

**Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Ocean Management Planning Initiative**

**Meeting Summary of the
Ocean Science Advisory Council**

December 8, 2008

100 Cambridge Street, Second Floor Hearing Room D, Boston

December 8, 2008 SAC Meeting Participants:

In Attendance:

Ocean Science Advisory Council Members (SAC)

Brooks, Priscilla: Conservation Law Foundation

Brown, Wendell: UMass Dartmouth, School of Marine Science and Technology

Callaghan, Todd: Massachusetts Office of Coastal Zone Management

Duff, John: UMass Boston, Environmental, Earth and Ocean Sciences

Ford, Kathryn: Massachusetts Division of Marine Fisheries

Frankic, Anamarija: UMass Boston, Environmental, Earth and Ocean Sciences

Hunt, Carlton: Battelle

Krauss, Scott: New England Aquarium

Looney, Jr., John F: UMass Boston, Environmental, Earth and Ocean Sciences

Muller-Karger, Frank: UMass, Dartmouth, School of Marine Science and Technology

Schwab, Bill: US Geological Survey, Wood's Hole

Terkla, David: UMass Boston, Department of Economics

Guests

Babb-Brott, Deerin: MA Executive Office of Energy & Environmental Affairs

Boger, Matthew: Massachusetts Ocean Coalition

Carlisle, Bruce: Massachusetts Office of Coastal Zone Management

Conley, Lisa: Joint Comm on the Environment, Natural Resources, & Agriculture

Crowley, Zachary: Joint Comm on the Environment, Natural Resources, & Agriculture

Dyson, Jessica: The Nature Conservancy

Killerlain-Morrison, Kate: The Nature Conservancy

Krum, Howard: Massachusetts Ocean Partnership

Morrill, Micaelah: Office of Massachusetts Senator Robert O'Leary, Legislative Aide

Napoli, Nicholas: Massachusetts Ocean Partnership

Vella, Prassede: MA Executive Office of Energy & Environmental Affairs

Weber, John: MA Executive Office of Energy & Environmental Affairs

SAC MEETING INTRODUCTION (John Weber, EEA)

Mr. Weber reviewed the meeting Agenda and topics for discussion to include:

- 1) Overview and Purposes for the development of Massachusetts Ocean Plan (MA-OP)
- 2) WorkGroup Reports
- 3) Baseline Assessment (BA) Discussion
 - a) Highlight data needed for BA
 - b) Mandate that the SAC participates in the BA

Other topics summarized included: a review of the phases of Massachusetts Ocean Management Planning Process, information gathering tools and forums and progress of development of a draft MA-OP. Participants were reminded that the MA-OP is designed to be reviewed at a minimum every five (5) years, that it is a "living document" and the current efforts are development of Version 1.0 of the MA-OP. Enabling legislation mandates that the draft MA-OP is to be in place on or before June 30, 2009, and therefore, the "plan for the plan" is critical given the short timeframe for implementation.

NOTICE OF OCEAN ADVISORY COMMISSION MEETING: DECEMBER 11, 2008

Participants were informed that on Thursday, December 11, 2008, the Ocean Advisory Commission (SAC) will host a meeting the purpose of which is to:

- 1) Review MA-OP development, goals and objectives;
- 2) Review the public participation events to date including reports from public listening sessions and 50+ meetings with stakeholders.

NOTICE OF NEXT OCEAN SCIENCE ADVISORY COUNCIL: WEEK OF JANUARY 12, 2009

Ocean Science Advisory Council Members were informed that the next meeting of the SAC would likely be scheduled for January, 2009 and that there would be a series of public meetings tentatively scheduled for February, March and April, 2009.

SAC Comments On Meeting Introduction – Q & A Format:

Q: Is it safe to say that MA-OP Version 1.0 will include a lot of “to be decided” (TBD) information? Are we expecting to have it potentially mapped out?

A: *Yes. As a rough assemblage, it will act as a precursor. The intent is to bring together information from the public hearings and from science in order to aggregate what is proposed and the activities and stakeholders encompassed by the MA-OP.*

The MA-OP WorkGroups have delivered 200+ pages of materials and information and more is forthcoming. I don't expect the entire review to happen today. More will be forthcoming.

Q: There is certainly a dearth of database information. For some areas encompassed by the MA-OP, data (on activities, uses, users) simply does not exist. Is it worthwhile to catalog the data needs and identify gaps in existing information and databases?

A: *Absolutely, especially for developing Version 2.0 of the MA-OP.*

Q: Is it correct to assume that all data for informing MA-OP Version 1.0 will be gathered by February?

A: *Yes, with the caveat that some small percentage of data might come in between February and the time that the first draft is due.*

EXECUTIVE OFFICES OF ENERGY AND ENVIRONMENTAL AFFAIRS WORKGROUP REPORTS

WorkGroup On Renewables

Ken Kimmel, *General Counsel*

Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs

Renewables electricity generation is generally allowed in state waters, provided that it is at the right scale and properly located. The WorkGroup On Renewables is comprised of individuals representing industry, science and others. The WorkGroup on Renewables examined the prospects for wind, tidal, and wave energy sources in the future. It was generally agreed that:

Wave Energy Sources are not likely in the near term; Tidal Energy Sources have some potential but the Commonwealth is not considered an ideal location. Mr. Kimmel referred to a Map of tidal areas explored and noted that the potential of Buzzards Bay has not yet been fully assessed. Wind Energy remains the most promising near term source for the Commonwealth.

Mr. Kimmel stated that absent objectionable impacts (e.g. aesthetic, environmental), the entire coastline of Massachusetts is suitable for Wind Energy source development given the areas favorable wind speeds and near shore shallow depths.

In view of the largely hospitable environment for harnessing Wind Energy, the WorkGroup on Renewables planning focus has been consideration of subset areas that should not be developed.

While considering various models, wind speeds, and water depths, distinctions were made about near and long term viability for harnessing wind energy. Some groups are concerned with the short term, some with the long term. The WorkGroup On Renewables reported mapping areas that delineate high, medium, low and non-suitable areas for Wind Energy development projects. The WorkGroup On Renewables continues to identify "no build areas" that may be inappropriate for other reasons.

SAC Comments On Report Of WorkGroup On Renewables – Q & A Format

Q: You talked about modeling wind, but what about for tidal?

A: *We did not model currents. EPRI report did do modeling.*

Q: Did you look at the efficiencies of current technology and consider potential efficiency improvements due to technological improvements?

A: *Mono-pole technology works well in shallow waters.*

Q: What about for watermills and wave energy?

A: *We relied upon reports that look at existing technology, not future technology.*

Comment: It may be worth including technical details. Technology could change the whole thing.

Q: How do you handle site selection in Federal waters?

A: *The report does not address Federal waters, despite the fact that some of the best sites are located there.*

Q: I am concerned about the suitability index for offshore. Should the focus be on areas that have the potential to produce the most energy? Can we use the index as an indication of that?

A: *The index really only measures near-term suitability (8's and 9's are most suitable)*

Q: Is suitability tied to production potential?

A: *It really only shows exceptionally good wind or water depths.*

Comment: It is worth considering trade-offs.

A: *Wind Energy developers are saying: "tell us where we cannot build; but if you don't, we (assume) we can build there.*

Comment: Are you suggesting that it doesn't matter where they go? Keep in mind the near term and long term distinction. There are two groups of Wind Energy project developers. We're doing a MA-OP that will last for a while.

Q: In the past, there was a lot of talk among people from the Renewable Energy Trust about Wave and Tidal energy (development), but they lost interest. Is that still the case?

A: *Yes, it is still the case.*

Q: Are all the potential (renewable) technologies listed somewhere?

A: *I believe so. We did include citations.*

Comments: Summarizing the (available) technology in the report would be useful. Regarding doing the legwork, you run into two problems: technology is evolving so quickly, that it may be impossible to (comprehensively) characterize. You also run into the barrier of technology developers not wanting to divulge their potentially profitable patents.

Q: Is the wind data based only upon one year?

A: *That is just the date of when the data set was produced or compiled. The Model takes into account a long period of time.*

Comment: It may be useful to model and document the "perfect storm" scenario.

A: *Again, the model output included a long history.*

Comment: Thermal Engineering of the ocean is not considered. What about multiple altitudes of potential wind sites; for example, is it better to consider a few larger turbines as opposed to many small turbines or wind farms? What kind of wind farms are we talking about?

Q: What about Cape Cod?

A: *There appears to be good tidal velocity, but there is not sufficient depth. There is not room for wind farms.*

Q: Is this information open to the public?

A: *For EPRI, you have to talk to the State, and the State finds a member to sponsor the cost of the report to you. In most instances, however, it is open.*

Comment: The WorkGroup on Renewables is supposed to serve as impartial observers, but many of the sources of information for the reports appear to be proprietary, mixed with peer-reviewed documents.

A: *I am fairly certain that most of this information is in the public domain.*

Comments: The point about documentation is absolutely right; There cannot be a paucity of references; otherwise there will be a problem; All judgment calls on the part of the gatherers should be documented; On Page 4, the top right figure is rating wind speeds, and it shows that (The Town of) Hull falls in one of the least favorable areas; Some new data suggests that wind fields in the Northeast may be changing direction and speed.

WORKGROUP ON FISHERIES REPORT

For the purpose of the WorkGroup on Fisheries, Fisheries considerations were broken up into fisheries *activities* and fisheries *resources*.

Activity: Commercial and Recreational Fishery

(Data Source): Commercial, taken from fisherman, vessel and dealer reports, reference Table on Page 2.

2 metrics were used for fishing effort to create a fishing trip density:

- 1) Number of (fishing) trips and;
- 2) Area of fishing

Data on fishing landings used included the Total reported landings in pounds in 2007 dollars to total across fisheries. Data was then re-classified into 10 percentile bins.

The WorkGroup On Fisheries was most concerned about the top 25% (high), while the middle 50% was medium, and lowest 25% was low. The planning area is split into a North section and a Southeast section (Cape Cod), reference Activity Map, Page 9 on Commercial fisheries activity.

While a 25-year survey of data exists, a similar analysis for Recreational fishing activity could not be generated due to the lack of a good spatial component. Other sources (of data) were not representative of the entire fishery. Intent is to modify it, incorporating an area (spatial) component. The WorkGroup On Fisheries acknowledged (data) gaps, specifically, that catch report data is neither required nor available from non-federally permitted vessels fishing in planning area.

Resources:

Depends upon the Bottom Falls Survey (30 year timeframe), which includes 23 survey strata, accounting for depths and bio-geography. 22 important species were chosen where adequate sample exists and that are substantial to the commercial or recreational fishery within planning area.

Found the tri-mean of the data for species, Reference Appendix D.

Combined all the information and normalized so that the species had similar weight in the analysis. Found that it doesn't make sense to normalize across each strata. Instead, we normalized in strata sets, Reference Page 37 in Appendix G. We took the median of tri-means for each strata, to represent the whole strata and this is how the WorkGroup On Fisheries re-classified for the last map (Reference Page 12).

Points of concern and limitations: This is a significant data reduction exercise: high, medium, and low may be too simplified. Data are not homogenous. Knowing the character of particular sites might be more important. Surveys were done only in May and September, and only during the day. Some species are not vulnerable to trawl nets. We do not consider trophic interactions. Appendix A lists source data that the Office of Marine Fisheries collects. We chose the most appropriate data but not all that is available.

SAC Comments On Report Of WorkGroup On Fisheries – Q & A Format

Q: Does Massachusetts have jurisdiction over the “doughnut hole” on the map?

A: *The State does, but we have limited what we say to the planning area only. Note that fisheries are omitted, and these may change our results dramatically.*

Q: Did you consider using surrogate indicators for recreational fishing, like bait/tackle shops, etc.?

A: *We tried to find suitable surrogates, but they tended to be inappropriate. At one point we gave crayons and a map to a number of fishermen for them to mark areas of high, medium, and low concern.*

Comment: One resource might be the Nantucket Angler’s Club. They are responsible for catching a substantial number of table fish. You will find a lot of examples of that.

A: *We realize the magnitude and diversity of the fishery. Many different components should be included, and we are hesitant to represent all of these things.*

Comment: I applaud your efforts thus far, and it may be great that we are finally forcing data collection. I get nervous about Figure 4, though. If it does begin to see the light of day, I’d like to see the Resource and Activities maps shown side-by-side, rather than one incorporated into the other.

A: *The two actually look very similar.*

Comment: For Figure 5, I would comment on licensing for aquaculture and shell fishing. If you try to publish the data, you should make the North and South components clearer.

A: *It actually shows High, Medium, and Low for the whole map, and then in the two regions.*

Comment: Version 1.0 of the MA-OP should incorporate a “where do you fish” component.

A: *That will be part of the Activities map.*

Q: Given that the data only includes fish that are vulnerable to trawling, is there some other method that will capture fish in their different life stages?

A: *Indirect methods of locating these areas exist. The Habitat method is more direct.*

Q: The table lists area types, but not their rating. How is area type linked to a rating?

A: *The whole section is in reference to fisheries input. It's not done to create a model.*

Q: Is this map ready to see resource effects?

A: *We may never be able to make a map that can do that straight away. Nothing will take the place of location-specific projects. The management measure question is "how do we link the management back to available science?"*

Q: Did you consider seine nets for blue fin tuna? What about oyster dredgers?

A: *Yes, we took those into account.*

Q: Is it possible to map juvenile fish areas?

A: *Yes. Part of it has to do with survey timing. The fall survey sees more juvenile abundance. For cod recruitment, we had specific information.*

Q: Do we have examples of cod hot spots? There are no trawl and cod conservation areas. It would be useful to look at these for their significance.

A: *We didn't want to creep into the survey areas of other research groups.*

Comment: Somehow we need to address fisheries habitats as they compare to natural habitats. It is safe to say that we don't have a fully developed ability to consider those.

A: There are linkages across all sorts of categories, and perhaps that will be addressed at the next level of working groups.

Comment: We listed additional analyses, and it would be great if you could make these recommendations for the metrics.

All over the world we assess biodiversity hotspots for fisheries, including the work of NOAA and ESF. I see it as fitting pieces together in a puzzle. It was odd that the report was missing the words "biodiversity."

A: *The word was originally included, but we couldn't agree on whether what we were considering was actually biodiversity.*

WORKGROUP ON HABITATS REPORT

In general, The WorkGroup On Habitats has data envy of the other groups. In some cases, we have good data sets, but with striking gaps, reference Section 4.

It is a very tall order to identify important habitats. The WorkGroup For did not debate the meaning of the word "important," considering the special, sensitive, and unique type addressed in Section 2 of the OA.

The identification of ACEC has already been done. Track 2 considers biotic and abiotic approaches to habitat assessment, and it's more detailed than saying that "anywhere in the ocean is a marine habitat." We are making value judgments, reference Table 5. The overall theme is that the data are sparse and/or ultra-focused geographically.

We do have good data for mammals. The North Atlantic Right Whale Association was most helpful with the synthesis, reference Figure 3-7 relative to whales as listed endangered species. For birds we considered Listed Species. Acquired that (bird) information from the Massachusetts Wildlife Heritage and, in part, from Cape Wind.

For turtles, we've been looking for data, but none has panned out. There's an egregious gap. Seals are included where there is a critical habitat component. Eel grass and kelp data are taken from field verified aerial photography. We have a good data set for invasive species, but only for inshore waters.

We consider primary productivity for fisheries. Many opinions/analyses have been deferred to other agencies. More discussion on that point is warranted.

Our approach to using the data, Reference to the index on Page 37.

There is a binary approach (i.e., observed or not observed). Separate into classes of Low, Medium, High, and Critical. Did not include No or Absent habitat category. All the parameters were not created equally. Considerable value judgments were included. For Table 7, we used our best professional judgment to reclassify.

For the abiotic approach, certain aspects within the planning area may be given different value. We're just scratching the surface with this analysis.

Table 9 lists parameters: The bottom surface parameters are coming together Section 4.5, pg. 30 includes information for sediments are interpolated, and there are issues with the interpolation. See Page 59, figure 21 for compatibility analysis. Specifics are essential. Putting forward an ocean monitoring collaboration is also essential.

SAC Comments On Report Of WorkGroup On Habitats – Q & A Format

Q: How do you receive your data? There is a good turtle database through the Consortium at URI.

A: *Excellent. You can send the data to me or through the GIS contacts.*

Q: Recommendation for a monitoring system?

A: *Ideally, we would find a more aggressive approach, but within the developing MA-OP, we do need to focus on monitoring, otherwise we will not know if we are succeeding.*

Comment: I am surprised at the comment "There was no rationale for including the lower trophic levels." It seems strange that you don't.

A: *We're looking at guidance recommendations to determine primary productivity through other measurable sources.*

Comments:

It could be important to keep track of red tide.

The methodology is very important. How do you capture this information?

We can conceive of a data management system that keeps track of all of these things through time. Our understanding right now is in terms of grid cells.

There may be a point of confusion. Satellites don't show primary productivity without correction. It would be worth outlining in the report, "here is how we are going to use the data." You may want to look at borders and buffered zones.

A: *What you see is really clipped, but does not recognize Mission Creek Boundary.*

Comment: You probably want background information to support this.

Q: Are we going to have to keep two books (i.e., one which only recognizes planning area and one that uses buffers?)

A: *We really don't know how we're going to do that. Please be thinking of the "how."*

Q: In order to examine unique and sensitive areas, you focus on abiotic?

A: *No, we used it only as an operative framework.*

Q: How are you defining vulnerability?

A: *We are looking at a ranking, reference Page 23. When the definition wasn't formulaic or objective, we used Best Professional Judgment.*

Comment: It seems like members of this group and the Massachusetts Ocean Partnership (MOP) could inform this.

Q: Are fisheries/fish included?

A: *No and no.*

Comment: That could be an obvious next step.

A: *We need bounds around fish/fisheries.*

Comment: Datasets are listed, but they are sort of put through a meat grinder for an output. At a certain point, we need to consider the scale. That way we can criticize the strengths of models before getting into 4 dimensional analyses and compatibility.

BASELINE ASSESSMENT DISCUSSION (BA)

We have agreed on Chapter headings. Generally, we farmed a lot of this work out to other people. You will see twenty different styles in the report. Let us know what we have missed. We want to find the top redundancies and see where values are different. Feel free to flag or rewrite them and submit.

SAC Comments On Baseline Assessment – Q & A Format

Q: Working group papers were not incorporated into the Baseline Assessment (BA). Is the BA a level up from the WorkGroup Reports?

A: *Yes. We need to identify points and conclusions that should be brought into the BA. The WorkGroup reports should be view as tools, while the BA is a summary of the reports and other information.*

Comment: It is odd to find habitats and resources listed, with little about their status.

A: *For some of these, we have gained a lot from the Working Group reports that we were just delivered.*

Q: What do you mean by "status?"

Comment: What is the "condition?" Both are loaded terms. Consider something along the lines of "Good," "Okay," or "Stressed."

That's an excellent point for management.

A: *The BA is intended to set the stage for the policy/management framework. Linkages should be made.*

Comments:

Where we are shows an exhaustive amalgamation;
This is comparative to an Effected Environment Statement. Another document could be the assessment;
There should be a consensus for the condition of the environment;
Also, we need to talk about the trends in an objective way. Value judgments can come later;
Sometimes we don't have a trend (i.e., for information), we only have a point;
What we can measure in the environment is not always what will affect the sensitive species. What about identifying biodiversity hotspots? It is a bit of an inventory;

Comments, continued.

A section on climate change impacts might be necessary. Do we know of other statutes that show where we can put that section?;

In terms of a human use chapter, we want to highlight the quantity or intensity of the use. We don't know where things are occurring, how many viewing/diving days there are, etc. A further discussion should find value to the users, and the willingness to pay on the part of bird watchers;

We might consider ethnography (i.e., respect for different cultures and specific ethnic groups), to see the way it is set up now;

Section 5 addresses Cultural and Archaeological Protections, and we might put Aesthetics in a separate sections;

Climate Change is the 800 pound gorilla in the room;

What about desalination plants?

CSO's are outside bounds of the baseline analysis and planning area. Perhaps it isn't a necessary discussion;

Under the Protected Areas section, it needs an introduction. Fisheries closed areas are not listed as protected, either;

In some cases, a Status and Trends section might be necessary at the end;

SAC MEETING CLOSING NOTES:

Additional comments should be addressed to John and sent within the next 2 weeks.

All working group reports will be available on the EOEEA website by Thursday, December 11, 2008.

WorkGroups On Navigation, Cultural Resources and Sediment will be addressed at the next meeting of the Ocean Science Advisory Council tentatively scheduled for the week of January 12, 2009.

Meeting Adjourned