

REGIONAL SEDIMENT RESOURCE MANAGEMENT

Overview

Regional sediment resource management (RSRM) is the integrated management of oceanic, littoral, estuarine, and riverine sediments to achieve balanced and sustainable solutions to sediment-related needs, while accounting for the effect of human activities on sediment erosion and transport. RSRM recognizes that sediment is a resource and attempts to maintain the natural movement or transport of sediment. RSRM actions are activities that potentially affect the transport, erosion, removal, and deposition of sediment. RSRM recognizes multiple, and often competing, demands for sediment in a region. Regions are defined by large-scale sediment transport boundaries and patterns, along with other factors such as political boundaries and region-specific issues and resources.

The mission of the Regional Sediment Resource Management Workgroup is to identify existing, specific spatial data that characterize the physical and chemical properties of sediment in the planning area and/or that locate and quantify sediment types (Figure 1). These data will be used primarily to assist with the siting and review of projects whose location requires specific sediment types or that propose to remove and use sediment beneficially. These data will also be used to prioritize sediment uses and needs, assisting resource managers and the public in evaluating sediment management activities.

The following categories represent current, proposed, and potential future uses, activities, and functions of sediments in the planning area:

- Dredged material disposal (both clean and contaminated sediment),
- Sand and gravel mining for shoreline protection or beach nourishment,
- Mining for mineral extraction,
- Mining for commercial construction or fill material, and
- Natural, in-situ shoreline protection (in the planning area but protecting shoreline assets).

The locations and characteristics of areas that contain hazardous and contaminated sediment that may exclude these uses of the sediment (Exclusion Areas) were also considered.

Derivation of *Limited Suitability* Category

The data used to delineate limited suitability included Hazardous Material and Hard Bottom. Additionally, sites located in water depths less than 5 meters have been identified as having limited suitability, pending site-specific analyses that would quantify the closure depth for the site. When data becomes available, contaminated sediment would also limit the suitability ranking.

Derivation of *Low Suitability* Category

Low Suitability was an amalgam of Dumping Ground (Disposal Sites) and Interpolated Sediment Types described as Fine Sediments (representing M, sM, gM). Additionally, sites located in water depths between 5 meters and 9 meters have been identified as having low suitability, pending site-specific analyses that would quantify the closure depth for the site.

Derivation of *Medium Suitability* Category

The only data used to delineate Medium Suitability was Interpolated Sediment Types described as Coarse Sediments (representing gmS, gS, mG, msG, sG, G).

Derivation of *High Suitability* Category

High Suitability was an amalgam of Massachusetts Bay Sediment Resources and Interpolated Sediment Types described as Medium Sediments (representing mS, S).

The derived suitability category data were overlaid in the following order from top to bottom: Limited Suitability, Low Suitability, Medium Suitability, and High Suitability. This was done to ensure that exclusionary and/or “negative” criteria such as Depth of Closure or Dumping Grounds (Disposal Sites) were not masked by “positive” criteria such as Massachusetts Bay Sediment Resources or highly suitable grain sizes.

The final step in the analysis was merging the four categories and then converting the result to a 250m² grid with the following attributes codes (Figure 2):

Limited Suitability = 0
Low Suitability = 1
Medium Suitability = 2
High Suitability = 3

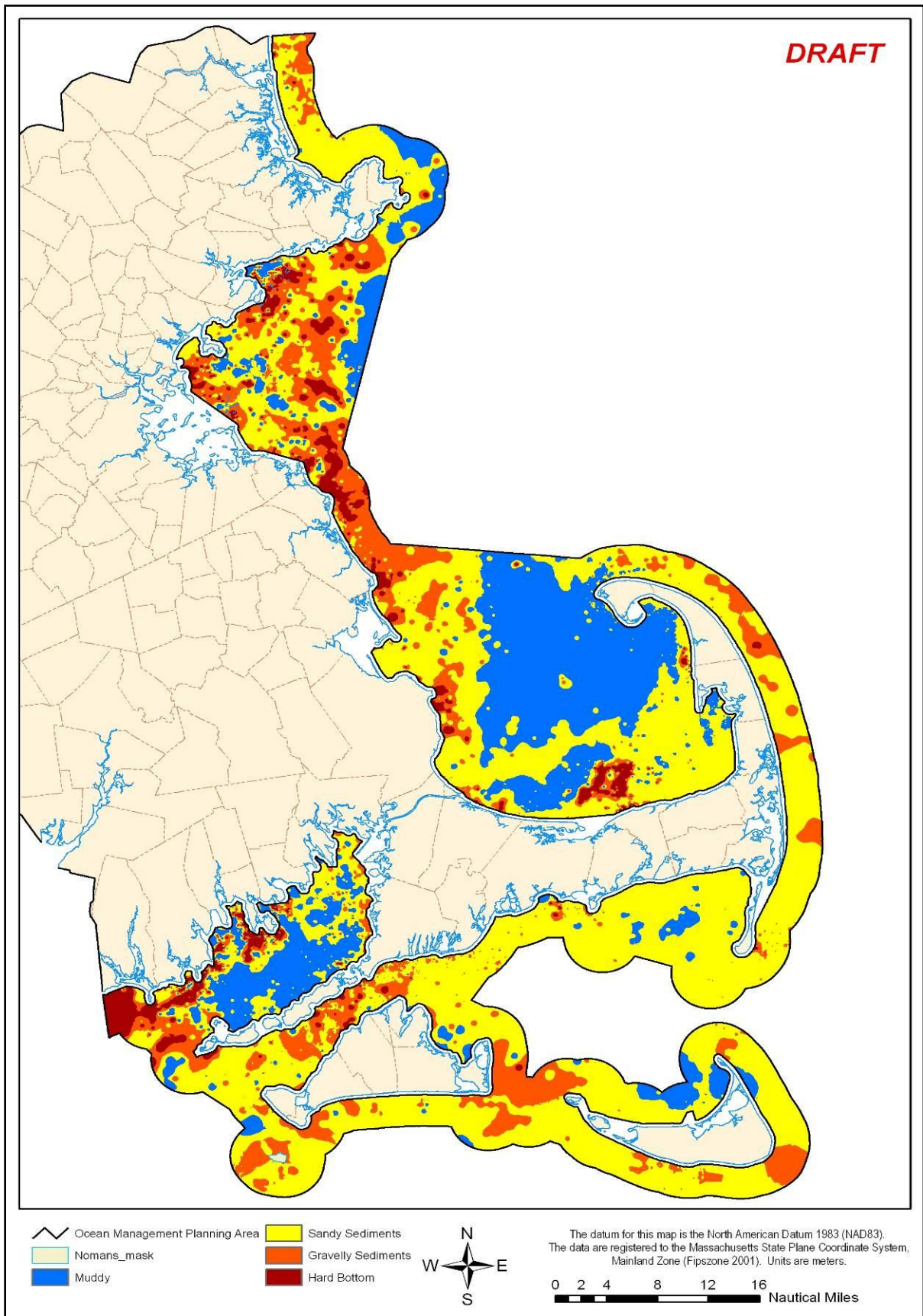


Figure 1. Surficial sediment data for the ocean management planning area.

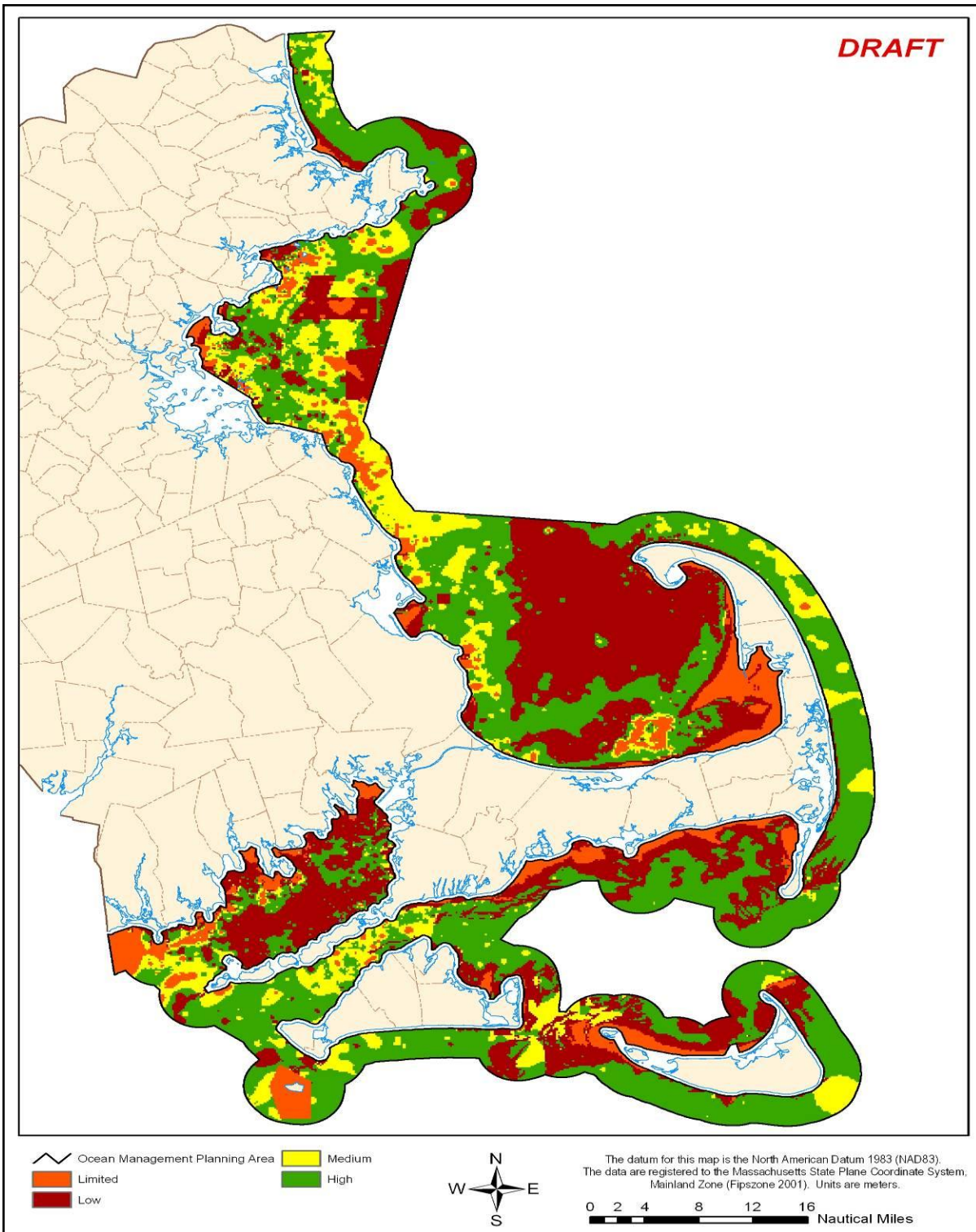


Figure 2. Ranked suitability of sediment resources in the ocean management planning area. Suitability of sediment resources for extraction and/or beneficial use is primarily ranked using best available data on grain size. Areas determined to be of limited suitability are located within the 5 meter closure depth, contain contaminated or hazardous material, or exhibit hard bottom.