



What It Takes to Do Nutrient Offset Banking in North Carolina

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Courtesy of Restoration
Systems

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What is Driving the Nutrient Offset Banking Industry?

- Nutrient Management Strategies to control point & non point sources of Nitrogen (N) and Phosphorous (P) to Waters

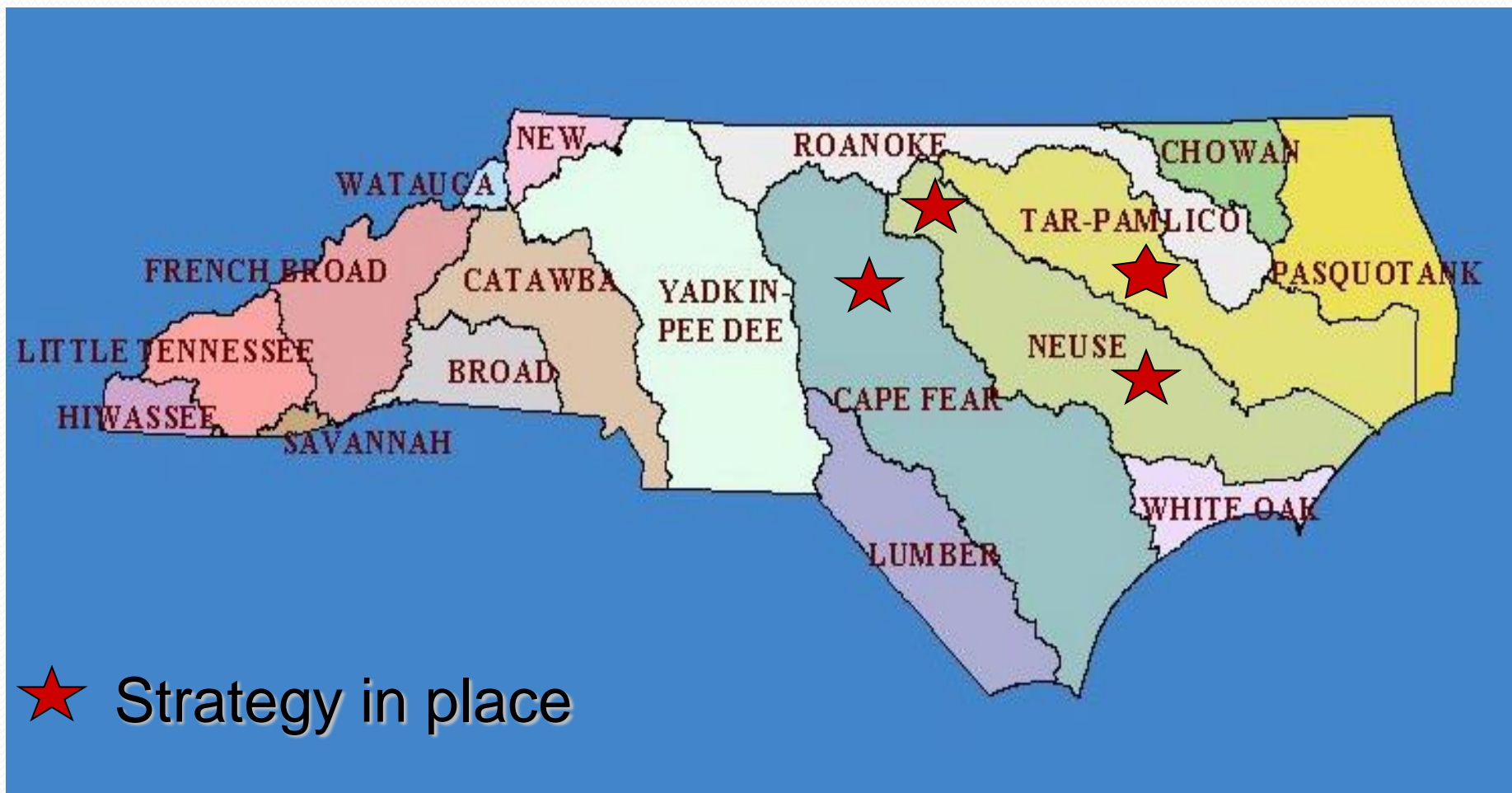


Neuse River Basin



Tar-Pamlico River Basin

NC Nutrient Management Strategies



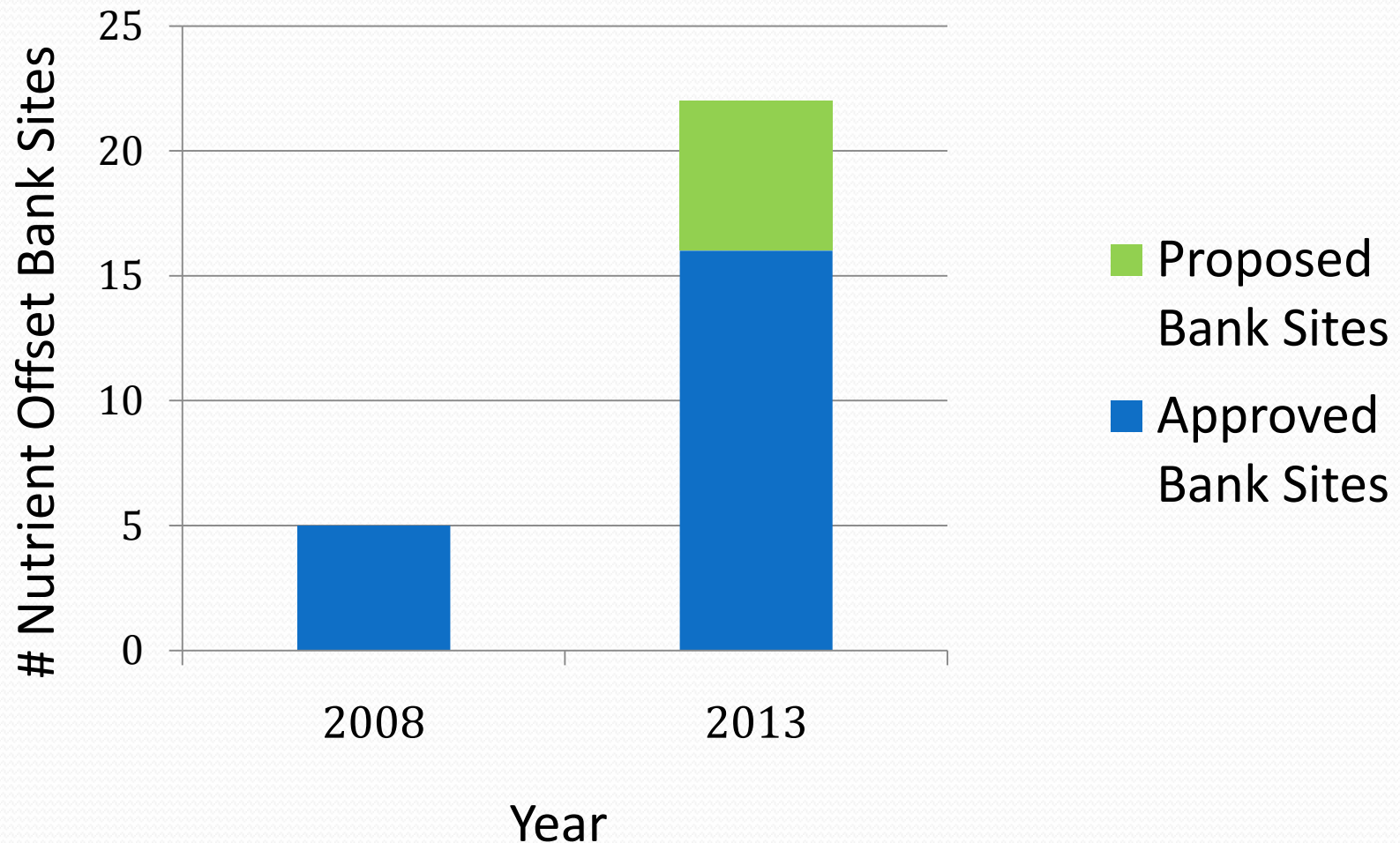
1997 (Neuse); 2000 (Tar-Pamlico); 2009 (Jordan); 2010 (Falls)

Nutrient Management in NC

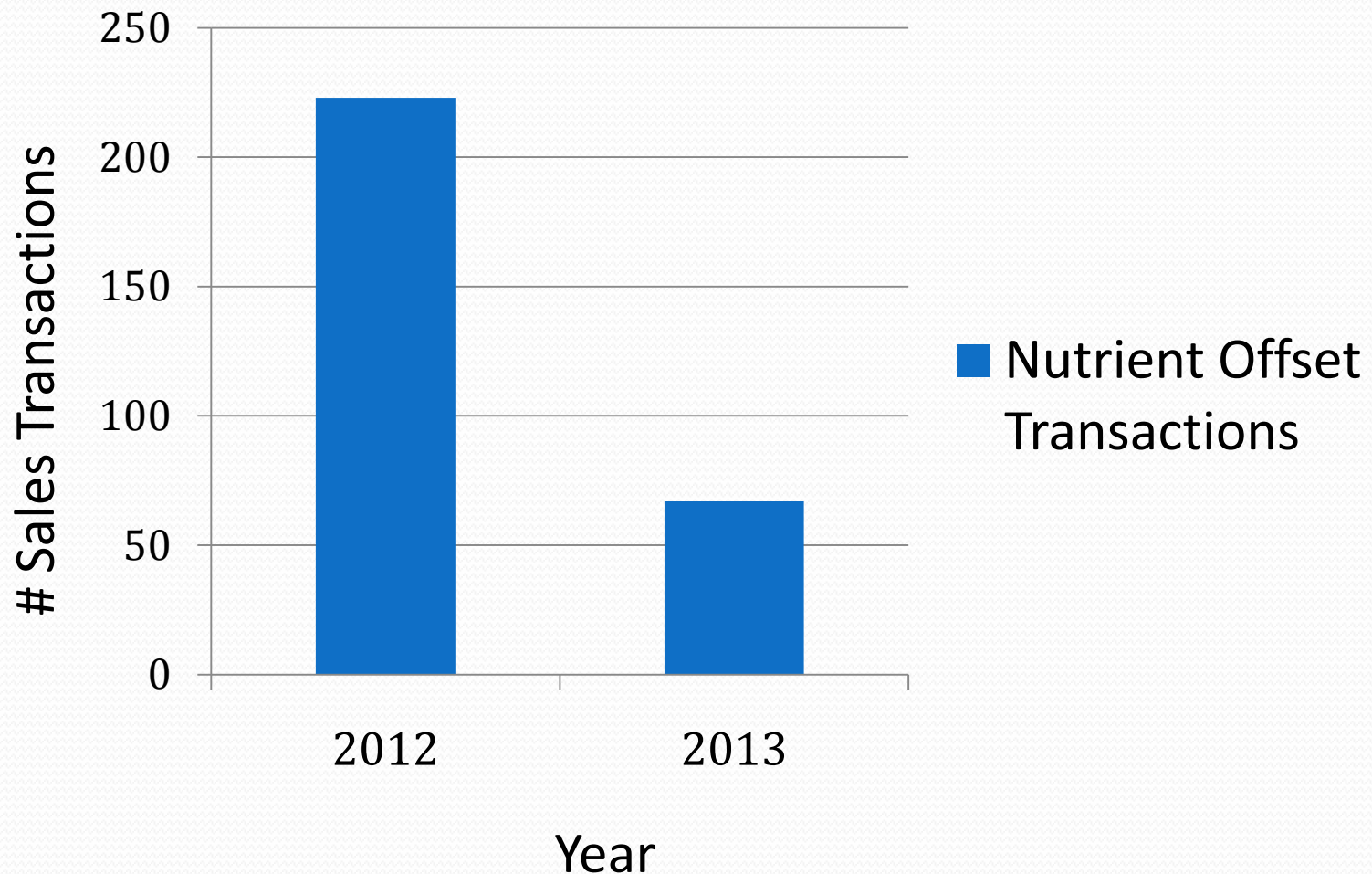


- Onsite Stormwater Best Management Practices (BMP)
 - Control & Treat
- Offsite nutrient reducing measure = “Nutrient Offset”
 - Permittee-provided
 - Nutrient Trading
 - North Carolina Ecosystem Enhancement Nutrient Offset In-Lieu Fee Program (NCEEP)
 - Mitigation Bank

An Emerging Market



An Emerging Market continued...

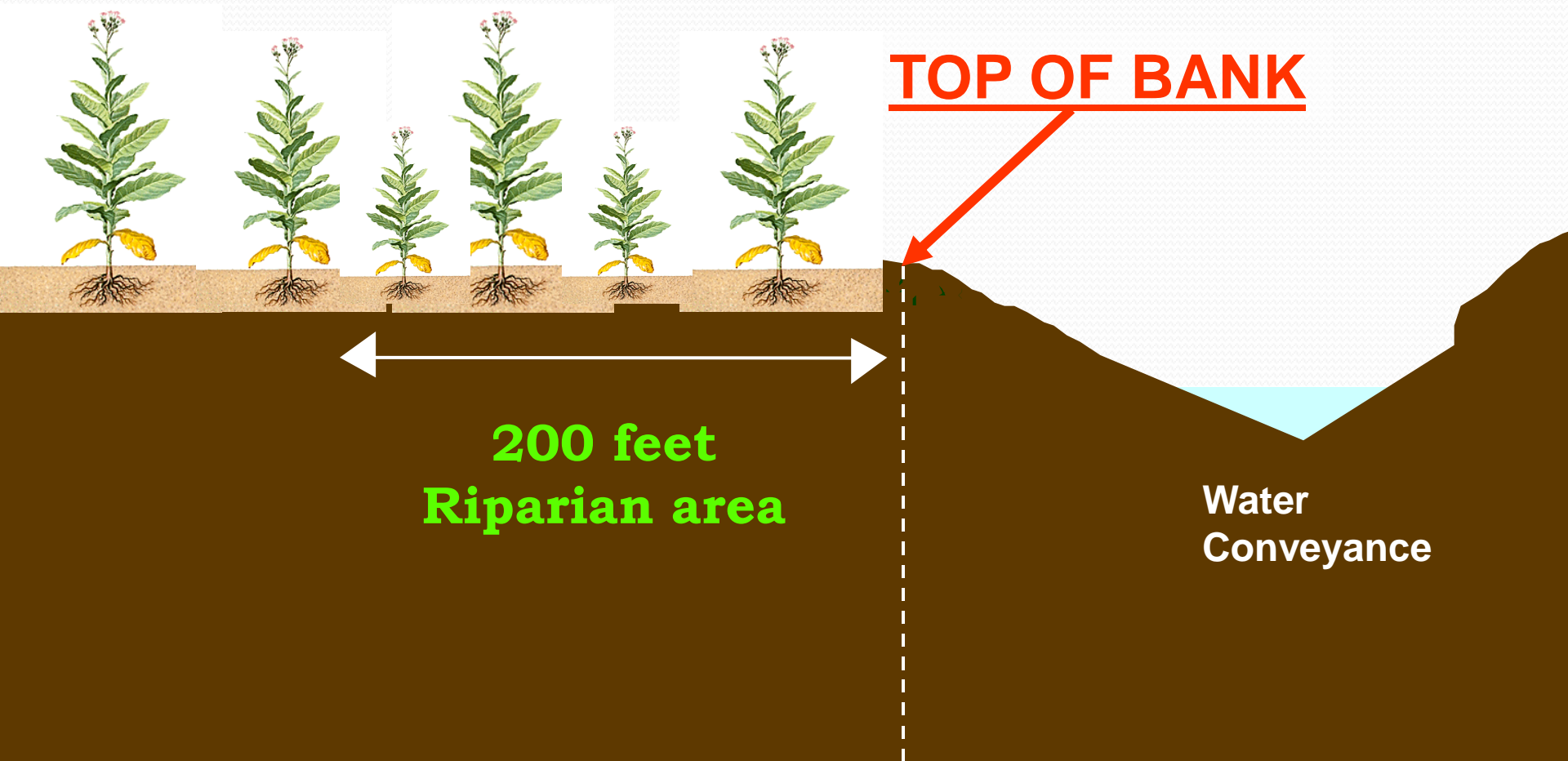


Nutrient Offset Mitigation Banks

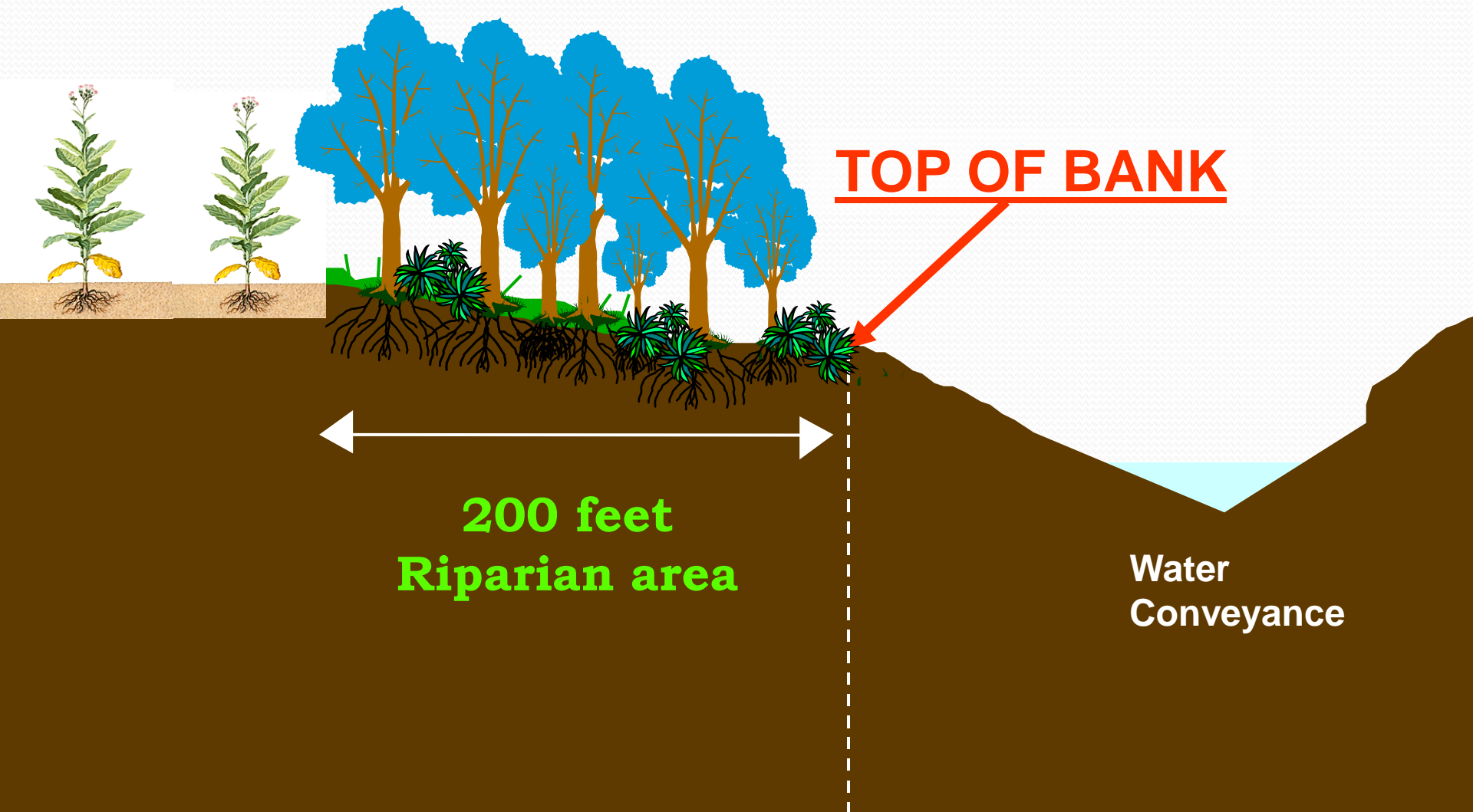
15A NCAC 02B .0240 - Procedures

- Geographic Restrictions on Nutrient Offset
- Nutrient Offset measure requires DWQ approval
- Stormwater Best Management Practice (BMP)
- Riparian Restoration along water conveyances (ephemeral, intermittent, perennial waters)

Nutrient Offset Mitigation (riparian area)



Nutrient Offset Mitigation (riparian restoration)



Why Restore Riparian Areas?

- Riparian buffers provide many benefits
 - **Remove nutrients**
 - **Filter stormwater runoff**

Photos courtesy of Restoration Systems



BEFORE BUFFER



AFTER BUFFER

Effectiveness of Riparian Area Restoration over 30 years

Nitrogen Removal

- 2,273.02 pounds/acre
- One pound = One credit

Phosphorous Removal

- 146.4 pounds/acre
- One pound = One credit



Photo Courtesy of USDA

Before Restoration



After Restoration
(mixed hardwood tree species & shrubs)



Photos Courtesy of GreenVest / Flat Swamp

Before Restoration



After Restoration



Photos Courtesy of Restoration Systems

How does a Nutrient Offset Banker get started?

First 4 ingredients before bank receives any offset credits

1. Umbrella Mitigation Banking Instrument (UMBI)
2. Bank Parcel Development Package (BPDP)
3. Conservation Easement
4. Pre Construction Financial Assurance



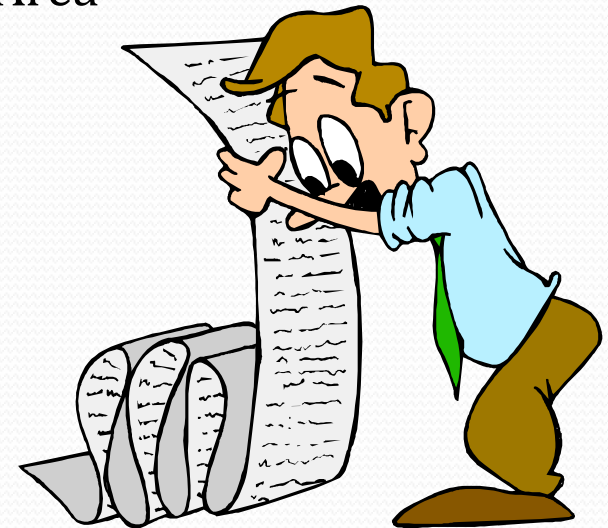
NO IRT REVIEW FOR NUTRIENT OFFSET
BANKING IN NC

1. Umbrella Mitigation Banking Instrument (UMBI)

- Outline procedures for Nutrient Offset Banking in NC

Required Elements:

- Bank Information & Geographic Service Area
- Applicable Rules/Regulations
- Basic Site Eligibility Criteria
- Financial assurance
- Monitoring
- Long term protection
- Credit release schedule
- Credit Sales

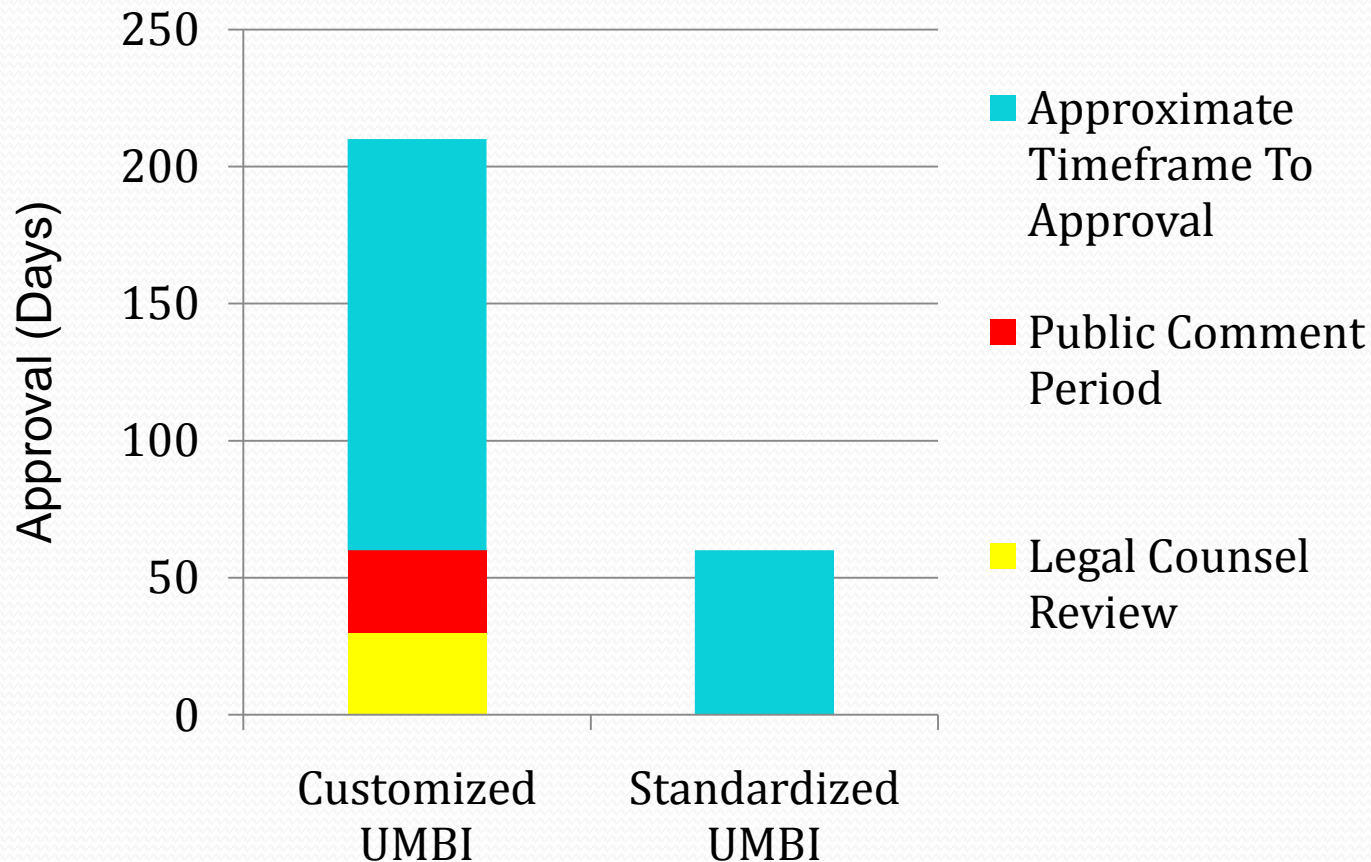


Standardized UMBIs Are Helpful

- Benefits
 - Involvement with stakeholder groups (government, public, private, academic)
 - Predictable
 - Increase Efficiency

Not required, but highly recommended!

Standardized UMBIs Increase Efficiency



2. Bank Parcel Development Package (BPDP)

- Site-Specific Details of Mitigation Site
Required Elements:

- Mitigation site location
- Existing land use
- Proposed load reducing measure
- Endangered Species Information
- Monitoring and maintenance plans;
- Size of the mitigation site (in acres)



Photos Courtesy of Environmental Banc & Exchange

3. Conservation Easement

- Long term protection of Nutrient Offset
(15A NCAC 02B .0240)
- Restricted Activities include:
 - no roads, no mowing, no vehicles, no land structures
- Allowed Activities include:
 - hiking, hunting, fishing, wildlife viewing
- Assign to land trust

Template highly recommended!

4. Financial Assurance

- Performance Bond for Pre Construction costs
- Division of Water Quality is the beneficiary



2008/3/3

Photos Courtesy of
Restoration Systems

First 4 ingredients before bank receives any offset credits

1. UMBI ✓
2. BPDP ✓
3. Conservation Easement ✓
4. Pre Construction Financial Assurance ✓



Credit Release Schedule

- A list of project milestones for Bank
- % of credits released for milestones completed
 - 9 Tasks = 100% released credits

Task	Project Milestone	% Credit Available for Sale
1	UMBI & BPDP Approved, Conservation Easement Recorded, Financial Assurance Posted	20

Build the Bank, sell the credits!

- Provide DWQ with CREDIT/DEBIT Ledgers (15A NCAC 02B .0240)
- Comply with geographic restrictions in regulations

Ledger Template Recommended

Where can credits be sold?

- Same hydrologic area where nutrient loading takes place (e.g. New Development)
 - 8-digit Hydrologic Unit Code (HUC)
 - Sub-watershed/drainage area



Online Tools & Outreach

- **Templates**

- UMBI
- Credit Ledgers
- Sales' Receipts (between Bank & Client)

- **Bank Information**

- UMBIs
- Credit Ledgers
- Maps
- Contacts sales

- **Flowcharts**

- **Annual Meetings**





Thank You

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Photos Courtesy of Restoration
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