Executive Office of Energy and Environmental Affairs

DRAFT REPORT OF THE TRANSPORTATION, NAVIGATION, INFRASTRUCTURE WORKING GROUP

November 21, 2008

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SECTION ONE: WORKGROUP MEMBERSHIP

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Note from the Chair: Members of this workgroup deserve praise for their participation and hard work. I wish to extend them my sincere appreciation for a job well done.

SECTION TWO: INTRODUCTION

In order to identify factors which may influence or affect various elements of the Massachusetts Ocean Management Planning initiative (e.g., siting of renewable energy infrastructure), the Transportation/Navigation/Infrastructure workgroup identified and ranked locations within Commonwealth waters that contain existing transportation, navigation, and infrastructure resources. To accomplish this task, the workgroup utilized all available data sources and prepared a ranked siting map and identified any outstanding data sources needed to complete this analysis.

The workgroup focused on identifying existing transportation, navigation, and infrastructure resources located within the Ocean Planning Area (OPA). In certain instances, we expanded our review to include resources located outside, but adjacent to, the OPA due to the potential impact of these various resources on the OPA. The following categories generally represent the topical areas that the workgroup considered during this review:

- location of existing shipping lanes/fairways and commercial ferry routes;
- location of existing utility infrastructure including gas pipelines, cables, cable areas, sewer lines; and
- location of navigational aids such environmental monitoring devices, buoys, lighthouses, and security/exclusion zones.

Section Three describes the data pertinent to the workgroup's analysis. The workgroup's charge was to identify data that generally fell into the following categories: data that already exists in the Massachusetts Ocean Resource Information System (MORIS), data that is external to MORIS, and data that do not exist or exist in a rough or unfinished form ("non-extant data").

Section Four describes the methodology that the workgroup decided upon which led to the creation of the GIS-based map deliverable with the ranked polygon features. Section Five identifies regulatory considerations that affect the workgroup's topic area, and section six contains a description of map products.

SECTION THREE: DATA RESOURCES

Summary of Methodology for Work Group Report

Map sources for the various infrastructure, transportation, and navigation uses were identified; most of these came from the NOAA nautical charts. Where these features were depicted on maps as lines instead of areas or polygons (e.g., ferry routes, cable lines, pipelines), they were converted to polygon features using GIS software "buffer" capabilities. This approach effectively captures the uncertainty in the locations of those linear features. Similarly, point features (e.g., active light houses) were also buffered. Some features were depicted on the source materials as polygons, but the existing digital map information was linear features; these areas were replicated by digitizing a replica directly over a display of the linear features.

Once all features were represented by a polygon, information was added to each of them recording the relative priority for each use represented by that feature. These priorities were consensus rankings by the working group members. The polygons representing the various map features were merged together (GIS "union" tool). Where different polygons from the various original data sets overlapped and there were conflicting use priorities, the highest priority was assigned to each of the overlap areas. The merged polygons were then dissolved together (GIS "dissolve" tool), such that boundaries between areas with the same priority ranking were merged. The "dissolved polygons" were overlaid (GIS "identity" tool) with the Ocean Management Planning Area grid (250 meter cell size). This step had the effect of cutting up the polygons of assigned priority into polygons matching the grid. Thus, wherever one of the original map features was present, there was now a grid of polygons, each with its assigned ranking as derived from whichever of the original map features were present in each polygon. These many small grid-cell size polygons were then converted back to a grid (GIS polygon-to-grid tool). The output from this process was then color-coded on the final map based on the priorities identified by the work group. Metadata was created for all the new data layers used in producing the final map.

A. MORIS Data Layers

Data Layers from the Nautical Charts

The nautical data layer was developed by Photo Science Inc. of Gaithersburg, Maryland for the Massachusetts Office of Coastal Zone Management (CZM). The data layer contains 25 feature layers from NOAA nautical charts. Only features represented by line work were extracted. Aids to navigation and bathymetry were not compiled. Of those 25 features, 15 were identified by the working group as relevant to this planning process.

Gas Pipelines – These consist of the Northeast Gateway Liquefied Natural Gas (LNG) pipeline, Neptune LNG pipeline, and the Algonquin Hubline.

Electric Cables – There are two electric cables identified on the map, one from Hyannis, one from Harwich, that extend to the island of Nantucket. Other cables may be shown as cable areas (see below).

Anchorage Area – These are areas where ships are allowed to anchor during poor travel conditions or while waiting to enter another location. There are additional anchorage areas located off the east coast of Monomoy Island that have not been mapped because of insufficient data on the

NOAA nautical chart. The workgroup will need to use information located in the *U.S. Coast Pilots* publication to accurately map these anchorages.

Anchorage Berths – The only berths in the OPA are off Provincetown in Cape Cod Bay.

Area To Be Avoided – The nautical charts instruct tankers of 1000 gross tons or more to avoid this area extending east and southeast from Nantucket.

Cable Area – These are areas where cables are strung connecting to land areas.

Cable Line – These are actual cable lines on the sea floor; not all are in cable areas.

Ship Channels/Fairways – These are designated ship travel lanes and, within the OPA, include portions of the entrance to Boston Harbor, Buzzards Bay, parts of Cape Code Bay, North Shore, and portions of Nantucket Sound.

Pipeline Areas – These are areas where pipes, other than those for LNG (see above), extend out from land on the sea floor.

Precautionary Areas – There are three precautionary areas in the OPA. They are located at the entrance to Boston Harbor, off the coast of Marshfield, and at the northern approach of the Cape Cod Canal.

Prohibited Areas – Ship and boat traffic are supposed to stay out of these areas; one of them is located near No Mans Land to the southwest of Martha's Vineyard. The other is a smaller area in Cape Cod Bay off Eastham.

Disposal Areas – Areas permitted for dumping clean fill (need to determine active/inactive status).

Sewer Lines – This map feature is self-explanatory.

Spoil Areas – Areas permitted at one time for dumping contaminated fill, may be currently used for disposal of clean fill (need to determine active/inactive status).

MWRA Outfall Diffusers – Discharge of MWRA treated sewage is through these diffusers, which consist of more than fifty pipes that rise to the seabed over the last 6,600 feet of the MWRA tunnel's length. Each pipe connects to a diffuser cap which splits the flow into several streams, each issuing from a small port. More than 400 diffuser ports disperse the effluent into the 100-foot-deep waters of Massachusetts Bay, where it is diluted in large volumes of seawater.

Other Data Layers

Artificial Reefs - These vector point data represent the three permitted artificial reefs deployed in Massachusetts. Supplemental information including a brief history of their inception and their success in creating habitat can be accessed using the MORIS Hotlink tool. NOTE: This layer does not include fortuitously submerged artificial structures such as vessels.

Footprint of Proposed Tidal Energy Project - These GIS data show part of an underwater tidal project proposed (2006) by Massachusetts Tidal Energy Co. (Oceana Energy Co.) for potential future development of tidal in-stream energy conversion devices. Information about the Project is available from the FERC preliminary permit application, Docket no. 12670. The project will include approximately 50 to 150 tidal turbines and will be located in 40 to 75 feet of water in Vineyard Sound, north of Martha's Vineyard, Massachusetts. Interconnects will be in Falmouth and/or the north shore of Tisbury, in Martha's Vineyard. While this project has not been built, the conditions at its location are uniquely suited to the project.

B. Non-MORIS Data Layers

Ferry Routes - This arc data layer contains ferry routes within Massachusetts. This layer denotes if a ferry route transports freight and/or passengers as well as whether or not it is part of the National Highway System (NHS). The seasonal operation of the ferry route is also provided in this layer. While these routes could be varied within the OPA area, they are optimized for environmental conditions and for fuel consumption and so there is a cost to the operators if they are moved.

Navigational Aids – This data layer was obtained from the United States Coast Guard, Sector Boston. We obtained an electronic database of the Integrated Aids to Navigation Information System (IATONIS) which is the source for the printed "Light List" document available in PDF format from the Coast Guard's web site at (www.navcen.uscg.gov/pubs/lightlists.htm). IATONIS includes a latitude/longitude pair for each navigation aid plus some descriptive information on the type of navigational aid.

- *Environmental Monitoring Buoys* - These data give the location of all environmental monitoring equipment located on buoys stationed in the Gulf of Maine and southern New England waters present in the National Data Buoy Center (http://www.ndbc.noaa.gov/) as of June 21, 2006. The environmental monitoring equipment is operated variously by the Gulf of Maine Ocean Observing System, National Buoy Data Center, National Ocean Service, and the University of Connecticut, Department of Marine Science. All points are hyper linked to the National Buoy Center where real-time and recorded environmental data may be downloaded. Only one of these buoys fall in the OPA area: at the mouth of Buzzards Bay. Much of the equipment could be moved from its present location. The buoy in the entrance to Buzzards Bay is placed so as to monitor conditions in the vicinity of traffic entering the Bay. Additional equipment may have been placed on buoys located in the OPA (added after 2006) and may need to be added.

- *Lighthouses* - These data show the location of all extant lighthouses on the coastline of Massachusetts. While many of the lighthouses represented are active aids to navigation maintained by the United States Coast Guard, others are not and maintained privately. All lighthouses are shown in their current positions and may

have been moved from their original location. Only eight of the active light houses fall in the OPA area.

C. Data Determined to be Not Applicable

Seaports – none directly in the OPA area although traffic in and out of the main seaports may be a consideration in planning ocean uses.

Unexploded Ordinance Areas – These are indicated on nautical charts but there are none in the OPA area.

Pilot Boarding Areas – So far as the working group could determine, none of these are mapped in the OPA area.

Plymouth Nuclear Plant Safety Zone – Vessel traffic is supposed to stay out of this area for security reasons. The area is located outside, but adjacent to, the OPA.

D. Non-Extant Data & Recommendations for Future Data Development

Recreational & Commercial Vessels

In order to assess recreational and commercial vessel traffic concentrations and navigation patterns the workgroup conducted interviews with all of CZM's regional coordinators, NOAA's Office of Coast Survey, Boston Pilot's Association, Massachusetts Marine Trades Association, and Massport. Additionally, the workgroup reviewed existing Automatic Identification System (AIS) data, complied by the Stellwagen Bank National Marine Sanctuary, which tracks commercial vessel traffic (see Figure 1).

There is existing AIS data on commercial vessel traffic patterns and concentrations. This data complied by the Stellwagen Bank National Marine Sanctuary documents traffic patterns and concentrations of commercial vessels over 300 gross tons including vessels such as cruise ships, tankers, cargo ships, and tugboats. In order to accurately map this data spatially, the workgroup will need to obtain the AIS data from the Stellwagen Bank National Marine Sanctuary, refine and/or convert any data if necessary, and add this data layer to the workgroup's use and suitability maps.

For recreational boating, it appears that there is no updated, comprehensive data set which spatially maps vessel traffic patterns and concentrations. Additional spatial data would be required to accurately assess informal travel patterns and volumes, especially for smaller and mid-sized harbors. It is our understanding that a previous qualitative assessment (Terralogic) was performed to track recreational vessel traffic. The history and methodology of this study are more completely referenced in the Social, Cultural, and Historic workgroup's draft report. Our recommendation is similar to the other workgroup's in this regard in that we would suggest additional workshops or analysis be completed in order to provide sufficient data to map this information for recreational vessels.

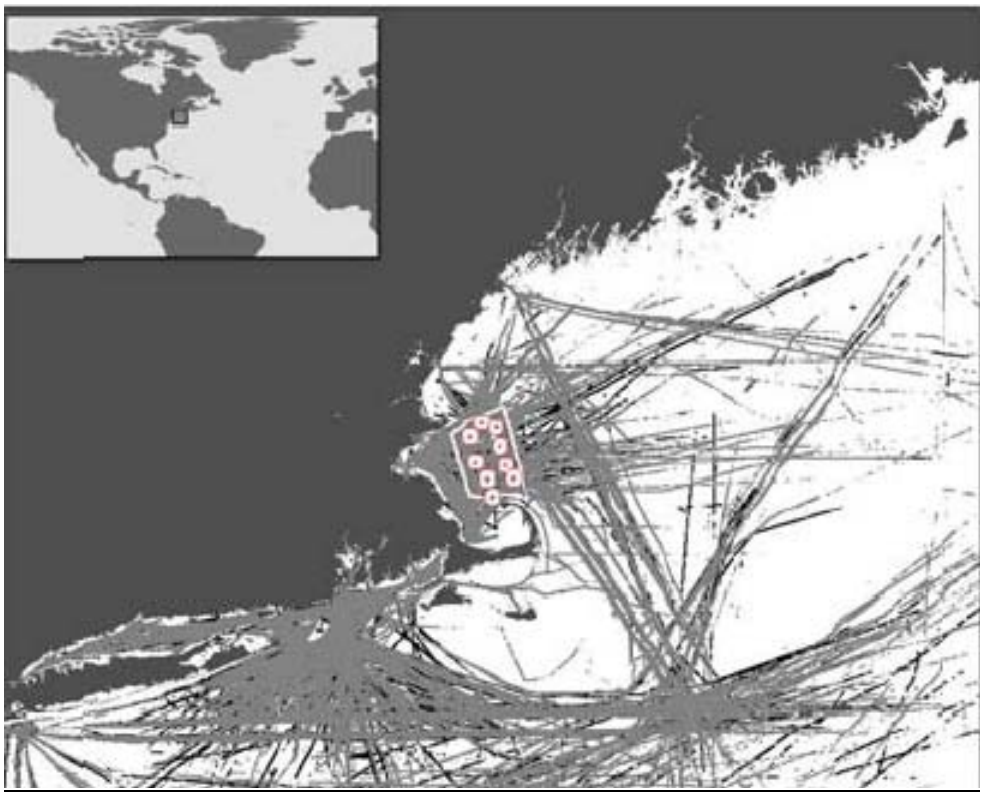

Figure 1. Automatic Identification System data
Source: Environmental Management (2008) 42:735–752

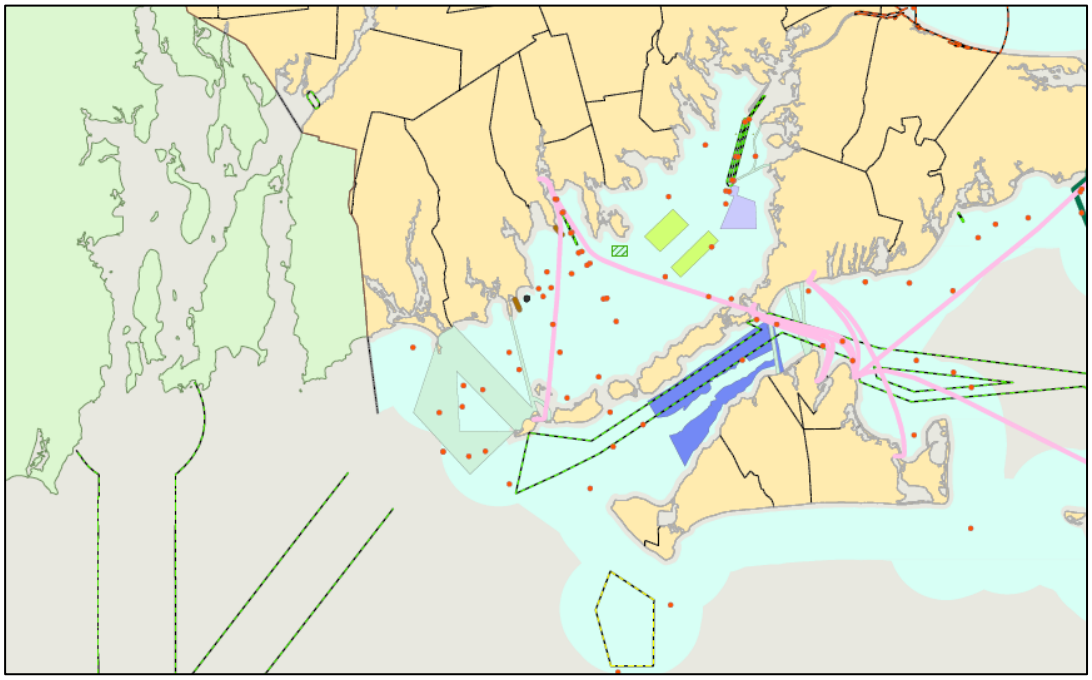

Figure 2. Cable area off the coast of Westport, Massachusetts

Cable Areas

Another potential area of future data development relates to the possible refinement of cable areas that are depicted on NOAA's nautical charts. Cable areas that are shown on the nautical charts are areas of the seabed that are designated for the placement of cables, typically used for the purposes of communication (e.g., telephone, etc.). In most cases, the cable areas located in state waters are relatively modest in size. The workgroup noted one particular cable area off the coast of Westport, however, that appears to occupy several square miles at the entrance to Buzzards Bay. The workgroup learned of a methodology that the State of Rhode Island used to determine what entity requested the cable area designation and how to find out the number and location of cables located within that cable area. By performing additional research on this particular cable area it may be possible to identify what cables are located there, how many cables there are, and if there is the potential to reduce the overall size of the cable area.

SECTION FOUR: PRELIMINARY DATA ANALYSIS

The workgroup ranked all of the map features or data layers as shown in the tables below. Those with high priority cannot be moved and, in many cases, allowing other activities in their location would be hazardous, depending on where those other activities were occurring (i.e., ships traveling over a gas pipeline on the seabed may be acceptable, but positioning a wind turbine on them would not). Those features with medium priority could potentially be moved, but doing so involves moving the activity to a less optimal location that will reduce the effectiveness of that activity compared to the present location. The ranking criteria were as follows:

Not Suitable = 0
Low Suitability = 1
Medium Suitability = 2
High Suitability = 3

Table 1: Suitability Ranking Matrix

MORIS Data Layers	**Ranking**				
Resource	**No Data**	**Not Suitable 0**	**Low 1**	**Medium 2**	**High 3**
Gas Pipelines	--	--	--	--	✓
Electric Cables	--	--	--	--	✓
Anchorage Area	--	--	--	✓	--
Anchorage Berths	--	--	--	--	✓
Area to be Avoided	--	--	--	--	✓
Cable Area	--	--	--	--	✓
Pilot Boarding Area	--	✓	--	--	--
Cable Line	--	--	--	--	✓

MORIS Data Layers			Ranking		
Resource	**No Data**	**Not Suitable 0**	**Low 1**	**Medium 2**	**High 3**
Pipeline Areas	--	--	--	--	✓
Precautionary Areas	--	--	--	--	✓
Ship Channels /Fairways	--	--	--	--	✓
Prohibited Areas	--	--	--	--	✓
Spoil Areas	--	--	--	--	✓
Sewer Lines	--	--	--	--	✓
Disposal Areas	--	--	--	✓	--
Artificial Reefs	--	--	--	--	✓
Lighthouses	--	--	--	--	✓
Footprint of Proposed Tidal Energy Project	--	--	--	--	✓
Seaports	--	✓	--	--	--
Unexploded Ordinance Area	--	✓	--	--	--
Environmental Monitoring Buoys	--	--	--	--	✓

MWRA Diffusers	--	--	--	--	✓
Plymouth Nuclear Plant Security Zone	--	✓	--	--	--

Non-MORIS Data Layers			**Ranking**		
Resource	**No Data**	**Not Suitable 0**	**Low 1**	**Medium 2**	**High 3**
Navigational Aids					✓
Ferry Routes	--	--	--	✓	--

SECTION FIVE: REGULATORY SUMMARY

Within the OPA there are a number of statutes and regulations that pertain to transportation, navigation, and infrastructure resources. Those relevant regulations and statutes are summarized below.

PUBLIC WATERFRONT ACT (CHAPTER 91)

Authorities: M.G.L. c. 91: Public Waterfront Act; 310 CMR 9.00: Waterways Regulations.

Regulatory Summary: The Division of Wetlands and Waterways in the Department of Environmental Protection (MassDEP) administers the Chapter 91 Waterways Program. Chapter 91 is the Massachusetts public trust statute and, as such, protects the public's rights to fish, fowl, and navigate below the current or historic high water line, as well as in great ponds and navigable rivers and streams in Massachusetts, the so-called public trust lands. Waterways regulations promote the preservation of tidelands for water-dependent uses that require direct access to the water. In addition, the regulations seek to ensure that areas in jurisdiction are maintained for public use and enjoyment when privately developed.
Projects are reviewed to ensure that they: (1) do not unreasonably interfere with navigation, (2) are structurally sound, (3) provide a proper public purpose, (4) do not interfere with public rights or rights of adjacent property owners, (5) will not adversely affect natural resources, and (6) preserve DPAs for maritime industrial use.

MASSACHUSETTS WETLANDS PROTECTION ACT and RIVERS PROTECTION ACT

Authorities: M.G.L. c. 131, § 40: Massachusetts Wetlands Protection Act; 310 CMR 10.00: Wetlands Regulations.

Regulatory Summary: Local Conservation Commissions and the Department of Environmental Protection (MassDEP), Wetlands Program administer the WPA (310 CMR 10:00: Wetlands Regulations). The purpose of the WPA is to protect Massachusetts wetlands resources and to ensure that the beneficial functions of these resources are maintained. The resources identified are protected because they fulfill the public interest to protect public and private water supply, protect fisheries, protect groundwater supply, provide flood control, protect land containing shellfish, prevent storm damage, protect wildlife habitat, and prevent pollution. These interests are protected by a "no net loss of wetlands" policy. Projects that affect wetlands are required to avoid impacts where possible, minimize unavoidable impacts, and mitigate for unavoidable impacts. Performance standards define the levels of environmental impacts that cannot be exceeded.

Projects proposed in wetlands resource areas or in the buffer zone around them must obtain a local Order of Conditions. Wetland resources include land under the ocean, coastal banks, coastal beaches and tidal flats, coastal dunes, barrier beaches, rocky intertidal, salt marshes, land under salt ponds, Designated Port Areas, land containing shellfish, and land on the banks of fish runs.

401 WATER QUALITY CERTIFICATION FOR DREDGING & DISCHARGE

Authorities: 33 U.S.C. 1341 *et seq.*, § 401: Federal Water Pollution Control Act, M.G.L. c. 21, §§ 26-53: Massachusetts Clean Water Act; 314 CMR 4.00: Surface Water Quality Standards, 314 CMR 9.00: 401 Water Quality Certification.

Regulatory Summary: The Division of Wetlands and Waterways in the Department of Environmental Protection (MassDEP) administer the 401 Water Quality Certification Program. The 401 review ensures that a proposed dredge and/or fill project that can result in the discharge of pollutants complies with Massachusetts Surface Water Quality Standards, the Massachusetts Wetlands Protection Act, and otherwise avoids or minimizes individual and cumulative impacts to Massachusetts waters and wetlands. As the authority to administer the 401 Water Quality Certification is derived from the Federal Water Pollution Control Act, only projects that require a federal permit are subject to 401 review.

OCEAN SANCTUARIES ACT

Authorities: M.G.L. c. 132A, §§ 12A-16F, 18: Ocean Sanctuaries Act; 302 CMR 5.00: Ocean Sanctuaries.

Regulatory Summary: The Office of Coastal Zone Management (CZM) administers the Ocean Sanctuaries Program. The Act prohibits activities that may significantly alter or endanger the ecology or appearance of the ocean, seabed, or subsoil of sanctuaries or the Cape Cod National Seashore. To accomplish this goal the Act prohibits (1) building structures on or under the seabed; (2) construction or operation of offshore or floating electrical generating stations; drilling or removal of sand, gravel (except for the purposes of beach nourishment), other minerals, gases, or oils; (3) dumping or discharge of commercial, municipal, domestic or industrial wastes; (4) commercial advertising; and (5) incineration of solid waste or refuse on vessels within sanctuary boundaries. These prohibitions may be waived if a finding of "public necessity and convenience" can be made for the proposed project or activity. Under the Ocean Sanctuaries Act, CZM does not issue any licenses or permits but acts through the regulatory process of other agencies, particularly the Chapter 91 Waterways Program.

FEDERAL CONSISTENCY REVIEW

Authorities: 16 U.S.C. 1451 *et seq.*: Coastal Zone Management Act of 1972, as amended, 15 CFR 930; M.G.L. c. 21A, §§ 2, 4: Massachusetts Coastal Zone Management Act, 301 CMR 20.00: Coastal Zone Management Program, 301 CMR 21.00: Federal Consistency Review Procedures.

Regulatory Summary: CZM's federal consistency review ensures that any federal activities in or affecting Massachusetts coastal resources is consistent with state coastal policies. These policies, the so-called enforceable program policies, are based on existing Massachusetts statutes and regulations and offer policy guidance on management of water quality, marine habitat, protected areas, coastal hazards, port and harbor infrastructure, public access, energy, ocean resources, and growth management. The project-specific federal activity cannot take place until CZM concurs that the project is consistent with state coastal policies.

U.S. ARMY CORPS OF ENGINEERS PERMITS

The following permits are considered together as they are administered together by the U.S. Army Corps of Engineers (Corps) Regulatory Branch through a single permit application.

- **RIVERS AND HARBORS ACT OF 1899 (SECTION 10)**

  Authorities: 33 U.S.C. §§ 401-413: Rivers and Harbors Act of 1899; 33 CFR 323: Permits for Structures or Work Affecting Navigable Waters of the United States.

- **CLEAN WATER ACT (SECTION 404)**

  Authorities: 33 U.S.C. §1251 *et seq.*: Federal Water Pollution Control Act; 33 FCR 322: Permits for Discharges of Dredged or Fill Material into the Waters of the United States.

- **MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT, (SECTION 103)**

  Authorities: 33 U.S.C. §1401 *et seq.*: Marine Protection, Research and Sanctuaries Act; 33 CFR 324: Permits for Ocean Dumping of Dredged Material.

- **MASSACHUSETTS PROGRAMMATIC GENERAL PERMIT**

  Authorities: 33 CFR 320-330: U.S. Army Corps of Engineers Regulations.

Regulatory Summary: A Section 10 permit is required for all work, including structures, seaward of the annual high water line in navigable waters of the United States, defined as waters subject to the ebb and flow of the tide, as well as a few of the major rivers used to transport interstate or foreign commerce. A Section 404 permit is required for activities that involve the discharge of dredged or fill material into waters of the United States, including not only navigable waters, but also coastal waters, inland rivers, lakes, streams, and wetlands. A Section 103 permit is required to transport dredged material for the purpose of disposal in the ocean.

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM

Authorities: 33 U.S.C. §1251 *et seq.*: Federal Water Pollution Control Act; 40 CFR 122: EPA Administered Permit Programs: National Pollution Discharge Elimination System; M.G.L. Ch. 21 s. 26-53: Massachusetts Clean Waters Act; 314 CMR 3.00: Massachusetts Surface Water Discharge Permit Program.

Regulatory Summary: The U.S. Environmental Protection Agency (EPA) administers the National Pollutant Discharge Elimination System (NPDES) Program. In addition, the permits issued are also done under State of Massachusetts authority by the Department of Environmental Protection (MassDEP). Massachusetts is a non-delegated NPDES permit state; however, the permits are jointly issued by EPA and MassDEP and are equally and separately enforceable by both agencies. Under the NPDES Program, as authorized by the federal Clean Water Act, no point sources of pollutants can be discharged to the waters of the United States without a permit. Permits regulate discharges with the goals of: (1) protecting public health and aquatic life, and (2) assuring that every facility treats wastewater. Permits include site-specific effluent limits, and monitoring and reporting requirements. Regulated pollutants include sanitary waste, toxic pollutants, and non-conventional pollutants including nutrients such as nitrogen and phosphorus. Industrial or commercial facilities may need more than one NPDES permit as stormwater and wastewater are each regulated by separate permits. Permits are issued for up to five years and are renewable.

CLEAN AIR ACT

Authorities: 42 U.S.C. §§ 7401 *et seq.*: Clean Air Act; M.G.L. 111, §§ 142A-142J: Massachusetts Clean Air Act; 310 CMR 7.00: Air Pollution Control.

Regulatory Summary: The federal Clean Air Act charges the U.S. Environmental Protection Agency (EPA) with setting limits on the amount of a pollutant that can be in the air anywhere in the United States. As much of the implementation of the Clean Air Act is accomplished by the states, each state must prepare an implementation plan for approval by EPA. The Massachusetts Air Program has been developed in conformance with the federal Clean Air Act and its amendments and is administered by the Department of Environmental Protection (MassDEP). MassDEP must give a pre-construction operating permit for any large, stationary source of air pollution.

FEDERAL ENDANGERED SPECIES ACT

Authorities: 16 U.S.C. § 1531 *et seq.*: Endangered Species Act of 1973; 50 CFR 17.00: Endangered Species and Threatened Wildlife and Plants.

Regulatory Summary: The federal Endangered Species Act conserves the ecosystems on which endangered and threatened species depend. Species are protected under the Act as either endangered or threatened. Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future. The National Marine Fisheries Service (NMFS), which is responsible for marine species, and the U.S. Fish and Wildlife Service (USFWS) jointly administer the law, which is responsible for terrestrial and freshwater species.

MASSACHUSETTS ENDANGERED SPECIES ACT

Authorities: M.G.L. c. 131A: Massachusetts Endangered Species Act; 321 CMR 8:00: List of Endangered and Threatened Species; 321 CMR 10:00: Massachusetts Endangered Species Regulations.

Regulatory Summary: The state's Endangered Species Act provides for listing of endangered or threatened species or species of concern, and of their habitat. Once listed, the Act prohibits the taking, possession, transport, export, processing, sale or purchase of such species and any other species listed under the federal Endangered Species Act. The Act prohibits any alteration of significant habitat of any protected species that may reduce the viability of the habitat. The Act is administered by NHESP within the Massachusetts Division of Fisheries, Wildlife and Environmental Law Enforcement (DFWELE). The NHESP publishes a map of estimated threatened and endangered species habitat, however, the resident species are not identified to prevent unauthorized takings. The Massachusetts program also coordinates with the Federal Endangered Species Act, administered by the U.S. Fish and Wildlife Service (http://endangered.fws.gov).

MASSACHUSETTS ENVIRONMENTAL POLICY ACT

Authorities: M.G.L. c. 30, §§ 61-62H: Massachusetts Environmental Policy Act; 301 CMR 11.00: MEPA Regulations.

Regulatory Summary: The MEPA Unit, within the Executive Office of Environmental Affairs, administers this review. MEPA provides opportunities for public review of the potential environmental impacts of projects for which state agency action is required; and helps state agencies to satisfy their obligation to avoid damage to the environment, or if damage to the environment cannot be avoided, to minimize and mitigate the damage to the maximum extent practicable. State agency action includes activities that are undertaken, permitted, and/or funded by agencies of the Commonwealth, and the transfer of lands owned or controlled by the Commonwealth. Major categories of project impacts subject to review include land; rare species; wetlands, waterways and tidelands; water; wastewater; transportation; energy; air; solid and hazardous waste; historical and archeological resources; and state-designated ACECs.

The intent of the MEPA review is to inform project proponents and state agencies of potential adverse environmental impacts while a proposal is still in the planning stage. The proponent, through the preparation of one or more review documents, identifies required state agency actions and describes the means by which the proposal complies with applicable regulatory standards and requirements. All relevant state agencies are required to identify any aspects of the proposal that require additional description or analysis prior to completion of the agency action, most commonly issuance of an environmental permit.

NATIONAL ENVIRONMENTAL POLICY ACT

Authorities: 42 U.S.C. §4321 *et seq.*: National Environmental Policy Act of 1969; 40 CFR 1500: Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.

Regulatory Summary: NEPA established environmental protection as a national policy goal and directed all federal agencies to consider the environmental consequences of their projects and permitting actions. The NEPA review provides opportunities for integration of national environmental policy into project planning; public and agency review of potential environmental effects of federal actions (including issuance of federal permits) and programs; coordinated and inter-disciplinary program planning; and resolution of disputes among agencies. Most federal agencies have promulgated regulations governing the incorporation of NEPA's reviews into their programs.

FEDERAL AVIATION ADMINISTRATION

Authorities: Code of Federal Regulations, Title 14, Part 77, Objects Affecting Navigable Airspace, Federal Aviation Administration

FEDERAL ENERGY REGULATION COMMISSION

Authorities: Code of Federal Regulations, Title 18, Chapter 1 Federal Energy Regulation Commission.

MASSACHUSETTS ENERGY FACILITIES SITING BOARD

Authorities: 980 Code of Massachusetts Regulations, Energy Facilities Siting Board

SECTION SIX: MAP PRODUCTS

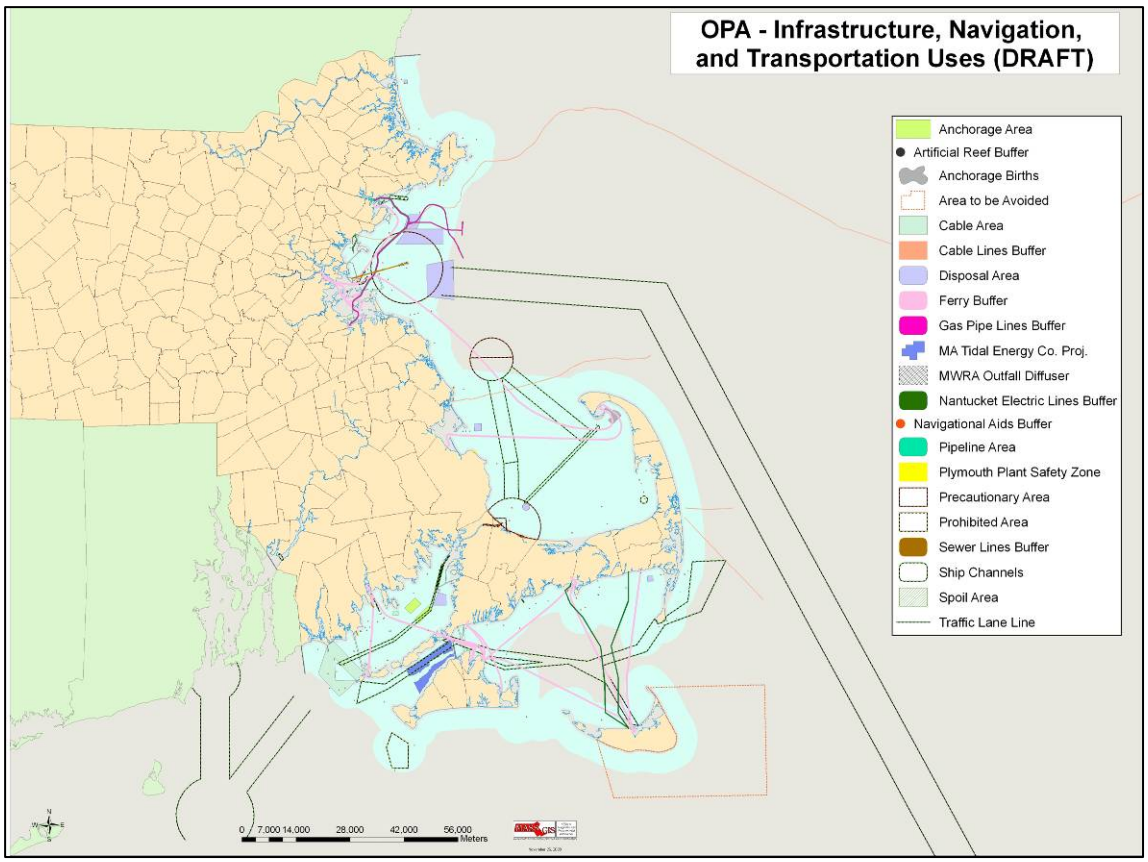

Figure 3. Transportation, Navigation, Infrastructure uses within the Ocean Management Planning area

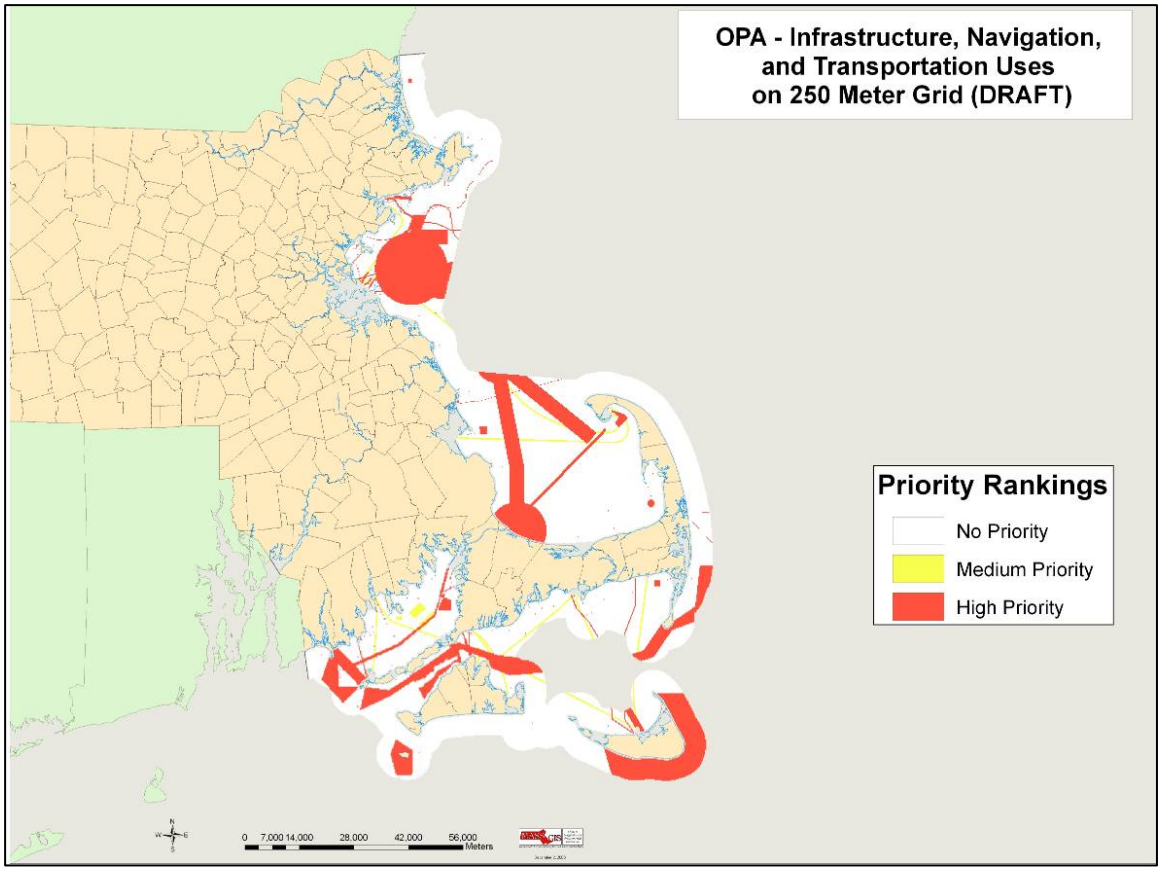

Figure 4. Transportation, Navigation, Infrastructure Priority Rankings