Non-Point Source Nutrient Offset Credits and NPDES Wastewater Permits in NC

LNBA/NRCA August 2022

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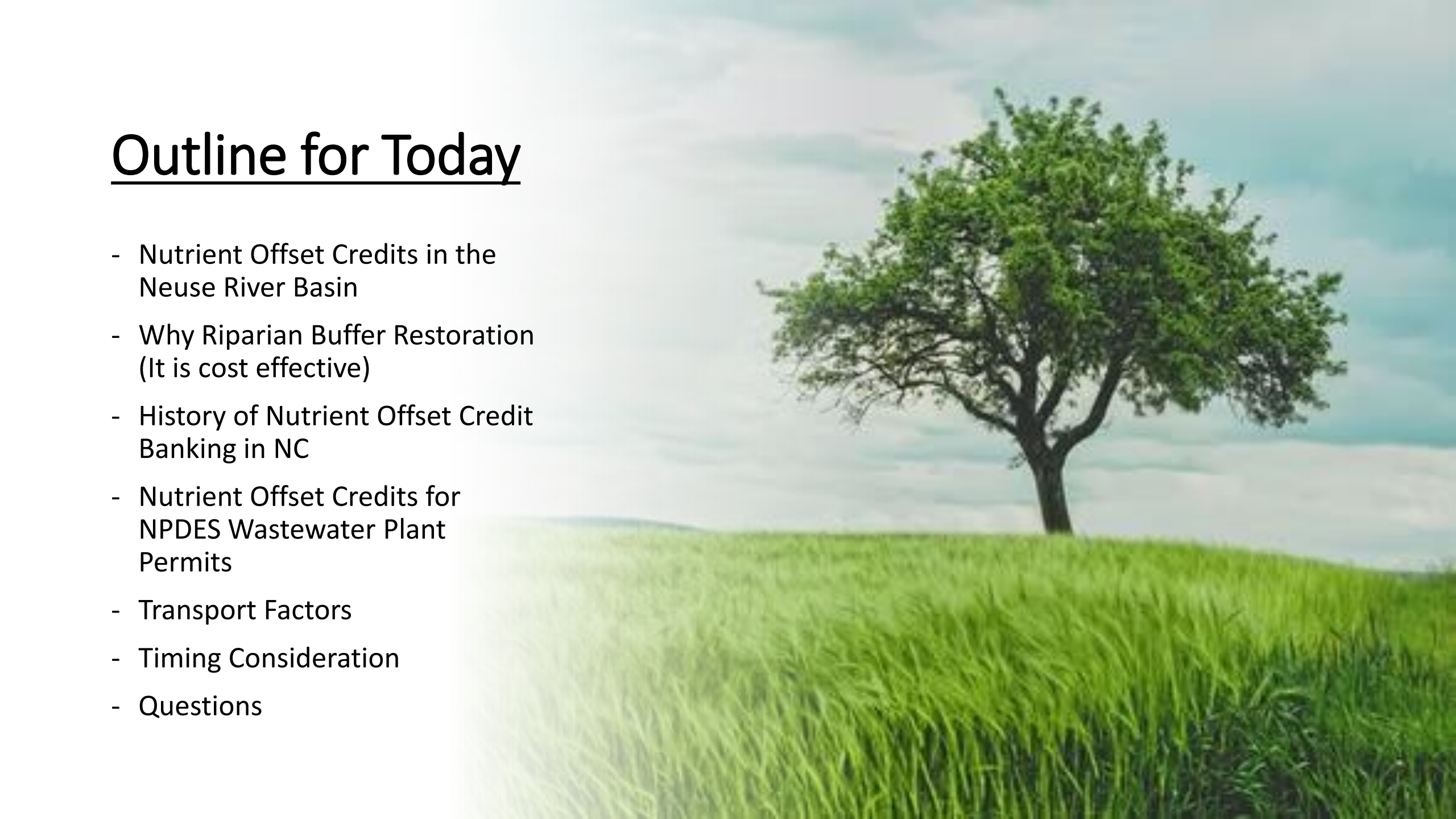
Outline for Today

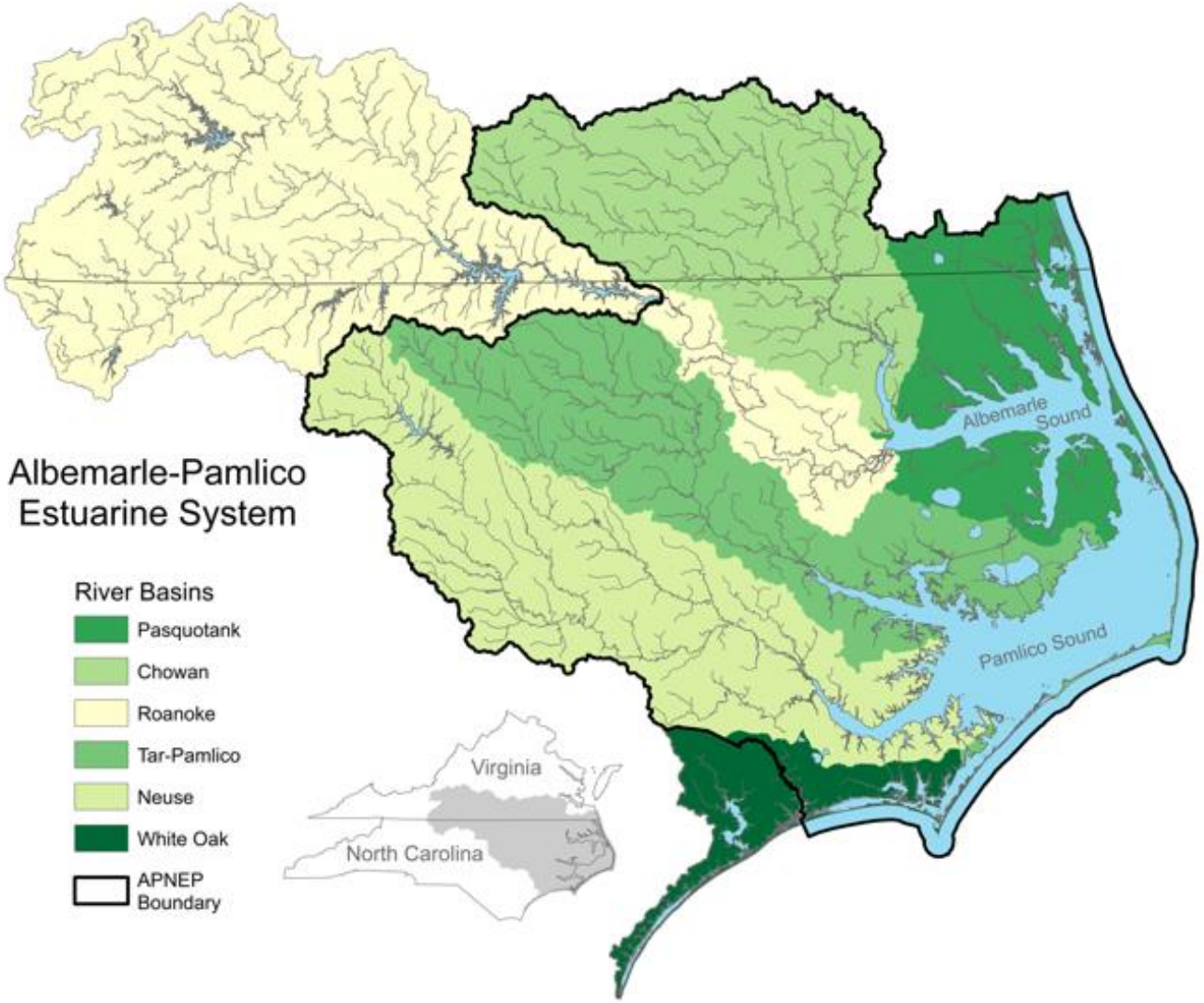
- Nutrient Offset Credits in the Neuse River Basin
- Why Riparian Buffer Restoration (It is cost effective)
- History of Nutrient Offset Credit Banking in NC
- Nutrient Offset Credits for NPDES Wastewater Plant Permits
- Transport Factors
- Timing Consideration
- Questions



Approximately 20 years ago…. TMDLs were developed in NC River Basins to manage nutrient loading to our estuaries

- Point Source: Wastewater regulations developed a cap-and-trade system, and the Neuse River Compliance Association permit was established with specific allocations, they also had the ability to use nutrient offset credits.

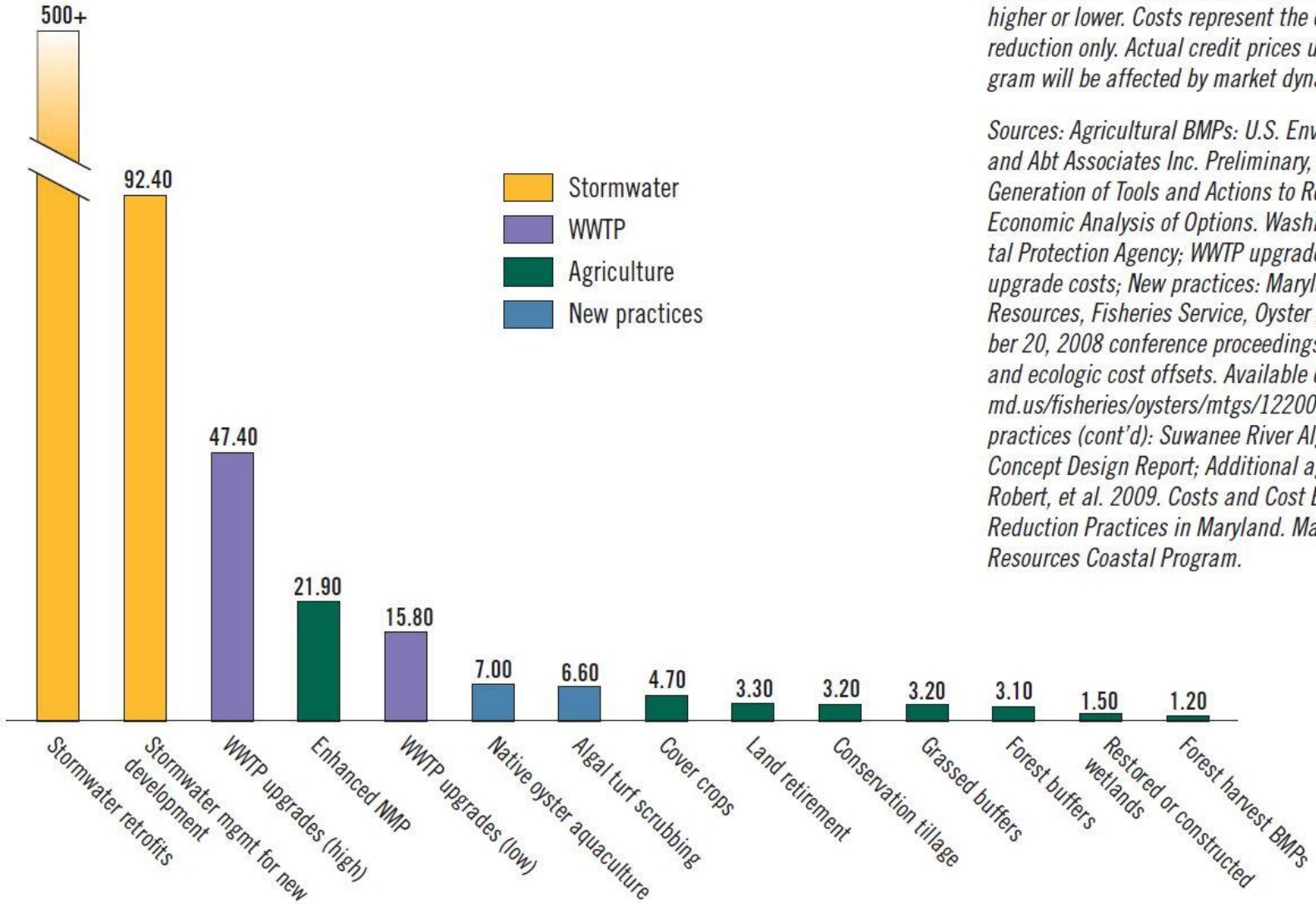
- Non-Point Source: Stormwater regulations allowed for In Lieu Fee payments to be made to NC Mitigation Program to provide offsite nutrient reductions if a portion of the reductions could not be met onsite. (*Payments based on cost of riparian buffer restoration*)



Why is Riparian Buffer Restoration the preferred Nutrient Offset approach?

FIGURE 1. Average Cost of Selected Nitrogen Reduction Measures

Dollars per pound of annual nitrogen reduction



Note: Cost estimates do not take into account the baseline or minimum practices that agriculture will have to implement prior to selling credits. Depending on which practices farmers implement first, the costs of agricultural nutrient reduction measures may be higher or lower. Costs represent the costs of achieving the nitrogen reduction only. Actual credit prices under a nutrient trading program will be affected by market dynamics of supply and demand.

Sources: Agricultural BMPs: U.S. Environmental Protection Agency and Abt Associates Inc. Preliminary, 2009. Chesapeake Bay: Next Generation of Tools and Actions to Restore the Bay: Preliminary Economic Analysis of Options. Washington, D.C.: U.S. Environmental Protection Agency; WWTP upgrades: WRI analysis using plant upgrade costs; New practices: Maryland Department of Natural Resources, Fisheries Service, Oyster Advisory Commission. December 20, 2008 conference proceedings: Oyster restoration economic and ecologic cost offsets. Available online at: http://www.dnr.state.md.us/fisheries/oysters/mtgs/122007/meeting122007.html; New practices (cont'd): Suwanee River Algal Turf Scrubbing System Concept Design Report; Additional agricultural BMPs from Wieland, Robert, et al. 2009. Costs and Cost Efficiencies for Some Nutrient Reduction Practices in Maryland. Maryland Department of Natural Resources Coastal Program.

NC Division of Mitigation Services ILF Rates for Nutrient Offset Credits in NC Watersheds

Service Area	2018	2022
Neuse basin 8-digit HUCs 03020202, 03020203 and 03020204	$13.37	$16.22
Neuse – 03020201 outside the Falls Lake watershed	$21.86	$26.63
Neuse - Falls Lake watershed	$10.52	$26.76
Tar-Pamlico basin	$8.28	$10.50
Jordan Lake watershed	$132.00	$120.72/Suspended

These rates are for stormwater permits which incorporate a 30-year component and do not consider an uncertainty factor applied to wastewater permits.

Source: https://deq.nc.gov/about/divisions/mitigation-services/dms-customers/current-rate-schedules


Nutrient Off-Set
Service Area
Durham
Cary
Raleigh
01
Wellons Nutrient Bank
Smithfield
Lane Nutrient Bank
Goldsboro
NEUSE
NATURAL RESOURCE
RESTORATION & CONSERVATION
NC's 1st DWQ Approved Nitrogen Bank
Friendly Service with a Quick Turnaround
Meet or Beat State Pricing
Special Discount Offered to NAHB Members
Volume Discounts Available
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Nutrient Offset Banking in NC Today

- Over 40 Nutrient Offset Credit Mitigation Banks in NC today
- Nutrient Offset Credits are primarily used for stormwater permits
- One municipality has added nutrient offset credits to their NPDES wastewater permit
- At least three municipalities are developing nutrient offset banks on their property
- At least two other NPDES wastewater permittees are contracted to acquire nutrient offset credits

Nutrient Offset Credits in NPDES Permit

NPDES Permit no. NC0025453

Table 3. Town of Clayton – TN Allocations and Offset Credits

SOURCE	ALLOCATION/ CREDITS AMOUNT		STATUS
	Estuary (lb/yr)	Discharge (lb/yr)	
Assigned by Rule	10,700	**21,400**	**Active**
Purchased from South Granville WSA (NC0026824)	3,668	7,336	Reserve
Purchased from UNIFI-Kinston (NC0003760)	1,645 716 929	3,290 **1,432** 1,858	Mixed **Active** Reserve
Purchased from RS-Flat Swamp, LLC Flat Swamp Mitigation Bank	15,908	31,816	Reserve
TOTAL	31,921 11,416 20,505	63,842 **22,832** 41,010	Mixed **Active** Reserve

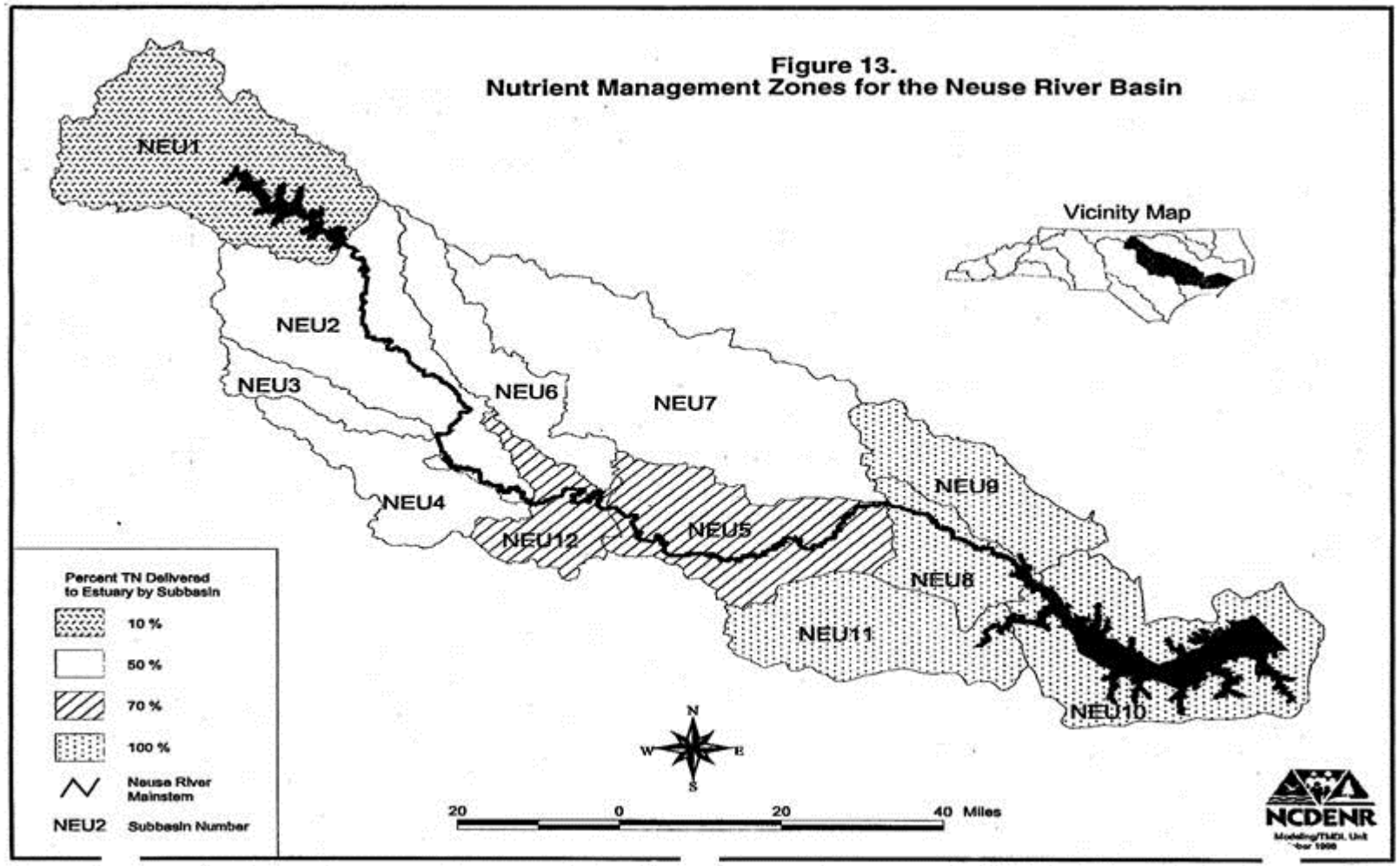
Nutrient Offset Credits in Stormwater vs Wastewater Permits

Clayton/Flat Swamp example

- Calculations. The Town purchased 715,858.18 lb of TN credits, equivalent to 23,862.94 lb/yr of credits for 30 years. The Neuse wastewater rule, 15A NCAC 02B .0713 (formerly 02B .0234) specifies an uncertainty ratio of 1.5:1, meaning that the Town must purchase 1.5 lb of credits for every pound required for its discharge. In other words, the Town can utilize 1/1.5, or two-thirds of the credits it is purchasing in this transaction:
- 2/3 of 23,862.94 lb/yr = 15,907.96 lb/yr available TN credits
- The remaining 7,953.98 lb/yr of credits are set aside to satisfy the uncertainty provision of Rule .0713 and cannot be applied to offset any activity, whether point source or nonpoint source in nature.
- The transport factor for the area in which the Flat Swamp Mitigation Bank is located is 100%; that for the Town of Clayton discharge is 50%. Per the 2020 Farm Bill, the amount of offset credits available at the Town's point of discharge is:
- 15,907.96 lb/yr (at estuary) x 100%/ 50% = 31,815.92 lb/yr (at point of discharge)

**Language from NPDES permit fact sheet*

Transport factors for wastewater permits



Neuse Transport Factor Applicability for NPDES use of Nutrient Offset Credits

SPECIFY THAT THE TMDL TRANSPORT FACTOR APPLIES WHEN OFFSETTING CERTAIN PERMITTED WASTEWATER DISCHARGES

- SECTION 15.(a) Notwithstanding 15A NCAC 02B .0701 (Nutrient Strategies Definitions), 15A NCAC 02B .0703 (Nutrient Offset Credit Trading), and 15A NCAC 02B .0713 (Neuse Nutrient Strategy: Wastewater Discharge Requirements), nutrient offset credits shall be applied to a wastewater permit by applying the TMDL transport factor to the permitted wastewater discharge and to the nutrient offset credits.
- *SECTION 15.(b) Subsection (a) of this section applies only to wastewater discharge permit applications for a local government located in the Neuse River Basin with a customer base of fewer than 15,000 connections*.
- SECTION 15.(c) No later than August 1, 2020, the Department of Environmental Quality, in conjunction with affected parties, shall begin the modeling necessary to determine new transport zones and delivery factors for the Neuse River Basin for point source discharges and nutrient offset credits. Once the Department has completed the modeling, the Environmental Management Commission shall use the modeling and other information provided during the public comment period to adopt new transport zones and delivery factors by rule. The Environmental Management Commission may adopt temporary rules to implement this section. SECTION 15.(d) This section is effective when it becomes law. Subsections (a) and (b) of this section shall expire when the rule required by subsection (c) of this section becomes effective.

- ***Exert from NC Session Law 2020-18***

NC Rule References on Timing for Nutrient Offset Credits used in NPDES Wastewater Permits

15a ncac 02b .0713 (8)(b) NEUSE NUTRIENT STRATEGY: WASTEWATER DISCHARGE REQUIREMENTS

- New facilities submitting an application shall acquire or demonstrate contractual agreement to acquire prior to authorization to discharge, nitrogen allocation from existing dischargers or nitrogen offset credits pursuant to Rule .0703 of this Section for the proposed discharge. The allocation and offset credits shall be sufficient for any partial calendar year in which the permit becomes effective plus 10 subsequent years of discharge at the proposed design flow rate in accordance with 15A NCAC 02H .0112(c).

15a ncac 02b .0703 NUTRIENT OFFSET CREDIT TRAINING

- (j)(3) Projects shall be approved and the associated offset credits released by the Division before they may be utilized for NPDES wastewater permit compliance purposes.

Timing

- Nutrient Offset Credits developed by restoring riparian buffers must be permitted by NCDWR. The resulting nutrient offset credits are then “released” for use in an NPDES permit over a five-year period following implementation of the restoration project.
- Nutrient Offset Credit permitting and NPDES Wastewater permitting do not follow the same timeline so coordination years in advance is required at this point.
- NCDWR *may* work with permittees on timing of nutrient offset “credit release” vs timing of NPDES permit. But, I’ll have to let you know how that goes in a few years…

Summary

- Nutrient offset credits have a long history of use with stormwater permits and are now being used with NPDES wastewater permits.
- Riparian buffer restoration continues to be the most cost-effective method of generating nutrient offset credits.
- Municipalities can acquire and develop nutrient offset credits for wastewater permit needs and several municipalities have proactively begun to do so.
- Transport factors, uncertainty factors, and timing continue to be important considerations.
- NCDWR is supportive of the use of nutrient offset credits but still sorting through some details in terms of timing regarding the release/permanency of nutrient offset credits and NPDES permits.

Questions?

Thank You!

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