

Recommendations

Three sets of recommendations are provided. State and federal recommendations are classified as policy and regulatory, interagency collaborations, funding, and project development and review. research recommendations are also included.

State

The following recommendations address the categories of BUDM barriers and opportunities discussed in this report, providing an overview of successful approaches taken across the nation. The most appropriate tools for a jurisdiction will depend on the state's statutory authorities, capacities, priorities and needs on the ground, and not all solutions will work in all jurisdictions. To help explore options, states are highlighted to provide successful examples of different ways to implement recommended policy tools.

Policy and Regulatory

Incentivize BUDM through funding, regulatory, and planning requirements, testing waivers, streamlined permitting, and clear technical guidance.

- 1) Incentivize dredging projects to beneficially use sediment through permit requirements or priorities.
 - a) Require suitable dredged sediment to be beneficially used (e.g., Florida, Louisiana, Massachusetts, Mississippi, Washington)
 - b) Require a cost/benefit analysis of beneficial use (e.g., Texas)
 - c) Require dredged sediment to be retained in the littoral system (e.g., New York, North Carolina)
 - d) Prohibit open water placement, except when the open water placement is considered BUDM (e.g., Ohio)
 - e) Set limits on in-water placement (e.g., California)
 - f) Apply BUDM requirements to long-term projects/plans (e.g., Pennsylvania)
 - g) Establish a hierarchy of preferred disposal techniques (e.g., Maryland, Minnesota, New Hampshire, Rhode Island)
 - h) Require proposals to consider/assess BUDM options (e.g., Delaware, New York, Virginia)
- 2) Develop multi-year general permits (or partner with USACE to implement programmatic general permits) for BUDM projects (e.g., Michigan, Louisiana).
- 3) Require dredging projects receiving state funding to beneficially use sediment (e.g., Florida, Massachusetts, Texas).
- 4) Ensure that beach nourishment, habitat creation/restoration, and other relevant BUDM designs can be authorized in certain protected areas.
- 5) Establish a hierarchy of preferred sediment sources for placement projects (e.g., Maine).

- 6) Waive testing requirements for sediment above a suitable grain size (e.g., New Jersey, Rhode Island).
- 7) Exclude or exempt dredged materials from solid waste regulations or provide waivers for sediment of suitable characteristics or provide waivers for sediment suitable for limited uses such as cap or fill material (e.g., Minnesota, New York).
- 8) Waive Public Trust land lease fees or other expenses for BUDM projects (e.g., Indiana, Mississippi).
- 9) Incentivize nonstructural solutions for erosion control (e.g., Maryland).
- 10) Use planning authorities to identify sand sources and placement opportunities (e.g., Connecticut, Mississippi).
- 11) Encourage BUDM through policies, technical guidance, reviewer feedback, and public engagement (e.g., Minnesota, New Hampshire, New Jersey, New York, South Carolina, North Carolina, Wisconsin).
- 12) Apply the findings of ongoing fate of fines research, as well as outcomes from the Research recommendations below, to refine borrow area grain size limits and manage limited sediment resources most effectively.

Interagency Collaborations

Proactively and frequently host participatory planning and implementation discussions amongst BUDM champions at a regional scale to discuss pilot projects and permitting efficiency and develop collaborative guidance and plans.

- 13) Meet regularly across relevant sediment producers and users to identify on an ongoing basis dredging needs (sediment supply) and placement opportunities (sediment demand) on the watershed/littoral system scale, working toward a sustainable pipeline connecting supply to demand.
- 14) Invest in standing coordination groups (e.g., regional dredge teams, in-state collaborations).
- 15) Leverage federal partners' in-kind support to convene and support meeting coordination (e.g., USACE, EPA, NOAA).
- 16) Co-develop projects that meet multiple partners' needs to fill knowledge gaps and build trust and experience.

- 17) Provide guidance that covers each relevant reviewing agency’s process, standards, and requirements, including sediment assessment, site assessment, construction, maintenance, and monitoring.
- 18) Participate in the development of the new RDMMPs mandated in WRDA 2020 to prioritize an inventory of BUDM opportunities connected with USACE navigation projects.
- 19) Develop science-based sediment management plans and guidance to allow for flexibility within statutory obligations to manage natural resource impact trade-offs.
- 20) Implement permit efficiency best-practices such as pre-application meetings, single-application joint permit review processes, general permits, and programmatic analyses (e.g., programmatic environmental impact statements and programmatic biological opinions).
- 21) Use interagency partnerships to “speak with one voice” to coastal communities and stakeholders, providing clarity and predictability.

Funding

Collaboratively develop flexible BUDM policies and programs that identify cost saving opportunities, funding sources, and partners.

- 22) Leverage and combine funding sources and restoration authorities to create dredge-to-placement pipelines.
- 23) Develop inventories of dredging needs and placement opportunities and maintain coordination between relevant partners to respond rapidly to funding opportunities.
- 24) Prioritize state support to beach nourishment or wetland creation/restoration projects that benefit under-resourced communities with limited ability to apply for funds.
- 25) Coordinate with USACE districts when identifying and quantifying costs and benefits for Federal Standard calculations to assess cost-savings options for BUDM placement opportunities.
- 26) For one-time or repeated BUDM placement opportunities that may provide a cost savings for a USACE navigation project, work with districts to implement the placement.
- 27) Take advantage of historic federal investments in nature-based solutions, hazard mitigation, and climate adaptation through national grant programs (e.g., NFWF National Coastal Resilience Fund, FEMA Hazard Mitigation Assistance).
- 28) Incorporate monitoring protocols in base placement project designs.
- 29) Collaborate with partners who can fill key capacity gaps and leverage alternative funding streams, such as Sea Grant, National Estuarine Research Reserves, National Estuary Programs, and the National Fish and Wildlife Federation.

Project Development and Review

Implement effective and efficient project development and review procedures through collaborative consultations and improved technical guidance.

- 30) Understand approaches implemented in other coastal states, territories, and regions and how they may translate to or inform best management practices.
- 31) Provide clear technical guidance on permitting requirements, BUDM techniques (e.g., Georgia, Maryland, Michigan, Minnesota, New Jersey, New York, North Carolina, Ohio, Oregon).
- 32) Establish standing meetings across agency staff to identify new projects, discuss potential barriers, and prioritize data needs, technical assistance, and community engagement to overcome those barriers.
- 33) Invest in place-based, culturally sensitive approaches to developing BUDM projects and RSM programs that benefit lower resourced jurisdictions.
- 34) Provide a “one-stop shop” single point of contact for project applicants.
- 35) Use site-suitability modeling and programmatic reviews (e.g., programmatic environmental impact statements and programmatic biological opinions) to “do the work ahead.” Develop information needed for future permit reviews (e.g., California’s “Cutting Green Tape” initiative).
- 36) Pursue BUDM opportunities such as WRDA 2016 Section 1122 projects.

Federal

The following recommendations address the categories of BUDM barriers and opportunities discussed in this report and propose key actions and priorities that federal partners can pursue to strengthen BUDM policies around the nation. Recommendations are focused on USACE, but support and engagement from other federal agencies is critical to accomplishing shared goals.

Policy and Regulatory

Support the USACE goal of increased BUDM, including through developing implementation guidance and procedures to better assess economic and environmental benefits and improve stakeholder engagement.

- 1) Support programs, collaborations, and projects that will help USACE meet its goal of 70% BUDM by 2030 through non-traditional approaches.
- 2) Develop implementation guidance for Sec. 125(a)(2)(B) of WRDA 2020 to provide clear standards for the integration of comprehensive economic and environmental benefits, efficiencies, and impacts of using the dredged sediment for beneficial uses into the determination of the Federal Standard, including, in the case of beneficial use activities that involve more than one water resources development project, the benefits, efficiencies, and impacts that result from the combined activities.
- 3) Provide clear guidance and outreach material to help states, communities, and stakeholders understand the process and submission requirements to submit “requests from a nonfederal interest to consider specific beneficial placement opportunities” under WRDA 2020 Sec. 125(a) and its implementation guidance (Nov. 7, 2022).
- 4) Develop Agency Specific Procedures for the PR&G, as required by WRDA 2020 Section 110, which:
 - a) Prioritize state and local collaboration to develop a robust locally-preferred water resource project alternatives meeting PR&G requirements.
 - b) Ensure collaboration with nonfederal partners when determining best available science and the appropriate level of detail to apply to alternatives analysis.
 - c) Provide for full accounting of all economic, social, and ecological costs and benefits.
 - d) Provide flexibility to maximize benefits across business lines.
 - e) Integrate diversity, equity, inclusion and justice into decision making.
 - f) Expand the use of nature-based solutions.
 - g) Apply the PR&G federal objective of maximizing sustainable economic development, avoiding and minimizing use and impacts to flood-prone areas, and protecting and

restoring the functions of natural systems to all USACE water resource projects, including dredging and placement projects and the calculation of the Federal Standard.

Interagency Collaboration

Sustain and increase interagency collaboration to streamline permitting, manage environmental trade-offs, and renew a national commitment to sediment management.

- 5) Sustain participation in and support of successful interagency groups.
- 6) Partner with state agencies to implement pre-application meetings, single-application joint permit review processes, general permits, and programmatic analyses (e.g., programmatic environmental impact statements and programmatic biological opinions).
- 7) Form a national interagency working group to understand and manage trade-offs between statutory natural resource protection obligations for effective projects that create temporary or permanent impacts (e.g., habitat conversion).
- 8) Implement the sediment resources recommendations of the National Shoreline Management Study toward a renewed national commitment to sediment management:
 - a) Promote early coordination with federal, Tribal Nation, state, and local agencies on dredge and placement activities to ensure all environmental compliance requirements are met and avoid loss of critically important natural and historic resources.
 - b) Manage projects that generate or need sediment on a regional basis to use limited sediment resources more efficiently, by coordinating across federal, Tribal Nation, state, and local agencies and providing incentives for nonfederal and local sponsors to work collaboratively.
 - c) Develop and adopt a systems approach to advanced planning of dredging and beneficial use activities that considers a wider array of factors in decisions on how and where to place dredged sediments, including the consideration of natural and nature-based features.

Funding

Increase opportunities to fund BUDM projects through collaborative valuation and policy determinations and expanded funding mechanisms.

- 9) Develop implementation guidance for WRDA 2020 Section 125(a)(2)(B) that provides improved valuation practices for determining the Federal Standard dredge disposal alternative.
 - a) Ensure that cost savings provided by BUDM alternatives are reflected in the cost used to compare alternatives. Cost savings should not be included as only qualitative factors.

- b) Provide a clear national cost-accounting methodology that comprehensively accounts for cross business-line cost savings, life-cycle cost savings of capacity gained by the placement alternative, and navigation cost savings for maintaining natural or nature-based systems that reduce shoaling and help provide safe navigation.
 - c) Provide guidance and best practices for demonstrating the value of pilot projects that test experimental designs and meet regional information needs.
- 10) Ensure that dredge disposal alternatives identified as the Federal Standard are consistent with state policies and standards applicable to USACE activities under the CWA and CZMA.
 - 11) Make more federal-state pass-through funding sources (e.g., for coastal resilience, habitat restoration, and economic development) eligible for use as nonfederal match, following the model of the Community Development Block Grant program.
 - 12) Explore opportunities to emulate the Global Match program under Section 404 of the Stafford Act for FEMA Hazard Mitigation Assistance, by allowing districts or divisions to spread overmatch across projects within the area of responsibility to help smaller and under-resourced communities to participate on projects requiring nonfederal cost share.
 - 13) Maximize flexibility for underserved communities to meet cost-share obligations by providing guidance and training on match eligibility (in-kind, etc.), promoting programs with favorable rates for Tribes or underserved communities, and providing maximum flexibility in allowing other sources of funding to serve as match.

Project Development and Review

Collaboratively develop and implement Five-Year RDMMPs, increase staff capacity, and explore BUDM opportunities under existing authorities.

- 14) Collaborate with states to develop and implement Five-Year RDMMPs by adding regional placement sites to existing plans, consider environmental and nature-based opportunities for the future, use existing tools and programs (USACE ERDC RSM, EWN, etc.).
- 15) Expand federal agency staff capacity to better manage permit review needs and continue active participation in interagency collaborations.
- 16) Investigate new opportunities to develop pilot projects under existing authorities.

Research

Invest in research to develop cost-effective, accurate, and efficient methods to determine sediment needs, suitability, and to improve our understanding of changes in physical sediment characteristics during the dredging process to inform a regulatory shift toward science-based requirements.

- 1) Quantify sediment needs for national coastal resilience over the next several decades. The analysis should include volumes of sediment needed for not only beaches, but also marshes, estuarine shorelines, and other non-beach coastal habitats.
- 2) Develop more efficient and cost-effective screening for sediment suitability determinations. This would improve accessibility to testing for resource-limited dredging projects.
- 3) Develop quantitative tools to estimate placed sediment characteristics based on in-situ samples. Continue work on methods and techniques to estimate these changes (Berkowitz et. al 2019; Coor et. al 2019; Maglio et. al 2019; Smith et. al 2019).
- 4) Develop protocols for data collection, collect additional datasets, and revisit archived sediment samples from dredging projects with a variety of physical and chemical sediment characteristics (e.g., higher fines content) and using different dredging equipment, operations, and placement areas.
- 5) Evaluate the use of predictive models to estimate changes in physical sediment characteristics based on the dredging equipment and operating parameters. Develop general guidelines for these practices (e.g., expected change in sorting, grain size, percentage of fines content, etc.).
- 6) Develop guidelines for detecting sediments that produce mud aggregates.
- 7) Sustain investment in national tools and geodatabases to assist in BUDM project planning in collaboration with states and other federal agencies. **RSM BU Navigation Sediment Placement Database** (Appendix A); USACE EWN Natural Infrastructure Opportunities Tool (USACE 2022b)
- 8) Expand the spatial coverage and add sediment suitability details to sediment resources inventories like the SACCS SAND Database (Taylor Engineering 2020) and BOEM's Marine Mineral Information Service (BOEM 2022),