



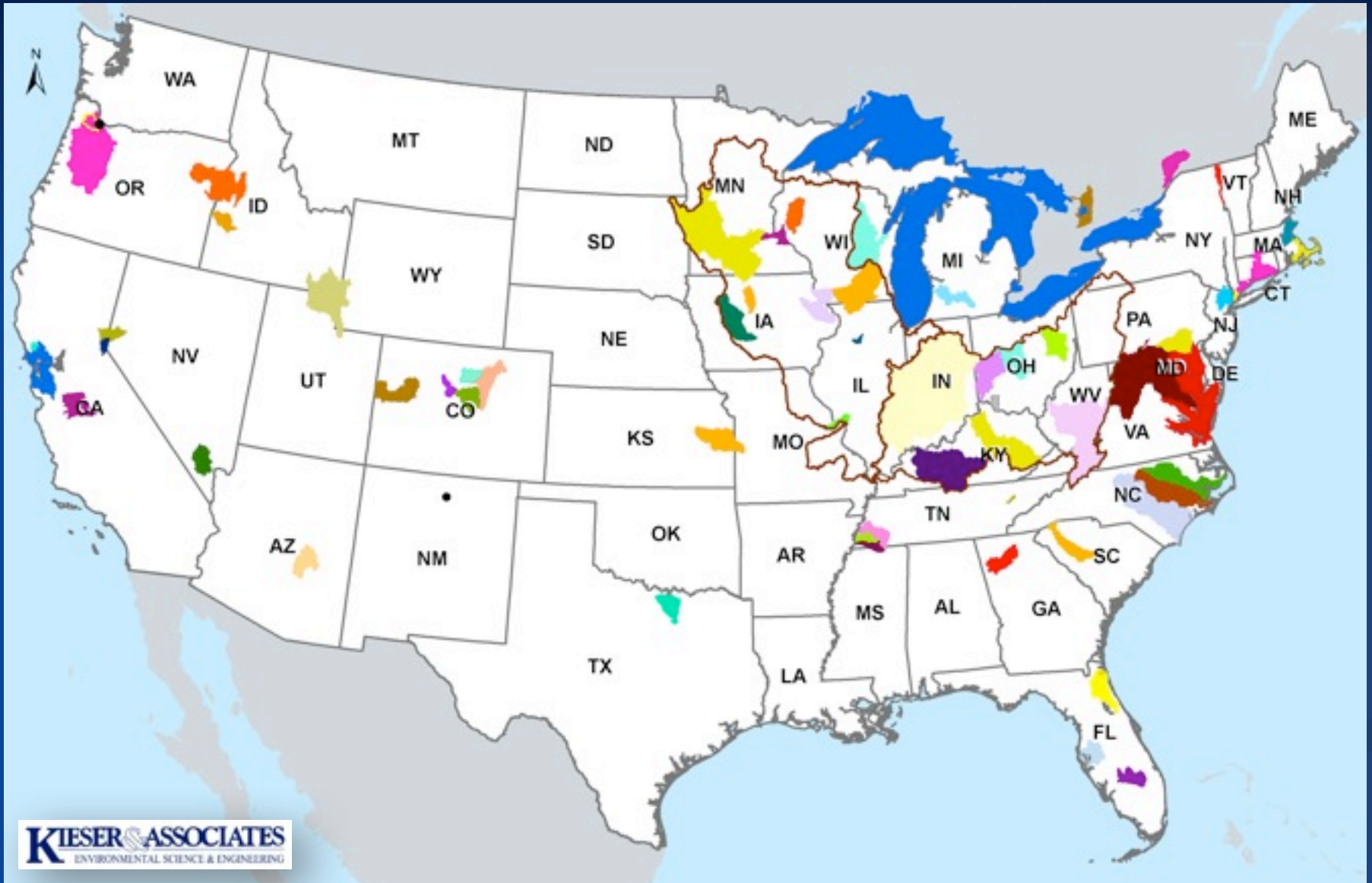
ACCOUNTING FOR GROWTH NUTRIENT OFFSETS

Environmental Banc & Exchange, LLC

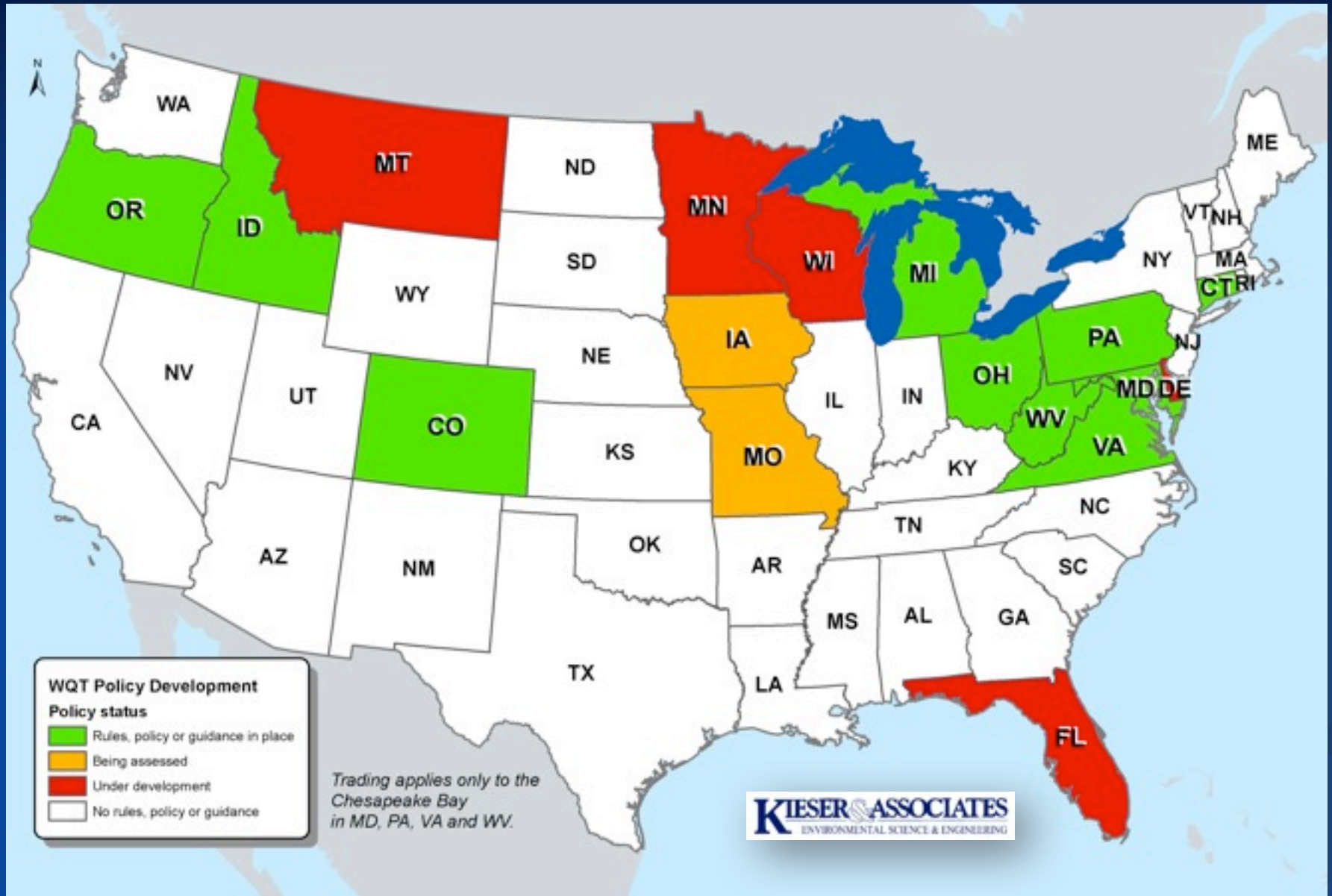
George W. Kelly
Member of Support Team

February 15, 2013

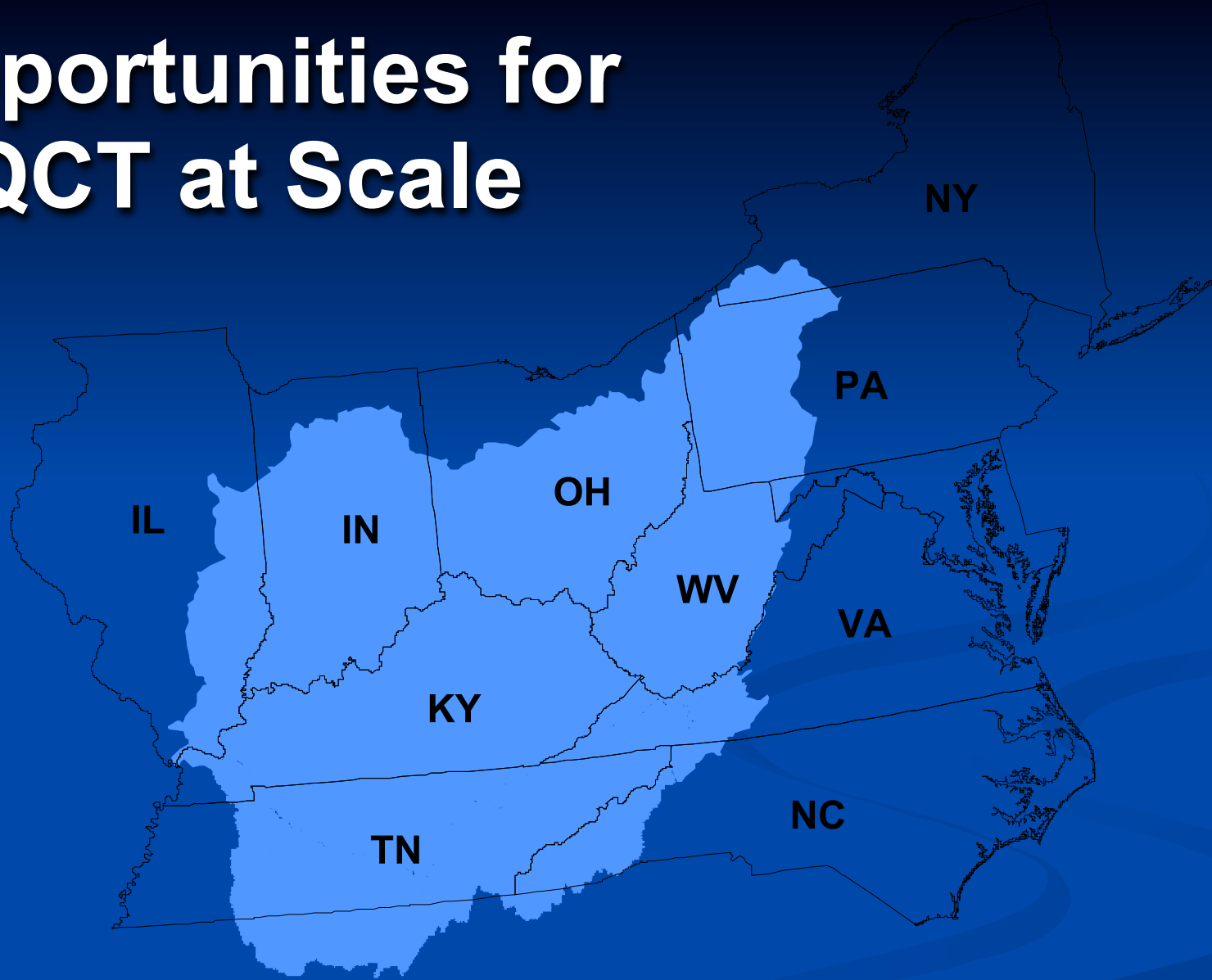
Trading Programs



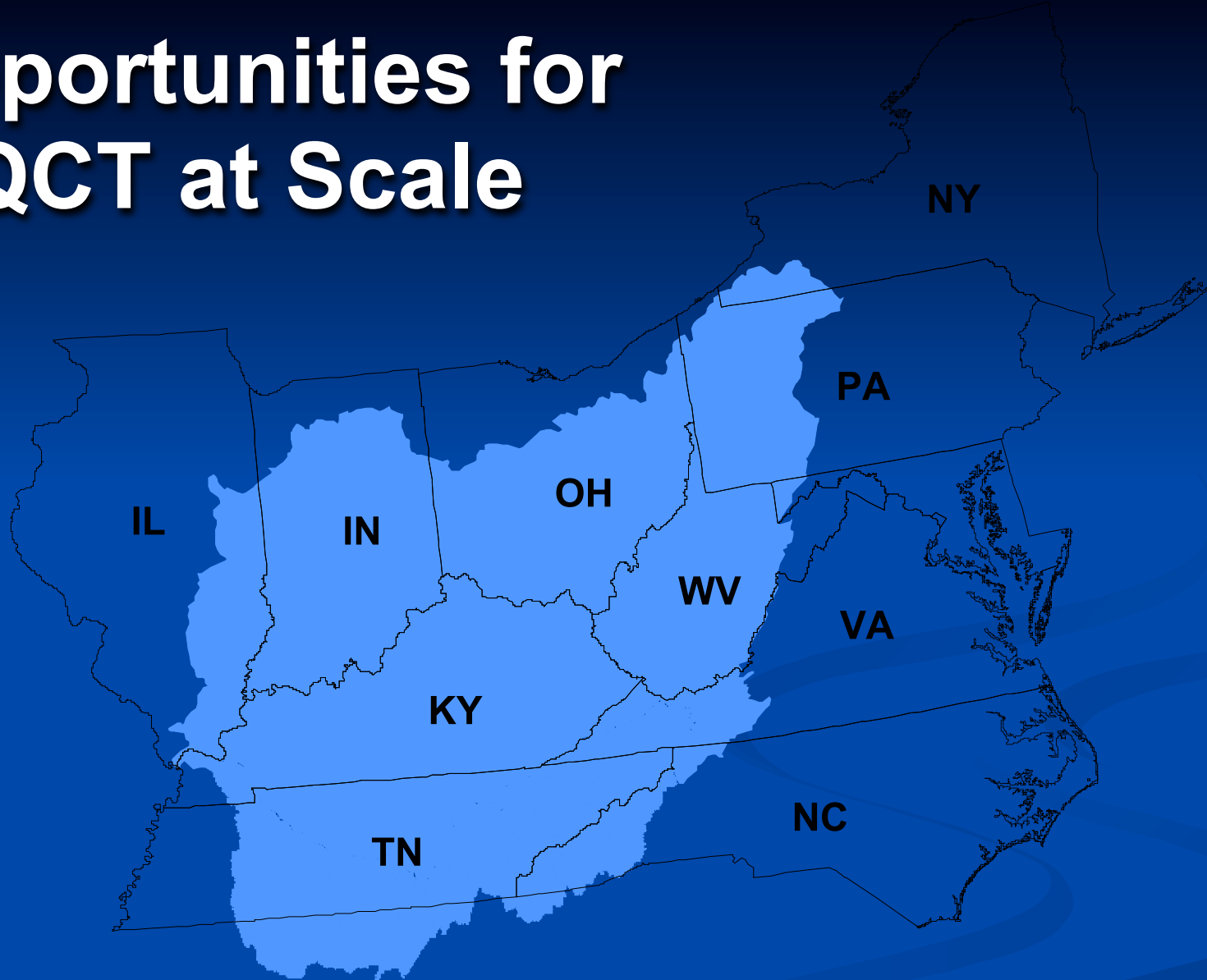
State-Wide Programs



Opportunities for WQCT at Scale



Opportunities for WQCT at Scale



Regional Water Quality Trading
in the Ohio River Basin

Chesapeake Bay Perspective

Current Number of
Trading Areas

PA	2
MD	3
VA	5
WVA	1
DE	1

12 Separate
Trading Areas



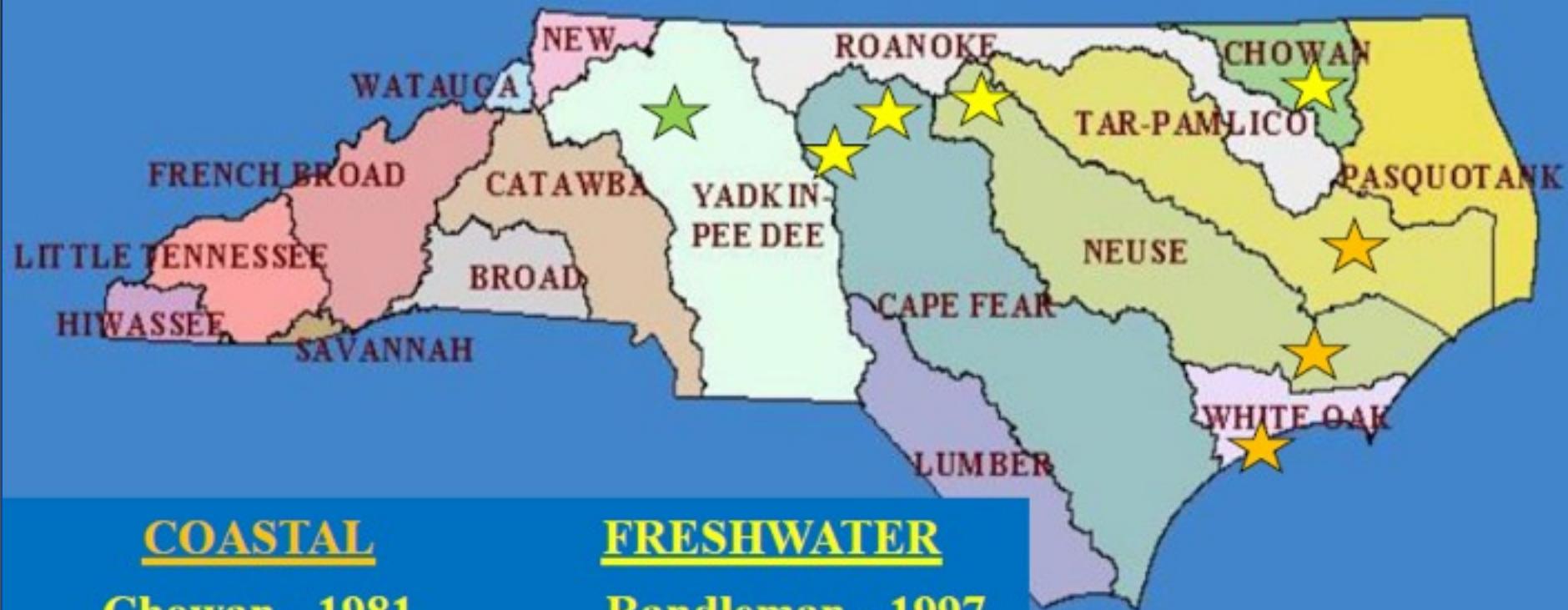
Focus on Nutrient Trading to Offset Growth

Two programs of interest:

- NC
- VA



NC Nutrient Management Strategies



COASTAL

Chowan - 1981

New - 1991

Neuse - 1998

Tar-Pamlico - 2001

FRESHWATER

Randleman - 1997

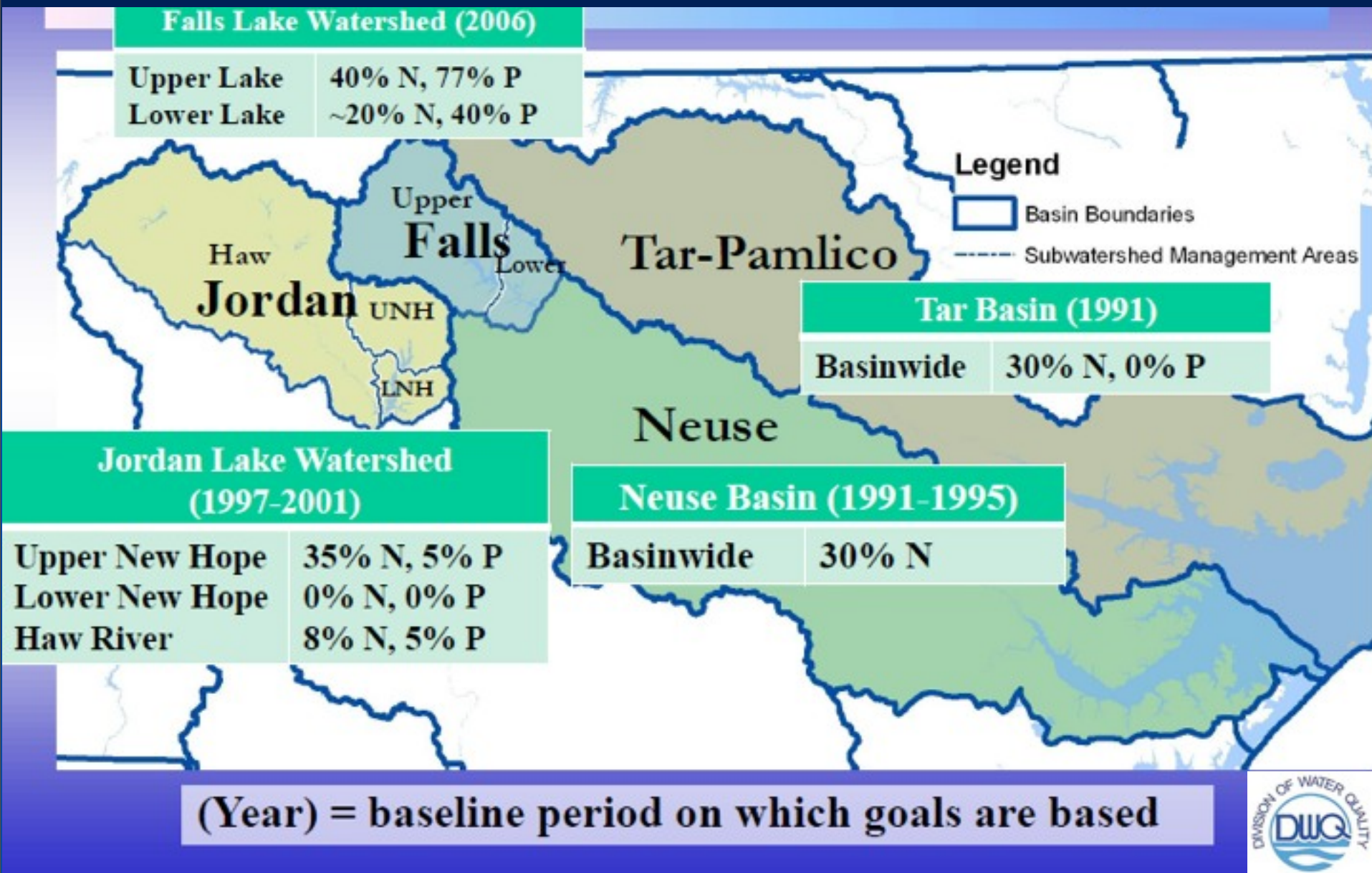
Jordan - 2009

Falls - 2011

PENDING: High Rock



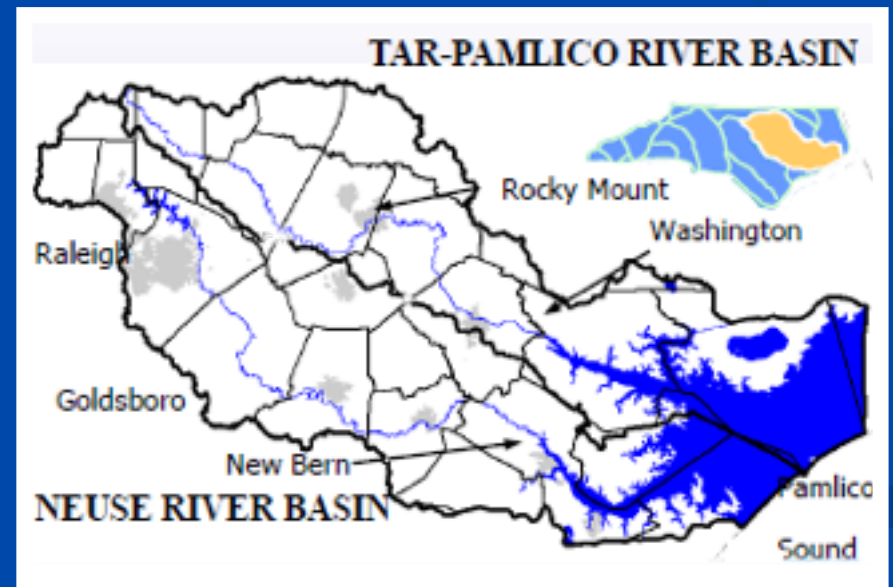
Goals for Major Nutrient Strategies



Neuse and Tar-Pamlico Strategies

First 'comprehensive' nutrient regulations in NC

- Wastewater discharges – WWTP's
- New Development stormwater
- Agriculture
- Riparian areas protection
- Fertilizer management
- Nutrient offset fees



New Development Stormwater Rules

- Local governments administer
- Disturbance thresholds
- N&P loading rate targets
- Redevelopment option – goal %'s vs. pre
- Offsite options: private banks, EEP, self



Loading Rate Targets & Onsite Requirements Compared

Watershed	Strategy Goals (%N/P)	N/P Targets (lb / ac / yr)	N/P Offsite Thresholds (lb / ac / yr)
Neuse	30	3.6	6/10
Tar-Pamlico	30/0	4.0 / 4.0	6/10
Jordan <ul style="list-style-type: none"> • Upper New Hope • Haw 	35/5 8/5 0/0	2.2 / .82 3.8 / 1.43 4.4 / .78	6/10 1 BMP onsite minimum
Falls	40 / 77	2.2 / .33	> 50% onsite > 30% onsite < 1 ac > 30% onsite downtown redevelopment



Offsite Options

- Private offset banks
 - Since 2007
 - Since 2009 – primacy by HUC
 - State law – if bank exists, then cannot pay into EEP
- NC Ecosystem Enhancement Program
(published rates; only if banks do not exist)
- Self-secured reductions
- Vast majority to date – riparian buffer restoration
(up to 200' from top of bank)



Credit Yield Estimation Method Riparian Buffer Restoration

Formula developed ~ 1998 by DWQ, WRP

— Originally for riparian wetland restoration in Neuse Basin

Benefit Type	Nitrogen Reduction
Treatment of NPS	62.5
Footprint land use	9.9
Overbank flooding	3.3
Total	76
30 Year Total	2,273



NC – Development Process

- Applicant seeks stormwater permit for local government (county or municipality)
- Project nutrient loading calculated
 - Minimum onsite target
 - Calculate offsite needs
- Local government issues letter on total offset needs
- Applicant checks availability of nutrient banks and if not, pay to EEP
- Applicant provides receipt of payment to local government and government issues stormwater permit
- Payment for nutrient credits for 30 years – up front (one-time payment) (issues of administration)



NC – Nutrient Offsite Banks

- Approval process with DWQ
 - No double counting
 - Lifetime assurances
 - Permanent easement on land
 - Site review, lifetime access
 - Credit ledger
 - Instrument: location, boundaries, service area, drainage conditions, type of measure, calculation, legal protection, parties, plan, as-built, performance bond, success criteria, M&M



NC – Nutrient Offsite Banks (cont'd)

- No baseline requirement
- Service area – 8-digit HUC or narrower
- Credit exclusive to permittee / payor
- Credit release schedule:

Table I - Credit Release Schedule for Nutrient and Riparian Buffer Credits		
Task	Project Milestone	% Credit Available for Sale
1	Bank Parcel Development Package Approved by DWQ, Conservation Easement or Restrictive Covenants	20
2	Mitigation Site Earthwork, Planting and Installation of Monitoring Devices Completed	20
3	Approval of As-Built Report and Monitoring Bond Purchased	10
4	Monitoring Report #1 to DWQ Approval (meets success criteria)	10
5	Monitoring Report #2 to DWQ Approval (meets success criteria)	10
6	Monitoring Report #3 to DWQ Approval (meets success criteria)	10
7	Monitoring Report #4 to DWQ Approval (meets success criteria)	10
8	Monitoring Report #5 to DWQ Approval (meets success criteria)	10
Total		100%

- Permanent protection (although 30 years of credit)
- Sell both N and P separately



Virginia

- Two types of trading
 - 1) PS under VPDES Watershed Permit
 - 2) NPS for offsetting new or expanded discharges and new development
- Focus on second type of trading



VA Watershed Nutrient General Permit Highlights

- Calendar year annual TN and TP load limits
- Cap & Trade Program
- “Bubbling” or aggregate permits
- Point Source-to-Point Source trading for existing facilities to meet initial load cap
- Point Source-to-Nonpoint Source trading reserved to accommodate new and expanding facilities



Offsetting New and Expanded Facilities

- Any new or expanded discharge $\geq 40,000$ gpd after 7/1/05 must acquire waste load allocations sufficient to offset any increase in delivered loads and meet the appropriate technology requirement.
- Allocations shall be acquired from...
 1. One or more permitted facilities in the same tributary
 2. Acquisition of NPS load allocations through the use of BMPs. BMPs must exceed baseline threshold and be included in the individual VPDES permit.
 3. Allocations purchased from the Water Quality Improvement Fund
 4. Other means as approved by DEQ on a case-by-case basis



History of Non-Point Source Nutrient Offsets in VA

- January 2008 –Ag BMP Offset Guidance
- August 2008 -Virginia's first non-point source nutrient bank approved:
 - Chesapeake Bay Nutrient Land Trust, LLC
- Limited offset demand in the James Basin
- March 2009 –General Assembly approves nutrient offset program provisions of VA Stormwater Management Act
- July 2009 –VA Soil and Water Conservation Board approves stormwater nutrient offset implementation procedures



History

- 2011 (SB 1099) “any locality that has adopted a local stormwater program...” shall allow offsite options, if:
 - Onsite control of at least 75% of P reductions or meet applicable onsite criteria; or
 - Less than 5 acres of land disturbed or less than 10 lbs / P / year discharged
- 2012 (SB 77 and HB 170) expands programs and outlines process for certifying and registering nutrient credits
 - DCR / DEQ – establish clear regulations for credit certification and establishment of baselines;
 - Anticipate expansion to include NPS trading for MS-4, CAFO's, onsite waste systems; and
 - Reevaluate 2:1 ratio for PS – NPS trading



Trading Nutrient Reductions



Trading Nutrient
Reduction from
Nonpoint Source
Best Management
Practice in the
Chesapeake Bay
Watershed:
Guidance for
Agricultural
Landowners and
Your Potential
Trading Partners



Ag Baseline BMP Requirements

Implementation of.....

- Soil Conservation Plan
- Nutrient Management Plans
- Cover Crops
- Livestock Stream Exclusion w / 35' buffer
- 35' Riparian buffer



Ag BMP Enhancements to Generate Credits

Implementation of...

- Soil Conservation Plan – Continuous No – Till
- Nutrient Management Plans – 15% N reduction on corn
- Cover Crops – Early planting date
- Livestock Stream Exclusion w / 35' buffer – Increase size
- 35' Riparian buffer – Increase size
- Land Conversion

2:1 trading ratio
It takes a lot of land!



BMP LOOK UP TABLE

James Basin BMP's: Single BMP

BMP	West of I-95		East of I-95	
	TN	TP	TN	TP
Early Planted Cover Crops	0.54	0	0.91	0
15% Nitrogen Reduction on Corn	1.75	0	3.70	0
Continuous No – Till	1.05	0.49	1.13	0.19

James Basin BMP's: Combination BMPs

BMP	West of I-95		East of I-95	
	TN	TP	TN	TP
Early Planted Cover Crops and 15% Nitrogen Reduction on Corn	2.14	N/A	4.29	0
Early Cover Crop and continuous No - Till	1.38	0.49	1.66	0.19
15% Nitrogen Reduction on Corn and continuous No - Till	2.53	0.49	4.46	0.19
Early Cover Crops and 15% Nitrogen Reduction on Corn and Continuous No – Till	2.86	0.49	4.99	0.19

James Basin Land Conversion

BMP	West of I-95		East of I-95	
	TN	TP	TN	TP
Cropland to Forest	5.48	1.22	9.34	0.93
Cropland to Hay	4.05	0.60	3.45	0.36
Cropland to Mixed Open (fallow)	3.44	0.33	3.08	0
Hay to Forest	3.28	0.98	13.35	2.16
Hay to Mixed Open (fallow)	1.24	0.09	7.09	0.47
Pasture to Forest	0.67	0.50	13.33	1.74



Nutrient Offset Banks

- Must meet baseline
- Service area is tributary or may be narrowed to 8-digit HUC
- NPS funded with government funds cannot be traded; can be used for baseline
- If buy P, must also retire N credits associated with P (more expensive)
- NPS must be secured in perpetuity
- Requires 6% fee into Virginia stormwater management fund
- Ratio: 1:1 for new development; 2:1 for PS expansion (being evaluated)



Nutrient Offset Banks

- One practice – land conversion has been the only practice used to date
- Practice must be installed before credit generated
- Credit must be generated prior to land disturbance
- Credits must be permanently protected
- NRIP: Nutrient Reduction Implementation Plan
- Between July 2011 – November 2012 – sale of 24.45 lbs. of P
- Pricing range between \$15,000 - \$25,000 lb/P depending on tributary and location
- Seven banks created in various tributaries



Summary

- NC: N is primary market
VA: P is primary market
- NC: high credits per nitrogen reduction from buffer is a key variable for keeping prices lower
- Virginia's requirement to retire N with P has a major bearing on price because cannot sell separately
- Permanent easements / restrictive covenants have significant impact on pricing of credits because it is tied to the value of land in the region
- One-time / up-front payment provides administrative ease; reduced future concerns about accountability; and certainty in costs



CONTACT INFORMATION

Environmental Banc & Exchange, LLC

10055 Red Run Boulevard, Suite 130

Owings Mills, MD 21117

Phone: (410) 356-5159

Fax: (410) 356-5822

George Kelly

george@ebxusa.com

www.ebxusa.com

137½ Main Street, Suite 210

Oak Hill, WV 25901

Phone: (304) 465-4300

Fax: (304) 465-4302

909 Capability Drive, Suite 3100

Raleigh, NC 27606

Phone: (919) 829-9909

Fax: (919) 829-9913

1514 S. Church Street,

Charlotte, NC 28203

Phone: (919) 829-9909

Fax: (919) 829-9913

604 Greene Street

Camden, SC 29020

Phone: (803) 432-4890

Fax: (803) 236-5123