

Presentation to the

CIVIL WORKS REVIEW BOARD

Neuse River Basin, North Carolina

**Integrated Feasibility Report and
Environmental Assessment**

by

COL Steven A. Baker

District Commander

Wilmington District

5 October 2012



US Army Corps of Engineers
BUILDING STRONG®



In Cooperation With The State of North Carolina



Through the North Carolina Department of
Environment and Natural Resources
(NCDENR) Division of Water Resources (DWR)



Purpose of Civil Works Review Board (CWRB) Briefing

- Provide an overview of Neuse River Basin, North Carolina Ecosystem Restoration Feasibility Study and Environmental Assessment
- Answer questions and address comments
- Obtain Civil Works Review Board (CWRB) approval to release Final Report for State and Agency review



District Presentation Outline

- Overview of Feasibility Study
 - ▶ Study Authority & Purpose
 - ▶ Study Area Map & Description
 - ▶ Neuse River Basin Significance
 - ▶ Problems and Opportunities
 - ▶ Plan Formulation
- Recommended Plan
 - ▶ Restoration Features
 - ▶ Sea Level Rise
 - ▶ Risk Management
 - ▶ Monitoring and Adaptive Management
 - ▶ Cost Share
- Environmental Compliance
- Public Involvement
- Technical Reviews
- Study Summary
- Recommendation



Bottom Line Up Front

- Report recommends four water resource/ecosystem restoration features:
 - ▶ Little River Dam Modification
 - ▶ Kinston East Wetland Restoration
 - ▶ Gum Thicket and Cedar Creek Shoreline Restoration
 - ▶ Neuse River Estuary Oyster Reef Habitat Restoration
- Total Project First Cost: \$36,659,000
 - ▶ Fully funded to midpoint of construction: \$38,156,000
 - ▶ Overall Cost Share (Federal / non-Federal Sponsor): 65% / 35%
- Report is integrated with the Environmental Assessment



Study Authority

*July 23, 1997. Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, that the Secretary of the Army is requested to review the report of the Chief of Engineers on the Neuse River Basin, NC, published as House Document 175, 89th Congress, 1st Session, and other pertinent reports to determine whether modifications of the recommendations contained therein are advisable at the present time in the interest of flood control (**flood risk management**), **environmental protection and restoration**, and related purposes.*



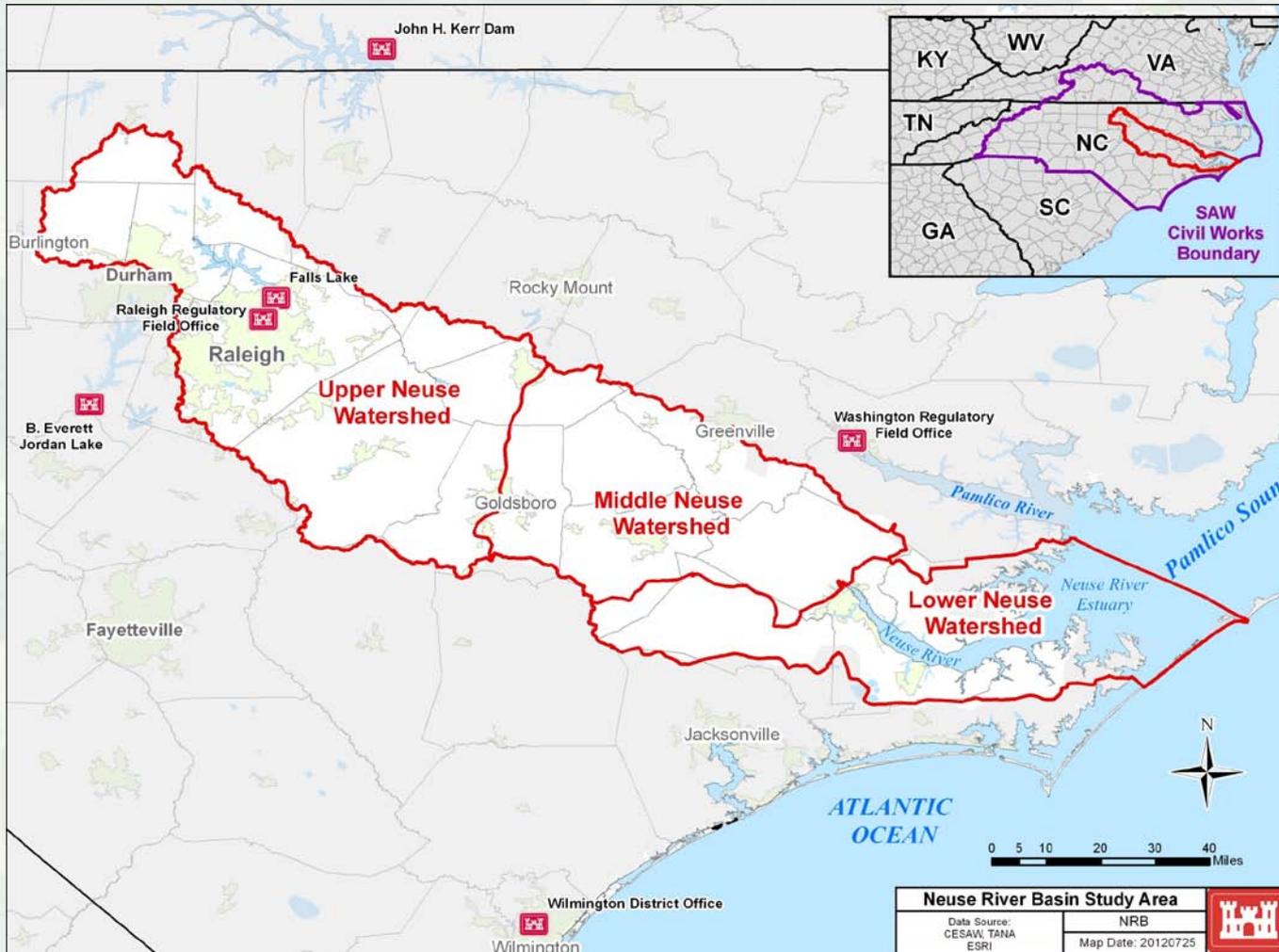
Neuse River Basin Study Purpose

Study investigates the overall quality of the Basin ecosystem and the level of flood risk in the watershed

- Identify flood risks and potential reduction measures
- Identify and inventory changes to ecosystem
- Identify the key components of the ecosystem that have decreased in diversity and/or production
- Develop and evaluate measures to restore lost environmental function values
- Recommend collaborative and sustainable watershed-based solutions
- Incorporate stakeholders into planning process



Neuse River Basin Study Area



**Area =
6,234 square miles**

- **3,497 miles freshwater streams**
- **21 miles Atlantic Ocean coastline**

Contains:

- **18 counties (including 74 municipalities)**
- **19 reservoirs (including Falls Lake)**



Neuse River Basin Significance



Dwarf
wedgemussel



Atlantic
sturgeon



Tar spiny mussel

■ Home to:

- ▶ 17 species of rare freshwater mussels, a state protected salamander, and a rare snail species
 - Includes **Dwarf wedgemussel** and **Tar spiny mussel**
- ▶ Anadromous Fish
 - Includes striped bass, hickory shad, American shad, alewife, blueback herring, **shortnose sturgeon**, **Atlantic sturgeon**
- ▶ 95 species of freshwater fish, representing 27 families
 - Includes **Neuse madtom** and **Carolina darter**
- ▶ 7 other federally listed endangered species
- ▶ 7 Essential Fish Habitats (EFH)
- ▶ 12 Significant Natural Heritage Areas

*Note: Protected species in **BOLD**



Neuse River Basin Significance (cont.)

- Technical Recognition (cont.)
 - ▶ Feeds Albemarle-Pamlico Sound
 - One of the nation's largest and most productive estuaries
 - Nursery for 90% of the commercial seafood species caught in North Carolina
- Institutional Recognition
 - ▶ Designated as a priority watershed by U.S. Environmental Protection Agency (EPA)
 - ▶ Designated as one of the most threatened rivers in the country by *American Rivers*
- Public Recognition
 - ▶ Water supply for municipal and industrial use
 - Contains roughly one-sixth of the state's population
 - ▶ Neuse River Foundation's Neuse River Spring Clean-up has become the largest single-river clean-up event in the state
 - ▶ NC lost 24% of bottomland hardwood forested wetlands
 - 459,000 acres between the mid-1970s and mid 1980s



Problems and Opportunities

- Identified through scoping process
- USACE PDT consisted of interdisciplinary team members from:
 - ▶ Wilmington District,
 - ▶ Savannah District, and
 - ▶ NCDENR
- Comments and concerns organized into four workgroups:
 - ▶ Wetlands, Streams, and Riparian Buffer Restoration
 - ▶ Anadromous Fish Habitat Restoration
 - ▶ Estuarine Resources
 - ▶ Flood Risk Management



In Coordination With...

- Workgroups consisted of USACE PDT members and various stakeholders in the region, including:

- ▶ State of North Carolina
- ▶ U.S. Environmental Protection Agency (USEPA)
- ▶ U.S. Fish & Wildlife Service (USFWS)
- ▶ National Marine Fisheries Service (NMFS)
- ▶ Natural Resources Conservation Service (NRCS)
- ▶ American Rivers
- ▶ Conservation Trust for North Carolina
- ▶ Wilson, Wake, Pitt, & Greene Counties
- ▶ Neuse Riverkeeper Foundation
- ▶ NC Oyster Restoration Steering Committee
- ▶ NC Ecosystem Enhancement Program
- ▶ NC State University
- ▶ Cities of Goldsboro, Kinston, Durham, & Raleigh
- ▶ The Nature Conservancy



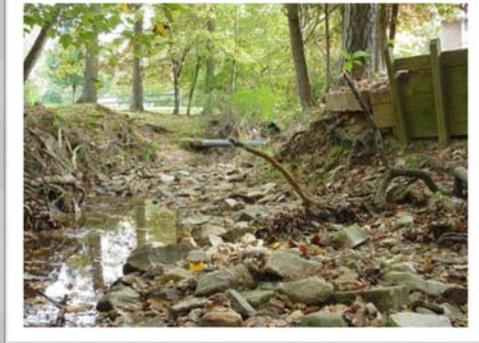
Flood Risk Management Analysis and Findings

- PDT did not identify any USACE interest in Flood Risk Reduction at this time
- Independent of the Neuse River Basin Study:
 - ▶ North Carolina Division of Emergency Management (NCDEM) and the Federal Emergency Management Agency (FEMA) acquired over 1,000 residential structures through a voluntary buy-out program
 - ▶ NCDEM has aggressive programs for flood-prone areas, including:
 - Floodplain mapping
 - Emergency preparedness and response
 - Risk communication
 - Flood-prone structure buy-out



Ecological Problems

- Declines in anadromous fish populations including the endangered *shortnose sturgeon* and *Atlantic sturgeon*
- Decrease in historical mussel populations including the endangered *dwarf wedgemussel* and *Tar spinymussel*
- Declines in eastern oyster populations
- Loss of estuarine emergent wetlands
- Damaged or eliminated natural riparian buffer and bottomland hardwood wetlands
- Impaired biological integrity
 - Embedded aquatic habitat / sediment impairment / turbidity / streambank erosion



Future Without-Project Conditions



Erosion



Stream
Degradation

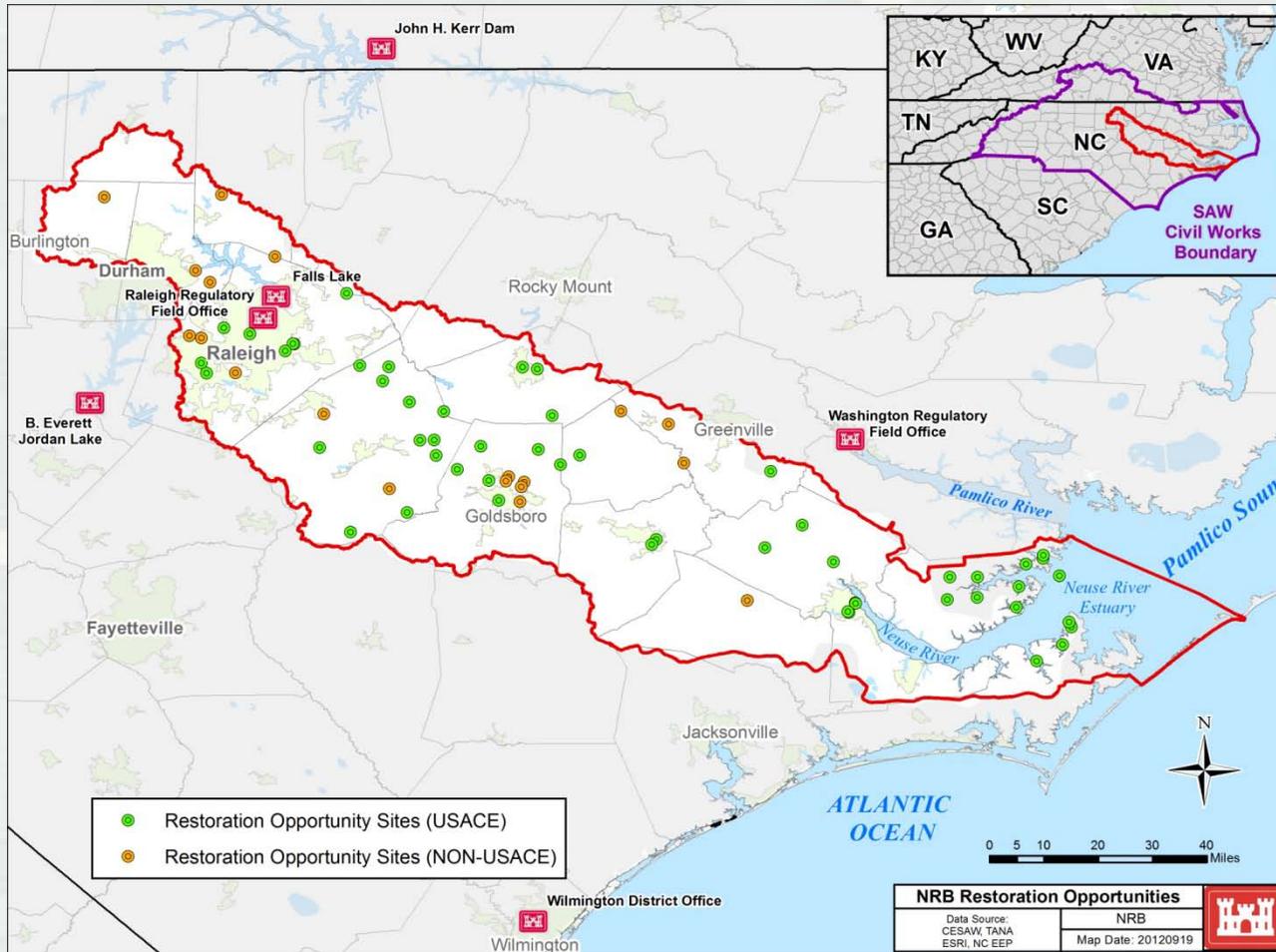
- Continued fragmentation wetland habitat (*Kinston, Gum Thicket and Cedar Creek*)
- Limited habitat connectivity for aquatic species moving upstream (*Little River*)
- Continued erosion rates of 9 ft/yr and 2 ft/yr (*Gum Thicket and Cedar Creek, respectively*)
- Loss of cultural resources, emergent marsh, and habitat protected by conservation easement (*Gum Thicket and Cedar Creek*)
- Reestablishment of displaced oyster reefs would NOT occur (*Neuse Estuary*)
- Riparian habitat degradation would remain at current levels (*Ellerbe Creek, Adkin Branch, and Kinston*)



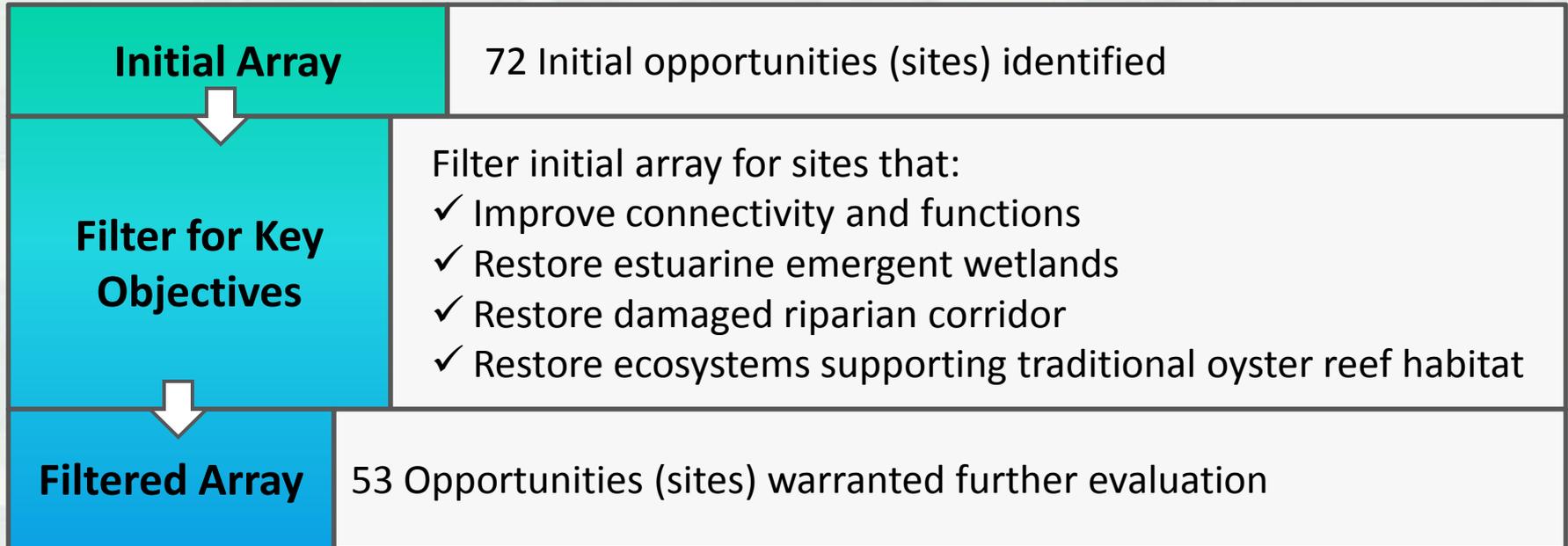
Plan Formulation

Initial Array

72 Initial opportunities (sites) identified

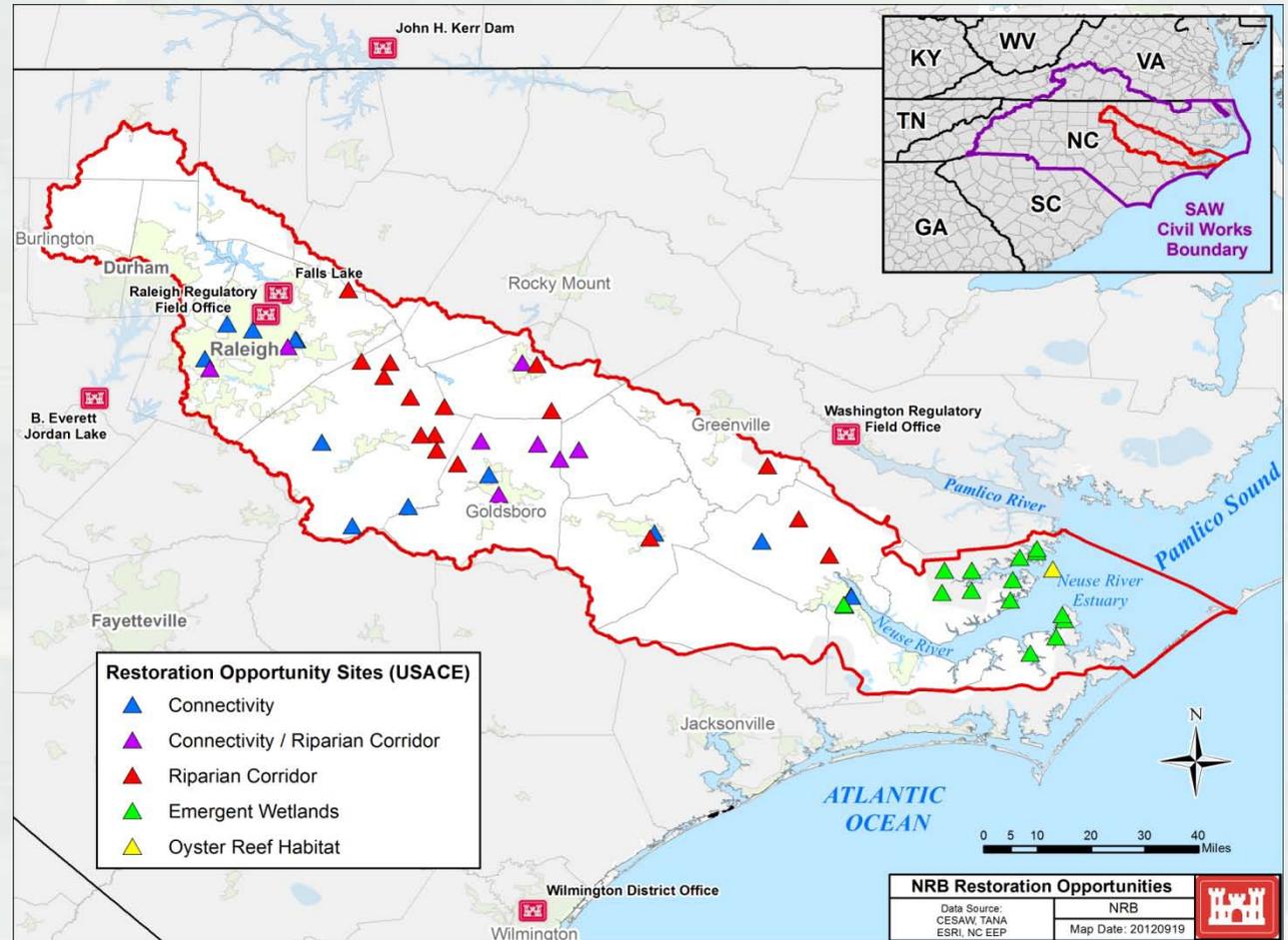


Plan Formulation

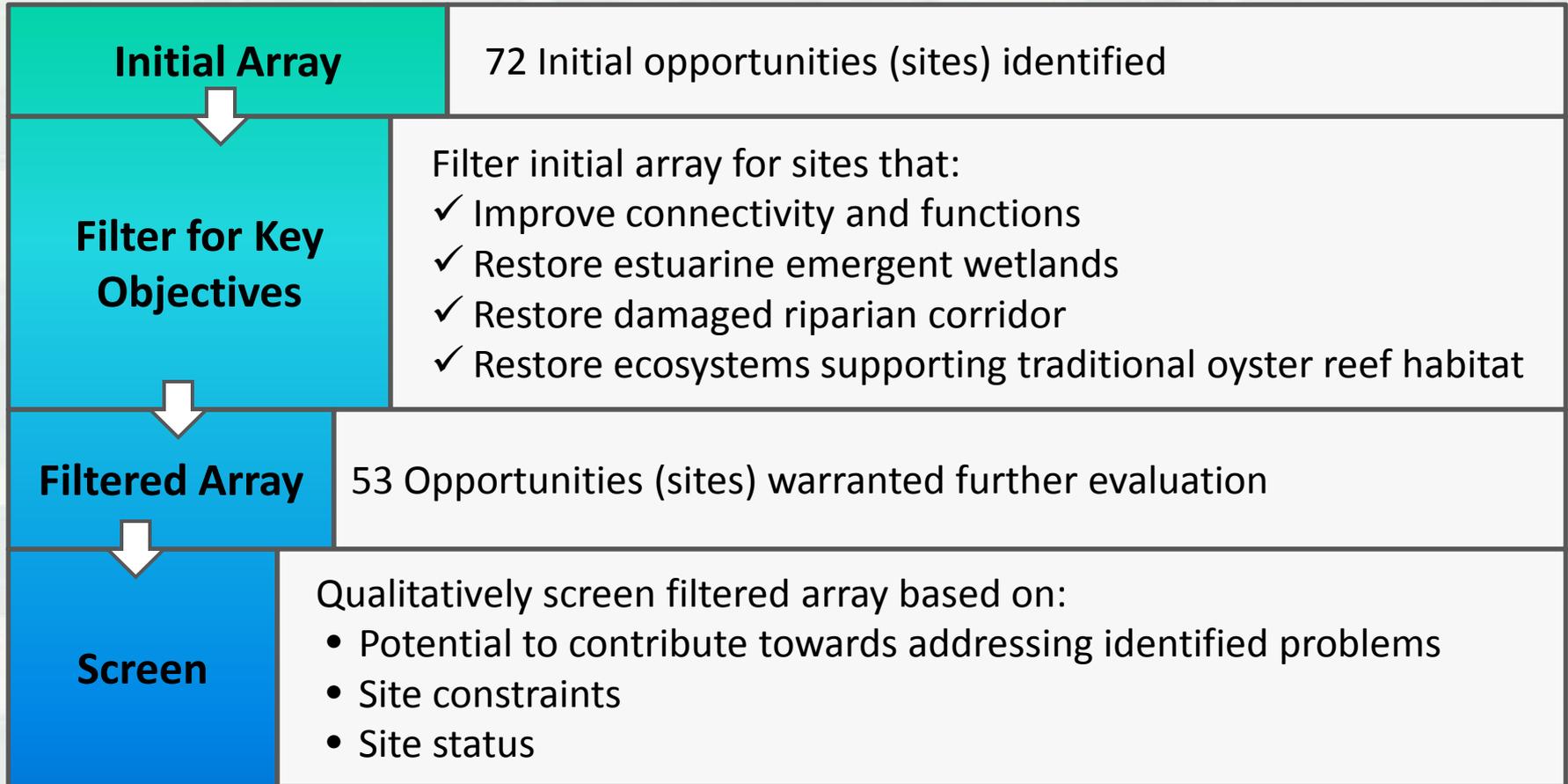


Ecosystem Restoration Opportunities

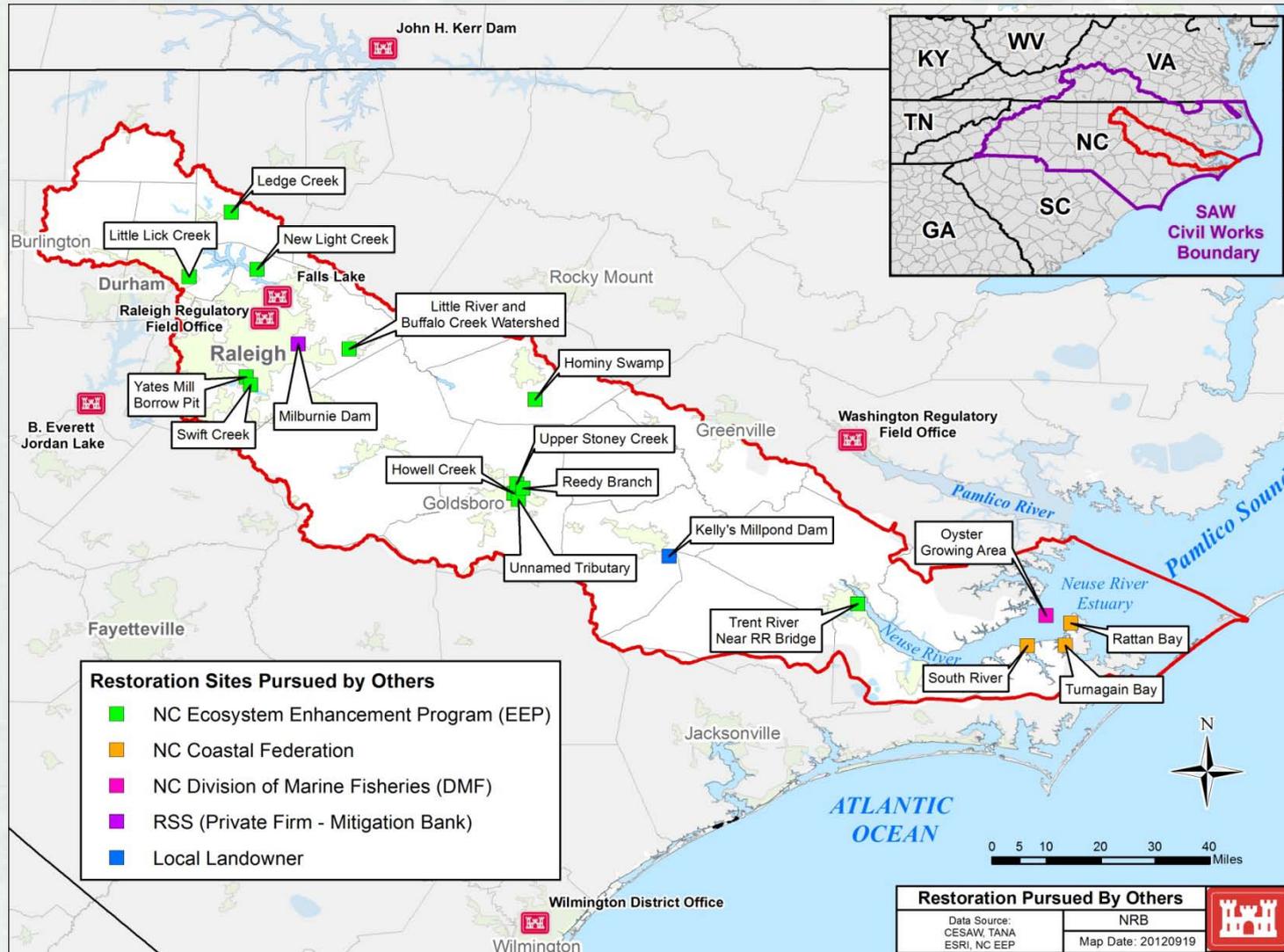
- 53 Sites Identified
- Opportunities to:
 - ▶ Improve connectivity and function
 - ▶ Restore damaged riparian corridor
 - ▶ Restore estuarine emergent wetlands
 - ▶ Restore ecosystems supporting traditional oyster reef habitat



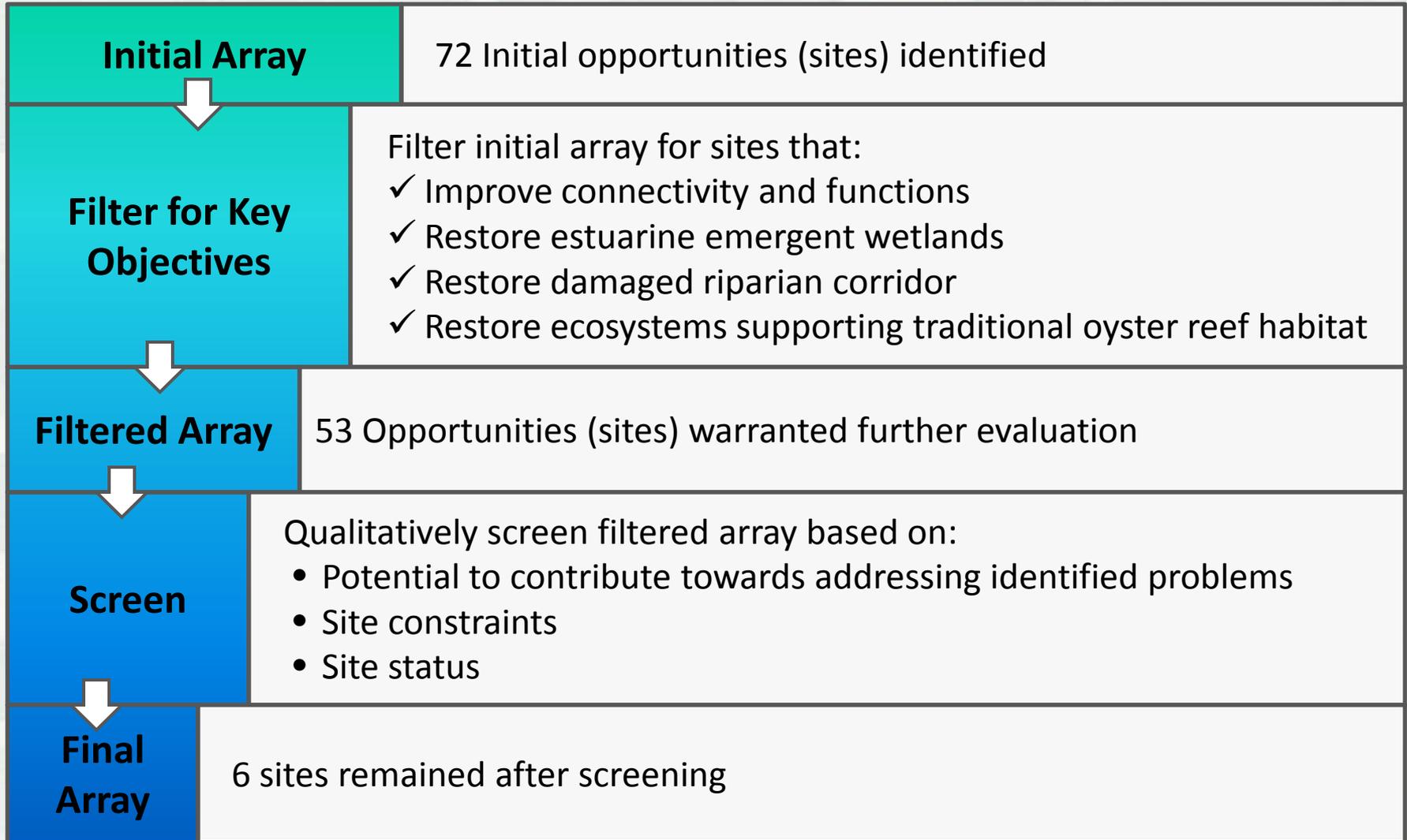
Plan Formulation



Opportunities Pursued by Others



Plan Formulation



Plan Evaluation

Environmental Benefits Assessment (EBA)

Conducted on 6 sites

Cost-Effectiveness/ Incremental Cost Analysis (CE/ICA)

- Performed on all the alternatives at each of the 6 sites
- **Single preferred alternative selected at each site**



Alternatives Considered



Within Ellerbe Creek Restoration Opportunity Area

- Opportunities Identified:
 - ▶ Improve biological integrity
 - ▶ Restore damaged or eliminated natural riparian buffers
- Alternatives Evaluated:
 - ▶ No Action
 - ▶ Excavate and re-vegetate stream banks
 - ▶ Create step pools
 - ▶ Restore natural stream meander wavelength through reach
- Alternative Preferred:
 - ▶ Create step pools



Alternatives Considered (cont.)



Within **Little River Dam** Restoration Opportunity Area

- Opportunities Identified:
 - ▶ Increase fish passage efficiency
- Alternatives Evaluated:
 - ▶ No Action
 - ▶ Notch dam and construct gate
 - ▶ Construct rock ramp
 - ▶ Remove dam
- Alternative Preferred:
 - ▶ Notch dam and construct gate



Alternatives Considered (cont.)

Within Kinston East Wetland Restoration Opportunity Area



- Opportunities Identified:
 - ▶ Restore damaged and eliminated natural riparian buffers and bottomland hardwoods
- Alternatives Evaluated:
 - ▶ No Action
 - ▶ Remove fill material and restore hydrologic connections
 - ▶ Bottomland hardwood plantings
 - ▶ Remove fill material and restore hydrologic connections, with bottomland hardwood plantings
- Alternative Preferred:
 - ▶ Remove fill material and restore hydrologic connections, with bottomland hardwood plantings



Alternatives Considered (cont.)



Within **Adkin Branch** Restoration Opportunity Area

- Opportunities Identified:
 - ▶ Improve biological integrity
 - ▶ Restore damaged or eliminated natural riparian buffers
- Alternatives Evaluated:
 - ▶ No Action
 - ▶ Revegetate both banks on the upper ~200 ft of the stream reach
 - ▶ Revegetate the degraded left bank on the lower ~950 ft of the stream reach
 - ▶ Place large woody debris within the channel to restore degraded in-stream habitat in about 30% of the channel throughout the stream reach
- Alternative Preferred:
 - ▶ Combination of bank revegetation at the upper 200 ft of both banks and lower 950 ft of the left bank with the addition of in-stream woody debris



Alternatives Considered (cont.)

Within Gum Thicket/Cedar Creek Restoration Opportunity Area



- Opportunities Identified:
 - ▶ Restore eroded emergent wetlands
 - ▶ Improve biological integrity
- Alternatives Evaluated:
 - ▶ No Action
 - ▶ Parallel rock sill Gum Thicket
 - ▶ Parallel rock sill Cedar Creek
 - ▶ Meandering rock sill Gum Thicket
 - ▶ Meandering rock sill Cedar Creek
 - ▶ High and low Marsh Planting
- Alternative Preferred:
 - ▶ Construct parallel rock sill and marsh plantings at both Gum Thicket and Cedar Creek



Alternatives Considered (cont.)



Within Neuse River Oyster Restoration Opportunity Area

- Opportunities Identified:
 - ▶ Restore degraded oyster reef habitat
- Alternatives Evaluated:
 - ▶ No Action
 - ▶ Construct rock structures for oyster spat attachment
 - ▶ Construct deep water reef in suitable habitat areas
 - ▶ Create oyster reef sanctuary
- Alternative Preferred:
 - ▶ Construct two deep water oyster rock reef sanctuaries



Plan Evaluation

Environmental Benefits Assessment (EBA)

Conducted on 6 sites

Cost-Effectiveness/ Incremental Cost Analysis (CE/ICA)

- Performed on all the alternatives at each of the 6 sites
- Single preferred alternative selected at each site
- **Second analysis on all combinations of those site plans to select the Basin-wide National Ecosystem Restoration (NER) Plan**

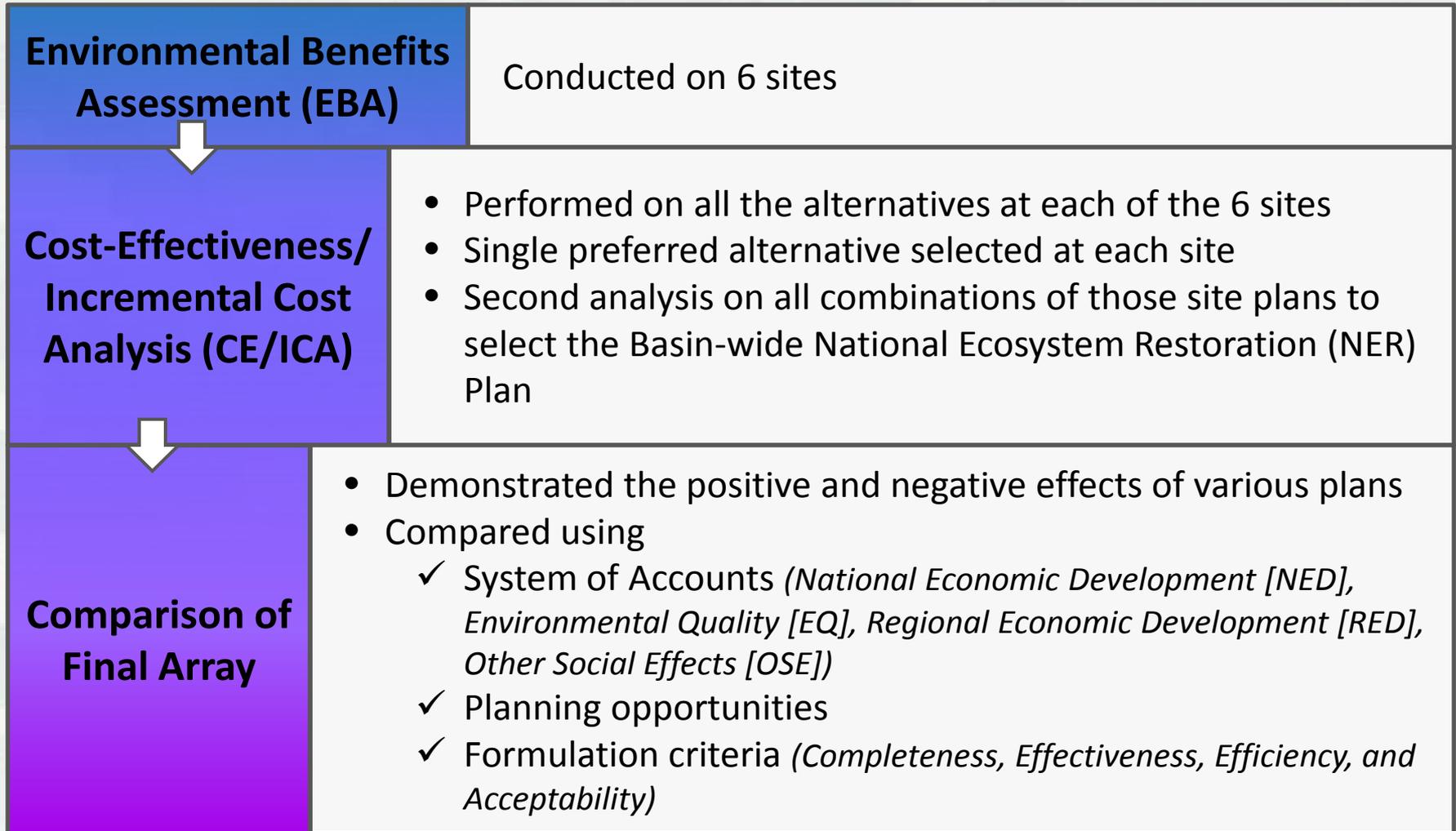


Elimination of Ellerbe Creek & Adkin Branch Restoration Sites

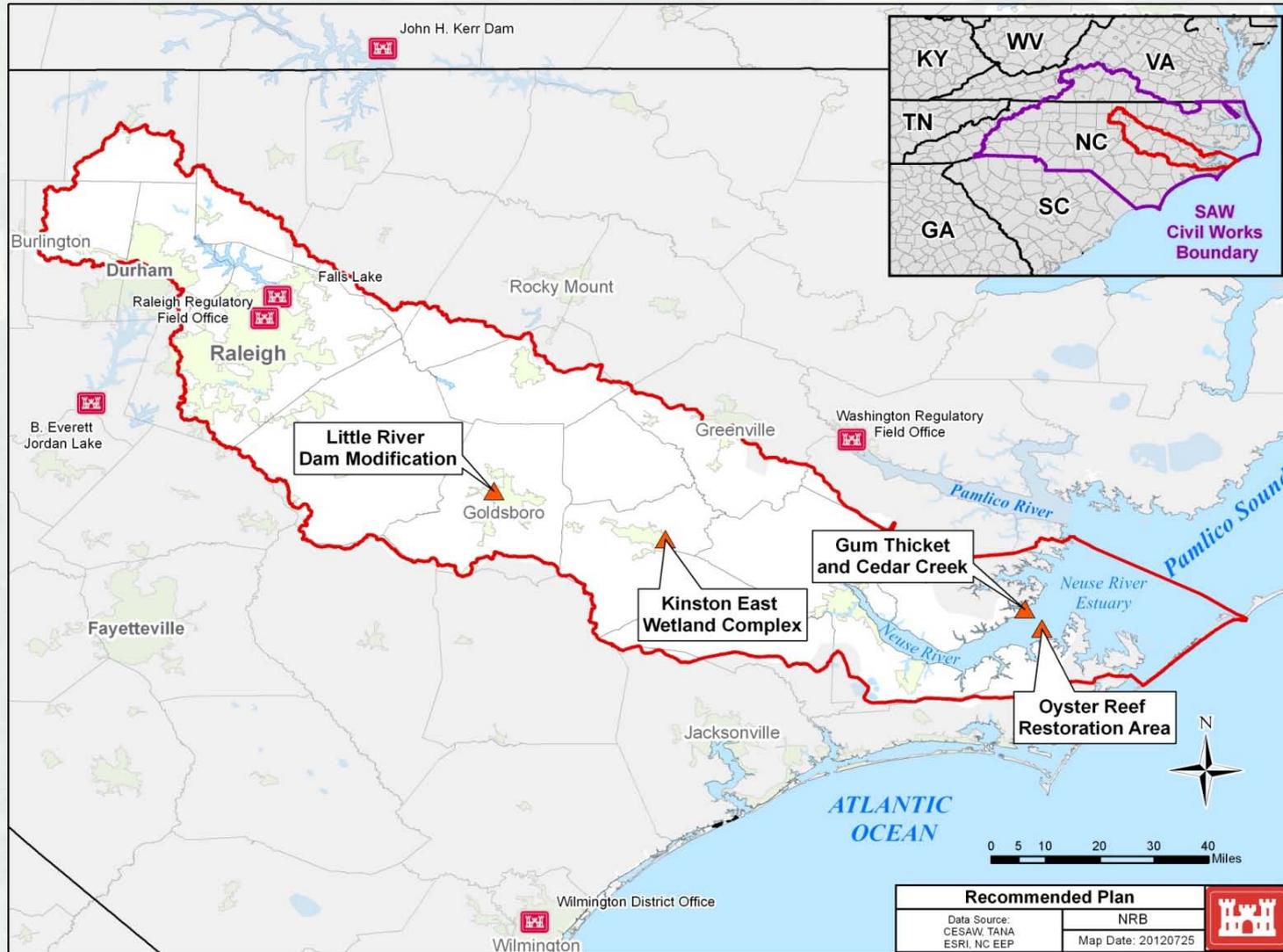
- Cost: \$130,000
- Will not provide significant contribution to the achievement of National Ecosystem Restoration Goals
- Recommendation:
 - ▶ Minimal size and costs of restoration at these sites could be addressed at the local level



Plan Evaluation



Recommended Plan



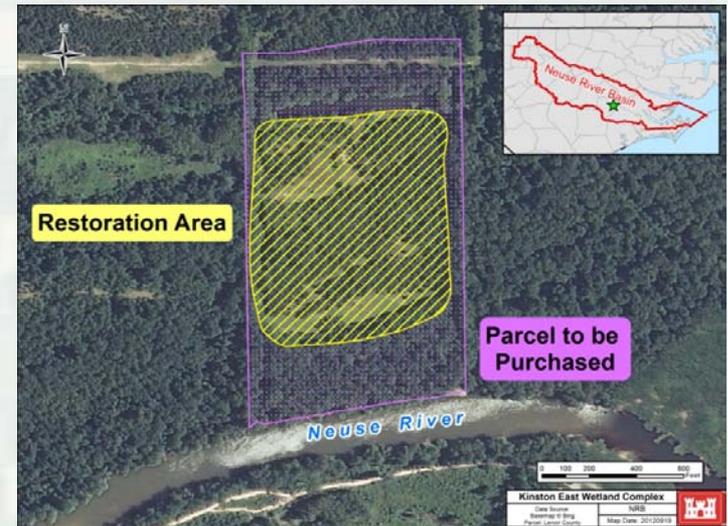
Little River Dam near Goldsboro

- Cost: \$538,000
- Scope
 - ▶ Modify low-head dam
 - ▶ Remove 20-ft section of the existing 100-ft-wide, 4-ft-high concrete dam
 - ▶ Install a discharge control structure in the 20-ft opening
- Benefits
 - ▶ Connects 46 mi of spawning habitat for anadromous fish species, including the endangered ***shortnose sturgeon*** and ***Atlantic sturgeon***
 - Supports the US Anadromous Fish Conservation Act
 - ▶ Provides improved habitat for rare mussels, including the endangered ***dwarf wedgemussel*** and ***Tar spinymussel***
- Project Operation
 - ▶ Gate would remain open during the anadromous fish migration season (~Jan to May)
 - ▶ City would close the gate during low-flow conditions (~Jul to Sep) to ensure sufficient water from secondary water intake structure



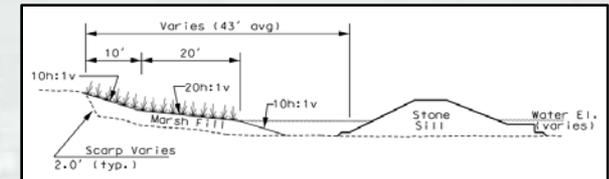
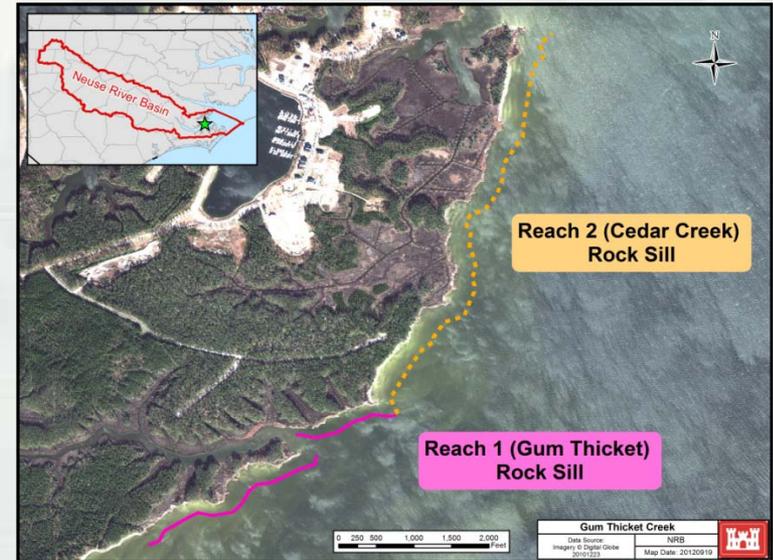
Kinston East Wetland Complex

- Cost: \$3,960,000
- Scope
 - ▶ Acquire 30 acre parcel for restoration
 - ▶ Restore 14.5 acres bottomland hardwood wetlands by re-establishing appropriate elevation of the adjacent bottomland hardwood forest
 - ▶ Natural revegetation of the site combined with limited planting
- Benefits
 - ▶ Restoration of:
 - Hydrologic connectivity between adjacent tracts of city-owned mature bottomland hardwood forest
 - Floodplain function of the 30 acre parcel by reconnecting it to the Neuse River
 - Functionality of the riparian buffer
 - Productivity and biological integrity
 - ▶ Creating connectivity to a bottomland hardwood wetland complex of over 500 acres
 - ▶ Conversion of previously filled 14.5 acre site currently functioning as an upland system to a wetland system



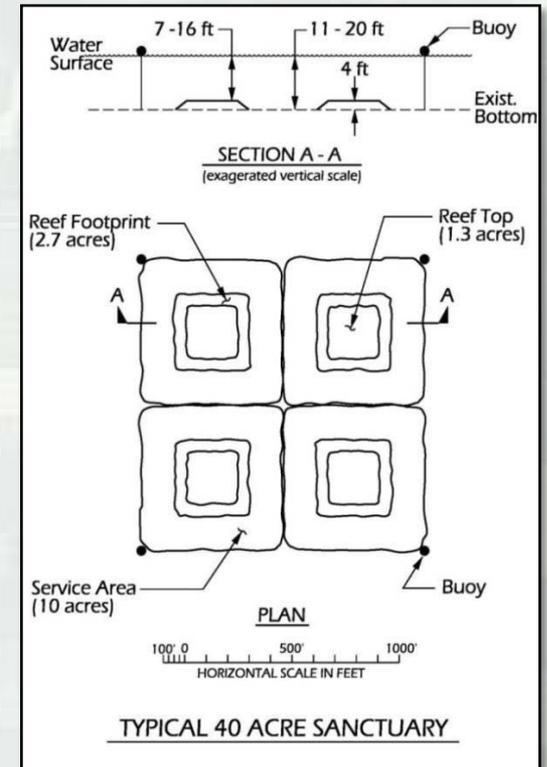
Gum Thicket and Cedar Creek

- Cost: \$14,202,000
- Scope
 - ▶ Construct rock sills approximately 3,500 ft long at Gum Thicket Creek and 5,200 ft long at Cedar Creek
 - ▶ Marsh plantings parallel to rock sills
- Benefits
 - ▶ Stabilize wetland shoreline to prevent further degradation of existing 60 acres, and create an additional 15 acres of new marsh–open water complex
 - ▶ Provides protection to 240 acres of wetland conservation easement in the project area
 - ▶ The sill will provide attachment substrate for shellfish and resident and anadromous fish habitat
 - ▶ Reduce turbidity and increase light penetration within the water column
 - ▶ Preserve five known cultural resource sites (shell middens)
- Design Components
 - ▶ Openings every 100 ft to facilitate movement of water, nekton, and plankton
 - ▶ Sills made of limestone and granite rock



Neuse River Estuary Oyster Reef Habitat

- Cost: \$11,438,000
- Scope
 - ▶ Construct 80-acres of oyster reef sanctuary area (4 reefs at 2 locations)
- Benefits
 - ▶ Provides essential fish habitat, includes important commercial and recreational species and other estuarine organisms
 - ▶ Improves water quality through increased natural filtration
 - ▶ Helps to achieve goal set by the NC Oyster Restoration Steering Committee for restoration of 100 acres of oyster reef habitat
 - ▶ Contributes to the Estuary Restoration Act of 2000
 - ▶ Provides a source of spat for other reefs in the estuary
- Project Operation
 - ▶ Will be managed as a state oyster reef sanctuary



Incorporation of Lessons Learned

- Sill and Marsh Construction
 - ▶ Design based on successful project from Festival Park, NC (NC & USACE project)
 - ▶ Similar construction at Harker's Island for National Park Service Project
 - ▶ Wind-driven tide systems require plants of larger size for marsh establishment (Festival Park, NC)
- Oyster Reef Design
 - ▶ Historic low relief oyster reef failures due to low dissolved oxygen along bottom (NC Division of Marine Fisheries project) required a modified design to mimic natural high relief elevations



Sea Level Rise (SLR)

- SLR effects evaluated in accordance with EC 1165-2-212:

Low

- 0.42 ft in 50-years
- Historical rate of SLR from nearby Beaufort NC tide gauge

Intermediate

- 0.85 ft in 50-years
- National Research Council curve 1

High

- 2.2 ft in 50-years
- National Research Council curve 3

- Future without project condition
 - ▶ Shoreline erosion expected to accelerate in proportion to the rate of SLR
- Potential impact only at the Gum Thicket/Cedar Creek site
 - ▶ Stone sill/marsh design height based on historic rate of SLR
 - ▶ Under *Low* and *Intermediate* scenarios would remain functional
 - ▶ Under *High* scenario would remain functional for the first 25-years but would gradually reduce thereafter



Risk Management

- Project is “low risk”
 - ▶ No components of the plan are burdened by significant risk or uncertainty
- Considerations Include:
 - ▶ System Effects
 - Dynamic Ecosystem
 - Extreme Weather Events
 - Sea Level Rise
 - ▶ Cost and Benefit Analysis
 - Timing and availability of funds
 - Environmental Benefits Analysis



Risk Management (cont.)

- Measures to reduce risk and uncertainty include:
 - ▶ Expanding on and referencing successful similar work
 - ▶ Refining further investigation of oyster restoration sites in areas that contained existing sustainable reefs
 - ▶ Modeling water quality to select restoration areas with optimal conditions for oysters
 - ▶ Using plant species common to the area from local sources



Monitoring and Adaptive Management

- **Monitoring** proposed to address project objectives and confirm project effectiveness at four project sites

Monitoring Component	First Cost (Oct 2013) 10 years (\$1,000s)
Oyster Reef Restoration	\$ 118.0
Kinston East Wetland Complex	\$ 41.0
Gum Thicket and Cedar Creek	\$ 147.0
Little River Dam Removal	\$ 6.0
10 year total monitoring cost	\$ 312.0

- **Adaptive management** may be required to address oyster spat recruitment only

Adaptive Management	First Cost (Oct 2013) 10 years (\$1,000s)
Oyster Reef Restoration	\$ 354.0



Neuse River Basin Cost Summary

(\$1,000s)

Item	Estimated Cost (Oct 2011)	First Cost (Oct 2013)	Fully Funded (Jan 2016)
PED	\$ 2,919	\$ 3,111	\$ 3,143
Construction Management			
Construction Management	\$ 2,335	\$ 2,487	\$ 2,721
Monitoring and Adaptive Management	\$ 625	\$ 666	\$ 729
Lands & Damages	\$ 249	\$ 257	\$ 258
Fish and Wildlife Facilities			
Little River Dam near Goldsboro	\$ 521	\$ 538	\$ 559
Kinston East Wetland Complex	\$ 3,836	\$ 3,960	\$ 4,113
Gum Thicket and Cedar Creek	\$ 13,755	\$ 14,202	\$ 14,752
Oyster Restoration	\$ 11,078	\$ 11,438	\$ 11,881
Total Project Cost	\$ 35,318	\$ 36,659	\$ 38,156

Neuse River Basin – Cost Sharing

(October 2013 Price Level)

Item	Federal Cost (\$1,000s)	Non-Federal Cost (\$1,000s)	Total (\$1,000s)
PED*	\$ 2,158.5	\$ 952.5	\$ 3,111.0
Construction Management			
Construction Management	\$ 1,616.5	\$ 870.5	\$ 2,487.0
Monitoring and Adaptive Management	\$ 432.9	\$ 233.1	\$ 666.0
Lands & Damages	\$ 23.6	\$ 233.4	\$ 257.0
Fish and Wildlife Facilities			
Little River Dam near Goldsboro	\$ 349.7	\$ 188.3	\$ 538.0
Kinston East Wetland Complex	\$ 2,574.0	\$ 1,386.0	\$ 3,960.0
Gum Thicket and Cedar Creek	\$ 9,231.0	\$ 4,971.0	\$ 14,202.0
Oyster Restoration	\$ 7,434.7	\$ 4,003.3	\$ 11,438.0
Total Project Cost	\$ 23,820.9	\$ 12,838.1	\$ 36,659.0
OMRR&R	-	\$ 390.0	\$ 390.0

- Overall Cost Share (Federal / non-Federal Sponsor): 65% / 35%
- * Initial PED Cost Share (Federal / non-Federal): 75% / 25%



Environmental Compliance

- Environmental Assessment Prepared
- Public Review: November 2011 - January 2012
- FONSI will be signed upon confirmation from Headquarters USACE
- No Significant Environmental Compliance Issues
- State and Federal Agencies have concurred with the Plan



Environmental Operating Principles

- ✓ Foster Sustainability throughout the organization
- ✓ Proactively consider environmental consequences and act accordingly
- ✓ Create mutually supporting economic and environmentally sustainable solutions
- ✓ Continue to meet corporate responsibility and accountability
- ✓ Consider the environment in employing a risk management and systems approach throughout life cycle of the project
- ✓ Collaboratively understand environmental context and effects through leveraging scientific, economic, and social knowledge
- ✓ Open and transparent process that respects views of others



Remaining Milestones

- Civil Works Review Board: 5 October 2012
- Release of Letters for State and Agency Review: 9 October 2012
- State and Agency Review: 22 October 2012
- State and Agency Review Complete: 22 November 2012
- Issuance of Final Chief's Report: January 2013
- Secretary and OMB Approval: May 2013



Public Involvement

- Public Scoping – March 1999 and April 2006
- Agency coordination
 - ▶ Essential Fish Habitat coordination with the National Marine Fisheries Services
 - ▶ Cultural resources coordination with the State Historic Preservation Officer
 - ▶ Section 401 Water Quality Certification with the NC Division of Water Quality
 - ▶ Consistency with the Coastal Zone Management Act
 - ▶ Fish and Wildlife Coordination Act
- Public and Agency Review of Draft Report
- No significant concerns



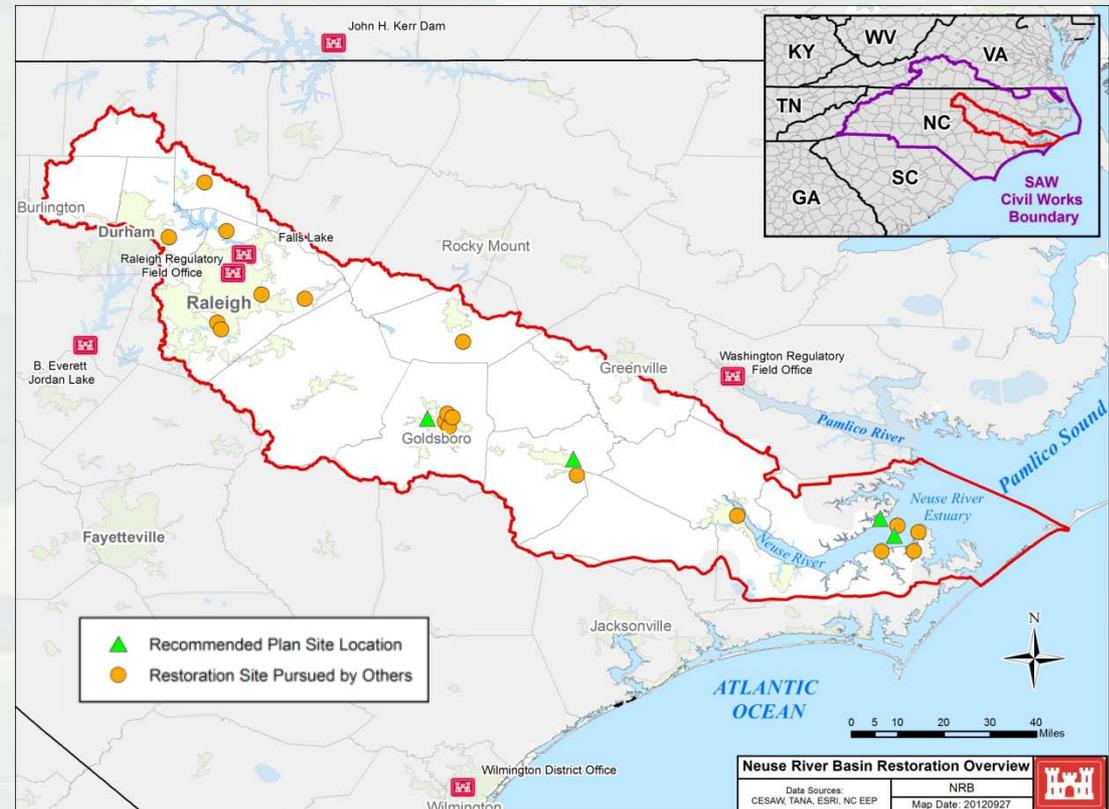
Technical Reviews

- Agency Technical Review
 - ▶ Review managed by ECO-PCX, Baltimore District led effort
 - ▶ All ATR Comments Resolved
 - ▶ Certification completed August 2012
 - ▶ Cost DX Certification received November 2011
- Independent External Peer Review
 - ▶ Exclusion from IEPR Granted May 2012
- Model Review and Approval for Use
 - ▶ The following models were approved for use by the HQ Model Certification Team:
 - North Carolina Wetland Assessment Method (NC WAM)
 - North Carolina Stream Habitat Evaluation Method (NC SHEM)
 - USFWS Habitat Evaluation Procedure (HEP) for oysters



Neuse River Basin Study Summary

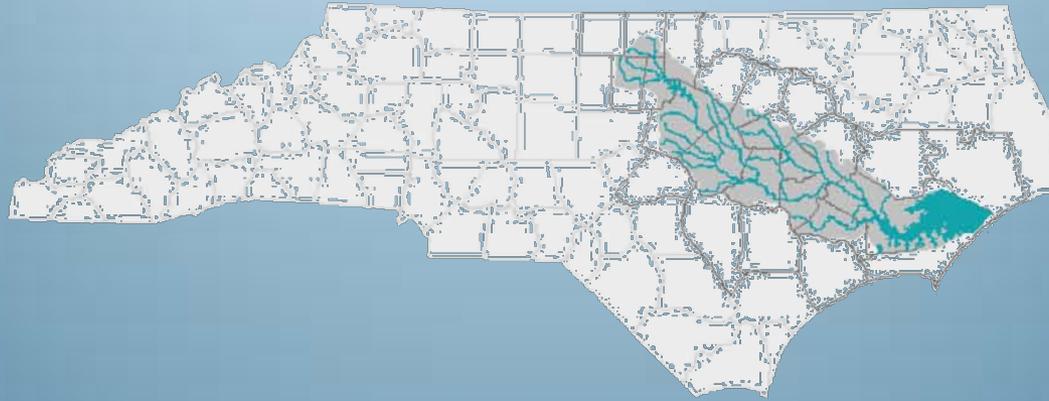
- The proposed plan fills in critical gaps to restore lost environmental function to one of the most endangered rivers in the country
- Restoration of key resources provides significant ecosystem benefits throughout the Neuse River Basin
- Federal investment is in line with other restoration projects of similar scope and output



Recommendation

Civil Works Review Board approve release of the Neuse River Basin Integrated Feasibility Report and Environmental Assessment for State and Agency Review.





Neuse River Basin, North Carolina

Non-Federal Sponsor Project Support

Civil Works Review Board

October 5, 2012

Tom Reeder, Director

Division of Water Resources

North Carolina Department of Environment and Natural Resources



Managing Water Resources to Support North Carolina's Future

Neuse River Basin Importance

- Key watershed for State of North Carolina
 - Third largest river basin in the state with a drainage area of 6,235 square miles
 - Supplies water to nearly 1.7 million people in one of the state's fastest growing areas encompassing Raleigh, Durham and Chapel Hill (2010)
- Includes:
 - 17,902 acres of freshwater reservoirs and lakes
 - 369,977 estuary/saltwater acres

NCDENR Project Commitment

- Committed toward vision of sustainable growth and ecological health in watershed
- Increased interest in protection and restoration of aquatic habitats through focus on:
 - Stream and wetland restoration
 - Removal of obsolete dams and other obstructions
 - Restoration of oyster habitat

Holistic Approach to NCDENR Concerns

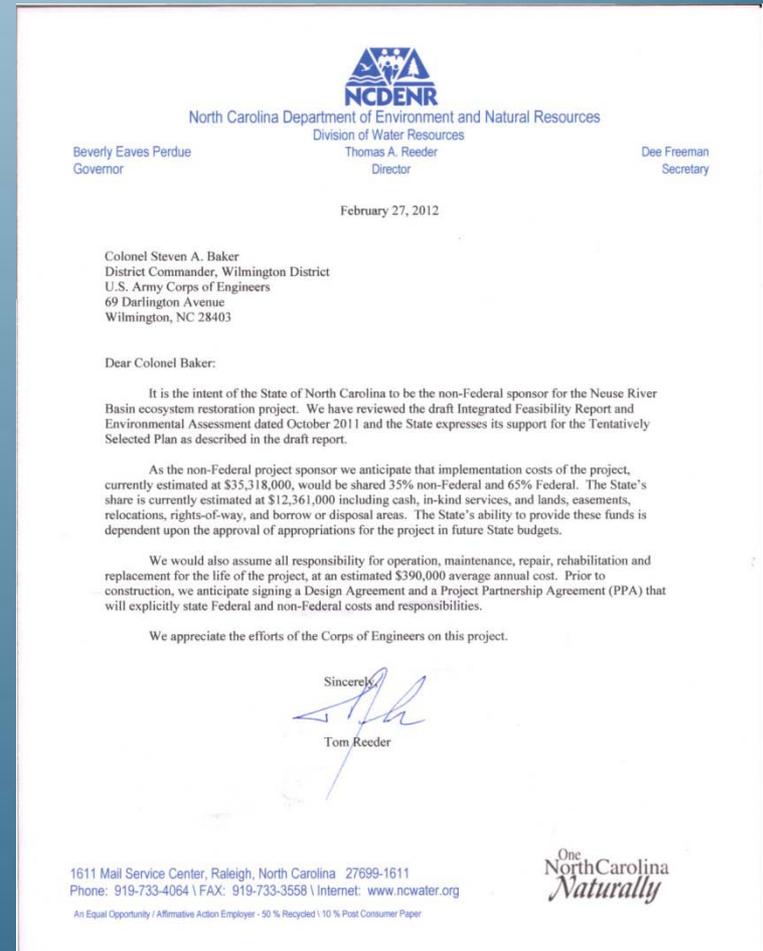
- Ecosystem Enhancement Program
 - Preservation and creation of wetlands
- Marine Fisheries
 - Upstream passage for anadromous species
 - Restoration of oyster reef habitat
- Coastal Management
 - Prevention of further erosion of shoreline habitat
- Water Quality
 - Nutrient removal
 - Treatment of stormwater runoff

Aligned Regional Action Plans

- NCDENR Ecosystem Enhancement Program
- North Carolina Wildlife Action Plan (*NCWRC*)
- Neuse River Basin Wide Water Quality Plan 2009 (*NCDWQ*)
- Neuse River Sensitive Waters Management Plan (*NCDWQ*)
- NC Coastal Habitat Protection Plan (*NCDMF*)
- Oyster Restoration and Protection Plan (*NCDMF*)

NCDENR Project Support

- NCDENR has provided a signed Letter of Support on February 27, 2012
- NCDENR supports Civil Works Review Board approval of the Neuse River Basin Integrated Feasibility Report and Environmental Assessment



Falls Lake Water Supply

- Rapid population growth and continuing drought have placed Neuse Basin under increased pressure in recent years
 - Modeling of the 2030 demand scenario predicts the water supply pool at Falls Lake could be depleted during a repeat of the hydrologic conditions experienced during the 2077 drought



Falls Lake Water Supply (cont.)

- Renewed local interest in evaluating potential reallocation of water quality storage in Falls Lake to include changes in water quality and flood damage reduction purposes
 - Study authority for the Neuse provides an important vehicle for a continued partnership with the Corps in addressing these pressures
- NCDENR intends to request a Feasibility Study be conducted under the existing Neuse Cost Share Agreement to address this potential while moving forward with PED for the ecosystem restoration features when funds are available

Presentation
to the

Civil Works Review Board

Neuse River Basin, North Carolina

Feasibility Study and Environmental Assessment *for Ecosystem Restoration*

by

Col. D. Jackson

**Commander
South Atlantic Division
5 October 2012**



US Army Corps of Engineers
BUILDING STRONG®



Study Partner

- State of North Carolina, Department of Environmental and Natural Resources



Neuse River Basin - HQ-DC Team Members

- Mr. James Dalton, Leader, SAD-RIT
- Ms. Stacey Brown, SAD-RIT Deputy
- Mr. Steve Kopecky, Planner, SAD-RIT
- Mr. Wesley Coleman, Chief, Office of Water Project Review
- Mr. Scott Nicholson, Policy Review Team, OWPR
- Mr. Jeremy LaDart, Policy Review Team, OWPR
- Mr. Mark Matusiak, Policy Review Team, OWPR
- Ms. Katy Chekouras, Counsel, SAD-RIT
- Ms. Brenda Johnson-Turner, Real Estate



Neuse River Basin - SAD

Team Members

- Mr. Wilbert Paynes, Leader, SAD Planning and Policy
- Mr. Terry Stratton, Lead for SAD Economics
- Ms. Vechere Lampley, Lead for SAD Environmental
- Mr. Jim Truelove, DST for Wilmington District
- Ms. Karen Dove-Jackson, Planning Lead for Wilmington District



Rationale for SAD Support

- Concur with District Commander's findings & recommendations.
- Plan is consistent with Federal, State, and local laws and ordinances.
- Plan provides a complete roll-out Federally and non-Federally supported ecosystem restoration of key sites within the Neuse River Basin.
- Plan supported by Sponsor.
- Plan will provide highly positive restoration benefits.
 - ▶ Re-connection of 46 miles of spawning habitat for threatened and/or endangered fish species
 - ▶ Creation of an oyster sanctuary which provides habitat for oysters as well as for fish and other aquatic organisms
 - ▶ Shoreline stabilization of existing estuarine wetlands, which would result in the preservation and creation of estuarine wetlands
 - ▶ Restoration of bottomland hardwood wetlands, which are of regional as well as National importance.
- Anticipate favorable response to the draft Chief's Report.



Certification of Legal & Policy Compliance

- Legal certification of the final Feasibility Report and EA made by SAW District Counsel.
- IEPR Exclusion granted 18 May 2012
- Technical and Policy Compliance:
 - External ATR certification complete-The National Ecosystem Planning Center of Expertise (ECO-PCX) , August 2012.
 - Policy compliance issues have been resolved.



SAD Quality Assurance Activities

- Continuous involvement throughout the development of the Integrated Feasibility Report and EA.
- Worked w/ Eco - PCX, and Vertical Team in establishment of peer review plan.
- Review of Policy Compliance Memo and Agency Technical Reviews: all issues identified in AFB, Draft and Final Reports have been adequately addressed.



SAD Recommendation

- Approve Final Report
- Release for State and Agency Review
- Complete Chief's Report



ATR

Agency Technical Review



- Managed by Ecosystem Restoration Planning Center of Expertise
- Led by Michelle Gomez, NAB
- 3 Reviews
 - Alternatives Formulation Briefing – July 2009 and April 2010
 - Final Report – March 2012
 - 62 comments
 - All resolved and ATR certification dated August 14 2012

Agency Technical Review



- Prominent review concern
 - Completeness of compliance with Section 106 of the National Historic Preservation Act
 - Potential for sites at Gum Thicket/Cedar Creek and Oyster Reef
 - Programmatic Agreement between District, SHPO and Advisory Council on Historic Properties under development. PA will document agreement that District will conduct shoreline examination (Gum Thicket/Cedar Creek) and comprehensive survey for submerged sites (Oyster Reef) in PED, prior to construction.
 - Sill design assumptions related to water depth, height, sea-level change and associated costs
- All comments resolved

HQUSACE POLICY REVIEW CONCERNS

Civil Works Review Board

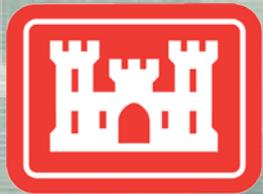
Neuse River Basin, NC Ecosystem Restoration Study

Mark Matusiak

Office of Water Project Review

Planning and Policy Division

Washington, DC – 5 October 2012



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HQUSACE Team Reviews:

- FSM was held October 2007
- AFB was held March 2011
- Final Feasibility Report/EA HQUSACE review completed



Significant Policy Questions from AFB and Draft Report Reviews

- Real Estate.
- Ecological Performance Measures.



Real Estate

CONCERN: Proposed real estate interest in the 27.5 acre Kinston East bottomland hardwoods site is flowage easement. Fee simple acquisition is the standard interest for ecosystem restoration as per section 17(b) of EP 1165-2-502 and Chapter 12 of ER 405-1-12.

REASON: Justification of flowage easement was not discussed or justified in report.

RESOLUTION: Issue discussed during IPR. Final report proposes fee simple acquisition of Kinston East site and states that RE costs would not change significantly.

RESOLUTION IMPACT: Concern Resolved.



Ecological Performance Measures

CONCERN: The report contained only conceptual information about how success of restoration would be assessed, e.g., methods used to estimate outputs.

REASON: Section 2039 of WRDA 2007 requires that criteria for judging success be clearly stated, e.g., factors such as density & species composition of bottomland hardwoods. Conceptual information does not meet the WRDA requirement.

RESOLUTION: The final report was revised to include ecological performance measures consistent with WRDA 2007.

RESOLUTION IMPACT: Concern Resolved.



HQUSACE POLICY REVIEW TEAM RECOMMENDATION

**Release the report and EA for S&A
Review**



Presentation to the

CIVIL WORKS REVIEW BOARD

Neuse River Basin, North Carolina

**Integrated Feasibility Report and
Environmental Assessment**

Lessons Learned

by

COL Steven A. Baker

District Commander

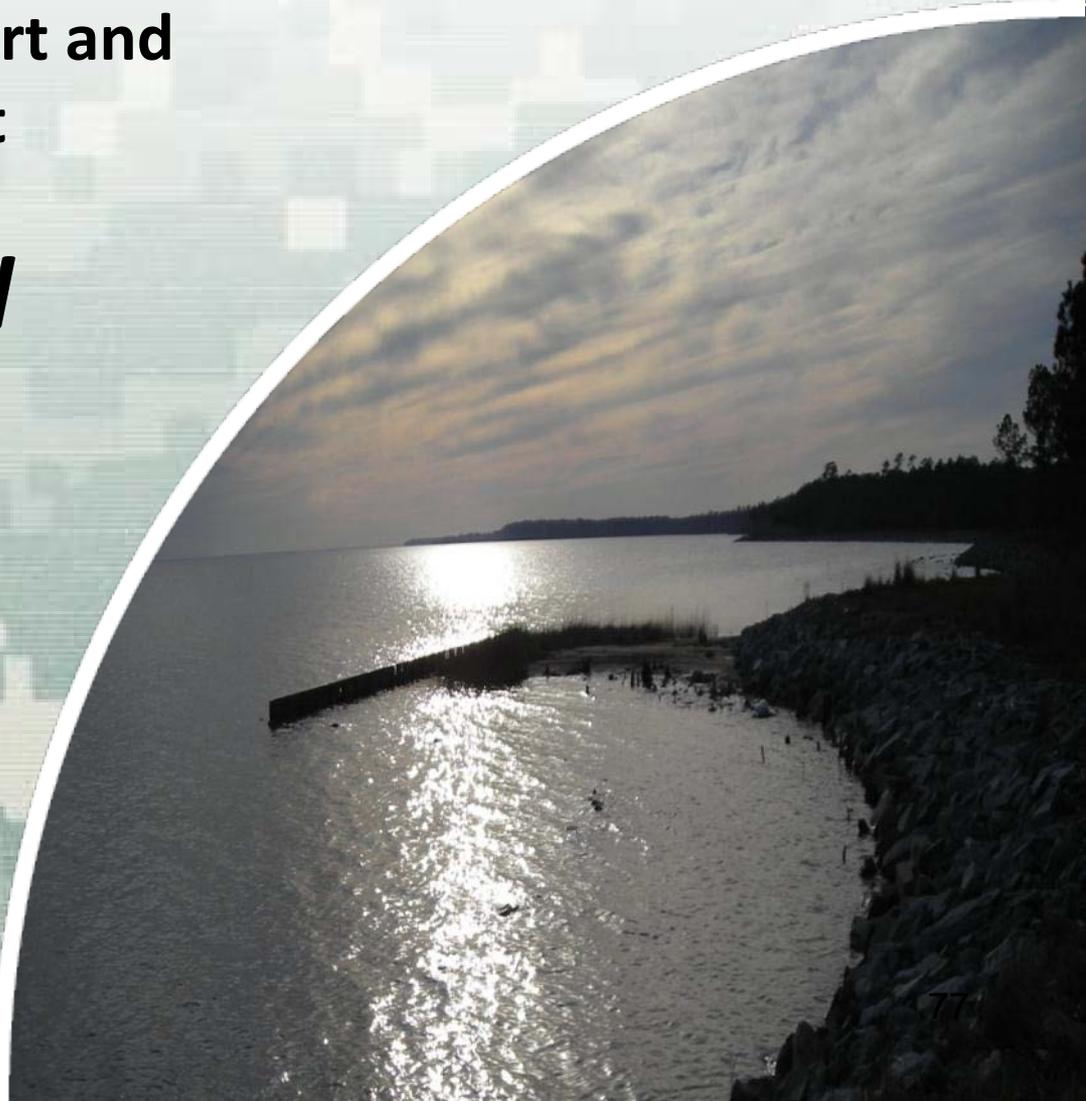
Wilmington District

5 October 2012



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SAW Lessons Learned

- Ecosystem Restoration is a challenging mission area
 - ▶ Watershed approach dramatically increases amount of coordination and funding required to complete study
 - ▶ Lack of full funding (Federal and Non-Federal) causes excessive durations between milestones
 - ▶ Consistency among PDT members is essential for timely execution of study
 - Ensure robust documentation of communication at all levels throughout duration of study
 - ▶ Difficulty in quantifying spatial and temporal benefits with tools available
- Proactive vertical team engagement throughout entire process is key to success
- Coordination of impacts from policy changes
 - ▶ Impacts to resources, time, & cost of study

