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Coastal Inlets Research Program and Regional Sediment Management

Nearshore Placement Workshop 2019

Sediment Nourishment of the Nearshore Environment

Douglas R. Krafft, David L. Young, Katherine E. Brutsché,
Brian C. McFall, and Brittany L. Bruder

May 2020

Coastal and Hydraulics Laboratory

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Coastal and Hydraulics Laboratory
US Army Engineer Research and Development Center
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

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Abstract

The Coastal Inlets Research Program and the Regional Sediment Management Program co-sponsored the 2019 Nearshore Placement Workshop. Thirty-four participants from the US Army Engineer Research and Development Center (ERDC) and numerous districts met in Vicksburg on January 29–30, 2019, as a part of the workshop. This workshop was convened to facilitate discussions on concerns districts face regarding nearshore placements from resource agencies and stakeholders, challenges to placing sediment in the nearshore, and future research needs. The workshop included ERDC presentations on the state of the science regarding nearshore placements; specific implementations of nearshore placements within various US Army Corps of Engineers districts; break-out-style discussions on nearshore placement challenges and potential paths forward; and group discussions on metrics for success, quantification of benefits, Statements of Need (SON), and research priorities. A few of the major recurring themes throughout the workshop were the importance of monitoring, concerns over the fate of fine-grained sediment, and difficulties conveying the benefits of nearshore placements to a wide range of audiences. The workshop culminated in a discussion of possible SON to be put forth to the ERDC research and development community. This special report describes the discussions and outcomes of the 2019 Nearshore Placement Workshop.

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Preface

This study was conducted for Headquarters, US Army Corps of Engineers (HQUSACE), Washington, DC, under the USACE Coastal Inlets Research Program (CIRP), "Inlet Geomorphological" work unit, and the USACE Regional Sediment Management (RSM) Program; Funding Account Code U4362900, AMSCO Code 060000. The CIRP and the RSM programs are funded by the Operation and Maintenance Navigation Business Line of HQUSACE and are conducted by the US Army Engineer Research and Development Center (ERDC), Coastal and Hydraulics Laboratory (CHL).

The work was performed by the Coastal Engineering Branch of the Navigation Division and the Coastal Observations and Analysis Branch of the Flood and Storm Protection Division. At the time of publication of this ERDC special report, Ms. Lauren M. Dunkin was Chief, Coastal Engineering Branch; Dr. Jacqueline S. Pettway was Chief, Navigation Division. Mr. Jeff P. Waters was Chief, Coastal Observations and Analysis Branch; Mr. Cary A. Talbot was Chief, Flood and Storm Protection Division. Dr. Tanya M. Beck was CIRP Program Manager; Dr. Katherine Brutsché was RSM Program Manager; Mr. Kareem S. El-Naggar was Chief, HQUSACE Navigation Branch, and Navigation Business Line Manager; and Mr. Charles E. Wiggins, CHL, was ERDC Technical Director for Navigation. Dr. Julie Rosati was ERDC Technical Director for Flood and Storm Protection. The Deputy Director of ERDC-CHL was Mr. Jeffrey R. Eckstein, and the Director was Dr. Ty V. Wamsley.

The Commander of ERDC was COL Teresa A. Schlosser, and the ERDC Director was Dr. David W. Pittman.

1 Introduction

1.1 Background

Many coastal areas across the nation are chronically eroding (Luijendijk et al. 2018), and as a result, sediment is increasingly being viewed as a resource to be conserved. A key aspect of this conservation is to keep sediment, particularly dredged material, within the littoral system to mitigate coastal erosion. Dredged material is increasingly being placed in the nearshore to beneficially use the material and avoid removing it from the system.

The US Army Corps of Engineers (USACE) seeks sustainable solutions to sediment budget deficits while continuing to support the navigation mission. The Coastal Inlets Research Program (CIRP) and the Regional Sediment Management (RSM) program co-sponsored a workshop at the Coastal and Hydraulics Laboratory in Vicksburg, MS, on 29–30 January 2019. The workshop was convened to facilitate discussions on the districts' perspective on resource agency and stakeholder concerns about nearshore placements, challenges to placing sediment in the nearshore, and future research needs. The workshop consisted of 34 participants from the Coastal and Hydraulics (CHL) and Environmental Laboratories of the US Army Engineer Research and Development Center (ERDC) and numerous districts. Attendees included representatives from ERDC and USACE districts on every US Coast (Atlantic, Gulf of Mexico, Pacific, Great Lakes).

1.2 Objective

The goal of the 2019 Nearshore Placement Workshop was to identify USACE district, resource agency, and stakeholder concerns about nearshore placements of sediment and to discuss future research needs to address these challenges. The purpose of this special report (SR) is to inform the reader about the outcomes of this workshop.

1.3 Approach

This SR summarizes the 2019 Nearshore Placement Workshop and describes the discussions and outcomes of the workshop. Many statements presented in this document are a summation of the opinions expressed by the workshop participants and do not necessarily reflect official viewpoints

of the USACE. This document describes workshop discussions and presentations to inform the reader about the state-of-the-practice, challenges, and potential solutions regarding nearshore placement techniques and considerations. This SR summarizes workshop proceedings and outcomes including ERDC presentations on the state of the science regarding nearshore placements, specific implementations of nearshore placements within various USACE districts, break-out-style discussions on nearshore placement challenges and potential paths forward, and group discussions on metrics for success, quantification of benefits, Statements of Need, and research priorities.

2 State of the Science

ERDC researchers presented overviews and updates on the state of the science of nearshore placements within the ERDC. State-of-the-science presentation topics included guidance from historical projects, physical modeling research, tools for informing design, ecological considerations, operational considerations, and recent case studies. The workshop was arranged to allow presenters to answer questions and facilitate discussion amongst participants after each presentation. Recognition of the long time scales over which the full impacts of nearshore placements occur was a recurring theme among the presentations and associated discussions. A summary of each of the presentations is presented here.

2.1 Physical modeling research

The presentation on recent ERDC physical models of nearshore placements included a discussion of the findings from tracer studies for several mound-shaped nearshore placements, or nearshore berms, in the Large Scale Transport Facility in Vicksburg, MS (Bryant and McFall 2016; Smith et al. 2015, 2017a,b). A nearshore berm is a particular type of nearshore placement that is intend to be a linear feature, similar to a sandbar. The results of those experiments indicated placed material was predominantly transported in the longshore direction. Through the tracing of placed sediments in a berm, researchers related the accretion landward of the placement sites to the reduction in wave energy landward of the nearshore berm. They also noted that these areas of reduced wave energy can disrupt sediment transport pathways and lead to downdrift erosion. The researchers further noted that nearshore berms can have similar effects to submerged breakwaters and that nearshore berms may not migrate onshore in a similar fashion to sandbars, which should be considered in placement plans. Finally, it was observed that it can be difficult to determine sediment pathways of nearshore placements in the field and laboratory; thus, physical mechanisms can often only be inferred from before/after sediment distribution alone.

2.2 Tools for informing design

ERDC researchers presented several of the tools available to predict the evolution of nearshore berms and the range of capabilities and requirements of each of these tools. Options include parameterized tools,

as well as one-dimensional, two-dimensional, and potentially three-dimensional models. Parameterized tools, such as the Sediment Mobility Tool (SMT) (McFall et al. 2016), have the fewest requirements and are particularly useful for 3 by 3 by 3 projects. One- and two-dimensional models are also commonly used to evaluate nearshore placements but have more requirements. Researchers at CHL are evaluating the one-dimensional cross-shore numerical model CSHORE (Johnson et al. 2012) for predictions of nearshore morphology. The Coastal Modeling System (CMS) has been used to evaluate a variety of nearshore placements from a two-dimensional perspective (Brutsché et al. 2017; Lambert et al. 2013; Li et al. 2011, 2018a,b, 2019; Lin et al. 2013; McFall et al. 2018). The Adaptive Hydraulics model (two-dimensional or three-dimensional depending on configuration) has been applied in coastal settings and used to investigate dune overtopping. Future work may include computationally intensive three-dimensional models, such as PROTEUS and OpenFOAM, to improve empirical parameterizations.

2.3 Ecological considerations

ERDC researchers from the Environmental Laboratory presented a variety of approaches to evaluate ecological considerations relevant to nearshore placements and knowledge gaps for future research. The presentation also highlighted case studies on thin layer placements in Mobile Bay (Parson et al. 2015) and the Mouth of the Columbia River (Norton et al. 2015) including novel monitoring methods designed to overcome concerns regarding ecological resource impacts. Approaches to ecological assessment for nearshore placements included the Mediated Modeling approach (Herman et al. 2019), the Toolkit for interActive Modeling[1], the Southern California Coastal Bay Ecosystem Habitat Model[2], and the Ecological Data Synthesis Tool. Creative protocols for monitoring ecological goals/targets have included tagging organisms and monitoring behavior around nearshore placements. Ecological knowledge gaps for nearshore placements include the difference between discrete high

[1] Carrillo C. C., S. K. McKay, and T. S. Swannack. In review. *Ecological Model Development: Toolkit for interActive Modeling (TAM)*. ERDC Technical Note EMRRP. Vicksburg, MS: US Army Engineer Research and Development Center.

[2] Altman, S., B. Herman, C. Carrillo, and T. Swannack. In review. *Southern California Coastal Bay Ecosystem Model*. ERDC Technical Report. Vicksburg, MS: US Army Engineer Research and Development Center.

magnitude disturbances and mild to moderate chronic disturbances; the combined effects of multiple stressors; and the interaction between invertebrates and erosion.

2.4 Operational considerations

Operational practices and considerations related to nearshore placements were presented. Placement strategies must respond to a variety of site conditions, such as waves, winds, and water levels. Many of the nearshore placement operational practices and considerations relate to optimizing achievable placement depths, as depth is a critical aspect of nearshore placement design. Therefore, shallow placement depths must also be accompanied by additional operational safety measures. The presentation highlighted the importance of (1) the difference between nominal vessel drafts and achievable placement depths; (2) good pre-dredge bathymetry; (3) survey support during dredging activities; (4) flexibility to place sediment during a time period of optimal tide levels; (5) contingency plans in the event of energetic conditions; and (6) consideration of vessel orientation relative to wind direction. Examples of nearshore placement strategies presented included Vilano Beach, FL; Fowl River, AL; and Fort Myers Beach, FL. It was further noted that greater dissemination of information on nearshore placement equipment and techniques would advance the practice.

2.5 Recent case studies

ERDC researchers highlighted three recent case studies on nearshore placements: Vilano Beach, FL; Ogden Dunes, IN; and New Smyrna Beach, FL (Figure 1).

Approximately 150,000 cy[1] of sediment was placed in two nearshore berms at Vilano Beach, FL, in 2015. One nearshore berm was constructed as a linear bar-like feature, and the other was constructed as a mound feature with more sediment at the center (Brutsché et al. 2017). Placements depths were approximately 10 ft (Brutsché et al. 2017). Sediment was dredged from the shoals at St. Augustine Inlet and the

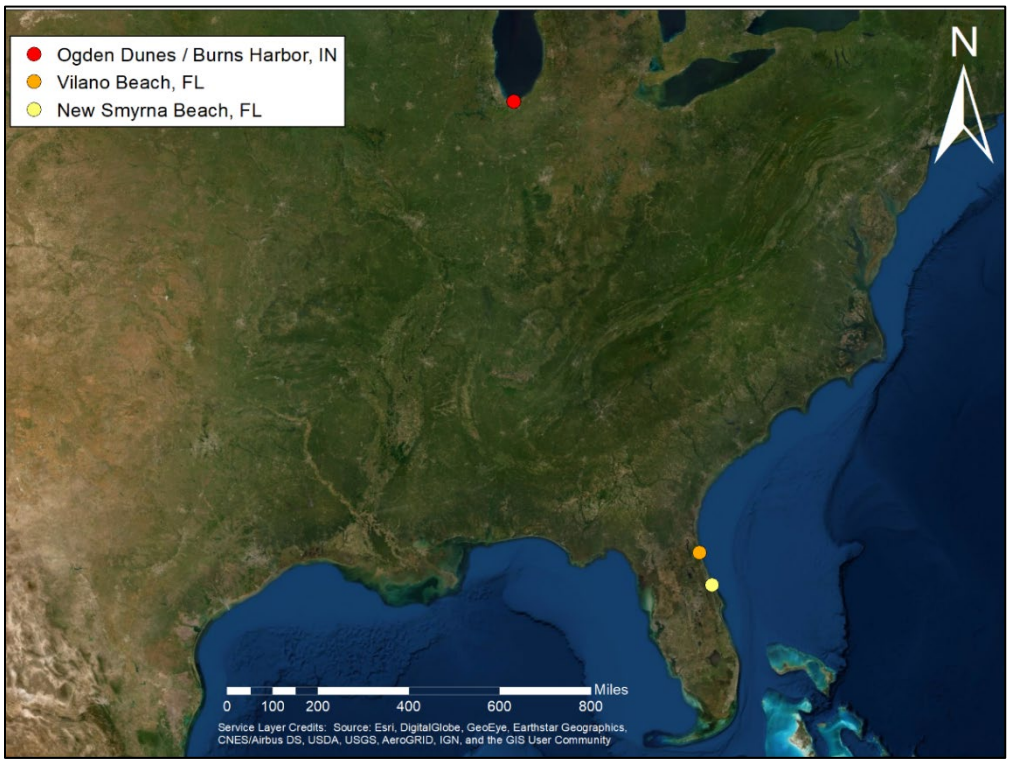
[1] For a full list of the spelled-out forms of the units of measure used in this document, please refer to *US Government Publishing Office Style Manual*, 31st ed. (Washington, DC: US Government Publishing Office, 2016), 248-52, https://www.govinfo.gov/content/pkg/GPO-STYLEMANUAL-2016/pdf/GPO-STYLEMANUAL-2016.pdf.

Atlantic Intracoastal Waterway and placed in the nearshore of Vilano Beach. The nearshore berm study at Vilano Beach demonstrated collaboration among ERDC researchers, USACE Jacksonville District engineers, dredge operators from the USACE Wilmington District dredge *Murden*, and the members of the Vilano Beach Homeowner's Association (Brutsché et al. 2017). The intention of the project was to light load the dredge and place sediment as close to the shoreline as possible and study the resulting morphologic evolution around the placement. Of particular interest were the shoreline response and the impact of initial nearshore berm shape. Subsequent survey data indicate elevation gain in the form of salients onshore of the Vilano Beach nearshore berms, which matches SMT predictions of frequent instances of mobility and onshore transport. Survey data also indicated dominant sediment dispersal in the alongshore near Vilano Beach. The Vilano Beach nearshore berms were also simulated in CMS to validate the SMT predictions and visualize the nearshore berm evolution. CMS simulations also indicated onshore migration and dispersal of material in the alongshore (Brutsché et al. 2017).

Between 1986 and 2015, more than 1.4 million cy of dredged sediment has been placed in the nearshore at Ogden Dunes, IN (Arnold et al. 2018). The shoreline at Ogden Dunes is to the west of Burns Harbor, which impedes alongshore sediment transport from the east. Sediment dredged from Burns Harbor has often been placed in the nearshore at Ogden Dunes to protect the shoreline (Morang et al. 2012). Analysis of historical aerial photographs, regional water level measurements, and dredged sediment placement records indicate significant recovery of the Ogden Dunes shoreline concurrent with periodic nearshore placements over decadal time scales. An additional 140,000 cy of dredged sediment was placed in the nearshore at Ogden Dunes in 2016. Sediment was placed at a depth of approximately 18 ft. This nearshore placement was surveyed, evaluated with the SMT, and modeled in CMS (McFall et al. 2018). Surveys indicated that this nearshore placement migrated onshore and diffused in the alongshore. The SMT successfully predicted sediment mobilization and onshore migration. Morphology changes predicted with CMS generally matched observations, although lake freezing impacted data availability. Long-term shoreline data, shorter-term survey data, SMT predictions, and CMS simulations appear to indicate that the recurring nearshore nourishments at Ogden Dunes enhance coastal resilience (Arnold et al. 2018; McFall et al. 2018).

Approximately 500,000 cy was also placed in the nearshore at New Smyrna Beach, FL, between August 2018 and February 2019. Sediment was dredged from Ponce de Leon Inlet and placed approximately 1,000 ft off of New Smyrna Beach at a depth of approximately 8 ft. The nearshore placement was monitored with a mini-ARGUS system (Bruder et al. 2019). Hourly imagery captured key bathymetric/topographic features at the New Smyrna placement, such as a placement-generated subaerial island, nearshore bar-like features, shoreline position estimates, and nearshore berm migration. Monitoring case studies continues to be an important part of improving the understanding of nearshore placement responses.

Figure 1. Locations of nearshore placements in case studies.

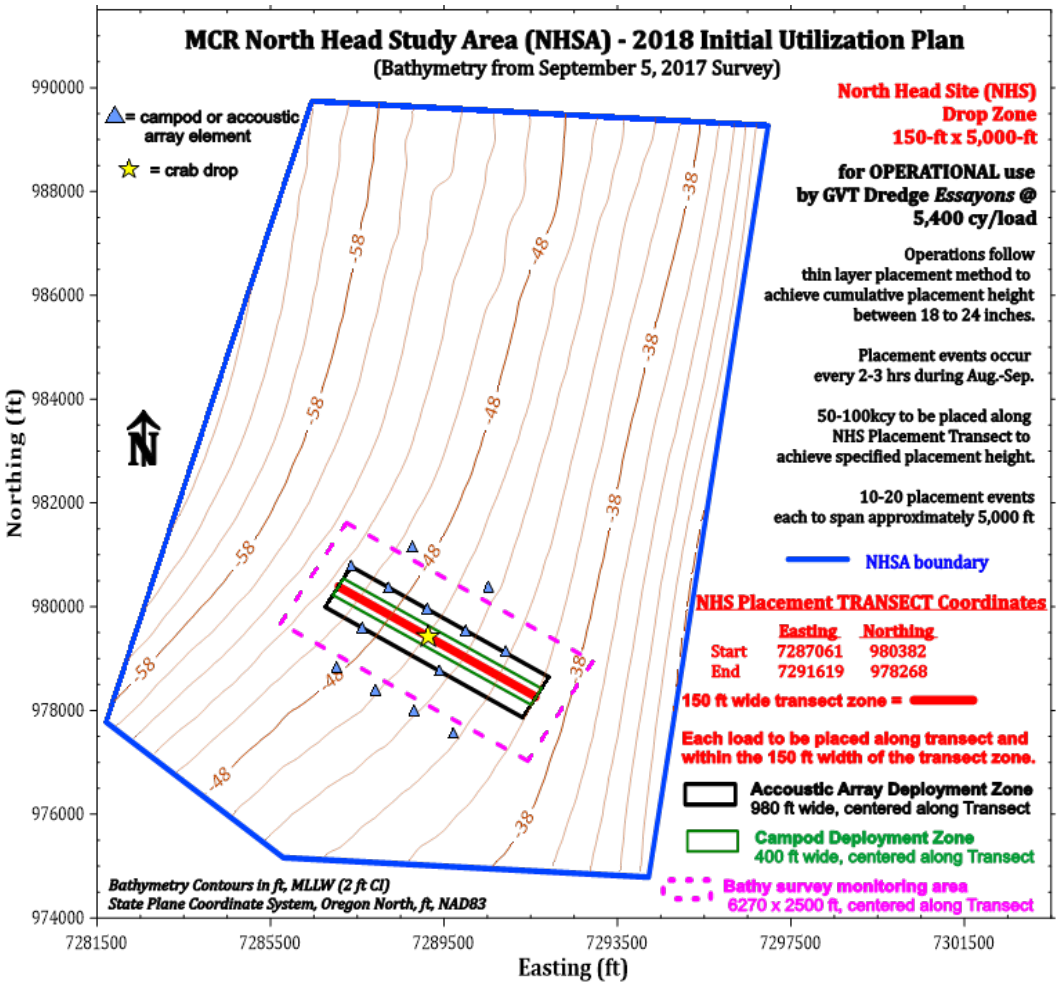


3 Common Lessons and Experience from Regional Practices

USACE Districts New England, Philadelphia, New York, Jacksonville, Mobile, Los Angeles, Portland, and Detroit presented overviews of their states of nearshore placement practice and the challenges they encounter. Nearshore placements encompass a wide range of projects and conditions throughout the USACE. Placement volumes, procedures, and purposes vary regionally, and districts frequently encounter different challenges with nearshore placements. Keeping dredged sediment within the littoral system and reducing costs are key motivators for nearshore placements across districts, but ancillary functions often vary. For example, some districts, such as Portland, want to minimize wave climate alteration whereas others desire significant alteration to induce on-shore sediment transport. Some districts that were indifferent to wave climate impact, however, noted that changes to the wave climate increased public recreational use (e.g., surfing–Los Angeles).

As an example of creative practices presented, Portland District has recently used an innovative thin-layer-placement procedure with the USACE dredge *Essayons* at 35 to 50 ft water depths with particular emphasis on retaining sediment within the broader littoral system without impacting the local wave field. Sediment was successfully placed in a linear, low-relief, and active feature with a cross-shore orientation (Figure 2). Portland District also discussed its focus on sediment dispersal from thin layer placement sites as a form of general nourishment to the area. During the presentations/discussions on the regional practices, both Portland and Mobile supported the practice of implementing and learning from experimental pilot projects in cases with particularly low risk, with greater emphasis on monitoring.

Figure 2. Innovative cross-shore placement in the North Head Study Area north of the mouth of the Columbia River. (Figure courtesy of USACE-Portland District.)



A number of recurring themes arose in the presentations/discussions on the challenges with nearshore berm placements. Common nearshore placement challenges included (1) environmental restrictions, including acceptable turbidity limits; (2) difficulty convincing the stakeholders/wider public of the benefits of nearshore placements; (3) lack of certainty in the precise fate of sediment placed in the nearshore; and (4) lack of support for monitoring of nearshore placement projects. Participants expressed considerable interest in several potential paths forward to mitigate these challenges, such as (1) research to better understand the fate of placed material from the perspective of both the impact to adjacent shorelines and concerns about the potential to cover nearby habitats; (2) science-based guidance on permissible fine-grained sediment and turbidity; (3) expanding ways to quantify benefits of nearshore placements such as recreational and storm-risk benefits;

(4) generating educational tools to inform stakeholders and the public of the benefits of nearshore placement; (5) greater emphasis and backing for nearshore placement monitoring; and (6) highlighting the importance of the ability to adaptively manage nearshore placement projects.

4 Workshop Discussions

4.1 Breakout sessions

Workshop participants were divided into three groups for breakout discussions on challenges and paths forward. Breakout group participants were encouraged to express their views in a smaller, less formal setting to facilitate garnering input from all individuals. Workshop organizers then summarized the results of the three sessions. Some major commonalities identified among the three breakout groups addressed communication with stakeholders and the public, the need for improved predictive capabilities, increased monitoring, and improved determinations of turbidity requirements.

Specifically addressing stakeholder and public communication, participants indicated a need for visuals and tools to facilitate stakeholder and public communication on the benefits of nearshore placement. Other points raised included the idea of redefining the concept of the beach in the minds of the public, shifting from solely the subaerial portion to considering the beach as a larger system, improving stakeholder/public awareness of the larger sediment budget, and managing stakeholder expectations to differentiate nearshore placements from direct beach nourishments.

Focusing on research priorities and data collection, participants expressed interest in improving the ability to predict sediment motion and pathways at placement sites. Other research goals included investigations into the fate of fine-grained material and improved guidance on acceptable turbidity limits. One suggestion was to research turbidity during storms and other natural events that increase turbidity levels to better inform regulatory turbidity limits. This work could be combined with a compilation of best practices for reducing turbidity associated with nearshore placements. Finally, each breakout group reiterated the importance of monitoring nearshore placements to understand the sediment migration and shoreline response.

4.2 Metrics for success

One of the purposes of the workshop was to facilitate conversations between ERDC and the districts about viable metrics to define successful nearshore placements. Common themes in the discussion on useful

metrics for success included managing stakeholder expectations, communicating the reasoning that goes into placement siting and design, and highlighting checkpoints that demonstrate the success of a nearshore placement. Demonstrating that a project did not cause harm was proposed as a metric for success and discussed without consensus. The relevance and importance of financial benefits as a simple metrics of success was also discussed without consensus. Another proposed metric of success was demonstrating placement of sediment within design area, which has the advantages of simplicity and easy communicability. Discussions indicated that caution is warranted to avoid (1) transferring beach nourishment performance metrics to nearshore placements; (2) turning metrics for success into regulations; and (3) infringing on the flexibility that different projects need. Further discussions on possible opportunities to convey successful nearshore placements will help to advance the practice.

4.3 Quantification of benefits

Workshop discussion topics included ways to quantify the benefits of sediment placement in the nearshore. From a holistic perspective, participants noted that sediment is a valuable resource that is lost from the littoral system when placed in an Ocean Dredged Material Disposal Site (ODMDS) or Confined Disposal Facility (CDF). Furthermore, nearshore placements are generally a side effect of required navigation dredging, and keeping sediment in the littoral system benefits the regional sediment budget. More financially focused benefits of nearshore placements were also discussed, such as (1) nearshore placements are often cheaper than beach nourishments; (2) many placement sites have also been shown to be dispersive, allowing for placement site re-use, as opposed to non-dispersive offshore disposal sites with limited storage; (3) nearshore placements may slow shoreline erosion and increase the time between required beach nourishments; (4) nearshore placements may also help protect coastal structures, decreasing maintenance/repair costs; and (5) in some circumstances, nearshore placements also have lower initial costs than placement in ODMDSs or CDFs and do not have the long-term disadvantage of removing sediment from the littoral system. Nearshore placements also have several benefits related to project feasibility, particularly in comparison with beach nourishments. Relative to beach nourishments, nearshore placements are often less disruptive to local habitats, such as sea turtle and shorebird nesting (Brutsché et al. 2014), as well as recreational and commercial beach use and often have longer acceptable placement windows. Participants also mentioned examples of

nearshore placements with recreational and environmental benefits. Increased documentation and communication of observed benefits of nearshore placements could help justify future projects and improve stakeholder opinions. Ongoing discussions, documentation, and establishment of acceptable best practices of methodologies to quantify benefits of nearshore berms are vital to advancing the practice.

4.4 Push for monitoring

Monitoring of nearshore placement projects is critical to measuring project performance but not necessarily easy to implement. Workshop participants reiterated the importance of monitoring and the need to commit more funding towards monitoring in many of the discussions. Some participants suggested surveying nearshore placements in conjunction with navigation channels. Several participants expressed that the wording of the Federal Standard (33 C.F.R. 335.7; 53 F.R. 14902) indicated that engineering and environmental concerns should be considered equally with cost, which could be used to justify directing funding towards nearshore placement monitoring. The workshop participants neared consensus that monitoring is a part of the Federal Standard, but the extent of required monitoring remained in some disagreement. The suggestion that Section 404 of the Clean Water Act indicates that failure to monitor leads to non-compliance was discussed without consensus. The importance of sound engineering criteria was generally agreed upon, but some participants expressed the belief that monitoring benefits needed to connect back to project cost to obtain monitoring funding and buy-in. Nonetheless, the general consensus coalesced around the view that monitoring is a crucial element of nearshore placement projects.

5 Summary and Recommendations

Workshop participants discussed optimal documentation and collaboration tasks to advance the practice of nearshore placement. Both educational and guidance documents were included in the discussion of the path forward. Simple, understandable, and well-illustrated documents/charts communicating why nearshore placements are important and beneficial could improve stakeholder and public buy-in and increase future opportunities to beneficially use sediment in the nearshore. Participants expressed interest in a chart and simple documentation that describes possible benefits of nearshore placements and simple project milestones to communicate project success. It may also be beneficial from a stakeholder/public education perspective to refer to nearshore placement projects as "nearshore nourishments" to manage expectations and be more self-explanatory to the public. Guidance documentation and example cases studies in the form of an updated atlas of nearshore berm locations via a website were also discussed, and participants expressed interest in possibly forming a nearshore placement working group with bi-annual discussions to better disseminate knowledge and best practices.

5.1 Additional documentation

Particular emphasis was placed on the importance of documentation and media to provide guidance and explain complicated but important concepts to the public and stakeholders. The importance of a compilation document of case studies which highlights lessons learned and potential benefits of nearshore placements was also emphasized. Interest was expressed in a chart that describes the scientific uncertainty of predictive tools for nearshore placements to better understand the related probabilities and risks. Guidance documents and educational materials will continue to contribute to advancing the practice of nearshore placement and remain important tools for fostering communication.

5.2 Potential Statements of Need

The 2019 Nearshore Placement Workshop culminated in a discussion of possible Statements of Need to be put forth to the ERDC research and development community. Suggestions have been condensed into five points.

1. Continue researching the fate of fine-grained sediments in nearshore placement. Winnowing of fine-grained material between dredging and placing in the nearshore has been observed (Gailani and Smith 2014; Brutsche et al. 2014). Placement compatibility to the native sediment can depend on the percentage of fine-grained sediment within dredged material. Workshop participants expressed interest in continuing to research the evolution of fine-grained dredged material between the dredge site and placement.
2. Improve capability to predict sediment transport for the relevant time scales associated with nearshore placement projects. Sediment transport predictions remain challenging in the nearshore environment (Elko et al. 2014). Participants expressed interest in additional research into nearshore placement lifespans and net sediment transport directions. There was general agreement that additional work was necessary on predictive tools that are easy to use, computationally inexpensive, and accurate, but without consensus on the relative importance of each of these three qualities. It was proposed to segment the sediment transport problem into smaller discrete pieces to better address it. Furthermore, the attractiveness of a capability to track bulk sediment migration in the field was discussed, but no definitive leads on a path forward were proposed.
3. Investigate background turbidity ratings. Turbidity ratings play a large role in managing nearshore placement projects. Participants expressed interest in aligning turbidity regulations more closely with science, both from the perspective of direct correlation with environmental impacts and an improved understanding of naturally occurring high turbidity events such as storms. More research is required on both fronts to promote optimal sediment management while minimizing environmental impacts.
4. Evaluate the effect of periodic nearshore placements in conjunction with beach nourishments. Intuitively, nourishing the nearshore adjacent to a beach nourishment is expected to extend the life of the beach nourishment, but the practice is not commonly used. Participants expressed interest in incorporating the effect of nearshore placements into Beach-FX for this purpose.
5. Collect existing information and data on the equipment used in nearshore placements and project costs. Information on nearshore placement costs and procedures is not common in the literature and represents a critical barrier to the advancement of the practice. Interest was expressed in compiling existing information on the state of the

practice to inform future research and development into improved nearshore placement methods and to disseminate lessons learned.

5.3 Summary

The 2019 Nearshore Placement Workshop successfully brought together representatives from various USACE districts and ERDC researchers to discuss the state of the science, best practices, challenges/concerns, and Statements of Need/research priorities related to the nearshore placement of dredged sediment. A few of the major recurring themes throughout the workshop were the importance of monitoring, concerns over the fate of fine-grained sediment, and difficulties conveying the benefits of nearshore placements to a wide range of audiences. Workshop participants expressed interest in continuing conversations through a nearshore placement working group with meetings approximately twice per year, which ERDC researchers intend to facilitate and organize.

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Unit Conversion Factors

Multiply	By	To Obtain
cubic yards	0.7645549	cubic meters
feet	0.3048	meters
miles (U.S. statute)	1,609.347	meters

Acronyms and Abbreviations

CHL	Coastal and Hydraulics Laboratory
CIRP	Coastal Inlets Research Program
CMS	Coastal Modeling System
ERDC	US Army Engineer Research and Development Center
RSM	Regional Sediment Management
SMT	Sediment Mobility Tool
SON	Statements of Need
SR	special report
USACE	US Army Corps of Engineers
ODMDS	Ocean Dredged Material Disposal Site
CDF	Confined Disposal Facility

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Douglas R. Krafft, David L. Young, Katherine E. Brutsché,
Brian C. McFall, and Brittany L. Bruder

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14. ABSTRACT

The Coastal Inlets Research Program and the Regional Sediment Management Program co-sponsored the 2019 Nearshore Placement Workshop. Thirty-four participants from the US Army Engineer Research and Development Center (ERDC) and numerous districts met in Vicksburg on January 29–30, 2019, as a part of the workshop. This workshop was convened to facilitate discussions on concerns districts face regarding nearshore placements from resource agencies and stakeholders, challenges to placing sediment in the nearshore, and future research needs. The workshop included ERDC presentations on the state of the science regarding nearshore placements; specific implementations of nearshore placements within various US Army Corps of Engineers districts; break-out-style discussions on nearshore placement challenges and potential paths forward; and group discussions on metrics for success, quantification of benefits, Statements of Need (SON), and research priorities. A few of the major recurring themes throughout the workshop were the importance of monitoring, concerns over the fate of fine-grained sediment, and difficulties conveying the benefits of nearshore placements to a wide range of audiences. The workshop culminated in a discussion of possible SON to be put forth to the ERDC research and development community. This special report describes the discussions and outcomes of the 2019 Nearshore Placement Workshop.

15. SUBJECT TERMS
Coastal engineering, Dredging, Dredging spoil, Environmental management, Sedimentation and deposition, Sediment transport, Shorelines

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