions of navigation to mark the pipeline crossing.

Along the beachfront, the pipeline will be located as close to the dune as reasonable without traversing over beach grass or other established vegetation. Markings shall be installed along the pipe to warn beach goers to use caution around the pipeline and to remain off the equipment. Sand ramps will also be constructed for pedestrian crossings. The ramps may also be used for emergency beach access by the Town or construction related access for the Contractor. At least one (1) sand ramp will be constructed and maintained where the pipeline turns to enter the Atlantic Ocean. The sand ramp location, as well as the final pipeline location, will be coordinated with USFWS staff and the NCWRC to identify the best path for avoiding shorebird habitat.

The pipeline will traverse across the beach along the shortest reasonable path to enter the Atlantic Ocean. The pipeline will be anchored once it passes the breaker zone in the nearshore to prevent unnecessary movement in the pipe. The pipeline route in the Atlantic Ocean shall be marked with reflective buoys on approximate 500-ft intervals. Smaller spacings may be used if pedestrian use of the nearshore area is likely.

The pipeline will traverse to a barge anchored in the placement area. An excavator may be mounted on the barge to help control and maneuver the pipeline outfall. Regardless, the pipeline will be secured to the barge with the outfall positioned overboard. The pipeline will face into the placement area. As material placement

occurs, the barge will be maneuvered through the placement area by anchors secured along the four (4) corners of the barge. Placement operations will occur across the 200-ft wide template prior to moving the barge west or parallel to the beach in the placement area.

Placement operations will not be allowed to move east or back over an area that has already received material without measuring the current material height. The material will not be placed higher than -6-ft MLW at any time. If material accumulates at a stage higher than -6-ft MLW, excess material shall be removed immediately and prior to advancing further with the placement operations.

Hydrographic surveys shall be conducted before and after nearshore placement occurs. The surveys shall be conducted in perpendicular and parallel directions to the beach. The surveys will be used to verify material placement did not encroach above the -6-ft MLW contour. Any deviation found where material placement occurs above the -6-ft MLW contour shall be remediated by leveling the material with an excavator positioned on the barge or through other mechanical means. Hydraulic dredging shall not be allowed as a measure to fix or remediate the material accumulation.

The nearshore placement shall strive to maintain a placement density no greater than 25 CY per foot of shoreline. This will provide a low-density placement option that allows the placed material to blend into the existing contours within a six (6) to 18-month period. The low-density placement will also help avoid visual impacts to the upland properties, as the material will disburse in the nearshore zone and not accumulate along the beachfront. The material is anticipated to provide additional storm protection, but the benefit should be minimal due to the low-density placement.

## **MONITORING INITIATIVES**

The Town of Sunset Beach will implement construction and physical monitoring efforts to document the project performance. Since nearshore placement remains a rare or infrequent practice for non-federal entities, the monitoring results may assist in guiding future projects. Turbidity monitoring shall be conducted during the construction efforts and physical monitoring will help confirm the long-term project performance.

### **Turbidity Monitoring**

During nearshore placement operations, the Town of Sunset Beach will monitor the turbidity impacts of the nearshore placement efforts. Turbidity measurements shall be taken every 4 hours during nearshore placement operations. Samples will be collected within a 2,000-ft mixing zone extending from the nearshore placement area in the downdrift direction. A sample will also be collected at the entrance to Tubbs Inlet during flood tide events. The samples will be collected within the densest portion of any noticeable plume identified at the mixing zone boundary. The results of the turbidity tests will be compared with background conditions collected up-current of the placement operations. The turbidity tests results will be reported to DCM on a weekly basis, along with any corrective actions necessary to address non-compliant results.

Samples will be collected at the surface, mid-depth, and bottom at each test location. If the samples taken in the mixing zone exceed 20 Nephelometric Turbidity Units (NTU's) or the background measurements (whichever is greater), placement operations will cease until the measurements return to background conditions. If turbidity readings frequently exceed the monitoring protocols, the pipeline outfall used for the nearshore placement, may be lowered to the ocean floor to help minimize suspended solids. If the pipeline is lowered, the Town will raise the pipeline at least once every four (4) hours to observe the material

coming out of the pipe. This will help to reduce the potential for non-compatible material placement in the nearshore.

### Physical Monitoring

The Town will also conduct physical monitoring on an annual schedule to track the project performance. The monitoring will entail hydrographic surveys of the dredge areas and the nearshore placement locations. The monitoring will identify the sediment infilling rate within south Jinks Creek, the Bay Area, and the Feeder Channel system. The infilling rate will be reported as an annual shoaling rate for comparison with other monitoring results. The physical monitoring will assist the Town in forecasting the performance life of the maintenance project. Surveys will also be collected in Tubbs Inlet and north Jinks Creek to document if increased sediment shoaling occurs as result of the maintenance project. Surveys of the nearshore placement area will be used to investigate how the placed material disperses into the existing nearshore sediment.

The monitoring efforts will be conducted annually for a minimum of three (3) years to establish a shoaling rate across the material placement site. Surveys within the dredge area may continue past the three (3) year timeframe at the Town's discretion. Surveys of the nearshore placement area will continue annually as long as traces of the placed sediment remain. The monitoring will evaluate if sediment remains by evaluating if the contours of the placement area have returned to pre-construction conditions. The monitoring will also identify the most likely migration of the placed sediment.

### **AVOIDANCE & MINIMIZATION EFFORTS**

The Town of Sunset Beach has worked with the resource agencies to avoid and minimize potential impacts that could reasonably be associated with the project since 2016, including four (4) coordination meetings and one (1) on-site discussion. Although the primary focus of the coordination efforts concentrated on potential impacts that may occur as a result of the dredging process, the Town also coordinated in regards to nearshore material placement. The Town organized an agency coordination meeting on June 30, 2020 to discuss potential resource impacts that may result from nearshore placement.

As part of the coordination efforts the Town evaluated the potential to impact critical habitat to loggerhead turtles, right whales, hardbottom substrate, and archeological resources. The evaluation indicated the proposed placement area does not pose a significant risk to these resources. The nearshore area does not contain critical habitat for loggerhead turtles, nor any known hardbottom substrate. Also, no known archeological resources exist in the project area. The site is within critical habitat for the North Atlantic Right Whale, but due to limited water depth, the time of construction, and proximity to shore, the project is not likely to impact right whale. Tab J (Biological Assessment) provides additional detail on the evaluation of critical habitat for the North Atlantic Right Whale.

Additional avoidance and minimization efforts include limiting the dredging operations to the months of November 16<sup>th</sup> thru March 31<sup>st</sup> to reduce the potential for environmental impacts. The approximate 7,000-ft hydraulic pipeline carrying the nearshore placement material dredged from S. Jinks Creek will also be positioned away from any established dune or beach vegetation. The final pipeline placement location will be coordinate with the USFWS and NCWRC prior to the initiation of dredging operations. The Town will also monitor turbidity created by the nearshore placement to help evaluate if impacts occur as a result of the sediment placement. Post-construction physical monitoring will also document the nearshore material placement performance for a period of at least three (3) years. In addition, project construction will follow guidelines issued by the USFWS and NOAA designed to protect manatee, sea turtle, and smalltooth sawfish.

## SUMMARY

The Town of Sunset Beach intends to maintenance dredge south Jinks Creek, the Bay Area, and the Feeder Channel to restore navigational access to the residential canal systems. The project provides a key element for the Town and residents to manage the established navigation corridors on the east end of Sunset Beach. As part of the project, approximately 40,500 CY will be placed in the nearshore as beneficial reuse material from south Jinks Creek. This modification request changes the proposed placement area for beach compatible material from the oceanfront between 5<sup>th</sup> and 12<sup>th</sup> Street (previously permitted) to the active nearshore region between 3<sup>rd</sup> and 13<sup>th</sup> Street. The nearshore site extends along a 2,000-ft long by 200-ft wide stretch of oceanfront in water depths ranging from -9-ft MLW to -13-ft MLW.

The maintenance dredging project will provide a long-term management solution to restore navigation access in south Jinks Creek, the Bay Area, and the Feeder Channel system. Restoring the navigation depths will provide sustainable recreational boating opportunities to visitors and residents of Sunset Beach while also helping to safeguard the small rental businesses and property values at risk within the project area. The maintenance dredging project will also provide a management tool for future land development through the establishment of a pier head alignment.

The Town of Sunset Beach chose nearshore placement of the beach compatible material as a last option to maintain consistency with North Carolina General Statute (NCGS) 113-229, which states “*Clean, beach quality material dredged from navigational channels within the active nearshore, beach or inlet shoal systems shall not be removed permanently from the active nearshore, beach or inlet shoal system.*” The Town explored other options such as beach placement and material stockpiling. However, these alternatives were found as either (1) not permissible, (2) unbuildable due to property rights concerns, or (3) not viable as a final project solution.

Sunset Beach identified a nearshore placement site between 3<sup>rd</sup> Street and 13<sup>th</sup> Street to address long term erosion impacts identified by the North Carolina Division of Coastal Management (DCM), as well as from observations from Hurricane Matthew impacts. The placement site is approximately 6,000-ft downdrift from Tubbs Inlet and 600-ft offshore of MHW. The material will not be placed higher than the -6-ft MLW contour, to limit the potential for visual impacts and navigation concerns.

The Town conducted an extensive sediment analysis and found the material in south Jinks Creek to consist of more sand than the native beach. The sediment analysis found the native beach and placement area to consist of approximately 98.15% sand, while the dredge material consisted of 98.38% sand. This result, along with the comprehensive sediment analysis, shows the material matches well with the placement area composition.

The work will follow guidelines and recommendations provided by the USFWS and NOAA to minimize the potential for environmental impacts during construction. This includes constructing during the cooler winter period of November 16<sup>th</sup> through March 31<sup>st</sup>. The Town will also coordinate with the USFWS and the NCWRC during construction for the pipeline placement proposed to carry the nearshore placement material. The coordination efforts will help limit the potential for construction impacts to nesting or foraging shorebirds. Furthermore, the project will follow construction guidelines designed to protect manatee, sea turtle, and smalltooth sawfish. In addition, the Town will implement turbidity monitoring protocols during construction and will also monitor the project performance for a minimum 3-year period.