# Chapter 2 - Management

The Oceans Act directs the ocean management plan to establish management areas and performance standards for development within the ocean planning area[1] and to identify and protect significant marine resources.[2] This section establishes those areas and standards.[3]

## Management Areas

The ocean management plan establishes three categories of management areas: Prohibited, Renewable Energy, and Multi-Use.

### Prohibited Area

The Prohibited Area (Figure 2-1)[4] is coincident with the Cape Cod Ocean Sanctuary, within which a variety of uses, activities and facilities are expressly prohibited by the Ocean Sanctuaries Act, as amended by the Oceans Act, and are therefore prohibited under the ocean plan.

### Renewable Energy Areas

Renewable Energy Areas allow commercial- and community-scale wind energy development. Based on current technology, the deployment of large-scale wave and tidal power facilities appears unlikely in the first five-year term of the ocean plan. However, at least three tidal power pilot projects are under development, including the Town of Edgartown's Muskeget Channel Tidal Energy Project, discussed below. Wave and tidal energy facilities, as well as community wind energy facilities, are also allowed in the Multi-use Area, as explained in more detail below.

Two Wind Energy Areas are designated for commercial-scale wind energy facilities based on the presence of a suitable wind resource and water depth, and the absence of conflict with other uses or sensitive resources, as derived through an environmental

[1] "The Plan…shall identify appropriate locations and performance standards for activities, uses and facilities allowed under [the Ocean Sanctuaries Act]."
[2] "The Plan shall…identify and protect special, sensitive or unique estuarine and marine life and habitats."
[3] As the legal basis for management, the Oceans Act requires that approvals for development within the planning area must be consistent with the Plan "Upon the secretary's adoption of an ocean management plan, all certificates, licenses, permits and approvals for any proposed structures, uses or activities in areas subject to the ocean management plan shall be consistent, to the maximum extent practicable, with the plan." As discussed below, EEA will undertake rulemaking in 2010 to modify applicable regulations to implement the management measures described herein.
[4] For production purposes, all figures referenced in this chapter are placed at the end of the Ocean Management Plan.

screening process.[5] These areas—which constitute 2% percent of the planning area's 2,144.5 square miles—will be subject to additional baseline feasibility analysis for such factors as wave climate and sub-bottom geology. Using generic industry guidelines for spacing, these areas could accommodate approximately 150 3.6 megawatt (MW) turbines at full build-out. Based on further analysis for technical or economic viability, there may be siting constraints that would reduce the sites' capacity.

The Gosnold Wind Energy Area (Figure 2-1) is designated for commercial wind energy development (defined as projects that are larger than the community-scale allocations described under Renewable Energy Siting/Management below), subject to terms described under Renewable Energy Siting/Management, below. Community-scale wind energy development is also allowed within the Gosnold Wind Energy Area. Future project development in this area is subject to review under the Massachusetts Environmental Policy Act (MEPA) and all other necessary local, state and federal approvals. The intent of the designation is to signify that, based on the rigorous environmental screening under the ocean management plan, the area is presumptively suitable for commercial-scale wind. Development of a commercial-scale wind energy facility shall be permitted in this area subject to reasonable conditions developed in consultation with local officials.

The Martha's Vineyard Wind Energy Area (Figure 2-1) is designated for wind energy development at a scale to be determined by the Martha's Vineyard Commission. As discussed under Siting/Management, below, planning authorities with regulatory authority shall define the appropriate scale of any wind energy project located within waters of those municipalities that are subject to the jurisdiction of such regional planning authorities as of the date of this plan.

The ocean management plan also identifies three locations (one in federal waters adjacent to the planning area) for commercial-scale wind that are considered provisional sites (Figure 2-1). These areas passed the exclusionary screening process but appear to have potentially more significant technical limitations, cumulative impacts, and/or less suitability for wind energy. Therefore, these locations are not proposed for designation as Wind Energy Areas at this time, and are not currently being explored for further feasibility by the Commonwealth. This does not preclude other entities from developing additional information and analysis for the provisional sites, but such assessments would be subject to review by EEA, and designation of any or all of the provisional sites in the planning area as Wind Energy Areas would require a modification to the ocean management plan consistent with the formal amendment process described in Chapter 3.

[5] See Appendix 3 for a description of the wind energy screening process.

In addition, EEA has identified potentially suitable locations in federal waters for commercial-scale wind (Figure 2-1), recognizing that the three-mile limit of state jurisdiction (and the limit of jurisdiction of the ocean management plan) is an artificial constraint to considerations of technology, economics, and environmental and social benefits and impacts. At the Commonwealth's request, the Minerals Management Service (MMS) has convened a federal-state task force to assist MMS in the planning and regulatory review associated with leasing areas of federal waters for large-scale wind energy development. Based on consultation with the task force, and as an initial step in the federal leasing process, MMS will issue a Request for Interest to determine the interest in specific areas of federal waters to be considered for wind energy development.[6]

### Multi-Use Area

The remainder—and the vast majority—of the planning area is designated as a Multi-use Area (Figure 2-1), which is open to all uses, activities and facilities allowed under the Ocean Sanctuaries Act, including but not limited to the following:

- Aquaculture
- Cables and pipelines
- Extraction of sand and gravel for beach nourishment
- Community-scale wind energy facilities of appropriate scale
- Wave and tidal energy facilities of appropriate scale

Management in the Multi-use Area is based on specific marine resources identified as key components of the Massachusetts marine ecosystem ("special, sensitive or unique marine or estuarine life and habitat"). The vulnerability of each resource to new uses, activities and facilities was determined and ranked through compatibility assessments. Similarly, management guidance for balancing impacts to commercial and recreation fishing and recreational boating was developed and the compatibility of these uses with new uses was assessed. The uses, activities and facilities listed above are managed not by spatial designation but by siting and performance standards, associated with mapped resources and uses (listed in Table 2-1) that direct development away from high value resources and concentrations of existing water-dependent uses.[7] The application of these standards to specific uses, activities and facilities is described under Management of Ocean Uses, below.

[6] For more information on the federal leasing process for offshore wind energy development, see http://www.mms.gov/offshore/RenewableEnergy/index.htm.
[7] See Draft Ocean Management Plan, Chapter 3, for complete discussion of the compatibility assessment process and development of the management measures.

The ocean management plan siting and performance standards apply to projects that are required under the Massachusetts Environmental Policy Act (MEPA) to develop Environmental Impact Reports (EIR) because such projects are determined, by definition, to be most likely to have potentially significant environmental impacts. Under MEPA, projects that exceed specified thresholds are presumed to have potentially significant impacts and require a mandatory EIR. Projects that exceed lower thresholds require a short-form review in an Environmental Notification Form (ENF) to allow agencies and the public to inform the Secretary of EEA whether additional review in a discretionary EIR is warranted. Impacts associated with those projects that do not require an EIR can be addressed at the appropriate level of state, regional, or local government.

- Siting and Performance Standards for Special, Sensitive, or Unique Marine and Estuarine Life and Habitat (SSU) - Uses, activities and facilities in the ocean planning area are subject to the following siting and performance standards for projects that require an EIR under MEPA:
    - Uses, activities or facilities proposed in the ocean planning area, subject to MEPA review, and represented on ocean management use/SSU maps shall avoid SSU areas identified thereon, pursuant to the SSU definitions in Appendix 4 and the terms listed below. Under MEPA review, the Secretary shall presume that the location of a project outside an SSU area represents a less environmentally damaging practicable alternative (LEDPA) than a location within an SSU area.[8] The presumption may be overcome by: (1) a clear demonstration that either no LEDPA exists or that the project will cause no significant alteration of the resource, or (2) a demonstration of clear and convincing evidence that the SSU area maps do not accurately characterize the resource or use. For projects not represented by ocean management use/SSU area maps, the proponent shall submit a request for an Advisory Opinion to the Secretary who shall determine, in consultation with the OT, the SSU areas applicable to the project, if any.
    - The SSU maps in the ocean management plan represent the best available information regarding the extent of SSU resources at the time of publication. Pursuant to an EIR scope issued by the Secretary, the development of project-specific information may require additional site characterization work to confirm the

[8] The Secretary shall determine the least environmentally damaging practicable alternative through MEPA review. For the purposes of that determination, the definition of "practicable" closely parallels that of the Clean Water Act 404(b)(1) Guidelines: an alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the project purpose.

presence/absence of a SSU resource (i.e., verify coverage of eelgrass beds which can have relatively high spatial variability over time, or define the extent of hard/complex seafloor areas which may call for higher resolution data). SSU resources that are identified through project-specific site characterization in an EIR are subject to the siting and performance standards. The interagency EEA Ocean Team will develop guidelines to address this issue as part of the implementation guidance; see discussion in Chapter 3.

- Projects proposed in the ocean planning area must demonstrate that the public benefits associated with the proposed project clearly outweigh the public detriments to the SSU resources.
- Projects proposed in the ocean planning area must demonstrate that they have taken all practicable steps to avoid damage to the SSU resource and that there will be no significant alteration of the SSU resource.
- For projects proposed outside of mapped SSU areas, the ocean management plan encourages the Secretary to acknowledge that the proponent has avoided impacts to the most significant marine resources of the Commonwealth and scope the project accordingly, subject to consideration of data and information received from agency and public comment.

Any use, activities or facilities requiring a state agency action, that is represented by an ocean management use/SSU map, is required to file an Environmental Notification Form (ENF), regardless of whether it exceeds a threshold for review under the MEPA regulations at 301 CMR 11.00.

- Siting and Performance Standards for Commercial Fishing and Recreational Fishing and Areas of Concentrated Recreational Activity - Uses, activities and facilities in the ocean planning area are subject to the following siting and performance standards for projects that require an EIR under MEPA:
  - Uses, activities or facilities proposed in the ocean planning area, subject to MEPA review, and represented on ocean management use/SSU maps shall, to the maximum extent practicable, avoid, minimize, and mitigate impacts to the existing use areas specified thereon.
  - Under MEPA review, the Secretary shall use mapped information to inform scoping for impact and/or alternatives analysis and may require additional project-specific characterization of existing uses and potential impacts as he deems appropriate.

Importantly, the resources and uses in Table 2-1 are not intended to represent the exclusive subject matter of MEPA review and agency permitting action. Rather, based on the direction of the Oceans Act, they have been identified as resources and uses that warrant particular attention through the regulatory

review process. The ocean management plan does not supersede any existing laws, including those that require the assessment of potential impacts to resources and uses not listed above. The Secretary of EEA retains his discretion under the MEPA statute and regulations to scope a project for any issue he deems necessary and appropriate, based on information presented by the project proponent and agency or public comment.

Table 2-1 - Siting and performance standards for EIR projects in the Multi-use Area

| SSU Resource | Siting Standard | Performance Standard |
|---|---|---|
| • North Atlantic Right Whale core habitat (Figure 2-2)<br>• Humpback ( Figure 2-3) and Fin Whale (Figure 2-4) core habitat<br>• Roseate Tern core habitat (Figure 2-5)<br>• Special concern (Arctic, Least, and Common) tern core habitat (Figure 2-6)<br>• Long-tailed Duck core habitat (Figure 2-7)<br>• Leach's Storm Petrel important nesting habitat (Figure 2-8)<br>• Colonial water birds important nesting habitat (Figure 2-9)<br>• Hard/complex seafloor (Figure 2-10)<br>• Eelgrass (Figure 2-11)<br>• Intertidal flats (Figure 2-12)<br>• Important fish resource areas (Figure 2-13)[9] | Specified uses presumptively excluded. The presumption may be overcome by a clear demonstration that either no less environmentally damaging practicable alternative exists or that the project will cause no significant alteration of the resource, or by a demonstration of clear and convincing evidence that the SSU area mapping was erroneous and that the underlying data does not accurately characterize the resource or use. | Demonstrate that the public benefits associated with the proposed project clearly outweigh the public detriments to the SSU resources.<br><br>Demonstrate that all practicable steps have been taken to avoid damage to the SSU resource interests and values and that there will be no significant alteration of SSU resource values or interests. |
| **Project Location within Areas of Existing Water-Dependent Uses** | **Siting Standard** | **Performance Standard** |
| • Areas of high commercial fishing by effort and value (Figure 2-14)[10]<br>• Areas of concentrated recreational fishing (Figure 2-15)<br>• Areas of concentrated commerce and commercial fishing traffic (Figure 2-16)<br>• Areas of concentrated recreational boating activity (Figure 2-17)[11] | Avoid, minimize, and mitigate impacts to the maximum extent practicable; use mapped areas to guide alternatives analysis and additional project-specific characterization of existing uses and potential impacts. | Meet all applicable permitting standards |

[9] The Important Fish Resource Area SSU represents a notable component of the Massachusetts marine ecosystem. However, the data and methodology available during plan development resulted in a SSU designation that warrants further analysis. As a near-term action, the definition and spatial representation of this SSU will be refined to identify with greater specificity, areas of particular ecological significance to marine fish, shellfish, and crustaceans (see the Science Framework in Volume 2 for additional details).
[10] EEA will evaluate the benefit of refining maps of fishing activity based on gear type, as a near-term action, to further characterize/assess compatibility/conflict.
[11] Map will be refined, in the near future, to identify traffic patterns and associated intensity of use with greater specificity. See the Science Framework for additional details.

- Example Application - As an illustrative example of how management in the Multi-use Area is intended to operate, the extraction of sand and gravel has been determined to have potentially significant impacts to the following subset of SSU resources and important water-dependent uses:
    - North Atlantic Right Whale core habitat area
    - Fin and Humpback Whale important habitat
    - Areas of complex seafloor
    - Eelgrass
    - Inter-tidal flats
    - Important fish resource areas
    - Roseate Tern core habitat
    - Concentrated areas of recreational fishing
    - Areas of high commercial fishing

  A project that proposed to extract material for beach nourishment would be required to use the ocean management plan's resource and use maps to identify a borrow area(s) located outside core areas for right, humpback, and fin whales; eelgrass; intertidal flats; and hard/complex seafloor. This would include consultation with EEA and the Division of Marine Fisheries (DMF) regarding the site specific species associated with the important fish resource SSU. The project would have the option of demonstrating that no less environmentally damaging practicable alternative exists or that it would cause no significant adverse impact to the specified SSU resources. Alternatively, a case may be made that there is clear evidence that the mapped ocean plan data do not accurately characterize the specified resources.

  If no less environmentally damaging practicable alternative exists, the project would be required to demonstrate that the public benefits of the project clearly outweigh the public detriments to the SSU resources. Following MEPA review, the project would be required to demonstrate in permitting that, through its construction and operation design, it had taken all practicable steps to avoid damage to the SSU resource interests and values and that there would be no significant alteration of SSU resource values or interests.

  Similarly, the project would be required under MEPA to evaluate impacts to areas of high commercial and recreational fishing and concentrated areas of recreational activity through characterization of, and consultation with, potentially affected interests within those mapped areas. The proponent would be required to identify the potential economic impacts of the proposed project as part of the alternatives analysis and to assist the

Secretary in determining appropriate minimization and mitigation measures, if any. Comments from agencies, potentially affected parties, and the public would assist the Secretary in developing project-specific requirements for an appropriate level of characterization.

Management in the Multi-use Area thus establishes a higher level of protection for special, sensitive or unique resources in several ways. The ocean management plan: 1) modifies the MEPA standard of "avoid, minimize or mitigate damage to the environment to the maximum extent practicable" to include a rebuttable presumption that less damaging practicable alternatives exist for projects that would otherwise locate in SSU areas; 2) establishes a public benefits test; and 3) requires that project permits ensure that all practicable steps have been taken to avoid impacts to SSU resources and that there will be no significant adverse impacts to SSU resources. The ocean management plan also identifies and maps those resources, providing clear baseline information which will allow proponents, agency staff, and the public to focus on aspects of a given project of greatest potential environmental significance.

The Multi-use Area maintains the existing standard of "avoid, minimize or mitigate" impacts from new uses to existing water-dependent uses, but establishes a higher level of review by providing baseline information on concentrations of existing uses, identifying them as significant existing interests, and requiring that potential impacts and mitigation be addressed in MEPA review with the participation of potentially affected interests. The mapped areas, and comments from agencies, will guide scoping under MEPA for additional project-specific characterization of existing uses and potential impacts.

Finally, the Multi-use Area addresses the interests of sustainable uses, renewable energy, and necessary infrastructure by directing them away from locations where they would be likely to have the most impacts to the most significant resources and concentrations of human activities but otherwise allowing flexibility in their location and level of regulatory review, on a project-specific basis, based on their functional requirements, scale, and potential impacts to existing uses and marine resources.

Overall, management in the Multi-use Area represents an effort to balance the protection of significant existing uses and important environmental resources with the flexibility needed to allow the development of necessary infrastructure, sustainable uses, and new technologies such as renewable energy, in the context of the public trust and within limitations of existing data. As identified in the science framework and discussed in Chapter 3, ongoing analysis of existing data, future data development, and increased understanding of the marine environment and pattern of

human uses will result in refined ocean plan maps, particularly for important fish habitat and water dependent uses. Application of the siting standards, and management in the Multi-use Area under MEPA generally, should utilize the ocean management plan's maps and the data on which they are based in conjunction with best professional judgment informed by agency expertise and the participation of potentially affected parties.

## Management of Uses in the Ocean Planning Area

This section describes management measures for uses, activities, and facilities allowed under the Ocean Sanctuaries Act, as amended by the Oceans Act.

### Renewable Energy

In 2008, the legislature enacted two landmark laws to boost renewable energy in Massachusetts: 1) the Green Communities Act, which mandates that by 2020, 15% of our electric load be served by renewable energy, and 2) the Global Warming Solutions Act, which requires steep, economy-wide reductions in greenhouse gas emissions. To implement these mandates, Governor Patrick has called for 2,000 MW of wind power by 2020 in Massachusetts or adjacent state and federal waters. To put this 2,000 MW goal in proper perspective, it should be noted that the Commonwealth currently has approximately 15 MW of installed capacity. To achieve the 2,000 MW goal, the legislature and the Patrick Administration have put together numerous financial incentives to spur the growth of renewable energy, and the Patrick Administration is championing legislation to make the process for permitting onshore wind powered facilities more predictable and less lengthy. This push for additional renewable energy complements other efforts to reduce greenhouse gases, such as the tripling of funds devoted to improving energy efficiency, and the expansion of programs that support solar energy development.

However, these initiatives by themselves will not be sufficient to meet the renewable energy and greenhouse gas reductions mandated by the new legislation. Development of new renewable energy facilities is needed, and the ocean management plan establishes a framework for the potential of offshore marine renewable energy development.

- Wind Energy - The state's Global Warming Solutions Act requires that greenhouse gas emissions be reduced 80 percent from 1990 levels economy-wide by 2050, and calls on EEA to set a 2020 target between 10 and 25 percent below 1990 levels and develop a plan for achieving that

reduction. As referenced above, the state has set a goal of developing 2,000 MW of wind-power capacity by the year 2020. Offshore wind resources offer the prospect of considerable renewable energy, free of harmful emissions, and if developed with care and forethought, are compatible with other ocean uses and resources. It is a potentially inexhaustible resource that, in many cases, is available in close proximity to regions with the highest electricity demand, minimizing the need for costly new transmission lines. A recent analysis of potential renewable energy generation capacity in Massachusetts by Navigant Consulting identified the theoretical generation capacity from offshore wind energy facilities at 19,000 MW. After factoring for avian and marine mammal habitats, other marine resources, view sheds and shipping routes, the Navigant study identified the technical generation capacity from offshore wind energy facilities at 6,270 MW.

Recent developments in furthering the development of wind energy generation include the establishment of the Marine Renewable Energy Center (MREC) at the University of Massachusetts Dartmouth School of Marine Science and Technology, created to develop in-ocean test sites for energy conversion devices and accelerate the commercialization of new technologies. MREC is currently funding wind (shallow, transition and deep-water) and tidal resource assessment and environmental survey work in Edgartown and Nantucket within a proposed National Offshore Renewable Energy Innovation Zone that would support full scale testing of wave and wind energy devices. The general proposed location of the innovation zone is depicted on Figure 2-18, although the specific delineation is currently under review by the Minerals Management Service.

- Tidal Energy - Although current available technology does not support commercial-scale projects, technological advancements may support the possibility of tidal energy development in limited areas. In general, a peak tidal velocity of 4 knots appears to be the minimum for an economically viable, utility scale project. The literature cites only three known locations that are currently documented to have tidal velocities that approach 3 knots, including Muskeget Channel between Nantucket and Martha's Vineyard, Vineyard Sound between Naushon Island and Norton Point, within the Cape Cod Canal and to the southeast of Nantucket Island.

  However, recent information collected by UMass-Dartmouth in Muskeget Channel identifies current velocity in the channel exceeds 4 knots per second and demonstrates potential commercial viability. The Town of Edgartown's proposed Muskeget Channel Tidal Energy Project, which

holds a Preliminary Permit from the Federal Energy Regulatory Commission (FERC), is located between the islands of Nantucket and Martha's Vineyard. Initial estimates suggest that it could generate 10-20 MW of power at peak velocity. The Town of Nantucket is formally cooperating with Edgartown on project development.

In addition, there are currently two potential projects pending in the ocean planning area: Natural Currents Energy Services LLC is pursuing a project in Muskeget Channel and the Oceana Energy Company has proposed a project in Vineyard Sound.

- Wave Energy - The Renewable Energy Workgroup concluded that the prospect for wave energy development in Massachusetts is limited. However, non-utility-scale projects have been proposed, and at least one demonstration project has recently been in operation on the North Shore. As with tidal energy, technological advancements may support the possibility of wave energy development in limited areas.

- Appropriate Scale - The Oceans Act amends the Ocean Sanctuaries Act to allow the development of renewable energy facilities "of appropriate scale," provided that the renewable energy facility is otherwise consistent with an ocean management plan. In doing so, the Oceans Act recognized the importance of providing an opportunity to achieve significant social benefits from the development of renewable energy in balance with other social values. The Oceans Act addresses these interests by requiring that the seven factors listed in Table 2-2 be addressed in the definition of appropriate scale. These factors address the same values and concerns as the screening criteria and siting and performance standards developed through the planning process, as shown in Table 2-3.

  As discussed below, regional planning authorities (RPA) with regulatory authority shall define the appropriate scale of any wind energy project whose turbines are located within waters of those municipalities within the jurisdiction of such regional planning authorities as of the date of issuance of this plan.[12]

[12] As required by the Oceans Act, the ocean management plan will be incorporated into the CZM program following NOAA review and subsequently applied through the use of federal consistency. RPA definitions, regulations or decisions pertaining to the appropriate scale of renewable energy projects in their jurisdictional ocean waters shall not constitute applicable enforceable state policy for purposes of CZM federal consistency review of renewable energy projects in federal waters under the federal Coastal Zone Management Act.

Table 2-2 - Appropriate scale

| Appropriate Scale Factor | As Addressed by the Ocean Management Plan[13] |
|---|---|
| Protection of the public trust | The exclusionary screening criteria for Renewable Energy Areas and the siting and performance standards associated with renewable energy facilities allowed in the Multi-use Area are designed to avoid, minimize and mitigate impacts to activities associated with fishing, fowling and navigation, in reasonable balance with the siting requirements of renewable energy |
| Public safety | The exclusionary screening criteria for Renewable Energy Areas and the siting and performance standards associated with renewable energy facilities allowed in the Multi-use Area address public safety by locating Wind Energy Areas away from concentrations of human activities, including shipping and commercial navigation, commercial and recreational fishing, and recreational boating, to the maximum extent practicable |
| Compatibility with existing uses | The exclusionary screening criteria for Renewable Energy Areas and the siting and performance standards associated with renewable energy facilities allowed in the Multi-use Area are designed to avoid, minimize and mitigate impacts to existing uses while not unduly limiting opportunity for renewable energy development |
| Proximity to the shoreline | Wind Energy Areas are sited no closer than 1 mile to the shoreline of inhabited land, where feasible. If a community pursues a project in the Multi-use Area, the determination of proximity will be a factor in community support for the project, as required below. |
| Environmental protection | The exclusionary screening criteria for Renewable Energy Areas and the siting and performance standards associated with renewable energy facilities allowed in the Multi-use Area are designed to avoid, minimize and mitigate impacts to important resources |
| Community benefit | For wind or tidal energy allowed in the Multi-Use Area (community-scale wind), the project will be required to demonstrate that the host community or communities formally support the project (as demonstrated through letter from Mayor or Board of Selectmen) and, for projects other than pilot or demonstration-scale projects, must provide an economic benefit to the community. |
| Appropriateness of technology and scale | "Appropriateness" is a function of the environmental, social and economic interests assessed above, and guides the distinction between community-scale wind (small because it may be located in busier, more visible waters) and Wind Energy Areas (larger, and sited to minimize conflicts) |

[13] Pilot-scale renewable energy projects (e.g., those that are approved by the Federal Regulatory Energy Commission [FERC] as pilot projects) that meet existing regulatory standards are presumed to be of appropriate scale.

Table 2-3 - Siting and performance standards for community-scale wind and commercial-scale tidal energy facilities (see Figures 2-20 and 2-21)

| Allowed Use | Siting Standard | Performance Standard | Natural Resource or Water-Dependent Use |
|---|---|---|---|
| Community Wind | Presumptively excluded from SSU resource areas; exclusion rebuttable by determinations of LEDPA, no significant alteration, or inaccurate data | Public benefit determination<br><br>Avoid damage to SSU resources<br><br>No significant alteration | • Roseate tern core habitat<br>• Long-tailed Duck core habitat<br>• Colonial waterbirds important nesting habitat<br>• Special concern (Arctic, Least, and Common) tern core habitat<br>• North Atlantic right whale core habitat Leach's storm petrel important nesting habitat<br>• Fin and humpback whale core habitat<br>• Eelgrass<br>• Intertidal flats |
| | Avoid, minimize, and mitigate impacts | Meet all applicable permitting standards | • Areas of high commercial fishing effort and value<br>• Areas of concentrated commerce and commercial fishing traffic<br>• Areas of concentrated recreational fishing<br>• Areas of concentrated recreational activity |
| Commercial Tidal | Presumptively excluded from SSU resource areas; exclusion rebuttable by determinations of LEDPA, no significant alteration, or inaccurate data | Public benefit determination<br><br>Avoid damage to SSU resources<br><br>No significant alteration | • North Atlantic right whale core habitat<br>• Eelgrass<br>• Intertidal flats<br>• Important fish resource areas |
| | Avoid, minimize, and mitigate impacts | Meet all applicable permitting standards | • Areas of high commercial fishing effort and value<br>• Areas of concentrated commerce and commercial fishing traffic<br>• Areas of concentrated recreational fishing<br>• Areas of concentrated recreational activity |

For different types of renewable energy projects and/or those that are outside of the jurisdiction of regional planning authorities with regulatory authority, the ocean management plan defines appropriate scale as follows:

> Appropriate scale is that scale facility capable of being sited in a given location such that, as identified by the ocean plan, the following factors are addressed at a level of detail necessary for the secretary of EEA to make a determination of adequacy on an EIR, and, where applicable, for the Department of Environmental Protection (DEP) to authorize a project under the Chapter 91 and Water Quality Certificate regulations:
>
> 1. Public trust rights are protected
> 2. Public safety is protected
> 3. Significant incompatibilities with existing uses are avoided
> 4. Proximity to shoreline avoids and minimizes conflicts with existing uses and minimizes visual impact to the maximum extent feasible
> 5. Impacts to environmental resources are avoided, minimized, and mitigated to the maximum extent practicable
> 6. For community-scale wind and pilot-scale wave or tidal projects, the host community[14] (or communities) must formally support the project and, for projects other than test or demonstration-scale projects, must receive an economic benefit from the renewable energy facility. Further, other conditions described below apply to community wind projects.
> 7. The technology and scale of the facility are appropriate to the proposed location as demonstrated by consistency with 1 through 5, above.

- Siting/Management
  - RPAs with regulatory authority shall define the appropriate scale of any wind energy project located within waters of those municipalities that are subject to the jurisdiction of such regional planning authorities as of the date of issuance of this plan. For the Cape Cod Commission, this includes the waters of the municipalities of Provincetown, Truro, Wellfleet, Eastham, Orleans, Chatham, Harwich, Brewster, Dennis, Yarmouth, Barnstable, Mashpee, Sandwich, Bourne, and Falmouth. For the Martha's Vineyard Commission, this includes the waters of the municipalities of Aquinnah, Chilmark, Edgartown, Oak Bluffs, Tisbury

[14] For renewable energy projects, the term host community will mean any city or town in which all or part of the project's energy generating facilities are located within established municipal boundaries.

and West Tisbury. This Ocean Management Plan does not authorize the Martha's Vineyard Commission to define the appropriate scale of any wind energy or other project in the Gosnold Wind Energy Area, whether or not the Martha's Vineyard Commission has jurisdiction over that area pursuant to its enabling act.

- Commercial-scale wind projects are restricted to the Gosnold and Martha's Vineyard Wind Energy Areas. Community-scale wind energy facilities and compatible uses are also allowed within Wind Energy Areas. Projects in Wind Energy Areas are subject to mandatory review in an EIR and approval under other applicable law to avoid, minimize and mitigate impacts within the Wind Energy Area. The community in whose waters the turbines are located must receive direct economic benefit. The appropriate scale shall be determined with regard to the above factors, and in close consultation with the host community.
- Community-scale wind projects are allowed within the Multi-use Area subject to the following conditions: mandatory review in an EIR and the definition of appropriate scale (see Table 2-3 for siting and performance standards); the project will be required to demonstrate that the host community or communities formally support the project (as demonstrated through letter from the Mayor or Board of Selectmen); projects other than test or demonstration-scale projects must provide an economic benefit to the community; for projects which are subject to review as a development of regional importance by regional planning authority with regulatory authority, such projects must receive formal approval by the regional planning authority, and are subject to a determination by the Secretary of EEA, in consultation with the applicable regional planning authority[15] through the MEPA process that they are consistent with the ocean plan (the interagency Ocean Team will develop guidance to address this issue, working with the regional planning agencies, as part of the implementation guidance—see Chapter 3 for additional information). The Massachusetts Association of Regional Planning Agencies (MARPA) proposed a methodology for allocating turbines on the basis of each RPA's offshore territory within the planning area, linear distance along the nearshore plan boundary, number of municipalities, and total wind energy potential. On the basis of the MARPA methodology, the ocean plan establishes the following allocation of turbines that may be approved within each coastal area

[15] Coastal regional planning agencies are depicted on Figure 4-19 and include the Nantucket Planning and Economic Development Commission, Merrimack Valley Planning Commission, Metropolitan Area Planning Council, Old Colony Planning Council, Southeastern Regional Planning and Economic Development District, Cape Cod Commission, and Martha's Vineyard Commission.

represented by an RPA, to be allocated in a manner to be determined by the individual RPAs:

| | |
|---|---|
| Merrimack Valley Planning Commission | 7 |
| Metropolitan Area Planning Council | 22 |
| Old Colony Planning Council | 9 |
| Southeastern Regional Planning and Economic Development District | 10 |
| Cape Cod Commission | 24 |
| Nantucket Planning and Economic Development Commission | 11 |
| Martha's Vineyard Commission | 17 |
| **TOTAL** | **100** |

The ocean management plan allocations establish a rebuttable presumption that said number of turbines is the maximum number allowable per region. The presumption can be rebutted, and the cap per RPA raised, on a showing by the RPA to the Secretary (under the Routine Plan Update provisions described under Administration, Chapter 3) that either a project is not economically viable under the existing cap or that elevating the cap will cause no significant impact to appropriate scale interests.

- Commercial-scale tidal energy and wave energy facilities (defined as projects other than those approved by the FERC as pilot projects[16]) are allowed in the Multi-use Area, subject to review in a mandatory EIR and the definition of appropriate scale (see Table 2-3 for siting and performance standards).
- Pilot-scale wave and tidal energy facilities are allowed in Wind Energy and Multi-use Areas subject to the determination of appropriate scale set forth in Table 2-2. Pilot-scale projects are subject to an EIR if they exceed MEPA thresholds for a mandatory EIR or if the Secretary requires a discretionary EIR based on review of an ENF.

### Extraction of Sand and Gravel for Beach Nourishment and Shore Protection

The Commonwealth has abundant sand and gravel assets, which offer great potential for beneficial use in beach restoration/nourishment and shoreline protection. Massachusetts' coastal communities are vulnerable to erosion and

[16] See FERC guidance for the Integrated Licensing Process: White Paper on Hydrokinetic Pilot Project Licensing Process and Hydrokinetic Pilot Project Criteria and Draft Application Checklist, current version dated April 2008 or as updated by FERC at http://www.ferc.gov/industries/hydropower/indus-act/hydrokinetics/energy-pilot.asp.

flooding as the primary coastal hazards that lead to the loss of lives or damage to property and infrastructure in developed coastal areas. In developed areas, especially where engineering structures are used to stabilize shorelines, natural sediment transport processes are interrupted, and under conditions of reduced sediment the ability of coastal resource areas such as dunes and beaches to provide storm damage prevention and flood control benefits is continually reduced. Climate change and sea-level rise will also contribute to coastal land loss in the Northeast. With an accelerated rate of sea-level rise, low-lying coastal areas will be particularly vulnerable to increased erosion, flooding, and inundation. In addition, these impacts will extend further inland, resulting in greater loss of land and damage to development along the coast of Massachusetts. The combination of rising sea levels, more frequent and intense storms, and increased coastal development will result in greater erosion and flooding impacts over time. As options for climate change adaptation are considered and strategies developed, interest in ocean sand and gravel resources for protection will increase.

While the Commonwealth has ample sand and gravel assets, the extraction of these resources for beach nourishment or shore protection needs to be balanced with the protection of marine ecosystems, with particular attention to sensitive or vulnerable areas like critical spawning or juvenile fish habitat. Efforts to identify areas for suitable sand and gravel for nourishment will require investigations to locate appropriate potential borrow areas, identify sediment quantities, and examine sediment characteristics. Existing surficial geology data provides a good general characterization of these resources, but higher resolution data is needed to identify specific areas. In addition, more refined habitat data is needed to characterize the most appropriate location of these areas. The immediate next steps for the management of sand and gravel resources will be to work with state agencies and the United States Geological Survey to refine existing data and identify specific locations for each region of the coastline that have appropriate sand resources. As part of EEA's ongoing habitat assessment, feasible regional locations will be screened to identify those with the least impacts to benthic and demersal resources, and a specific use and management plan will be developed.

- Siting / Management
    - Extraction of sand and gravel is allowed in the Multi-use Area, subject to siting and performance standards (Table 2-4) and other applicable law.

Table 2-4 - Siting and performance standards for the extraction of sand and gravel (see Figure 2-22)

| Allowed Use | Siting Standard | Performance Standard | Natural Resource or Water-Dependent Use |
|---|---|---|---|
| Sand and gravel extraction | Presumptively excluded from SSU resource areas; exclusion rebuttable by determinations of LEDPA, no significant alteration, or inaccurate data | Public benefit determination<br><br>Avoid damage to SSU resources<br><br>No significant alteration | • North Atlantic Right whale core habitat<br>• Roseate tern core habitat<br>• Fin and humpback whale core habitat<br>• Areas of hard/complex seafloor<br>• Eelgrass<br>• Inter-tidal flats<br>• Important fish resource area |
| | Avoid, minimize, and mitigate impacts | Meet all applicable permitting standards | • Areas of concentrated recreational fishing<br>• Areas of high commercial fishing effort and value |

### Cables and Pipelines

Cables and pipelines are important infrastructure components for the transmission and distribution of electricity, fuels, and telecommunications. The provision of these particular goods and services is connected to national energy and communication supply and security matters. With the development of high-bandwidth fiber-optic cables, these technologies are now replacing traditional wire cabling for communications networks. This linear infrastructure has several installations already in Massachusetts waters including electric and telecommunication connections between both Nantucket and Martha's Vineyard Islands and the mainland (Cape Cod) as well as the Hibernia cross-Atlantic communication cable system connected in Lynn.

On the fuel side, the transport of liquefied natural gas (LNG), in particular, through new pipeline systems, has also greatly increased the range of transport and delivery of this important energy resource. There are currently several pipeline installations in Massachusetts marine waters, including the HubLine high-pressure gas pipeline that transits around Boston Harbor from Beverly to Weymouth and connections to the HubLine from the two deep-water LNG ports of Northeast Gateway and Neptune located southeast of Gloucester.

A key issue for cables is the future development of offshore wind energy facilities that will require cable connections to the Massachusetts coast. Because potential offshore locations have not been identified, the ocean plan addresses cables through the siting

and performance standards described below. Future studies of options for siting deepwater wind energy facilities and associated potential transmission routes will provide information by which these standards can be refined and incorporated in the ocean plan. For both cables and pipelines, the intent of the ocean plan is to minimize the cumulative impact of future development by requiring that linear infrastructure be "bundled" within common corridors to the maximum extent feasible.

Pipelines are not specifically a presumptively approved activity under the Ocean Sanctuaries Act, but instead require a finding that a specific pipeline project is of "public necessity and convenience". Pursuant to Section 25 of the Oceans Act, EEA has proposed modifications to the regulatory definition of "public necessity and convenience" in a report submitted to the Joint Committee on Environment, Natural Resources and Agriculture.

- Siting/Management
    - Cables and pipelines are allowed in the Multi-use Area, subject to siting and performance standards (see Table 2-5) and other applicable law.

Table 2-5 - Siting and performance standards for cables and pipelines (see Figures 2-2 and 2-2)

| Allowed Use | Siting Standard | Performance Standard | Natural Resource or Water-Dependent Use |
|---|---|---|---|
| Cables | Presumptively excluded from SSU resource areas; exclusion rebuttable by determinations of LEDPA, no significant alteration, or inaccurate data | Public benefit determination<br><br>Avoid damage to SSU resources<br><br>No significant alteration | • North Atlantic Right whale core habitat<br>• Fin and humpback whales core habitat<br>• Areas of hard/complex seafloor<br>• Eelgrass<br>• Inter-tidal flats |
| Pipelines | Presumptively excluded from SSU resource areas; exclusion rebuttable by determinations of LEDPA, no significant alteration, or inaccurate data | Public benefit determination<br><br>Avoid damage to SSU resources<br><br>No significant alteration | • North Atlantic Right whale core habitat<br>• Fin and humpback whale core habitat<br>• Areas of hard/complex seafloor<br>• Eelgrass<br>• Inter-tidal flats<br>• Important fish resource areas |
| | Avoid, minimize, and mitigate impacts | Meet all applicable permitting standards | • Areas of high commercial fishing effort and value<br>• Areas of concentrated recreational fishing |

This plan does not address pipelines and cables identically, in that pipelines must avoid the important fish resource areas SSU while cables are not similarly restricted. However, this issue may be revisited based on further analysis of the impacts of pipelines versus cables, as discussed in Chapter 3.

### Fishing and Aquaculture

Fishing in the Commonwealth has a long and deep history. Commercial and recreational fishing are significant drivers of the marine economy also important for their contributions to shoreside business. New Bedford, Gloucester, Provincetown, and Boston are home to the state's major commercial fleets, but nearly all harbors and inlets in Massachusetts support some type of commercial fishing activity. The Massachusetts marine aquaculture industry is also a very important and growing trade. Although currently focused on shellfish, with technological advances and improved understanding of oceanographic conditions, offshore aquaculture has considerable promise for the future. Recreational boating and fishing are widespread and also represent important marine values of the Bay State.

Commercial and recreational fishing are allowed uses managed by DMF. DMF maintains the sole authority for the opening and closing of areas for the taking of any and all types of fish, and works closely with its Marine Fisheries Advisory Commission, the New England Fishery Management Council, and Atlantic States Marine Fisheries Commission to manage species on a consistent basis across the region.

As directed by the Oceans Act, the ocean management plan reflects the importance of commercial and recreational fishing by identifying areas of high commercial fishing activity and concentrations of recreational fishing activity. To more fully understand and characterize the potential benefits and impacts of uses, activities and facilities to fishing, ongoing work will characterize commercial fishing effort by gear type (see the Science Framework for additional details). This will allow a more refined assessment of the compatibility or incompatibility of specific types of development with different kinds of fishing activities. Similarly, the ocean management plan began the process of collecting information from fishermen to characterize and map the details of their fishing activity. This information will assist in evaluating the potential impacts of specific projects. EEA intends to continue and standardize this information capture so it can be used consistently in the regulatory review of proposed development.

Aquaculture is licensed by the towns, the Division of Marine Fisheries, and the US Army Corps of Engineers. Additionally, the Department of Agricultural Resources provides a variety of services aimed at the promotion and development of

Massachusetts aquaculture. DAR's Aquaculture Program, located within the Division of Agricultural Technical Assistance, fosters development of the Massachusetts aquaculture industry through efforts aimed at implementation of the Commonwealth's Aquaculture Strategic Plan.

- Management of Aquaculture Class 4 Facilities

  There are five categories of aquaculture in Massachusetts, according to DMF regulations (322 CMR 15.00):

  1. No Structures/No Additions/No Discharges: Prototype, Shellfish Bottom Culture
  2. Structures (Water-Based)/No Additions/No Discharges: Prototype, Shellfish/Seaweed Water Column Culture
  3. Structures (Water-Based)/Additions/Discharges: Prototype, Recirculating/Flowthrough Culture
  4. Structures (Water-Based)/Additions/Discharges: Prototype, Net-Pen Culture of Finfish
  5. Projects in Federal Waters, can involve any of the four categories referenced above.

  Class 4 facilities are the most likely type of facilities to occur within the planning area. Ocean planning maps and siting and performance standards will assist in the site review and regulatory process, which per regulation includes evaluation of water quality, benthic habitat, submerged aquatic vegetation, endangered species, competing uses, navigation, access, and other topics.

### Other Uses, Activities, and Facilities Allowed under the Ocean Sanctuaries Act

Other projects that may be permitted under the Ocean Sanctuaries Act, and may be of a scale to have potentially significant impacts, include:

- Projects authorized under Chapter 91 and deemed to be of public necessity and convenience
- Municipal wastewater treatment discharges and facilities
- Operation and maintenance of existing municipal, commercial or industrial facilities and discharges
- Channel and shore protection projects
- Improvements not specifically prohibited by the Oceans Sanctuaries Act

> If projects not otherwise specifically addressed by the ocean management plan but allowed under the Ocean Sanctuaries Act are proposed within the ocean planning area, reviewing agencies shall use the ocean plan maps and associated performance standards as the guidance for their review. The secretary shall exercise his discretion, based on comment from agencies and the public, in determining the applicable siting and performance standards as described in Table 2-1, above.

## Management Tools

One of the main benefits of the ocean management plan is that it improves our understanding of resources and activities in Massachusetts waters, providing a significant amount of data and information that will facilitate improved decision-making in the planning, review and permitting of specific projects. The ocean management plan thus also provides an opportunity to apply new tools and new information to existing environmental law, building on the key themes of information, analysis, participation of affected parties, and mitigation.

As described in Chapter 3, EEA will develop implementation guidance to provide clarity and consistency to the assessment of project benefits and impacts, provide information necessary to address requirements of the Ocean Sanctuaries Act for projects that require a determination of public necessity and convenience, and provide information necessary to address the requirement of the Oceans Act that any permit or license issued by EEA or other affected agencies or departments of the Commonwealth be subject to an ocean development mitigation fee as shall be established by the secretary of energy and environmental affairs.

## Relationship to the Ocean Sanctuaries Act

The management provisions of the ocean management plan have been developed to be consistent with those of the Ocean Sanctuaries Act. The purpose of the Ocean Sanctuaries Act, as expressed in Section 14 of the Act, is to protect the ocean sanctuaries

> … from any exploitation, development, or activity that would significantly alter or otherwise endanger the ecology or the appearance of the ocean, the seabed, or subsoil thereof….

Uses, activities and facilities allowed in the ocean planning area and subject to the ocean management plan are defined by the Ocean Sanctuaries Act. The ocean management plan does not allow or disallow uses, activities or facilities, but rather, pursuant to the Oceans Act, identifies with greater specificity and provides greater protection for, those resources to be protected.

Pursuant to Section 25 of the Ocean Act, an advisory committee was convened by CZM, on behalf of the Secretary to reviewing Section 16 of the OSA and the regulatory definitions of "public necessity and convenience" and "significant alteration". Based on the input and the deliberations of the Committee and informed by the process of developing this plan, a report has been prepared for, and submitted to, the Joint Committee on Environment, Natural Resources and Agriculture.

### Modification of Existing Regulations

EEA, CZM and DEP , in consultation with DMF, will initiate rule-making in 2010 to modify regulations that govern Chapter 91, 401 Water Quality Certification, the Wetlands Protection Act, the Massachusetts Environmental Policy Act, the Ocean Sanctuaries Act, and the state Coastal Zone Management Program, as appropriate, to harmonize existing regulatory programs with the provisions of the ocean plan. See additional discussion in Chapter 3.