

## Penobscot Bay Watch

POB 1871, Rockland ME 04841

March 11, 2011

Program Manager,  
Office of Offshore Alternative Energy Programs (MS 4090),  
Bureau of Ocean Energy Management, Regulation and Enforcement,  
Office of Offshore Alternative Energy Programs  
381 Elden Street,  
Herndon, Virginia 20170.

Re: Comments on Mid Atlantic Wind Energy Areas Regional EA

Penobscot Bay Watch is a citizens association dedicated since 1993 to protecting and restoring the living marine resources of Penobscot Bay and the greater Gulf of Maine. Our oversight includes discharge licenses and major development initiatives in Penobscot Bay and surrounding waters, including proposals for industrial ports in upper Penobscot Bay and offshore energy facilities such as those proposed off Monhegan Island and beyond. To that end we participate in state and federal permitting and licensing processes as appropriate.

We offer the following comments in response to the Bureau of Ocean Energy Management, Regulation and Enforcement's Notice of Intent to Prepare an Environmental Assessment for Mid-Atlantic Wind Energy Areas. BOEMRE has invited comment from the interested public and others to supply information that will aid the department in determining whether the proposed action warrants issuance of a Finding of No Significant Impact, or requires preparation of an Environmental Impact Statement.

For the reasons detailed below, *preparation of a full Environmental Impact Statement is necessary* to ensure that the impact of ocean windfarms on existing regional hydrology and ecological values and functions are evaluated. These include induced upwellings, reduced Ekman transport through reduced wind stress, unseasonal water column stratification and diversion of existing ocean currents transiting the sites.

These effects singly and cumulatively could hinder or even divert seasonal migrations of planktonic larvae of economically important marine species including blue crabs, menhaden and bluefish, seriously reducing their number. Siting of ocean windfarms must avoid impacting these seasonal multispecies flows of fish and shellfish larvae. This will not be possible until BOEMRE or its consultants obtain information on the planktonic movements of these organisms and incorporate it into its review processes.

These issues have only recently been brought to light by observers of European ocean windfarms. They are parallel oceanic disturbances to the low energy "wind shadow" air disturbances that ocean windfarms create as "wake effects" downwind. Because the ocean windfarms proposed for the mid atlantic region are similar in design and proposed deployment to European ocean windfarms, the European findings are significant and need to be applied to the Mid-Atlantic Wind Energy Areas before any decisions are made regarding siting and places to opt out from siting.

To that end we include a recent report on wake effects and energy removals by the Horns Rev ocean windfarm off Denmark and a report by Norway's, meteorological agency on the impact of ocean windmills on ocean currents, as well as several related American research reports.

To summarize we ask BOEMRE to prepare a full Environmental Impact Study to evaluate the effects that induced water column stratification incidental to ocean windmill operation could likely have on the currents and water flows that control the movement and settlement of planktonic fish and shellfish larvae, active in midatlantic coastal shelf waters, including but not limited to those of Blue Crab, menhaden and bluefish.

These three species have been the subject of many multi-disciplinary studies. Their reproduction spans the entire year and utilize the entire shelf, from the most seaward margin to the estuarine nursery.

The report "Larval Transport on the Atlantic Continental Shelf of North America: a Review, Epifanio and Garvine, Graduate College of Marine Studies, University of Delaware, 2000), notes that:

*“The blue crab is representative of species affected by physical processes occurring during summer and early autumn on the inner and mid-shelf. Menhaden are impacted by processes occurring in winter on the outer and mid-shelf. Bluefish are influenced primarily by processes occurring during early spring at the outer shelf margin near the western boundary current.”*

This report also notes that **wind stress and water stratification** are the primary influences on larval transport in this region. As mentioned before, operating ocean windmills are known to affect those two variables. BOEMRE must ensure that ocean windfarm siting avoids locations that would have such affects on irreplaceable marine resources of state and national significance.

For that reason we ask that a full EIS be prepared, as an environmental assessment would not be able to address this at the level of detail needed. Attached are a number of documents detailing these issues.

Thank you for this opportunity to write. Please protect our blue crabs, bluefish and menhaden from inadvertent, incidental harm.

Sincerely

*Ron Huber*

Ron Huber, executive director  
Penobscot Bay Watch

#### **Attachments (pdf files)**

- \* On the influence of large wind farms on the upper ocean circulation by Goram Brostrom, Norwegian Meteorology Institute. 2008
- \* Goram Brostrom. August 2010 . Personal communication
- \* Wake effects at Horns Rev and their influence on energy production. Martin Méchali et al. Risø National Laboratory and Elsam Engineering 2007
- \* Weather response to a large wind turbine array D. B. Barrie and D. B. Kirk-Davidoff, University of Maryland Department of Atmospheric and Oceanic Science, Atmos. Chem. Phys. Discuss.: 29 January 2009'
- \* Potential climatic impacts & reliability of very large-scale wind farms 2009 by C. Wang and R. G. Prinn