

# Progress Report

APNEP Transition to Ecosystem-Based Management &  
CCMP Update

APNEP STAC Meeting  
April 2011  
Greenville, NC

# Five Questions

- 1: What is a healthy Albemarle-Pamlico Estuarine System?**
- 2: What is the status of Albemarle-Pamlico Estuarine System?**
- 3: What are the biggest threats to Albemarle-Pamlico Estuarine System?**
- 4: What actions should be taken that will move us from where we are today to a healthy Albemarle-Pamlico Sounds by 2020?**
- 5: What and where are the priorities?**

# **1: What is a healthy Albemarle-Pamlico Estuarine System?**

**Goal 1: A region where human communities are sustained by a functioning ecosystem**

**Goal 2: A region where aquatic, wetland, and upland habitats support viable populations of native species**

**Goal 3: A region where water quantity and quality maintain ecological integrity**

# Goal 1 Outcomes: Human Communities

Waters are safe for personal contact.

Designated surface and ground water supplies are safe for human consumption.

Surface hydrologic regimes sustain regulated human uses.

Fish and game are safe for human consumption.

Opportunities for recreation and access to public lands and waters are protected and enhanced.

The ecosystem sustains uses such as agriculture, aquaculture, fisheries, and forestry while maintaining diverse natural resources.

## **Goal 2 Outcomes: Native Species**

The biodiversity, function, and populations of species in aquatic, wetland, and upland communities are protected, restored, or enhanced.

The extent and quality of upland, freshwater, estuarine and near-shore marine habitats fully support biodiversity and ecosystem function.

Non-native species do not significantly impair native species' viability or function, nor impair habitat quality, quantity, and the processes that form and maintain habitats.

## **Goal 3 Outcomes: Water**

Ecological integrity through protection or restoration of appropriate hydrologic regimes.

Nutrients and pathogens do not harm species that depend on the waters.

Toxics in waters and sediments do not harm species that depend on the waters.

Sediments do not harm species that depend on the waters.

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## 2: What is the status of Albemarle-Pamlico Estuarine System?

### *Ecosystem Assessment*

*APNEP has been working to link these goals to specific measures of ecosystem health. The development of a clear set of measurable indicators and benchmarks for the health of Albemarle-Pamlico ecosystem is a new effort that will enable us to assess whether progress is being made, adjust our actions, and report back to the public.*

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### **3: What are the biggest threats to Albemarle-Pamlico Estuarine System?**

#### *Basic Threat Assessment*

*Alteration and loss of habitat and the ongoing input of pollution are the top two immediate and pervasive threats facing the Albemarle-Pamlico ecosystem. Habitat alteration has occurred throughout the estuaries, rivers, forests, and shorelines of the rivers and sounds, and thousands of pounds of additional pollution enter the waterways on a daily basis. The entire region faces challenges from a growing human population and a changing climate that will exacerbate the many existing stress and pressures on Albemarle-Pamlico Sounds*

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## 4: **What actions should be taken that will move us from where we are today to a healthy Albemarle-Pamlico Sounds by 2020?**

### *Strategic Priorities*

*A: Identify*

*B: Protect*

*C: Restore*

*D: Engage*

*E: Monitor*

For each strategy there will be description of the current situation and rationale for taking action, key objectives for attaining desired ecosystem outcomes, and near-term actions to move the region forward. The strategic priorities and their associated actions provide a regional starting place.

# Identify: Objectives & Actions

## **Objective A1: Develop and refine a conservation atlas.**

A1.1: Facilitate the mapping of significant habitat types.

A1.2: Facilitate the refinement and use of online conservation planning tools.

# Identify: Objectives & Actions

## **Objective A2: Assess vulnerability of the regional ecosystem to stressors, including climate change and sea-level rise.**

A2.1: Facilitate the development of place-based protocols and conduct rapid assessments to determine presence and potential threat of invasive species.

A2.2: Create and improve forecasts of land use and climate change impacts on the regional ecosystem.

A2.3: Support research on adapting to ecosystem impacts associated with climate change and sea level rise.

A2.4: Develop and refine ecological flow requirements for each major river.

A2.5: Facilitate a risk assessment of targeted Personal care and Pharmaceutical Products (PCPP) in the estuarine system.

A2.6: Facilitate a risk assessment of heavy metals and other toxic contaminants in freshwater and estuarine sediments.

A2.7: Conduct and improve risk assessments of consumption of fish and game.

# Identify: Objectives & Actions

**Objective A3: Assess natural resource policies and management based on ecosystem-based management principles.**

A3.1: Assess the impact of policies and regulations to minimize wetland area loss.

A3.2: Evaluate use classifications where TMDL implementation is deemed ineffective by the US EPA.

# Protect: Objectives & Actions

## **Objective B1: Minimize the introduction of additional water pollution sources.**

B1.1: Minimize the introduction of targeted sources of toxics.

B1.2: Minimize the introduction of targeted sources of pathogens.

B1.3: Facilitate the protection of natural riparian zones (buffers) to reduce runoff.

B1.4: Facilitate the development of local government policies that support the use of Low Impact Development (LID) practices to reduce runoff.

B1.5: Demonstrate the use of best management practices on agricultural lands, including reduction of livestock impacts, use of no-till farming practices, and low-impact silvicultural practices.

# Protect: Objectives & Actions

## **Objective B2: Protect and manage areas containing significant natural communities and habitats.**

B2.1: Facilitate the development of an integrated freshwater habitat protection strategy.

B2.2: Develop and implement a submerged aquatic vegetation (SAV) management strategy.

B2.3: Facilitate the development of incentives for protection and management of targeted natural communities and habitats on non-public lands.

B2.4: Facilitate the development of policies to minimize dredge and fill activities in naturalized areas and sensitive habitats.

B2.5: Facilitate protection of designated anadromous fish spawning areas and inland primary nursery areas from marina impacts.

B2.6: Minimize and rapidly respond to the introduction of invasive species through the development and implementation of integrated prevention and control strategies.

## Protect: Objectives & Actions

### **Objective B3: Utilize natural and constructed “living” shorelines to maintain estuarine and riverine ecosystem processes.**

B3.1: Assist local governments through the development of incentives and regulations for protecting natural shorelines.

B3.2: Develop educational materials to encourage landowners to protect natural shorelines.

B3.3: Develop state regulatory requirements for “living” shoreline stabilization projects that are comparable to those for hardened structures (bulkheads, riprap).

# Restore: Objectives & Actions

## Objective C1: Restore water quality by eliminating targeted sources of water pollution

C1.1: Implement # pathogen management strategies (e.g., pathogen TMDLs).

C1.2: Implement # toxics management strategies (e.g., toxics TMDLs).

C1.3: Implement # nutrient management strategies (e.g., nutrient TMDLs).

C1.4: Establish contaminant management strategies for all waters not meeting standard thresholds.

C1.5: Restore x miles of riparian and estuarine shorelines.

C1.6: Reduce wastewater treatment facility overflows by x%.

C1.7: Facilitate the retrofitting of existing public, commercial, and residential development/infrastructure with Low Impact Development (LID) practices to reduce runoff.

# Restore: Objectives & Actions

## **Objective C2: Restore hydrological processes in rivers, estuaries, and near-shore marine waters to significant natural communities and ecosystem functions**

C2.1: Facilitate the development and implementation of coordinated hydrological restoration strategies for large scale restoration projects.

C2.2: Facilitate the development of incentives for replacement of hardened shorelines with living shorelines.

C2.3: Hydrologic restoration to x acres and x feet of stream segments.

# Restore: Objectives & Actions

## **Objective C3: Facilitate the implementation of collaborative (integrative) restoration programs and projects**

C3.1: Develop integrated invasive species eradication and control strategies.

C3.2: Develop and implement a coordinated wetland restoration strategy.

C3.3: Develop and implement a submerged aquatic vegetation (SAV) restoration strategy.

# Restore: Objectives & Actions

## **Objective C4: Remove barriers to passage and restore spawning areas for anadromous fish.**

C4.1: Install fish ladders and eel-ways on existing dams and other permanent barriers.

C4.2: Facilitate the removal of in-stream barriers (dams, culverts).

C4.3: Restore degraded fish spawning habitats.

C4.4: Facilitate research to improve fish passage.

# Restore: Objectives & Actions

## **Objective C5: Maintain oyster habitat restoration efforts to improve water quality and restore ecosystem function**

C5.1: Build new oyster reef habitats.

C5.2: Reduce the adverse impacts of harvests from existing reefs.

C5.3: Facilitate research to improve oyster restoration technologies and methods.

# Engage: Objectives & Actions

## **Objective D1: Foster environmental stewardship.**

D1.1: Communicate the importance of stewardship in the A-P region and opportunities for volunteerism to further APNEP's mission.

D1.2: Facilitate an increase in efforts to increase public-private partnerships to protect and restore ecosystem processes.

D1.3: Coordinate outreach and engagement efforts regarding the impacts of invasive species.

D1.4: Coordinate outreach efforts regarding the proper application of fertilizers to reduce runoff of nutrients.

# Engage: Objectives & Actions

**Objective D2: Conduct targeted environmental education efforts regarding sustainable use, habitats, and ecosystem services.**

D2.1: Provide and promote opportunities for outdoor experiences that connect individuals with the natural resources of the A-P region.

D2.2: Provide environmental education training opportunities for educators in the region.

D2.3: Increase public understanding of water contact, drinking, and fish & game advisories.

# Engage: Objectives & Actions

## **Objective D3: Provide tools and training to support local and regional ecosystem-based management.**

D3.1: Develop and implement a strategy to improve government decision-makers' understanding of the costs and benefits of environmental protection, restoration, planning, and monitoring.

D3.2: Facilitate the development and implementation of basinwide water management plans to ensure minimum instream flows are maintained.

D3.3: Facilitate the development of regional and local climate change and sea level rise adaptation plans.

D3.4: Increase opportunities for public access to waterways, public lands, and trails.

## Monitor: Objectives & Actions

**Objective E1: Develop an integrated monitoring network to assess ecosystem outcomes associated with the implementation of the CCMP**

E1.1: Facilitate the development of an integrated monitoring strategy and protocols through regional monitoring and assessment teams.

E1.2: Biannually assess the value of information for measuring ecosystem and CCMP implementation outcomes.

## Monitor: Objectives & Actions

**Objective E2: Develop a comprehensive spatial database (content management system) for pertinent environmental data and modeling information in the Albemarle-Pamlico region.**

E2.1: Facilitate the design and content of a regional database based on partners' data and information needs.

E2.2: Develop, implement, and maintain a portal to facilitate use by partners and public.

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**To Be Determined**

Priorities and actions will developed though extensive collaboration between natural resource and environmental management agencies, scientists, and local community members who will undertake much of the responsibility for implementation.