# N.C. Oyster Blueprint: Summary of Major Accomplishments 2003-2013

The eastern oyster (*Crassostrea virginica*) is an ecological, economic and educational treasure for North Carolina. As a “canary in the coal mine”, oysters reflect the health of coastal ecosystems. Alarmingly, the state’s oyster population has declined over 50 percent in the last century and it is now listed as a species of concern. This decline results from: habitat loss, pollution, diseases and historical harvest pressure. Given the importance of the species and its current status, a diverse group of stakeholders have worked in concert since 2003 to link strategies and develop targeted initiatives to create and implement the *Oyster Restoration and Protection Plan for North Carolina: A Blueprint for Action.*

Since its inception in 2003, the Blueprint has provided stakeholders with a cohesive direction and guidance that allowed them to come together as a united force to pursue tangible restoration and protection strategies. The Blueprint enabled government, private agencies and other shellfish stakeholders to coordinate and link their habitat and water quality protection and restoration, and fishery management activities. This resulted in funding increases for oyster related protection and restoration programs that are about ten times higher than they were in 2003. As a result of this coordination and funding, efforts to protect and restore North Carolina’s native oyster also increased with tangible results of oyster habitat enhanced and restored, increased annual oyster harvests, and a greater number of watershed restoration projects along the coast.

**Summary of the Blueprint Goals and Recent Progress by Partners**

The goals of the Blueprint are regularly updated to reflect the changes in knowledge and technology in the oyster restoration field. A revision to the goals will be presented at the 2015 Summit as a result of ideas generated at this workshop (which are summarized in the Breakout Sessions below).

### Overarching Blueprint Goals

* To restore and protect North Carolina’s native oyster populations and habitat in an effort to restore our estuaries to robust, diverse, & resilient ecosystems.
* To build broad public awareness & support for the value of oyster restoration, estuarine conservation and sustainable fisheries.
* To establish and work with a comprehensive coalition to build and maintain significant, demonstrable and meaningful progress towards oyster restoration in the next five years.

**Goal 1: Engage and lead a comprehensive coalition of partners on a state and federal level to achieve oyster and water quality protection and restoration objectives.**

**Progress:**

* The Blueprint Steering Committee and Regional Workgroups worked together to craft, refine, update and implement the objectives and recommended actions of the Oyster Restoration and Protection Plan for North Carolina.
* Regional public forums, stakeholder meetings and legislative oyster roasts, including the Encore for Oysters Conferences and Summits, were held in 2004, 2005, 2006 and 2007. These workshops engaged the public, stakeholders and legislators in the protection and restoration of oysters and shellfish waters.

**Goal 2: Protect and restore healthy oyster populations and habitat as a means to improve water quality, provide essential habitat, and support a sustainable fishery.**

**Progress:**

* Stakeholders identified and characterized priority Shellfish Growing Areas (SGAs) in the southern and northern regions, and they are implementing the recommendations for oyster reef and watershed restoration for the high priority SGAs and their watersheds.
* DMF has mapped 90% of the estuarine substrate, identifying 15,778 acres of shell bottom.
* The Coastal Habitat Protection Plan, Division of Marine Fisheries (DMF) Oyster Fishery Management Plan and Albemarle-Pamlico National Estuary Partnership (APNEP) Comprehensive Conservation and Management Plan were developed and updated to include a number of recommendation to protect oyster habitat and were incorporated into the Blueprint.
* Living Shorelines were promoted, legislation was passed and the use of natural alternatives to preserve and/or restore estuarine shorelines to protect and restore oyster habitat was expanded.
* The 2005 Oyster Restoration & Protection Act resulted in increased funding for oyster sanctuaries, SGA mapping and surveying resources; shell recycling resources and fisheries staff for permit reviews.
* DMF increased the number of oyster sanctuaries to 12, encompassing over 228 acres; and almost 80 acres of sanctuaries were constructed, bringing the total to over 138 acres of created reef habitat in the sanctuaries.
* DMF has been able to maintain a cultch planting effort of 150,000-300,000 bushels of material annually.
* DMF Oyster Shell Recycling program collected 185,866 bushels of oysters from 2003-2012.
* NGOs, research institutions, municipalities ramped up restoration efforts resulting in over 120 acres of oyster habitat creation and restoration projects.
* The Shellfish Research Hatchery was constructed at UNCW and began operation with larvae production and remote setting tests.
* Larval transport, distribution and spatfall monitoring programs and studies have been initiated.
* DMF’s Coastal and Recreation Fishing License Fund was implemented, and it has supported a number of projects to restore and monitor oyster habitat.

**Goal 3: Protect and restore water quality throughout coastal waters and especially near areas designated as oyster habitat.**

**Progress:**

* Stakeholders are implementing the regional water quality protection and restoration recommendations for the identified high priority SGAs and their watersheds.
* The N.C. Division of Water Resources (DWR), N.C. Department of Transportation (DOT) and the N.C. Clean Water Management Trust Fund supported projects to remove stormwater outfalls that discharge to shellfish waters.
* The N.C. Clean Water Management Trust Fund and N.C. Ecosystem Enhancement Program supported a number of projects along the coast protecting shellfish waters and their watersheds.
* The Phase II National Pollutant Discharge Elimination System (NPDES) Stormwater rules were implemented, and Low Impact Development ordinances were developed and adopted in several communities, resulting in less stormwater runoff.
* DMF Shellfish Sanitation Section developed and implements its Enhanced Shoreline Survey Methodology to identify and track pollution sources in shellfish waters.
* DWR Coastal Non-Point Source program and U.S. EPA/DWR 319 Projects are supporting Total Maximum Daily Load (TMDL) studies and watershed restoration plans. These plans are being implemented in a number of prioritized areas with the goal of developing and implementing successful strategies for cleaning up impaired shellfishing and swimming waters.
* Large and small scale wetland restoration projects have been completed and are underway in a number of priority areas.
* The N.C. Department of Environment and Natural Resources (DENR) Community Conservation Assistance Program was developed and has implemented several stormwater reduction and Living Shoreline projects.
* The Onslow Bight and Cape Fear Arch conservation initiatives support the regional recommendation s of the Blueprint.

**Goal 4: Develop a sustainable native oyster fishery.**

**Progress:**

* DMF Oyster Fishery Management Plan (<http://portal.ncdenr.org/web/mf/fmps-under-development>) was updated in 2008 and is in the process of being updated again. A number of recommendations from the Blueprint are incorporated in the updates.
* The shellfish research hatchery (<http://uncw.edu/crest/hatchery.html>) program is providing support for shellfish growers through larval research and seed testing.
* The N.C. Sea Grant Program (<http://ncseagrant.ncsu.edu/>) has supported oyster fishery research projects through its fishery grant programs, and it established a Mariculture Extension & Research Program.
* A number of programs including N.C. Catch ( [www.nccatch.org](http://www.nccatch.org)) and the Freshness From North Carolina Waters campaign are helping to market and support shellfish growers and harvesters.
* The N.C. Shellfish Growers Association (link to NCSGA: <http://www.ncagr.gov/markets/aquaculture/NCSG.html>) continues to hold its Annual North Carolina Aquaculture Conference.
* DMF established an education and permitting program for the U-Dock Oyster Growing Program and the Shellfish Gardeners of North Carolina worked to recruit and train gardeners.

**Goal 5: Increase public awareness of the ecological and economic roles, values and importance of a healthy oyster population, and expand citizen and stakeholder support and participation efforts to protect and restore water quality and oyster habitat.**

**Progress:**

* Increased opportunities for student, teacher and public participation in shell recycling, shellfish protection and restoration activities were developed and offered by agencies, researchers, municipalities and NGO’s.
* Biannual Summits and Public Forums were held to enage the public, legislators and stakeholders.
* Education progrmas with U-Dock program were deveoped by Sea Grant.
* The oyster shell recycling program increased outreach efforts to explain the value and importance of oysters. It also provided a number of volunteer opportunites.
* The Blueprint stakeholders developed and implemented a number of oyster education programs to engage students and the public in oyster restoration efforts.

**Goal 6: Link and Coordinate Oyster Restoration and Protection Plan activities to Ongoing Planning Efforts.**

**Progress:**

* A strong effort has been made by the Blueprint stakeholders to link its habitat and water quality protection and restoration, and fishery management objects to: DMF Oyster Fishery Management Plan, Coastal Habitat Protection Plans, Basinwide Water Quality Plans, CAMA Land Use Plans, APNEP Comprehensive Conservation Management Plan, Ecosystem Enhancement Program Basinwide Wetlands Restoration Plans, State of North Carolina/ Corps of Engineers Neuse River, Tar River and Pamlico Sound Basins Studies, Onslow Bight Conservation Forum and Cape Fear Arch initiatives, One North Carolina Naturally, Land for Tomorrow/Horizon 2100, and the Sea Grant Strategic Plan. (Link to Plans as Able)

**Goal 7: Secure Funding for Full Implementation of the Goals, Objectives and Actions of the Oyster Restoration and Protection Plan for North Carolina.**

**Progress:**

* The Blueprint stakeholders have worked to identify and secure funding for a number of planning and project implementation efforts from state, federal and private sources.

**Partners in Implementing the Blueprint**

The organizations listed below are just a few of those involved with the Blueprint. Many others serve as active participants including shellfish growers and harvesters and members of the public.

* Albemarle-Pamlico National Estuary Program (now Partnership)
* Environmental Defense
* Carteret Community College
* Duke University Marine Lab
* J&B Aquafood
* North Carolina Aquariums
* North Carolina Clean Water Management Trust Fund
* North Carolina Coastal Federation
* North Carolina Department of Agriculture & Consumer Services Aquaculture Division
* North Carolina Department of Environment and Natural Resources
* North Carolina Division of Coastal Management
* North Carolina Division of Environmental Health
* North Carolina North Carolina Division of Highways
* North Carolina Division of Marine Fisheries
* North Carolina Division of Water Quality (now Water Resources)
* North Carolina Sea Grant
* North Carolina Shellfish Growers Association
* The Nature Conservancy
* United States Army Corps of Engineers
* University of North Carolina Chapel Hill- Institute of Marine Sciences
* University of North Carolina Wilmington