

**APNEP Scientific and Technical Advisory Committee**  
**Fall Meeting**  
**October 23, 2008**  
**Goose Creek State Park, Washington, North Carolina**

**STAC Members Present:** Enrique Reyes, Milo Pyne, William Porter, Michael Rikard, Jerry McMahon, Don Field, Stan Riggs, Mike Piehler, David Mallison, Mark Brinson, Kirk Havens, Joe Fridgen, Reide Corbett, Rick Miller, Tim Spruill, Joe Luczkovich

**Staff Present:** Dean Carpenter, Bill Crowell, Lori Brinn, Jimmy Johnson, Chad Smith

**Liaisons:** Joanne Harcke (NC-DA), Lindsey Riddick (NC-DOT), Eric Brittle (VA-DGIF)

**Presenters:** Robert Diaz (VIMS)

**Call to Order: Tim Spruill:** Tim convened the meeting at 10:20 AM. He asked if anyone had any changes or corrections to the minutes from the STAC summer meeting. Approval was moved and seconded.

**APNEP Update: Dean Carpenter**

- Recognition of agency liaisons: Joanne Harcke (NC-DA), Lindsey Riddick (NC-DOT), and Eric Brittle (VA-DGIF).
- Welcome to STAC members for whom this is their first quarterly meeting: Milo Pyne, Mark Brinson, Reide Corbett, Gerard McMahon, Rick Miller.
- STAC members' terms that ended or resigned since the STAC summer meeting: Walker Golder, Lynn Maguire.
- STAC new members: Mark Brinson, Reide Corbett, Bill Kirby-Smith, Gerard McMahon, Joe Luczkovich, Helena Mitsova, Rick Miller, Deanna Osmond, Rafe Sagarin.
- Upcoming STAC quarterly meeting: Wednesday, February 11, 2009 at the Pitt County Extension Center, Greenville, North Carolina.
- APNEP website is undergoing updates, please visit the APNEP website ([www.apnep.org](http://www.apnep.org)) to view the new additions.

## **Spreading Dead Zones and Consequences for Marine Ecosystems: Robert Diaz\***

*\*note: presentations can be found in their entirety on the STAC website in the "members only" section. "Rough outlines" only are provided in these notes.*

- Pre-Talk: Workshop pertaining to geography and economics; December 3-4, 2008 in Williamsburg, VA. If interested, contact Robert Diaz.
- Presentation focused on research that supported a review article he co-authored with Roger Rosenberg in the August 15<sup>th</sup> issue of *Science* entitled, "Spreading dead zones and consequences for marine ecosystems," and the relevance of its findings to the Albemarle-Pamlico region.
- Dead zones: water quality problem in the coastal ocean (result of global change).
- Excess nutrients results in algal blooms; algae die, which can cause problems.
- References to material on [www.shiftingbaselines.org](http://www.shiftingbaselines.org).
- Gulf of Mexico has the most famous dead zone in the world.
- 1960-1980: Period of explosive increase of coastal eutrophication.
- Hypoxia is a paradox of eutrophication; initial increase in nutrient loading leads to an initial increase in fish production.
- Three years is the projected timeframe for a hypoxic environment to return normal.
- The Black Sea (continental shelf) recovered with nutrient management; 14 systems have responded positively.
- Some improvements can be seen in benthic organisms; changes for improvement include wetland and buffer strip restoration and reduction in fertilizer.
- Telemetry waving buoys is a way to monitor dead zones; two dozen buoys have been placed in the Gulf.

## **U.S. Fish and Wildlife Service activities in the A-P region: TBD**

- The speaker for this topic was not present for the meeting.

## **Open Topic Discussion: Tim Spruill**

- Joe Luczkovich announced that Randy Olsen will be visiting ECU to screen his new documentary, "Sizzle: A Global Warming Comedy." Following the screening, there will be a panel discussion featuring Randy and ECU faculty. The event is set for Wednesday, October 29, 2008 at 7PM in Hendrix Theater, ECU.
- STAC members favored having a compilation of science & technology news items before the meeting, based on submissions from STAC members and agency liaisons. *Previous to the meeting, STAC members received a*

*document which contained highlights of STAC programs, projects, and activities in the Albemarle-Pamlico region.*

- The STAC has been working on a two-year action plan, which includes a proposed assessment of the Albemarle-Pamlico region. The last assessment was done in the early 90s. It is projected to be completed in 2010.
- Don Field offered his compliments to APNEP for their work with submerged aquatic vegetation (SAV).
- Online geographical data of SAV; not sure how the aerial imagery could be delivered in total because the data set is so large.
- Bill Crowell mentioned that some of the mapped seagrass areas will be the first to be documented because these areas are not normally measured by NC-DOT.
- The status of the inter-institutional Environmental Observation Network System (EONS) monitoring station in southern Pamlico Sound that was destroyed by a trawling boat on September 30 was discussed - looking to get it back up for spring 2009; insurance was responsible for replacement; making the monitoring station more visible to avoid future collisions by boats was suggested.
- Milo Pyne mentioned "LandScope America," a website that is being constructed with NatureServe and National Geographic. It is expected to launch in early 2009. It takes about a 40-minute description of what LandScope will do and look like. A pilot site can be seen at [www.landscape.org](http://www.landscape.org).
- Joe Fridgen announced that on November 14-15, 2008, a symposium on Climate Change and Tourism will take place on ECU Campus (Willis Building).

#### **USGS-NAWQA's Effects of Urbanization on Stream Ecosystem Program:**

**Gerard McMahon** *\*note: presentations can be found in their entirety on the STAC website in the "members only" section. "Rough outlines" only are provided in these notes.*

- Presentation focused on the Effects of Urbanization on Stream Ecosystem (EUSE) Program, which is part of the U.S. Geological Survey's National Water Quality Assessment (NAWQA).
- Updates on the Southeast version of the Spatially Referenced Regressions on Watershed Attributes (SPARROW) model were also presented.
- How do physical, chemical, and biological characteristics of streams respond to urbanization? What drives this?
- EUSE - nine metropolitan areas:
  1. Define a population of basins
  2. Divide into groups with similar natural environmental features

3. Calculate urban density index
4. Stressors associated with urbanization

### **But How Can I Do That? The ABCs of Coastal Ocean Color Remote Sensing:**

**Richard Miller** *\*note: presentations can be found in their entirety on the STAC website in the "members only" section. "Rough outlines" only are provided in these notes.*

- Presentation focused on potential applications of remote sensing to coastal aquatic environments using Miller's research at NASA from 1987-2008.
- $[a + b = c]$  absorption + scattering = beam attenuation.
- Richard Miller is willing to work with those who are interested in incorporating remote sensing into their work.

### **Impact of Groundwater Quality on Surface Waters of the A-P region: Tim Spruill**

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- Presentation focused on the impact of groundwater quality on surface waters of the Albemarle-Pamlico Estuary.
- Groundwater from river basins is very important to estuaries.
- Groundwater provides half of the stream flow and half of the non-point nitrogen load to the river; and Fort Barnwell is a major contributor of nitrogen to the estuary. How representative is this to other basins?
- Groundwater is a cause of surface water quality problems. Examples include:
  1. Streams that are intentionally channelized to efficiently drain water
  2. Streams with no or minimal riparian buffers (< 1000 ft in width)

The meeting concluded at 3:00 PM.