

**Ocean Planning  
Habitat Work Group  
Draft Report Summary**

## Identifying “important” habitat

The primary charge to the Habitat Work Group was to identify, characterize, and rank areas within the ocean planning area that are priorities for “important” habitat, irrespective of other ocean uses or resources. Massachusetts coastal and marine areas—both inside and outside the ocean planning area—encompass essential and diverse habitats for a wide variety of estuarine and marine species and communities. The process of defining “habitats” can be approached from many angles and determining the overall and/or relative “importance” of particular habitats or species is a particularly tall order, especially in the context of inadequate or non-existent baseline information for the vast majority of marine and estuarine plants and animals.

Given the current conditions and timeframe for the development of the first version of the Commonwealth’s Ocean Plan, the Habitat Work Group used the language provided in Section 2 of the Oceans Act as general guidance for the determination of important habitat: “...identify...special, sensitive, or unique estuarine and marine life and habitats”. With that as an operative basis, the Work Group focused on three “tracks”, with a short term goal of being able to identify priority areas within each component based on available information. The Work Group also agreed that it was critical to adopt a long term goal of acquiring, developing, and synthesizing data and information to revise the short term priority areas over time as necessary based on a more complete and accurate understanding of habitat attributes, species life histories, etc.

The three “tracks” as defined by the Habitat Workgroup were:

1. Mapped areas/resources with special legal protection;
2. Habitat critical to or providing specific life stage support for important species (or group of species, such as guilds or assemblages); and
3. Unique and/or sensitive habitats as indicated by abiotic parameters.

### **Track 1: Mapped areas/resources reference with special legal protection**

Track 1 was the most straight-forward and complete as much of the required data is available and current. The available Track 1 spatial datasets were compiled to create a map entitled: “*Mapped habitat areas/resources with special legal protection*” (attached).

### **Track 2: Habitat critical to important species**

Track 2 is essentially a “biotic” approach, selected to afford a determination of the geographic areas known as critical to—or providing specific life stage support for—“important” species (or group of species, such as guilds or assemblages). To inform a preliminary designation of “important” species, the Work Group used the general criteria contained in the Oceans Act: “special, sensitive, and unique”. Availability of data on given species was a major factor. The Track 2 spatial datasets that were ultimately utilized were transferred to the ocean planning area baseline grid.

Two techniques were utilized to integrate the suite of datalayers into a single map. Within every gridded datalayer, each individual grid cell is assigned a value. In the first technique, grid cell values were either “1” or “0” for each datalayer—a “1” indicates that for the datalayer parameter (e.g., North Atlantic Right Whale or eelgrass) the grid cell in question serves as “important” habitat, and a “0” indicates it is not. All of the utilized datalayers were combined and the values for each grid cell were aggregated (totaled). The aggregated values were then reclassified using quartiles of the frequency distribution to generate “classes” of “low”, “medium”, “high” and “critical”. Using these classes, a map entitled “*Important biotic habitat (integrated by binary occurrence)*” was generated (attached). In the second technique, grid cell values for every datalayer were ranked with the Work Group’s professional judgment using the criteria in the Table below. For every datalayer, each grid was assigned either a “3”, “2”, or “1” based on its ranking score, and a “0” was used for grid cells that

were absent (no data). All of the utilized datalayers were then combined and the ranked values for each grid cell were aggregated (totaled). The aggregated ranked values were reclassified using quartiles of the frequency distribution to generate “classes” of “low”, “medium”, “high” and “critical”. Using these classes, a map entitled “*Important biotic habitat (integrated by ranked occurrence)*” was generated (attached).

**Table: Criteria utilized for datalayer ranking**

Standard / Condition	Score
Rare, unique, and/or sensitive habitat. Identified as critical habitat for endangered or threatened species (e.g., nesting, staging) where there are no or very few other areas exist that provide similar structure or function.	3
Exceptional and somewhat unique habitat and/or habitat with high vulnerability. These are habitat areas where few others exist providing similar structure or function.	2
Important habitat and/or habitat or resources susceptible to adverse impacts. Identified as areas that support endangered, threatened, or special concern species or other important species, but where use is general or occurs over large geographic areas. These could be general or transient habitats or areas where some others exist providing similar structure or function.	1

### **Track 3: Unique and/or sensitive habitats as indicated by abiotic parameters**

While Track 2 focuses on known biota, Track 3 focuses on the determination of important (special, unique, sensitive) habitats as indicated by an assessment of a suite of abiotic parameters. Certain configurations and relationships of physical, geological, and chemical conditions may have limited occurrences in the planning area or may be particularly susceptible to perturbation or degradation. Synthesis and analysis of these abiotic parameters can also be performed to derive habitat classes, determine unique areas that can be linked to habitat requirements for specific species, and develop habitat suitability models. As with the biotic track, data availability for these parameters is a factor. The Track 3 spatial datasets that were ultimately utilized—seafloor terrain, rugosity, and seafloor sediments—were transferred to the ocean planning area baseline grid and combined, creating 56 unique combinations of seafloor habitat classes within the planning area. A heterogeneity index was then calculated based on the number of unique abiotic habitat classes that occurred within each 250 m<sup>2</sup> grid block of the planning area. The grid cell values of the heterogeneity index were reclassified into quartiles to define areas of no, low, medium, and high habitat class variety and the reclassified data were used to create the map: “*Important abiotic habitat: seafloor heterogeneity*” (attached).

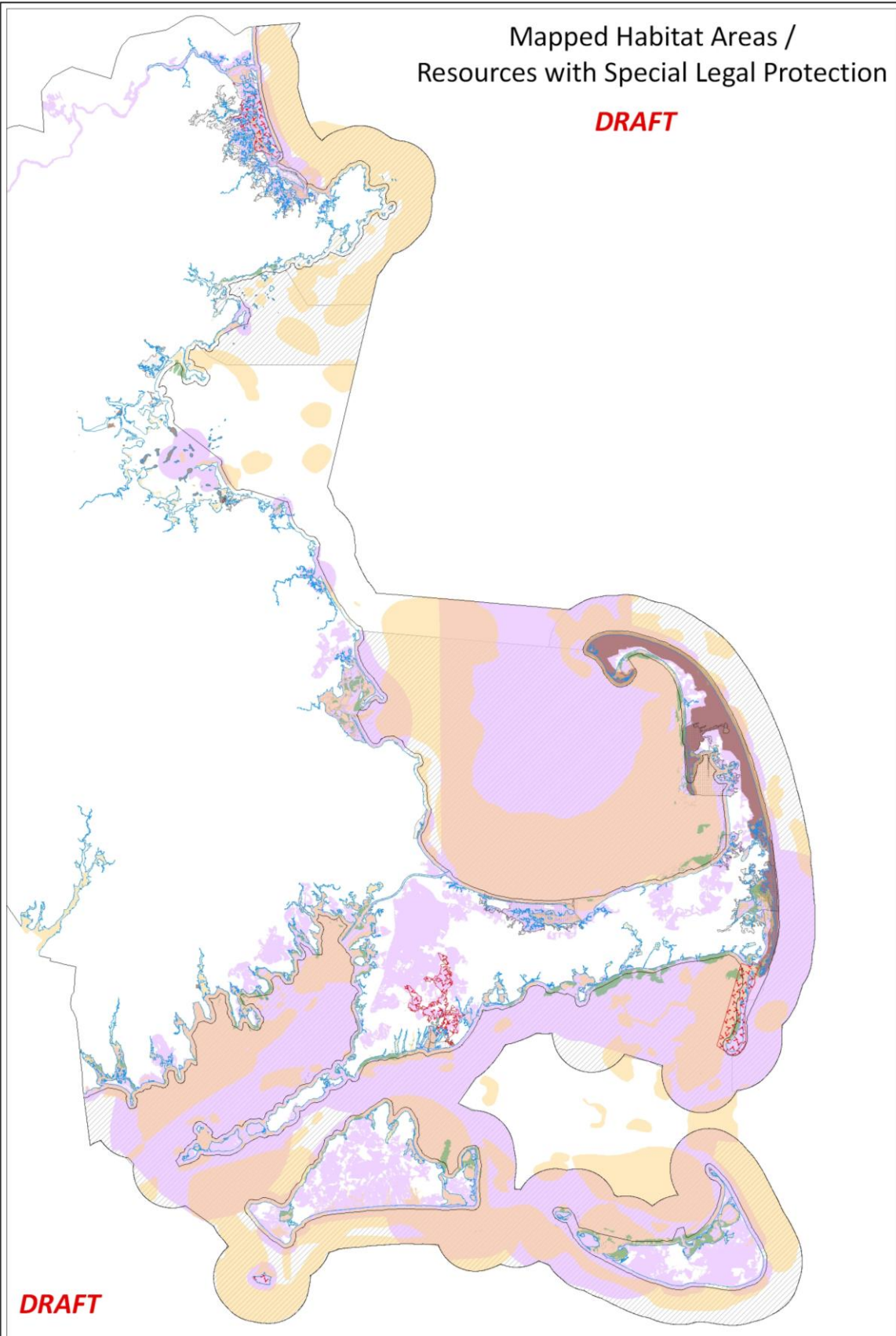
### **Ongoing matters**

The Work Group identified several ongoing/outstanding matters/issues that are the focus of continued thinking, efforts, and discussions, including:

- More thought and definition as to the concept and application of special, sensitive and unique habitat and life.
- Limitations inherent to certain datasets restricted their use in the draft report.
- Datasets with different spatial coverage and data collection methods were utilized to establish the “best available data” layers for the habitat analyses.
- Recognizing and accounting for important habitat outside the planning area, including areas both landward and seaward of the nearshore planning boundary.
- The use of surrogate parameters to “model” suitable habitat areas for specific biota by applying knowledge about likely species/habitat associations.
- The issue of “potential habitat” or the condition of areas that could improve in the foreseeable future due to intervention of management action (e.g., improved water quality or curtailed physical disturbance).

# Mapped Habitat Areas / Resources with Special Legal Protection

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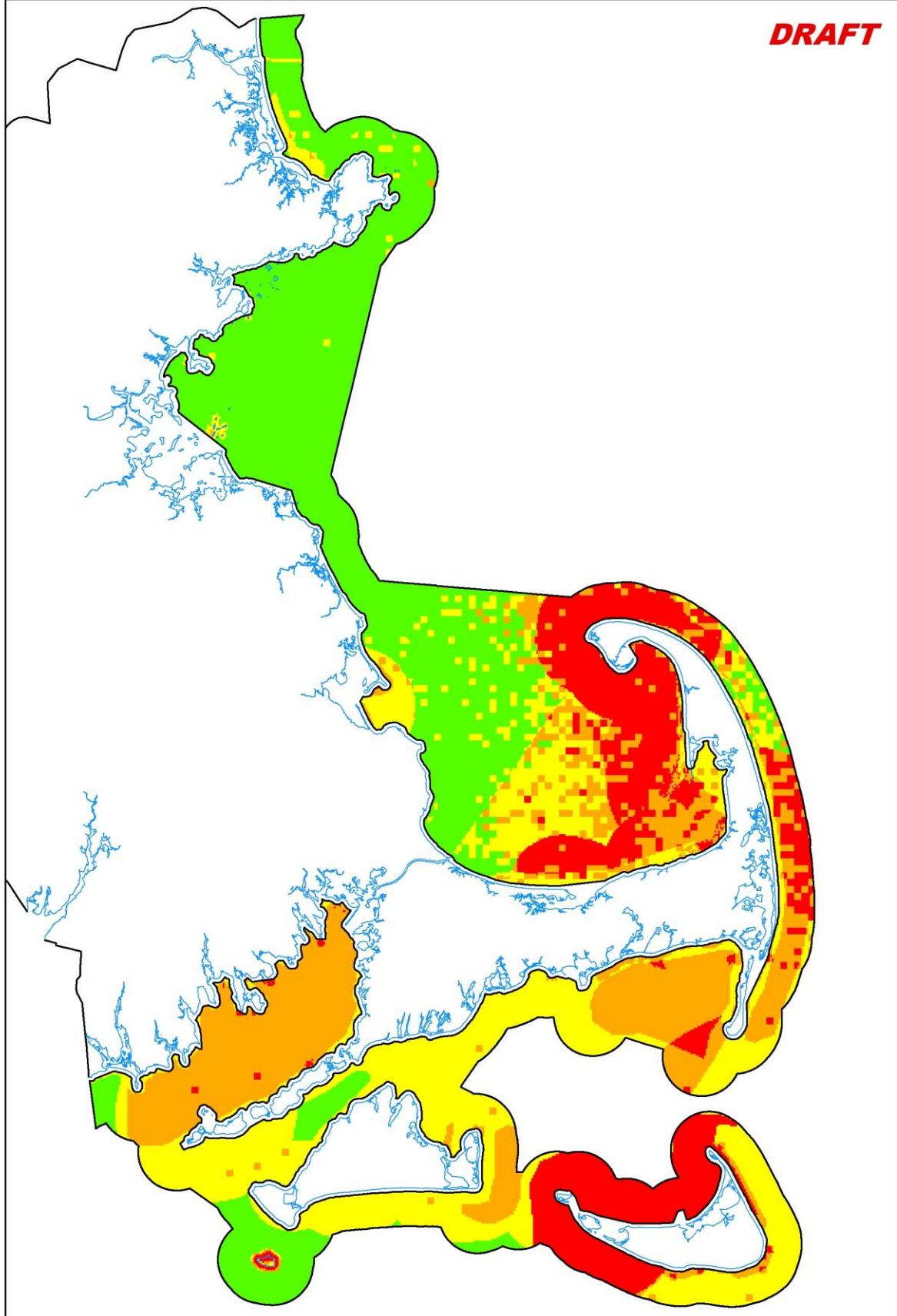
- |   |                                      |
|---|--------------------------------------|
| Ocean Management Planning Area Boundary | Shellfish Suitability Areas          |
| Areas of Critical Environmental Concern | National Park Service                |
| National Wildlife Refuge                | NHEHP Priority Habitats of Rare Spp. |
| DEP Seagrass 2001                       | MA Ocean Sanctuaries                 |




The datum for this map is the North American Datum 1983 (NAD83).  
The data are registered to the Massachusetts State Plane Coordinate System,  
Mainland Zone (Fipszone 2001). Units are meters.

0 2.5 5 10 15 20 Nautical Miles

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 Ocean Management Planning Area

 Low

 Medium

 High

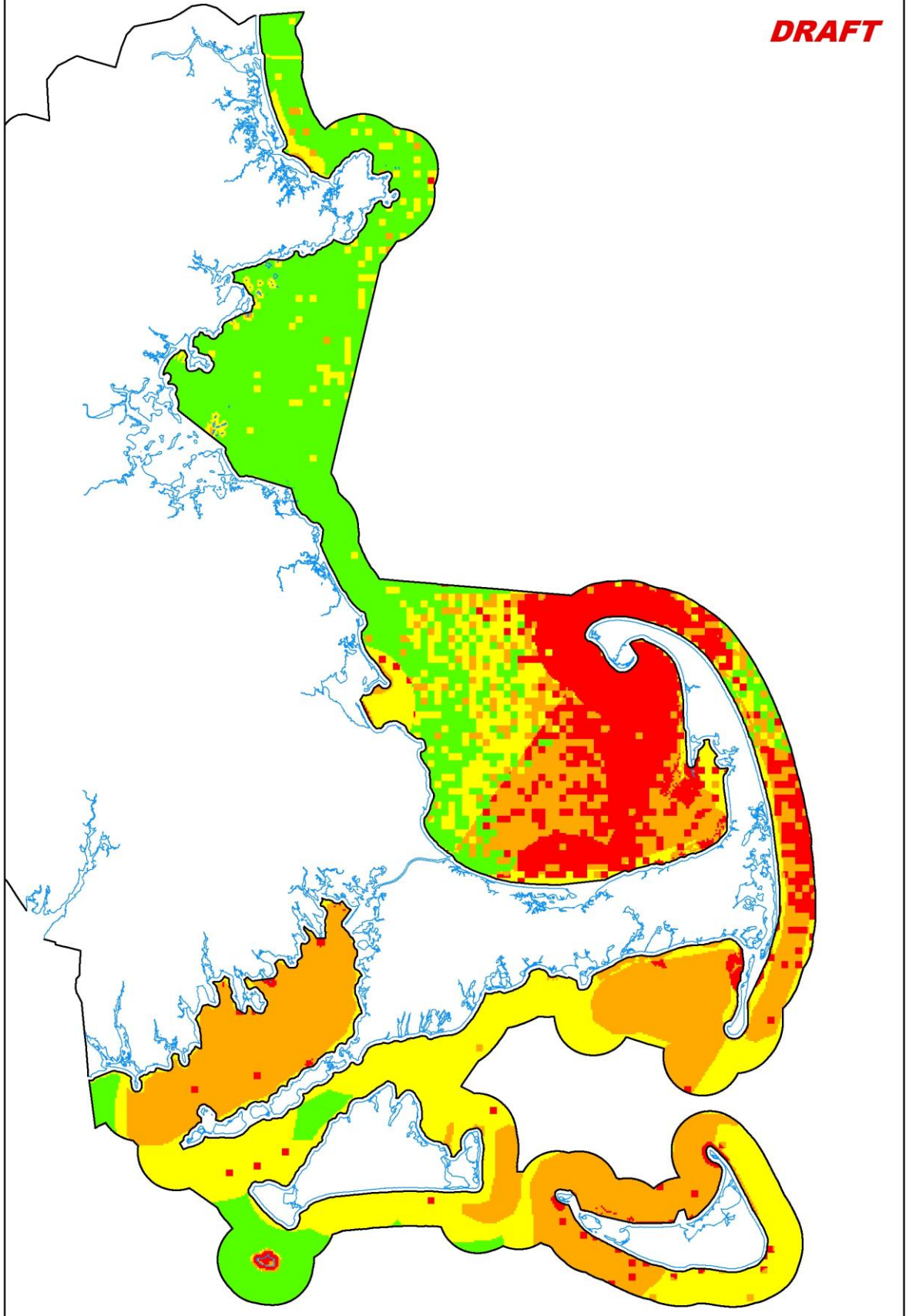
 Critical




The datum for this map is the North American Datum 1983 (NAD83).  
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0 2.5 5 10 15 20  
 Nautical Miles

**DRAFT**



 Ocean Management Planning Area

 Low


 Medium

 High

 Critical



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0 2.5 5 10 15 20  
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