



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



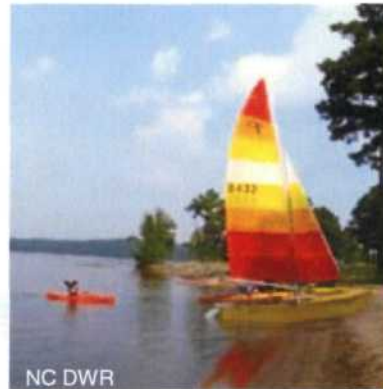
NC DPR

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

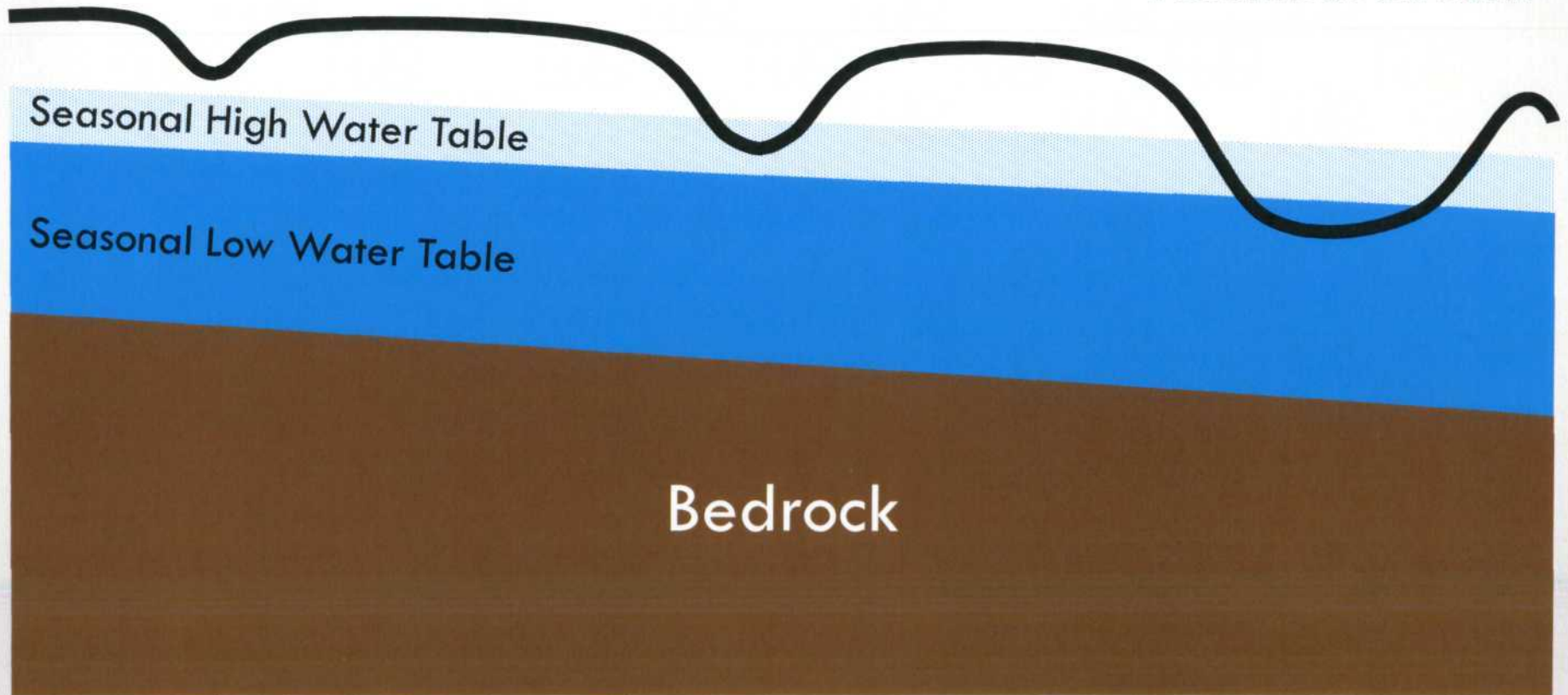


Three Types of Streams

Ephemeral Stream

Intermittent Stream

Perennial Stream



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

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



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



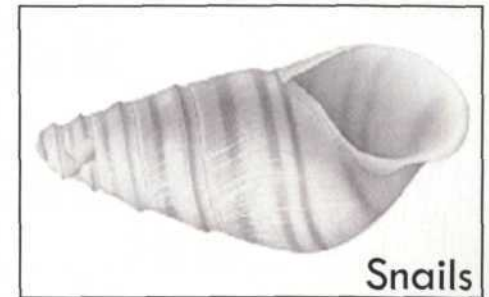
Caddisfly



Damselfly



Redhorse



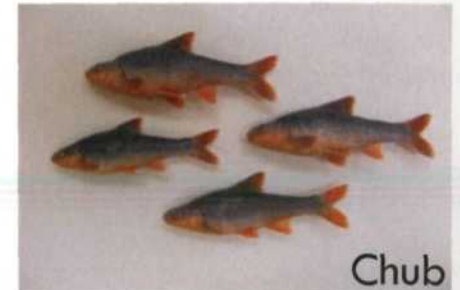
Snails



Stonefly

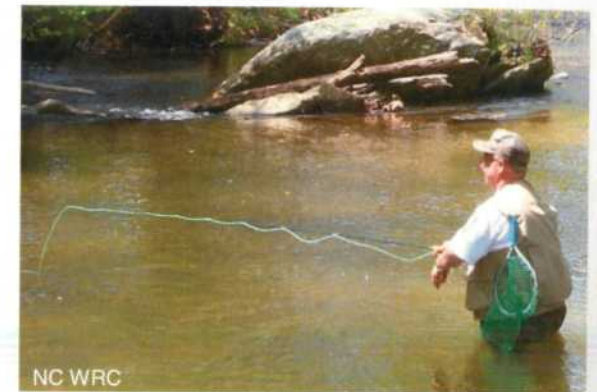
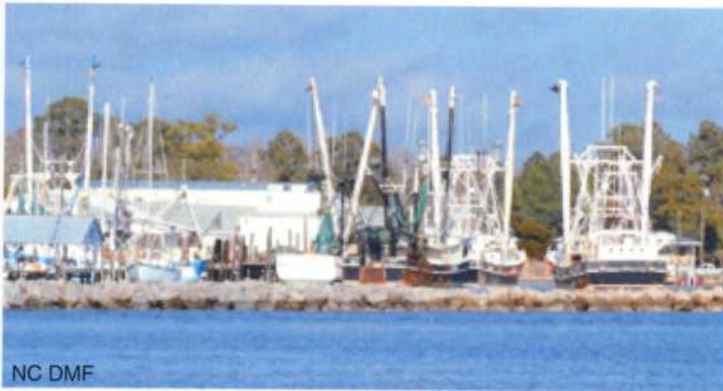


Crane fly



Chub

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



Wetlands – 404



Photos by NCDWR

Wetlands – Isolated



Why are Isolated Wetlands Regulated?

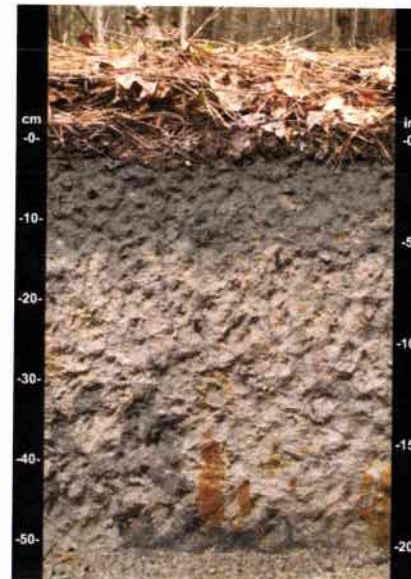
- Provide uses such as storing stormwater and floodwater, refilling groundwater reservoirs, and filtering and storing sediments, nutrients, and other pollutants
- Provide habitat for aquatic organisms and wildlife
 - Provide special habitat for many at-risk species, including federally listed species
 - 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



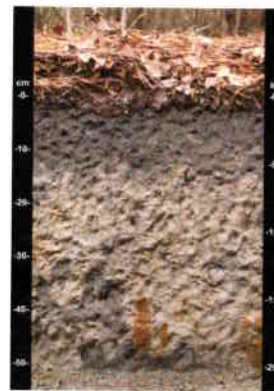
Hydrophytic
Vegetation

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



Wetland Hydrology



Hydric Soils



Hydro Veg

Regulatory Summary

	Federally Regulated?	State Regulated?
Ephemeral Streams	No ^A	No ^B
Intermittent Streams	Yes ^A	Yes
Perennial Streams	Yes	Yes
Isolated Wetlands	No	Yes
404 Wetlands	Yes	Yes
Coastal Wetlands	Yes	Yes

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

^B If determined to be 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

	Federally Regulated?	State Regulated?
Ephemeral Streams	No ^A	No ^B
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Permitting – Waters of the U.S.

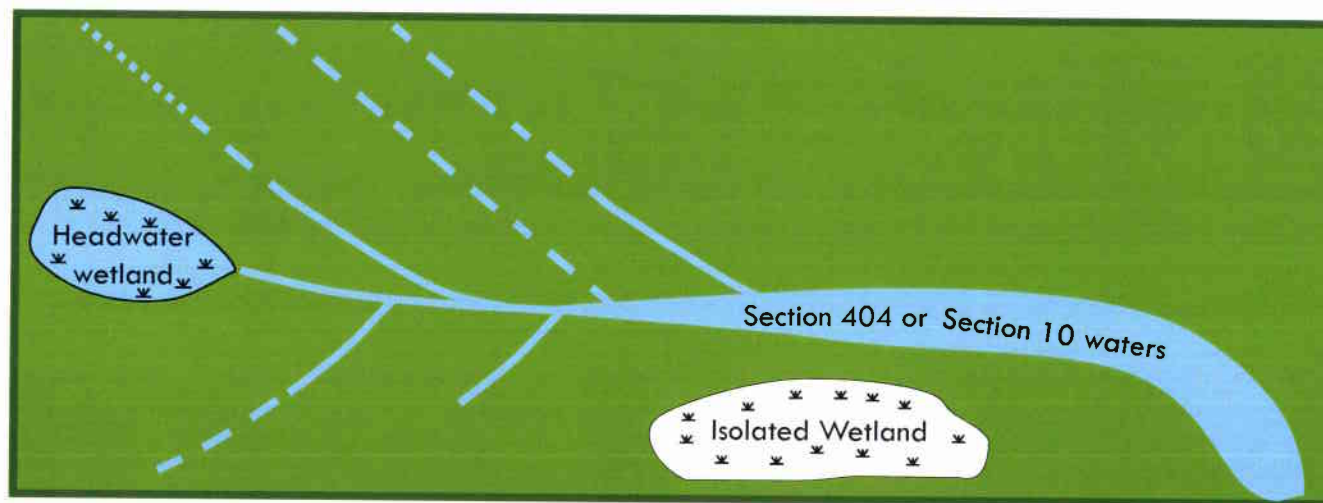
- A state 401 Water Quality Certification (WQC) is required for any federally permitted or licensed activity that may result in a discharge to Waters of the U.S.
- Federal Permits may include:
 - Section 404 Permits (Clean Water Act)
 - Section 10 Permits (Rivers & Harbors Act)
 - FERC and NRC Licenses

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

	Riparian Buffer Rules	State Stormwater (Coastal, HWQ and ORW) and Phase II	Water Supply Watershed Rules
Ephemeral Streams	No	No	No
Intermittent Streams	Yes	Yes	No
Perennial Streams	Yes	Yes	Yes
Isolated Wetlands	No	No	No
404 Wetlands	No	No	No
Coastal Wetlands	Yes	No	No

Is Mitigation Required?

	Federal		State	
	Yes/No	Threshold	Yes/No	Threshold
Ephemeral Streams	No	-	No	-
Intermittent Streams	Usually*	150 feet	Yes	150 feet
Perennial Streams	Yes	150 feet	Yes	150 feet
Isolated Wetlands	No	-	Yes	1 acre
404 Wetlands	Yes	0.1 acre	Yes	1 acre

* 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?

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

Questions?

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