

Existing Wetland Monitoring in NC

Workgroup Discussion

October 6, 2015

Objectives:

- Summarize NC DENR's wetland monitoring data
- Identify other existing wetland monitoring data

Today's Program

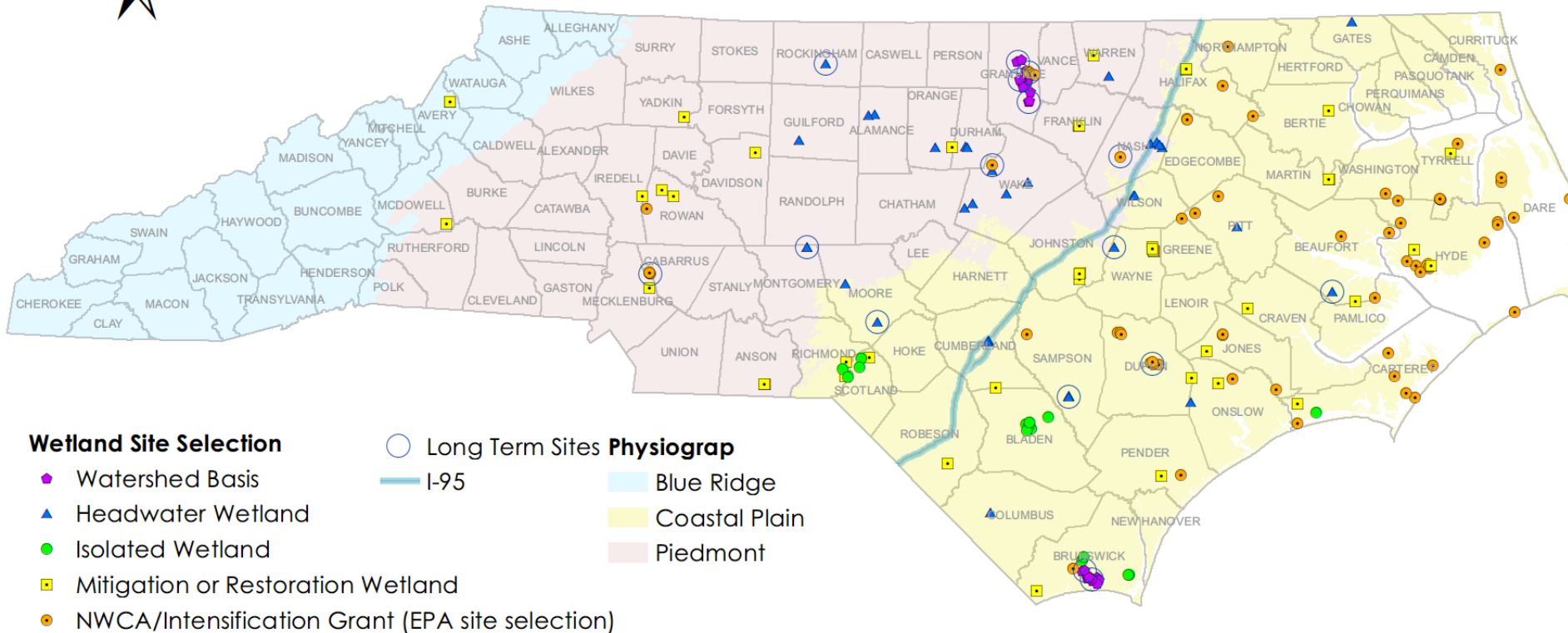
- Status of NC DEQ's wetlands monitoring efforts (*Cyndi Karoly, DEQ*)
- Overview/status of NCSU's wetland monitoring project (*Mike Burchell, NCSU BAE*)
- Discussion and agreement on Work Group goals and objectives (*group discussion - Kim Matthews, RTI*)
- *break*
- Existing wetland monitoring data in NC – *Who has what? (group discussion – Kim Matthews, RTI)*
- Potential uses and needs for centralized database – *What data do we gather and what do we do with it? (group discussion - Robert Truesdale, RTI)*
- *Wrap-up - adjourn*

NC DENR's Wetland Monitoring Program

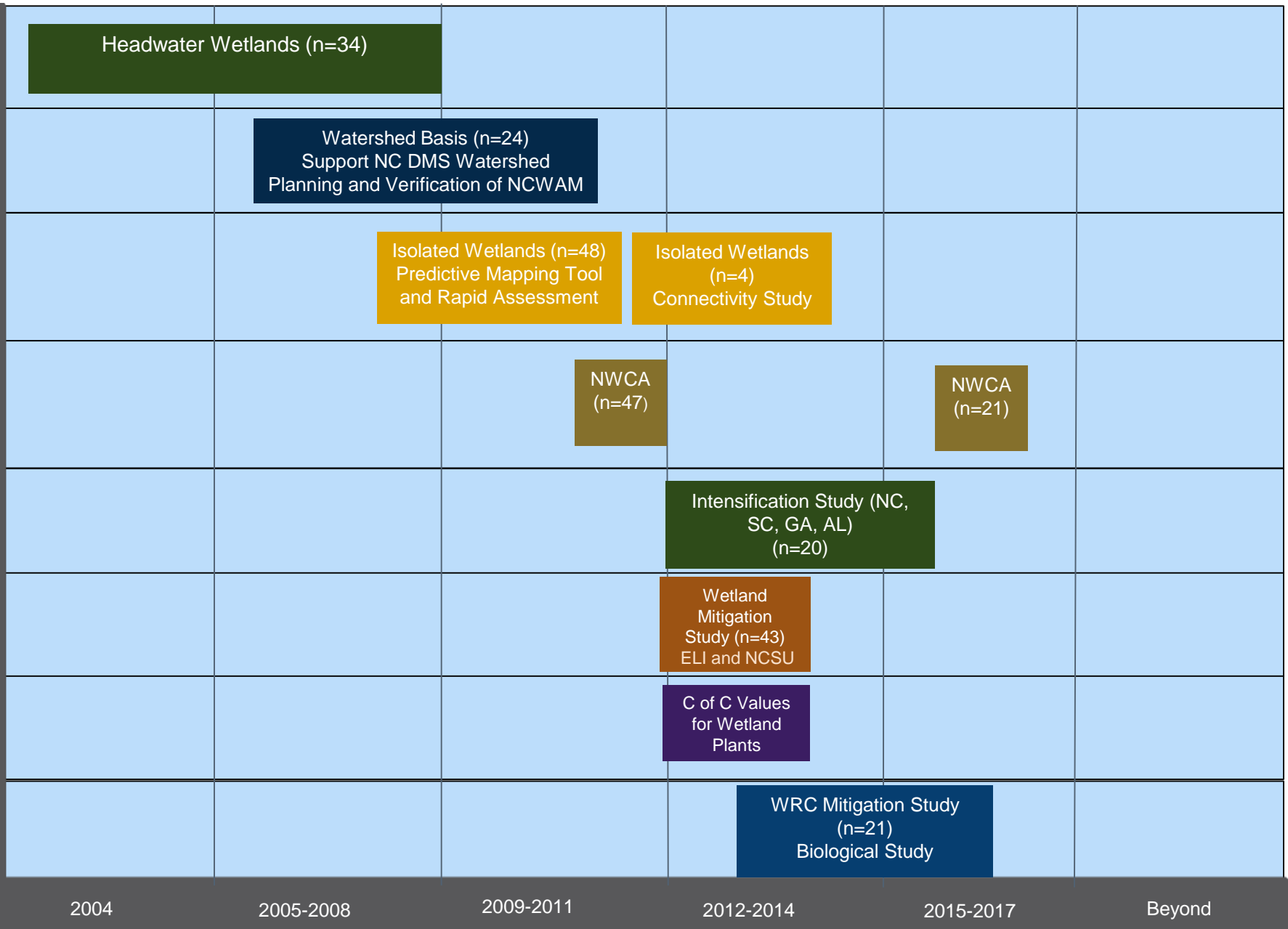
- Data collected 2004-2013
- Funded by EPA WPDGs
- Number of Sites = 184
- Number of Long-term Sites: 16



Monitoring Sites for NC Wetland Program Plan



NC DENR's Wetland Monitoring Program

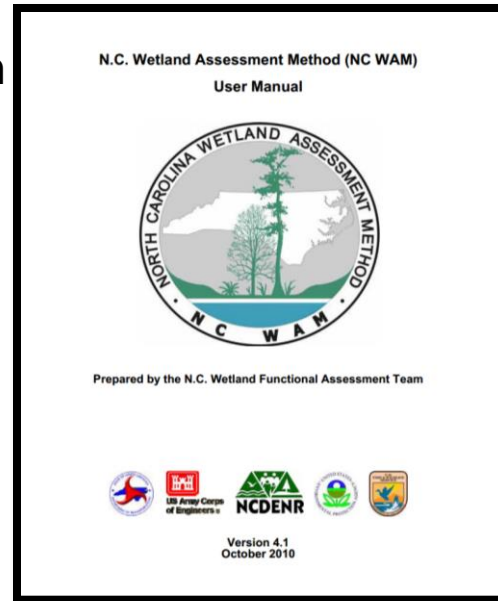


Types of Wetlands data

- Water Quality (grab samples)
- Soil (descriptions and chemistry)
- Hydrology (continuous)
- Biological
 - Vegetation
 - Amphibian
 - Macroinvertebrate
- Rapid Assessments (Function and Condition)
 - NCWAM, ORAM, USARAM
- Land Use
 - Landscape Development Intensity (LDI) Index

NC Wetland Assessment Method (WAM): Wetland Types

- Salt/Brackish Marsh: Salt/Brackish
- Marsh Riparian
 - Estuarine Woody Wetland
 - Tidal Freshwater Marsh
 - Riverine Swamp Forest
 - Bog
 - Non-Tidal Freshwater Marsh
 - Floodplain Pool
 - Headwater Forest
 - Bottomland Hardwood Forest
- Non-riparian
 - Seep
 - Hardwood Flat
 - Non-Riverine Swamp Forest
 - Pocosin
 - Pine Savanna
 - Pine Flat
 - Basin Wetland



Accompanying User Manual Version 4.1
Rating Calculator Version 4.1

| | | |
|---|-----------------------------|------|
| Wetland Site Name | | Date |
| Wetland Type | Assessor Name/Organization | |
| Level III Ecoregion | Nearest Named Water Body | |
| River Basin | USGS 8-Digit Catalogue Unit | |
| <input type="checkbox"/> Yes <input type="checkbox"/> No Precipitation within 48 hr? Latitude/Longitude (Decl-degrees) | | |

Evidence of stressors affecting the assessment area (may not be within the assessment area)
Please circle and/or make note on last page if evidence of stressor is apparent. Consider departure from reference, if appropriate, in recent past (for instance, approximately within 10 years). Noteworthy stressors include, but are not limited to the following:

- Hydrological modifications (examples: ditches, dams, beaver dams, dikes, berms, ponds, etc.)
- Surface and sub-surface discharge into the wetland (examples: discharges containing obvious pollutants, presence of nearby septic tanks, underground storage tanks (USTs), hog lagoons, etc.)
- Signs of vegetation stress (examples: vegetation mortality, insect damage, disease, storm damage, salt intrusion, etc.)
- Habitat or community alteration (examples: mowing, clear-cutting, etc.)

Is the assessment area intensively managed? Yes No

Regulatory Considerations (select all that apply to the assessment area)

- Abandoned fill
- Federally protected species or State endangered or threatened species
- NCDWR riparian buffer rules in effect
- Abate a Primary Hazardous Area (PHSA)
- Publicly owned property
- N.C. Division of Coastal Management Area of Environmental Concern (AEC) (including buffer)
- Abate a stream with a NCDWR classification of SA or supplemental classifications of HQV, ORV, or Trout
- Designated NCEM reference community
- Abate a 300-ft-tied stream or a tributary to a 300-ft-tied stream

What type of natural stream is associated with the wetland, if any? (check all that apply)

- Blackwater
- Brownwater
- Tidal (if tidal, check one of the following boxes) Lunar Vined Both

Is the assessment area on a coastal island? Yes No

Is the assessment area's surface water storage capacity or duration substantially altered by beaver? Yes No

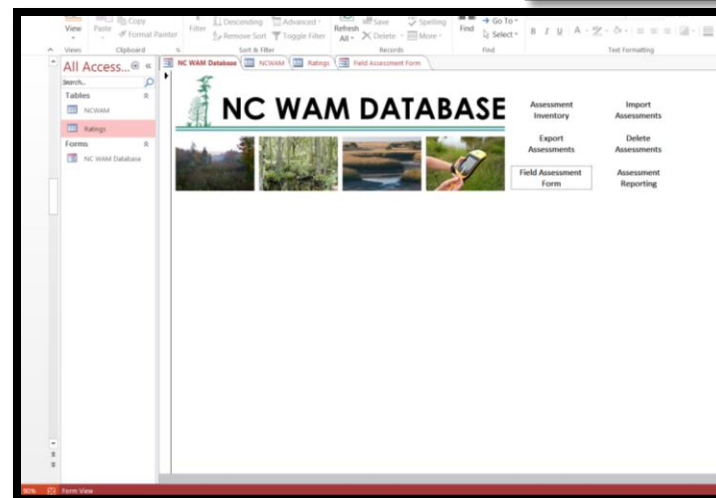
Does the assessment area experience overbank flooding during normal rainfall conditions? Yes No

1. Ground Surface Condition/Vegetation Condition - assessment area condition metric
Check a box in each column. Consider alteration to the ground surface (GS) in the assessment area and vegetation structure (VS) in the assessment area. Compare to reference wetland(s) applicable (see User Manual). If a reference is not applicable, then rate the assessment area based on evidence of an effect.

| | |
|--|--|
| GS | VS |
| <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C |

2. Surface and Sub-Surface Storage Capacity and Duration - assessment area condition metric
Check a box in each column. Consider surface storage capacity and duration (Surf) and sub-surface storage capacity and duration (Sub). Consider both in-use and decrease in hydrology. Refer to the current NCEM manual effect of ditching guidance for North Carolina hydric soils (see USACE Wilmington District website) for the zone of influence of ditches in hydric soils. A ditch 1 foot deep is considered to affect surface water only, while a ditch 1 foot deep is expected to affect both surface and ditch sub-surface water. Consider tidal flooding regime, if applicable.

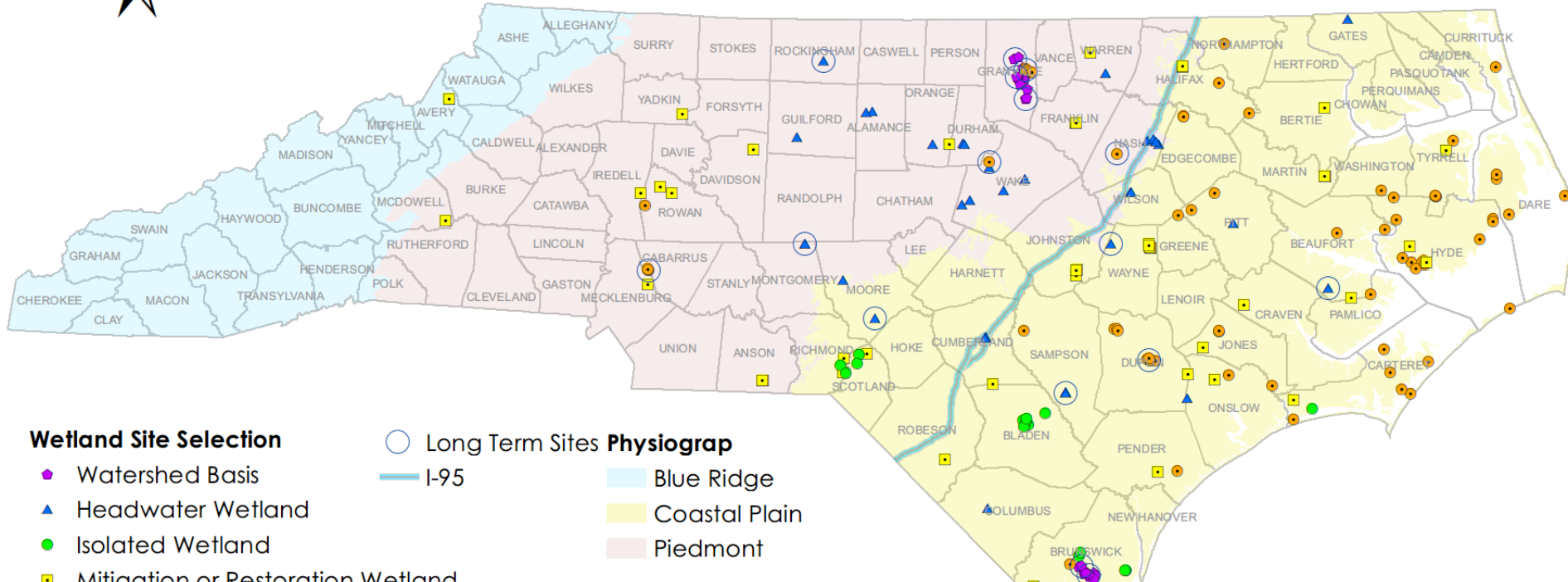
| | |
|--|--|
| Surf | Sub |
| <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C |



Long-term Monitoring Sites



Monitoring Sites for NC Wetland Program Plan



Wetland Site Selection

- ◆ Watershed Basis
- ▲ Headwater Wetland
- Isolated Wetland
- Mitigation or Restoration Wetland
- NWCA/Intensification Grant (EPA site selection)

Long Term Sites Physiograp

- I-95
- Blue Ridge
- Coastal Plain
- Piedmont

| Region | Number |
|---------------|--------|
| Coastal Plain | 7 |
| Piedmont | 9 |

| Type | Number |
|-----------------------|--------|
| Headwater | 6 |
| Basin | 3 |
| Bottomland Hardwood | 4 |
| Riverine Swamp Forest | 3 |

Long-Term Monitoring Sites (Data Inventory in progress)

| Code | Wetland Type | Region | Year stated | Vegetation Cover | Stem | Water Quality | Soils | Hydrology (Y/N) |
|------|-------------------------------|------------------|-------------|---------------------|------|------------------|-------|-----------------|
| SPG | Headwater | Piedmont | 2004 | 1 | 1 | 6 | 1 | Y |
| WMT | Headwater | Piedmont | 2004 | 1 | 1 | 6 | 1 | Y |
| BLK | Headwater | Piedmont | 2004 | 1 | 1 | 6 | 1 | Y |
| DRG | Basin | Piedmont | 2006 | | | | | Y |
| DEN | Basin | Piedmont | 2006 | | | | | Y |
| HNK | Bottomland Hardwood Forest | Piedmont | 2006 | | | | | Y |
| MUN | Bottomland Hardwood Forest | Piedmont | 2006 | | | | | Y |
| RDU | Bottomland Hardwood Forest | Piedmont | 2012 | 1 | | 2~3 | 1 | Y |
| RKR | Bottomland Hardwood Forest | Piedmont | 2012 | 1 | | 1 | 1 | Y |
| SIK | Basin | Coastal Plain | 2006 | | | | | Y |
| LKW | Riverine Swamp Forest | Coastal Plain | 2006 | | | | | Y |
| DOT | Riverine Swamp Forest | Coastal Plain | 2012 | 1 | | 2~6 | 1 | Y |
| NSC | Riverine Swamp Forest | Coastal Plain | 2012 | 1 | | 2~6 | 1 | Y |
| HOG | Headwater | Coastal Plain | 2004 | 1 | 1 | 6 | 1 | Y |
| NAH | Headwater | Coastal Plain | 2004 | 1 | 1 | 6 | 1 | Y |
| PCS | Headwater | Coastal Plain | 2004 | 1 | 1 | 6 | 1 | Y |

NC Wetland Data Inventory (Discussion)

| Source/Contact | Type of Data | Notes |
|-----------------|--|--|
| Curt Richardson | YES | Pocosin sites (3); Coastal Plain (1); restored wetlands (2) |
| Mike Mallin | Water Quality – Cape Fear Basin (monthly); deep estuarine to headwater streams | NE Cape Fear River and Black River |
| Mike B. | Should the database include Stormwater Wetlands? | Need to identify and create as a separate type; similar to creating a separate type for restored wetland |
| Mike M. | | Include links to reports and publications |
| Ward M. | Stormwater Wetlands? | Need to define the management methodologies. |
| Amanda | QA/QC | Identify the quality of the data with the inventory |

NC Wetland Data Inventory (Discussion)

| Source/Contact | Type of Data | Notes |
|-------------------------|--|--|
| Leilani (NCDOT) | Mitigation geodatabase (regulatory purposes) | Developing a Web-accessible catalog of mitigation monitoring reports and permit conditions - Currently, available in-house but eventually it will be available publically |
| Christine Pickens (TNC) | | Find out what wetland data they are using to assess climate change adaptability. |
| Bob Peet (UNC) | CVS wetland data | Created tool for NC EPP; need to see what other type of wetland vegetation data they have. |