Regulated Streams and Wetlands in North Carolina

January 14, 2014
Overview

- Streams
  - What types of streams are there?
  - How are they identified?
  - How are they regulated?

- Wetlands
  - What types of wetlands are there in NC?
  - How are they identified & regulated?

- What does all of this mean to a land owner?
What is a stream?

- A stream has a well-defined channel that contains water for at least part of the year.
What is a “Blue Line” Stream

- Not a term defined in regulations
- Slang used to characterize streams that are regulated by federal govt / State of NC
- This presentation will focus on:
  - Delineation and identification of different stream types in NC by scientific category
  - How these are regulated (or not) by feds & State
Streams Have Many Uses

- Aquatic life reproduction
- Maintenance of aquatic life
- Commercial shellfish harvesting
- Fishing
- Wildlife
- Recreation
- Agriculture
- Water supply
Three Types of Streams

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream

Seasonal High Water Table

Seasonal Low Water Table

Bedrock
Ephemeral Stream

- Carries stormwater after a rain event
  - Stormwater is the primary source of water
- Stream bed is not connected to groundwater
  - No base flow
- Lacks biological, hydrological and physical features associated with continuous or intermittent conveyance of water
Ephemeral Stream
Why are Ephemeral Streams not regulated?

- Typically not regulated as Waters of the U.S.
- There is almost no aquatic life present in ephemeral streams

Fly larvae

Photo by NC DWR
Intermittent Stream

- Well-defined channel that contains water part-time
- Connected to groundwater for part of year
  - Some base flow
- Flow is heavily supplemented with stormwater
- Lacks biological, hydrological and physical features of continuous conveyance of water
Intermittent Stream
Why are Intermittent Streams regulated?

• Typically considered Waters of the U.S.
• Headwater streams (intermittent and small perennial) drain 55-85% of the land area
• 50% of the food flowing through streams originates from headwater streams
• A study conducted in North Carolina found that intermittent streams have 50-70% of the aquatic life found in perennial streams
  ○ Compared to ephemeral streams, which only had 10-20%
Why are Intermittent Streams regulated? (cont.)

- Important conveyances of nutrients and sediment
- USFS study found that it would be nearly impossible to successfully implement pollution control strategies without regulating intermittent streams
Aquatic Life of Intermittent Streams

Beetles
Amphipods
Midges & Blackflies
Winter stoneflies
True bugs
Isopods

Photos by NC DWR (unless otherwise noted)
Perennial Stream

- Well-defined channel that contains water year round (during year of normal rainfall)
- Groundwater is primary source of water
  - Strong base flow
- Also carries stormwater
- Exhibits biological, hydrological and physical features associated with continuous conveyance of water
Perennial Stream
Aquatic Life of Perennial Streams

- Mayfly
- Salamanders
- Caddisfly
- Damselfly
- Redhorse
- Snails
- Stonefly
- Cranefly
- Chub

Photos by NC DWQ
Why are Perennial Streams regulated?
How do we determine which type of stream in NC?

- Pursuant to §143-214.25 and §143-214.25A, the Division developed a stream identification methodology
  - First manual in 1999
  - Four-day training course
  - Over 600 individuals trained

- Methodology has served as the basis for similar endeavors across the Country
  (e.g. Fairfax County, Virginia; Athens-Clarke County, Georgia; Oregon; South Carolina; and Tennessee)
Geomorphology
(Channel Development)
Hydrology (Flow Regime)
Biology
What is a Wetland?

- Wetlands are areas that are inundated or saturated by water sufficient to support vegetation adapted for life in saturated soils.
Wetlands Have Many Uses

- Storing stormwater and floodwater
- Refilling groundwater reservoirs
- Filtering sediments, nutrients, and other pollutants
- Storing sediments, nutrients and other pollutants
- Protecting the shoreline
- Providing habitat for aquatic organisms and wildlife
Different Wetland Types

- **404 Wetlands**
  - Regulated under Section 404 of the federal Clean Water Act

- **Isolated Wetlands**
  - Wetlands not regulated under Section 404 of the Clean Water Act

- **Coastal (CAMA) Wetlands**
  - Regulated under the Coastal Area Management Act

Photos by NCDWR
Wetlands – 404

Photos by NCDWR
Wetlands – Isolated
Why are Isolated Wetlands Regulated?

• Provide uses such as storing stormwater and floodwater, refilling groundwater reservoirs, and filtering and storing sediments, nutrients, and other pollutants

• Provide habitat for aquatic organisms and wildlife
  - Provide special habitat for many at-risk species, including federally listed species
  - Critically important to many amphibians (e.g. frogs and salamanders)
Jurisdictional Determinations

- The U.S. Army Corps of Engineers uses their 1987 Wetland Delineation Manual to delineate wetlands

Wetland Hydrology  Hydric Soils  Hydrophytic Vegetation

Photos by USACE, USDA, USFWS
Isolated Wetland Determinations

- The U.S. Army Corps of Engineers determines whether a wetland is subject to Section 404 of the federal Clean Water Act
  - If a wetland is determined to be isolated, the Division of Water Resources uses the same methodology to delineate isolated wetlands

Photos by USACE, USDA, USFWS
# Regulatory Summary

<table>
<thead>
<tr>
<th></th>
<th>Federally Regulated?</th>
<th>State Regulated?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ephemeral Streams</td>
<td>No(^A)</td>
<td>No(^B)</td>
</tr>
<tr>
<td>Intermittent Streams</td>
<td>Yes(^A)</td>
<td>Yes</td>
</tr>
<tr>
<td>Perennial Streams</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Isolated Wetlands</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>404 Wetlands</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Coastal Wetlands</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

\(^A\) The federal regulations use different criteria, so these may or may not be regulated.

\(^B\) If determined to by waters of the U.S., these are also regulated as waters of the state.
What does this mean for a landowner?

- If you have a surface water feature,
  - You may need a permit to impact that feature
  - You may have a setback or buffer on that feature

<table>
<thead>
<tr>
<th>Feature</th>
<th>Federally Regulated?</th>
<th>State Regulated?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ephemeral Streams</td>
<td>No&lt;sup&gt;A&lt;/sup&gt;</td>
<td>No&lt;sup&gt;B&lt;/sup&gt;</td>
</tr>
<tr>
<td>Intermittent Streams</td>
<td>Yes&lt;sup&gt;A&lt;/sup&gt;</td>
<td>Yes</td>
</tr>
<tr>
<td>Perennial Streams</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Isolated Wetlands</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>404 Wetlands</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Coastal Wetlands</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Permitting – Waters of the U.S.

- A state 401 Water Quality Certification (WQC) is required for any federally permitted or licensed activity that may result in a discharge to Waters of the U.S.

- Federal Permits may include:
  - Section 404 Permits (Clean Water Act)
  - Section 10 Permits (Rivers & Harbors Act)
  - FERC and NRC Licenses
404/401 Exemptions

- Normal, on-going silviculture, farming and ranching activities
- Construction and maintenance of farm or stock ponds or irrigation ditches
- Construction or maintenance of farm roads, forest roads and temporary roads for moving mining equipment
- Maintenance of currently serviceable structures such as dikes, dams, levees...
- Maintenance of drainage ditches
- Construction of temporary sediment control measures
Permitting – Waters of the State

- An Isolated Wetlands Permit (IWP) is required when a proposed project involves impacts to wetlands or waters that the U.S. Army Corps of Engineers determines are not jurisdictional under Section 404 of the CWA.
IWP Exemptions

- 404/401 Exemptions (described previously)
- Discharges to isolated, man-made ponds or isolated ditches
- Discharges of treated effluent
- Discharges for water dependent structures
# Stormwater Setbacks & Buffers

<table>
<thead>
<tr>
<th></th>
<th>Riparian Buffer Rules</th>
<th>State Stormwater (Coastal, HWQ and ORW) and Phase II</th>
<th>Water Supply Watershed Rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ephemeral Streams</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Intermittent Streams</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Perennial Streams</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Isolated Wetlands</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>404 Wetlands</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Coastal Wetlands</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
## Is Mitigation Required?

<table>
<thead>
<tr>
<th></th>
<th>Federal</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes/No</td>
<td>Threshold</td>
</tr>
<tr>
<td>Ephemeral Streams</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Intermittent Streams</td>
<td>Usually*</td>
<td>150 feet</td>
</tr>
<tr>
<td>Perennial Streams</td>
<td>Yes</td>
<td>150 feet</td>
</tr>
<tr>
<td>Isolated Wetlands</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>404 Wetlands</td>
<td>Yes</td>
<td>0.1 acre</td>
</tr>
</tbody>
</table>

* Whether to require mitigation is a permit decision by the U.S. Army Corps of Engineers Project Manager.
How do you know if you have regulated waters on your property?

<table>
<thead>
<tr>
<th>Program</th>
<th>Type of Waters Regulated</th>
<th>How to determine if these are present?</th>
</tr>
</thead>
<tbody>
<tr>
<td>401/404 Permit</td>
<td>All surface waters</td>
<td>Stream/Wetlands ID Prog.</td>
</tr>
<tr>
<td>Buffers</td>
<td>Intermittent &amp; Perennial</td>
<td>USGS 1:24000 Map / Soil Survey Map</td>
</tr>
<tr>
<td>Water Supply Watersheds</td>
<td>Perennial</td>
<td>USGS 1:24000 Map</td>
</tr>
<tr>
<td>Coastal Stormwater</td>
<td>All surface waters</td>
<td>Stream Identification Prog.</td>
</tr>
<tr>
<td>High Quality Waters/Out. Resource Waters</td>
<td>Intermittent &amp; Perennial</td>
<td>USGS 1:24000 Map</td>
</tr>
<tr>
<td>Universal Stormwater Management Program</td>
<td>Intermittent &amp; Perennial</td>
<td>USGS 1:24000 Map / Soil Survey Map</td>
</tr>
<tr>
<td>Phase 2 Stormwater</td>
<td>Intermittent &amp; Perennial</td>
<td>USGS 1:24000 Map / Soil Survey Map</td>
</tr>
</tbody>
</table>
Questions?