Science & Technical Advisory Committee
Issue Paper 7, June 2011
Management Effectiveness and Efficiency:
Adjusting APNEP Boundaries to Support Ecosystem Based Management

Position:

The STAC encourages APNEP to adjust its program boundaries so that the entire Albemarle-Pamlico Estuarine System ("headwaters to the sea") is encompassed, and thus be compliant with holistic goals of ecosystem-based management that were adopted as policy by APNEP. Specific boundary adjustments would include adding the Upper Roanoke River Basin and extending the eastern boundary from the crest of the barrier islands to three miles offshore, thereby including the nearshore marine environment (see Figure).

Supporting Statement:

Coastal areas and their surrounding communities face an increasing number of threats to the health of their environments and ways of life, including loss of marine habitat, water pollution and impacts from climate change. Managing these challenges can be complicated and often involve different decision makers, social institutions, government agencies and members of the public that all have a stake in the outcome (West Coast Ecosystem-based Management Network 2010). Ecosystem based management (EBM) has developed in response to widespread declines in the state of marine ecosystems worldwide. Scientists have determined that 60% of ecosystem services globally have been degraded and that no part of the marine ecosystem remains unaffected by human impacts (Millennium Ecosystem Assessment 2005, Halpern *et al*. 2008). In order to go beyond conventional policies that focus on a single sector or species in the ecosystem, coastal managers are increasingly adopting the EBM approach. EBM accounts for both ecological and socio-economic factors as well as their cumulative impacts on a management area. EBM provides for geographically specific, holistic resource management of habitats, species, and ecosystem level effects of resource use, such as food web impacts. EBM uses a holistic approach to the management of natural resources and expertise from a wide number of technical areas by addressing as many socioeconomic and natural resources factors as possible. EBM principles were adopted by the APNEP Policy Board in December 2009.

Initial (1987) boundaries of APNEP did not include upper Roanoke Basin (almost 90% of the Basin) because of complicating water rights issues during the late 1980s and early 1990s. Offshore marine areas were also not included. Because nearshore marine areas both receive and supply through tidal action materials that affect water quality of the estuary, there is good reason to include nearshore marine areas in the APNEP. Activities which take place in either the nearshore or estuary that can appreciably affect environmental services provided by either environment should be included within a single area in which monitored responses in both the sound and estuary can responded to by managing entities in a timely manner. Currently (2011) these areas are not included in the APNEP area.

Primary reasons for establishment of a new APNEP geographic boundary include:

1. All upstream areas that contribute water, biota, and materials that affect environmental health and quality of the estuary

2. Marine areas that can exchange water, biota, and materials with the estuary

3. Participation by agencies that have jurisdictional and administrative responsibilities for contributing areas

Expanded boundaries are necessary to fully allow application of EBM principles to management of the APNEP which are consistent with newly adopted policies of the APNEP Policy Board.

References

Halpern, B.S., A. Walbridge, K.A. Selkoe, C.V. Kappel, F. Micheli, C. D'Agrosa, J.F. Bruno, K.S. Casey, C. Ebert, H.E. Fox, R. Fujita, D. Heinemann, H.S. Lenihan, E.M.P. Madin, M.T. Perry, E.R. Selig, M. Spalding, R. Steneck, and R. Watson. 2008. A global map of human impact on marine ecosystems. Science (319): 948-952.

Millennium Ecosystem Assessment. 2005. Ecosystems and Human Well-being: A Framework for Assessment. 2005. Available online at http://www.millenniumassessment.org/en/Framework.aspx

MRAG Americas, Incorporated *and* The Massachusetts Ocean Partnership, Woods Hole and University of Massachussetts. 2009. Science Tolls to Implement Ecosystem Based Management in Massachussetts.

West Coast Ecosystem-Based Management Network. 2010. Community-Based Management of Coastal Ecosystems: Highlights and Lessons of Success from the West Coast EBM Network. Available online at http://www.westcoastebm.org/Home.html

Proposed Boundary of the Albemarle-Pamlico National Estuary Program