

November 23, 2009

Secretary Ian Bowles
The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
100 Cambridge Street
Boston, MA 02108

RE: Draft Massachusetts Ocean Management Plan

Dear Secretary Bowles:

The Sierra Club submits the following comments on the draft Massachusetts Ocean Management Plan (MOMP) that was released by the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) on June 30, 2009.

OVERVIEW

This report was mandated by the Oceans Act (OA) of 2008 and is under a tight time schedule to meet the December 31, 2009 deadline. The constituent outreach process for the draft MOMP report left a lot to be desired and we hope that this process will be improved when the plan comes into effect in 2010. The Massachusetts Coastal Zone Management (CZM) Office and the Ocean Advisory Council (OAC)/Scientific Advisory Committee (SAC) organized the public outreach process which provided limited opportunities for proactive public input on this process. Thus the Sierra Club has some disagreements on the underlying assumptions that guided the development of the draft MOMP report and the resulting product.

Climate Change

We feel that Cape Cod and the Islands are already being impacted by climate disruption. For example, it is difficult for Cape Cod residents to purchase home owners insurance in the private market, forcing many into the state-supported insurance system. Coastal communities in the Commonwealth must develop strategies for mitigation, adaptation and resilience to meet the challenges posed by climate disruption. There have also been changes in the marine environment as Atlantic mackerel have moved further inshore during the Winter as a result of warming of the inshore waters, while summer flounder are slowly replacing winter flounder in coastal embayments as the waters warm during the Summer.

The draft MOMP report doesn't acknowledge this reality or address how it will address the "shifting baseline" phenomenon that is occurring in marine biota and habitats in the coastal ocean. The draft MOMP report contains no discussion on how EOEEA plans to assess this phenomenon and conduct a baseline marine monitoring program to provide data on its effects and management policy to address its consequences. There is no description of how EOEEA plans to quantify the changes (physical, chemical and biological) in ocean climate

that affect marine biota and their habitats nor what types of mitigation, adaptation and resilience policies will be required to address these challenges.

Fisheries

The other major human stressor impacting marine biota and habitats in the coastal ocean is fisheries harvesting. The indirect effects of fishing (commercial and saltwater angling) include: harvesting of forage species (Atlantic herring, river herring, menhaden, shrimp and small crabs, etc.) that link the plankton to the living (fish and shellfish); protected (marine mammals and sea turtles) and natural trust (sea birds) that are valued by humans; plus alterations in the marine food chain and marine biodiversity. Direct effects of fishing include: bycatch of nontarget species and undersized target species; incidental catch mortality/damage of protected and natural trust resources by fixed fishing gear; damage of essential fish habitat (EFH) by towed fishing gear (bottom trawls, scallop dredges and hydraulic dredges); overfishing of target fish stocks (especially groundfish and sharks); etc. Even though the OA doesn't include fishing under the MOMP jurisdiction, the draft MOMP report made the policy decision to favor fishing as a preferred human use in the multi-use zones which dominate the marine spatial planning process regions. Given the direct/indirect damage associated with fishing, the Sierra Club favors restricting this preferential treatment to "sustainable fishing" operations. The Massachusetts Chapter and Marine Wildlife & Habitat Committee (now Marine Activist Team) have developed "sustainable fishing" policies (see attachments) and urge that EOEEA work with the Massachusetts Division of Marine Fisheries (DMF) to do the same.

The Marine Stewardship Council (MSC) has developed three principles for certifying "sustainable fisheries" internationally.

- Principal 1 states that harvesting shall be conducted in a manner that does not lead to overfishing (excess fishing mortality) or overfished population levels (stock biomass less than targets). For the species in our region managed by the New England Fisheries Management Council (NEFMC) 40-45% of the 27 stocks don't meet these criteria.
- Principle 2 ensures the maintenance of the structure, production, function, and biodiversity of the ecosystem on which the fishery depends. Off of our coast the ocean ecosystem has been damaged by impacts of mobile fishing gear on essential fish habitat (EFH); incidental mortality of protected species and death of non-target species as bycatch in fishing gear; fishing down the food chain for target species and ecosystem overfishing for our marine environment as a whole. These top down changes from fisheries harvesting have been exacerbated by bottom up changes associated with climate change.
- Principle 3 deals with effective management measures that require proper institutional controls and operational frameworks that ensure that "sustainable fishing" is occurring. The only MSC certified fishery off of our coast is for deep sea red crabs which are caught in deepwater outside of state Ocean Act jurisdictional waters. We conclude that the current commercial fisheries harvesting operations don't ensure "sustainable fisheries" and should not be included in the multiuse areas as preferred human activities. These public trust resources are being mismanaged.

Renewable Energy Use

The Renewable Energy Use areas for large scale wind farm development is limited to two small regions off of Cape Cod and the islands, while only community level wind farms (less than 10 wind towers) are allowed in the multi-use areas. This will force most of the large scale wind farms to be located within federal jurisdictional waters (3-200 miles off the coast) which are under the Minerals Management Service (MMS) regulatory program. The Commonwealth will receive 27% of the revenues from MMS renewable energy projects within 3-6 miles from shore. Given the effects of climate change on the marine environment and its socioeconomic impacts in coastal communities, there is a need for large scale wind farms in the ocean to help mitigate the effects of climate disruption and reduce its impacts in the future. The Commonwealth needs to develop a coordinated program for energy efficiency; renewable energy production; upgrades of the regional grid; weatherization improvements in buildings; development of new construction standards; zero waste approach for solid wastes; and reducing human carbon footprints on land that will augment the MOMP Renewable Energy Use Areas for large and small scale projects. A major challenge for MOMP will be balancing fishing with renewable energy development, while at the same time providing protection for wild places, wild things in the marine environment. We don't feel that the MOMP draft report has achieved the proper balance. The Sierra Club (national activist teams and grassroots entities) stands ready to provide input on the dialog to achieve this balance.

Marine Spatial Planning

Under the marine spatial planning process described under MOMP, the only prohibited area coincides with the Cape Cod Ocean Sanctuary with siting criteria/performance measures in the multi-use areas providing protection for whale core habitat areas; hard and complex bottom habitats; eelgrass beds; fish EFH; and concentrated areas for commercial fishing/salt water angling. The Sierra Club has some concerns with this process for protecting marine biota and their habitats; conserving ocean biodiversity and maintaining a functioning marine food web. Alterations in ocean stratification will lead to changes at the base of the food chain as the microbial food web displaces a portion the grazing food chain that supports living, protected and natural trust resources. The microbial food web respire a lot more of the carbon produced at the base of the food chain and is linked to the grazing food chain by grazers that utilize small particulate and dissolved organic carbon.

This will lead to a proliferation of microzooplankton, jellyfish and rapid recycling of carbon in the water column which will disrupt the linkage between new production in the Spring and Fall phytoplankton blooms and its transfer through zooplankton/forage fish to the living, protected and natural trust resources that occupy the higher levels of the grazing food chain. In addition, climate change will cause top down effects on the marine food chain as pelagic fish and shellfish migrate northwards faster than their non-mobile benthic/pelagic prey. These effects from climate change will be exacerbated by overfishing and nutrient enrichment from human activities in coastal watersheds. The MOMP draft report doesn't address any of these changes that lead to "shifting baselines" phenomenon and make it necessary to use an adaptive, ecosystem based management approach (a separate section of our comments).

The MOMP jurisdictional zone extends from 0.3 to 3 miles offshore and doesn't address forcing from the landward (coastal watersheds) and seaward (3-200 mile Exclusive

Economic Zone or EEZ) sides. Human population growth in the coastal watersheds and increased per capita energy/material usage are responsible for climate change and nutrient enrichment of our coastal waters. This is also the region in which community benefits will have to be addressed for renewable energy development in the coastal ocean.

The Sierra Club's Cape Cod & the Islands Group (CC&I) and the Cape Cod & the Islands Renewable Energy Collaborative (CIRENEW) held a "*Beyond Cape Wind: Community Benefits*" meeting in Woods Hole, Ma. on June 18, 2009 which addressed some of the issues ranging from "green" jobs to weatherization support programs for energy and environmental justice (see consensus report from meeting). The regional electric grid in coastal regions will need upgrading to meet the unique characteristics of "green energy" generation and to accommodate "smart use" approaches in homes/commercial buildings. On the seaward side climate change and fishing are the major human stressors that impact marine biota and habitats. As we mentioned above, the Commonwealth needs to move towards "sustainable fishing" operations and develop large scale renewable energy projects to help mitigate the impacts associated with climate disruption. Since the EOEEA will be involved with the MMS state task force that provides input on the siting and permitting of renewable energy projects within the EEZ, it will be important to provide proactive constituent outreach in order to balance fishing and large scale renewable energy projects with environmental protection/conservation of cultural/religious resources. The MMS state task force is only open to representatives from federal/state/local governments and federally recognized tribes. Thus the public will be excluded from this process without a proactive constituent outreach process.

Marine Spatial Planning and Adaptive, Ecosystem Based Management Process

The Sierra Club recommends the use of Marine Spatial Planning combined with an Adaptive, Ecosystem –based Approach, elements of which are described in the following conceptual model:

Ecosystem Status and Human Usage Reports ----> Modelling/Spatial Databases ---->
Monitoring ----> Siting Criteria/Performance Measures//Indicators ----> Science Advisory
Council ----> Management Options(mitigation,adaptation,resilience)----> Community
Advisory Committee ---- Constituent Outreach ---- Sustain/Revise Plan

Definitions:

Ecosystem Status Report: describes existing state of marine biota (distribution and abundance in time and space) and their associated habitats, plus the key environmental processes that support these components

Human Usage Report: describes the spatial distribution and socioeconomic outcomes associated with fishing, sediment dredging, aquaculture, proposed renewable energy projects, marine transportation lanes, recreational activities, etc.

Modelling Options: risk analysis; vulnerability analysis; scenario techniques; complex adaptive approaches.

Marine Spatial Databases: NEFSC Bottom Trawl and Food Habits ; Nature Conservancy Marine Ecoregional Assessments (MERA); U.S. Geological Survey Seabed Sediment mapping; Massachusetts Ocean Management Plan human uses (fishing, recreation, marine transportation, beach renourishment), SSUs habitats/marine life (special, sensitive and unique) and EVI (Ecological Valuation Index); potential wind energy maps; etc.

Monitoring: Site specific (project proponent) and regional context (MMS; Massa.state agencies) for physical, chemical, geological and biological components specified in permits or government work plan.

Siting Criteria/Performance Measures/Indicators: changes in distribution/abundance of key fish, marine mammal, seabird/shorebird species; biomass spectra of marine food chain; benthic/epibenthic indicator species; sustainability indicators; socioeconomic direct/indirect/induced benefits (multiplier ratio); changes in human usage patterns; etc.

Science Advisory Committee: MOMP Ocean Science Advisory Committee

Management Options:

- Mitigation - measures taken to reduce the pace and magnitude of climate change (increased energy use efficiency; planting more forests; increased use of renewable energy sources to produce "green electricity)
- Adaptation - Measures taken to reduce adverse impacts associated with climate disruption (shoreline retreat for human structures; rebuild beaches, dunes and salt marsh buffers; etc.)
- *i.e. mitigation is designed to avoid unmanageable climate change, while adaptation addresses climate change effects that are unavoidable (See "Avoiding the unmanageable and managing the unavoidable" study by U.N. Scientific Expert Panel on Climate Change)*

Resilience: For socioecological systems refers to its ability to absorb a shock and maintain its basic capacity to function/maintain critical structural components (Boston Globe article on financial complexity and the inability to estimate systemic risk which lead to cascading effects/economic meltdown)

Community Advisory Committee: MOMP Ocean Advisory Council and MMS State Stakeholder Groups (federal, state, local and tribal representatives)

Constituent Outreach: those of us looking for community benefits and meaningful input on planning/implementation process for small scale community wind farms in state waters and large scale projects within the EEZ (reactive versus proactive involvement)

The MOMP draft report should explicitly outline the operational approach that it plans to use for adaptive, ecosystem-based management (AEBM) in support of its proposed marine spatial planning process. The MOMP draft report describes some components of this A, EBM

process. The MOMP draft report refers to many maps and spatial databases, but tends to be data rich, but information poor. Thus there is a need for an ecosystem status and human usage reports to be the starting point for the conceptual AEBM model. It is hard to evaluate the draft MOMP report without this underlying information on where we are and where we want to go in the face of "climate change effects" and "shifting baselines". For example, the Sierra Club's Climate Change Partnership conservation program and its components (like "resilience" and "reducing the use of coal") have documentation that support these conservation efforts with associated goals and milestones for achieving measurable results. It will obviously take some time to develop these reports which should guide the AEBM process which is to be implemented in 2010.

The Scientific Advisory Council (SAC) should be opened up to representatives from the environmental NGO community and other key constituent groups. Many environmental groups have staff scientists, while the Sierra Club has national activist teams with volunteers with technical backgrounds. The scientific components of the AEBM process are poorly understood by the public, but they are used to make key decisions that support the management options and policy making component. It is important to have a regional monitoring program lead by governmental entities that provide the context for the site specific monitoring programs required by the permits issued for specific renewable energy projects.

For the "Cape Wind" project, the Massachusetts Chapter- Sierra Club suggested that the site specific monitoring programs be conducted by a third party and that there be clear evaluation criteria (performance measures and indicators). It is likely that the environmental effects associated with large scale wind farms will be much less than those associated with fisheries harvesting and climate change. The Gulf of Maine Council on the Marine Environment (GOMC) has developed a number of indicators for fishing, pollution, habitat degradation/loss, etc. The Canadian Eastern Scotian Shelf Integrated Management (ESSIM) Plan has developed a number of indicators for sustainability of socioecological systems under their Oceans Act. In the U.S. President Obama has established an Ocean Policy Task Force under the Council for Environmental Quality (CEQ), while the NSTC Joint Subcommittee on Ocean Science and Technology has developed an Ocean Action Plan that has relevance to the MOMP A,EBM process (this subcommittee is trying to implement some of the recommendations of the Joint U.S./Pew Ocean Commissions). The MOMP draft needs to describe the approach that integrates modelling/spatial databases with monitoring and evaluation criteria in support of the A,EBM management process.

The present Ocean Advisory Commission (OAC) has not done an effective job incorporating public concerns/comments into the MOMP draft report. A new Community Advisory Committee (CAC) needs to be implemented to involve the public in a proactive fashion. The draft MOMP report is an example of a reactive constituent involvement process which leaves much to be desired. This partly explains why the Sierra Club has so many concerns about the resultant product and its underlying assumptions. Many other environmental NGOs are likely to share our concerns about the MOMP process and its outcomes. We appreciate the fact that the Massachusetts. CZM Office and EOEEA Staff had a lot to do in a short time to prepare the draft MOMP report, but the reality is that this marine spatial management process will be implemented some time in 2010 with many information gaps and poorly defined processes yet to be developed. The MMS renewable energy regulatory program suffers many of the same limitations. This will be especially problematic

in siting and permitting large scale wind farms within the EEZ, since without good coordination between the federal and state governments this process could become a bureaucratic nightmare with multiple players with different agendas and supporting constituent groups.

We need to develop some large scale wind farms to help mitigate climate change effects and we need to move forward quickly in order to achieve the Commonwealth's renewable energy goal, while avoiding the delays that have accompanied the "Cape Wind" permitting process. The Massachusetts Chapter- Sierra Club described three conditions which should be met by the "Cape Wind" project with two of those (payment scheme for the use of public bottomlands and performance bonding for potential construction and operation impacts) awaiting the MMS permit. The Chapter decided that the "Cape Wind" project had minimal impacts on wild things, wild places in the marine environment and thus would provide a valuable role in producing "green" energy. The Sierra Club supports renewable energy projects as long as there are no major environmental impacts that can't be mitigated, since they will help reduce our societal carbon footprint. All energy projects have some associated environmental impacts, and balancing areas with small community wind farms and large scale wind farms to produce "green energy" for the regional grid is required. Given the limited discussion of these issues in the draft MOMP report, it is hard to tell whether this balance has been achieved. As we mentioned earlier, fisheries harvesting appears to have greater impacts on the marine environment than wind farms, yet it is considered a preferred human use to renewable energy development in the multi-use areas designated under MOMP. There is also a need to develop the siting criteria and performance measures more specifically in the multi-use areas to ensure environmental protection for the SSUs and EVIs. It is hard to comment on the unclear description of this process in the draft MOMP report.

Specific Comments and Recommendations

We offer the following specific Comments and Recommendations:

- The Ocean Advisory Commission should be replaced by a more broad-based Community Advisory Commission (CAC) which includes local and state-wide environmental representatives with a national environmental NGO stakeholders to support the MMS State Stakeholder Task Force. The EOEEA Ocean Team needs to receive input from multiple sources. This recommendation follows the Sierra Club organizational structure of national activist teams (Atlantic Coast Ecoregion which focuses on wind farm development in the ocean and Marine which explores ocean zoning options) and grassroots entities (individual groups and state chapters). Grassroots environmental groups have more localized concerns such as community benefits and impacts of human activities in the adjacent ocean, while national NGOs focus on large scale issues such as balancing fishing, renewable energy development, protection of marine biota and their habitats and the conservation of cultural/religious objects/heritage.

On Cape Cod the communities of faith and environmental groups (including Cape Cod & the Islands Group) organized an energy and environmental justice forum in November 2008 and a successful October 4, 2009 energy, peace and justice meeting. One of the recommendations from the June 18, 2008 "Beyond Cape Wind: Community Benefits" meeting was to utilize funds from the Ocean Resources and Waterways Trust Fund (TF) to support weatherization of

the homes of the less affluent residents of Cape Cod. Many of these residents work in the service industries and use community food pantries and other government assistance programs for the working poor to survive on Cape Cod and the Islands. The federally recognized Wampanoag tribes have cultural and religious concerns about the "Cape Wind" project on Horseshoe Shoals. These environmental justice (EJ) and concerns of the communities of faith have not been addressed in the draft MOMP report. The Sierra Club's Climate Change Partnership program works with communities of faith to address EJ issues and the Club has an EJ office.

- The Science Advisory Council (SAC) has Priscilla Brooks (Conservation Law Foundation) as an environmental member, but it would be good to add a natural resources scientist from an environmental NGO Group to this panel. There should also be a process for the SAC to receive advice from scientific/technical experts on the Sierra Club's Atlantic Coast Ecoregion (ACE) and Marine Activist Teams. As we mentioned earlier there is a need to develop an integrated AEBM program from the ecosystem status/human usage reports through monitoring and evaluation criteria to support the management options. The Massachusetts CZM and EOEEA staffs have a long way to go in making this a workable program and can use as much help as possible. The SAC can provide advice, but state agency staff will have to do much of the implementation if the MOMP program is to move forward in 2010. There is a need to address the "shifting baseline" phenomenon; examine the influences of climate disruption on ecosystem structure/function and human socioeconomic outcomes; develop an operational approach for "sustainable fishing"; utilize indicators of sustainability and socioeconomic benefits/costs; etc. Finally, EOEEA needs to develop the ecosystem status and human usage reports in order to move from being data rich, information poor to a status of being data and information rich.
- The process for converting the Ocean Act into the draft MOMP Plan followed the trajectory of the Oceans Act ----> Goals and Strategies ----> Compatibility Assessment -----> Plan Development ----> Draft Plan. It would be useful if the draft plan described the policy guidelines and political judgements utilized in this process as this trajectory moved from the start to the finish. It is hard to comment on the draft plan without this understanding.
- The two proposed areas for large scale wind farm development occupy 2% of the MOMP jurisdictional area for sites adjacent to the Elizabeth Islands and southwest of No Man's Island which could support 166 wind towers each with a nominal capacity of 3.6 megawatts or enough to support roughly 200,000 homes (600 megawatt total). This is a tiny fraction of the wind energy potential in the MOMP jurisdictional waters.
- In the multi-use areas the siting criteria for human uses in the MOMP report utilize general policy statements, while the performance standards apply to the review of specific development projects. An alternative approach to ensure adequate protections of SSU's and EVI's would be to use Spatial Area Management Plans (SAMPs) like they do in Rhode Island's state jurisdictional waters. The Sierra Club feels that the SAMP approach should be examined to ensure protection of wild places and wild things in the face of multiple human uses/cumulative impacts.
- The SSU's (Special, Sensitive and Unique Marine and Estuarine Life and Habitats) and EVI's (Ecological Valuation Index for 4 marine mammal species, 5 bird species, 8 mollusk

species, 5 crustacean species, and 22 fish species) need to be adjusted to include bottom-up and top-down effects in the food chain associated with climate disruption and changes in the distribution/abundance of marine biota and their habitats associated with the "shifting baseline" phenomenon. These are dynamic and not static guidelines for environmental protection and need to be supported by regional baseline monitoring programs; appropriate evaluation criteria and modelling/spatial databases required to support the A, EBM management process. None of these steps is described in the draft MOMP report.

- For important fish resource areas MOMP should consult with the New England Fishery Management Council's (NEFMC) Omnibus Habitat Amendment process which is examining the effects of mobile and static fishing gear on Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC). One proposed HAPC for juvenile cod would extend from the low tide line to 60 feet depth all the way from Maine through Connecticut which would overlap much of the MOMP jurisdictional region. Another large HAPC is proposed for the Great South Channel Region off of Cape Cod which is an important migratory pathway for whales (including the highly endangered North Atlantic right whales) and has important hard substrate EFH for groundfish species. There needs to be more focus on the biological components of EFH (forage fish/invertebrates and benthic prey species distribution and abundance) and not just the physical habitat characteristics which were mapped in Volume 2 of the draft MOMP report. Since EFH for the life stages of NEFMC managed species occupy most of the offshore region, some sub-component of the proposed HAPCs should be used to designate the important fish resource areas. It would be better to utilize fishery independent bottom trawl surveys (BTS) by federal/state fishery agencies for this designation process than fishery-dependent data from fishery landings/satellite navigation systems on some commercial fishing vessels.

- The majority of the national strategic stocks of whales occur in the Gulf of Maine, so that key whale habitats and migratory pathways included in the SSU's should include more than the species listed under the Endangered Species Act (ESA). The Protected Resources Branch/Division at NOAA's (National Oceanic & Atmospheric Administration) Northeast Regional Office (NERO) and Northeast Fisheries Science Center (NEFSC) should be able to provide this information for revision of the MOMP draft report.

- We agree with the decision to have local communities/regional land use agencies provide inputs on the siting of small community wind projects within the MOMP jurisdictional waters that lie immediately offshore. Preference should be given to small community wind farms that meet local electricity needs and "green" jobs should be created in these localities to broaden their economic base beyond tourism and second homes. These communities should also receive some type of benefit from the Trust Fund (TF). Residents of Marthas Vineyard are considering hydrokinetic energy projects in the passage between the offshore islands and this should be supported under MOMP.


- Since MOMP designates aquaculture as a preferred human activity in multiuse areas, the Massachusetts Division of Marine Fisheries (DMF) needs to develop guidelines for "sustainable aquaculture" practices. This is especially critical for carnivorous fish ranching operations that use non-native species (Norwegian Atlantic salmon) and feed them with forage fish (herring, mackerel and menhaden) harvested from our natural environment. Intertidal shellfish aquaculture operations are usually sustainable, but many of the subtidal

projects for high trophic level species are not. The Sierra Club's national Marine Wildlife and Habitat Committee has opposed NOAA Fisheries Aquaculture policies, so that DMF should develop "sustainable aquaculture" policies that will be applicable to the MOMP multiuse areas if this is to be a preferred human use.

- The extraction of marine sediments for beach renourishment and shoreline stabilization in the face of rising sea level and more intense storm activity accompanying climate disruption doesn't appear to be the answer from an environmental perspective. Coastal communities should develop adaptation policies and resilience plans to address this challenge and not use scarce public funding for sediment dredging to protect coastal dwellings at risk. We need policies that address the underlying causes (climate disruption) and not the short term symptoms of this problem. Thus management options need to include mitigation, adaptation and resilience in both the ocean and in coastal watersheds on land. This requires coordination and funding from the federal/state governments to the county/local governmental entities at the grassroots.

The Sierra Club appreciates the opportunity to comment on the draft MOMP report. If you have questions or clarifications on our comments, contact our Chapter Office in Boston, and we will endeavor to respond promptly and positively.

Very truly yours,

David Dow [title]	 Phillip R. Dowds Chair,	 James McCaffrey Director, Massachusetts Chapter
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