

Innovative Financing Strategies for Reducing Nutrients Webinar Series

STORMWATER FINANCING SOLUTIONS FOR NUTRIENT REDUCTIONS



July 24, 2019

Agenda



- Welcome and Agenda Overview
- How to Participate in the Webinar
- Webinar Series: Innovative Financing Strategies for Reducing Nutrients
- Opening Polls
- Featured Presentations:
 - **Environmental Incentives**
Chad Praul, Partner
 - **Virginia Department of Environmental Quality**
Derick Winn, Nonpoint Source Trading Coordinator
- Q&A
- Adjourn

How to Participate in the Webinar



The **Q&A window** allows you to ask questions to the host and panelists.

To adjust your audio settings in the webinar, click on **Audio Options**.



Send a **chat to the host** (Darcy Peth) if you have a technical issue.

Webinar Series: Innovative Financing Strategies for Reducing Nutrients



- This is the fourth in a four-part webinar series featuring case studies of successful approaches from across the country for funding nutrient reductions.
 - July 24: Stormwater Financing Solutions for Nutrient Reductions
- For more information on this webinar series, please contact waterfinancecenter@epa.gov.

Opening Poll #1



- What type of organization are you from?
 - Utility
 - Local government (not a utility)
 - State government
 - Federal government
 - Nongovernmental organization
 - Agricultural organization
 - Other

Opening Poll #2



- What is your experience/familiarity with financing for nutrient reductions?
 - Funded one or more nutrient reduction projects in the past
 - Have nutrient-reduction initiatives/projects and looking for additional funding/financing
 - Do not have immediate projects to fund, but interested to learn more
 - Familiar with potential financing opportunities, but would like to learn more
 - No or very little experience/familiarity with the topic



Improving Return on Nutrient Treatment Investments

Chad Praul

Partner, Environmental Incentives LLC



Chad Praul
Environmental Incentives LLC

A FUNDING & PARTNERING STRATEGY PORTFOLIO

IMPROVING RETURN ON NUTRIENT TREATMENT INVESTMENTS

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Environmental
Incentives 

THE PROGRAM MANAGER'S CHALLENGE



THREE TYPES OF STRATEGIES TO ANSWER THE CHALLENGE



Increase funding
and its
effectiveness

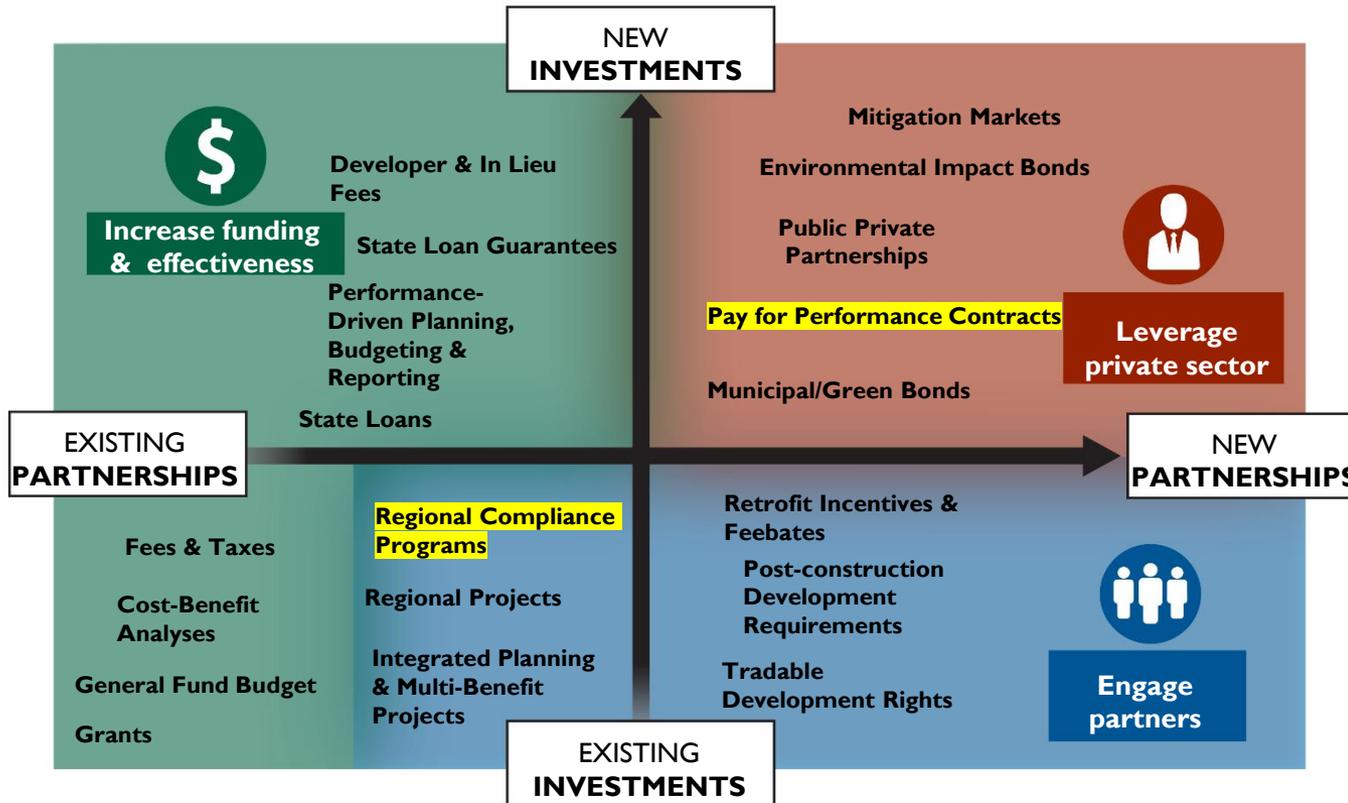


Engage partners to
help implement



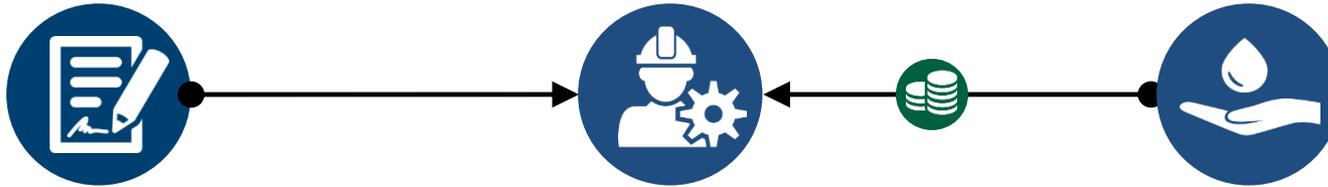
Leverage the
private sector

PORTFOLIO OF FUNDING & PARTNERING STRATEGIES



EXAMPLE STRATEGY: PAY FOR PERFORMANCE

TRADITIONAL PROJECT PROCUREMENT APPROACH

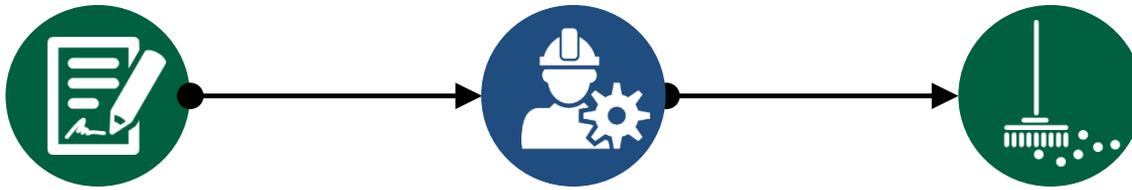


1. Contract establishes scope of work

2. Implementer executes project

3. Permittee continuously reviews & reimburses for actions throughout implementation

PAY FOR PERFORMANCE

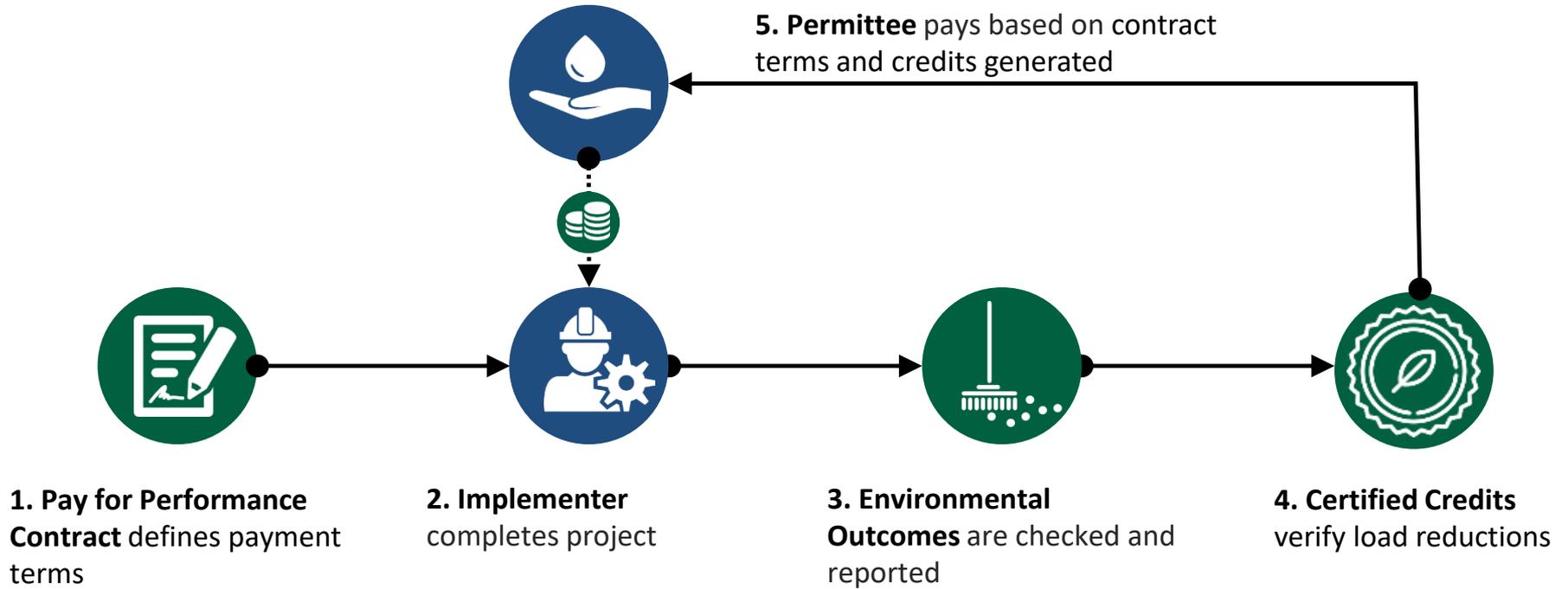


1. Pay for Performance
Contract defines payment terms

2. Implementer
completes project

3. Environmental
Outcomes are checked and reported

PAY FOR PERFORMANCE



EXAMPLE STRATEGY: REGIONAL COMPLIANCE PROGRAM

CALIFORNIA STORMWATER PERMIT PROGRESSION

2005 Permit

Effluent
Concentration
Limits



Program
checklist



2011 Permit

Credit-based



Handbook
Guidance



10% Load
Reduction



2017 Permit

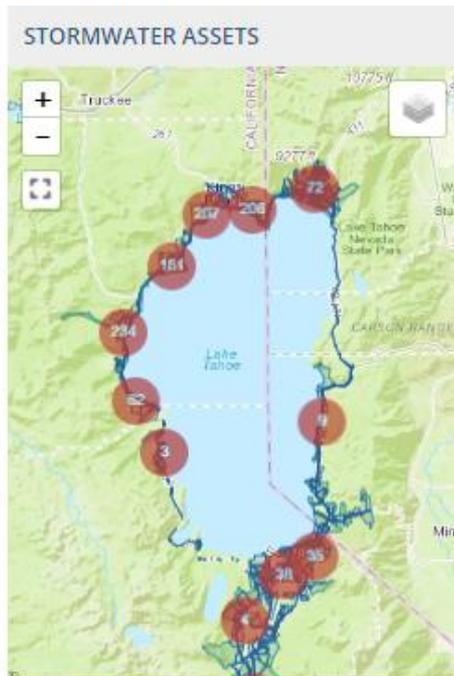
On-line
tracking
system



21% Load
Reduction



ON-LINE TRACKING SYSTEM



INVENTORY

-  MODELED CATCHMENT
-  TREATMENT BMP
-  ROAD SEGMENT
-  PARCEL BMP

JURISDICTIONS

-  MY JURISDICTIONS
-  STORMWATER USERS

ASSESS

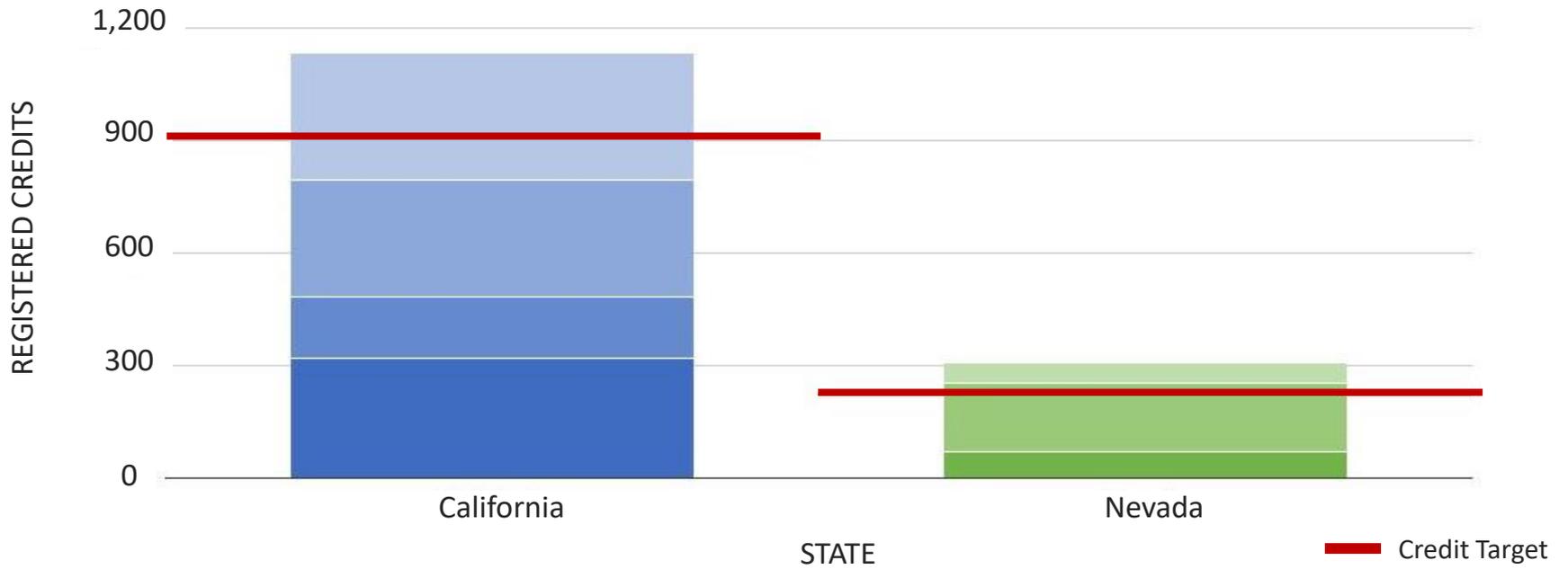
-  TREATMENT BMP
-  ROAD SEGMENT
-  PARCEL BMP

CREDITS

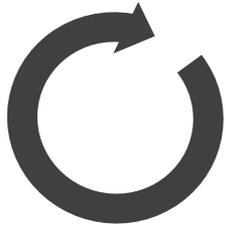
-  REGISTRATION
-  DECLARATION
-  CREDIT DISTRIBUTION
-  CREDIT TARGETS



RESULTS – 12% LOAD REDUCTION IN 5 YEAR PERMIT TERM



LESSONS LEARNED



One cohesive and administratively streamlined system



Flexibility to voluntarily distribute credits



Information on project condition



Eased issues, built trust, increased predictability



RECALL THE THREE TYPES OF STRATEGIES



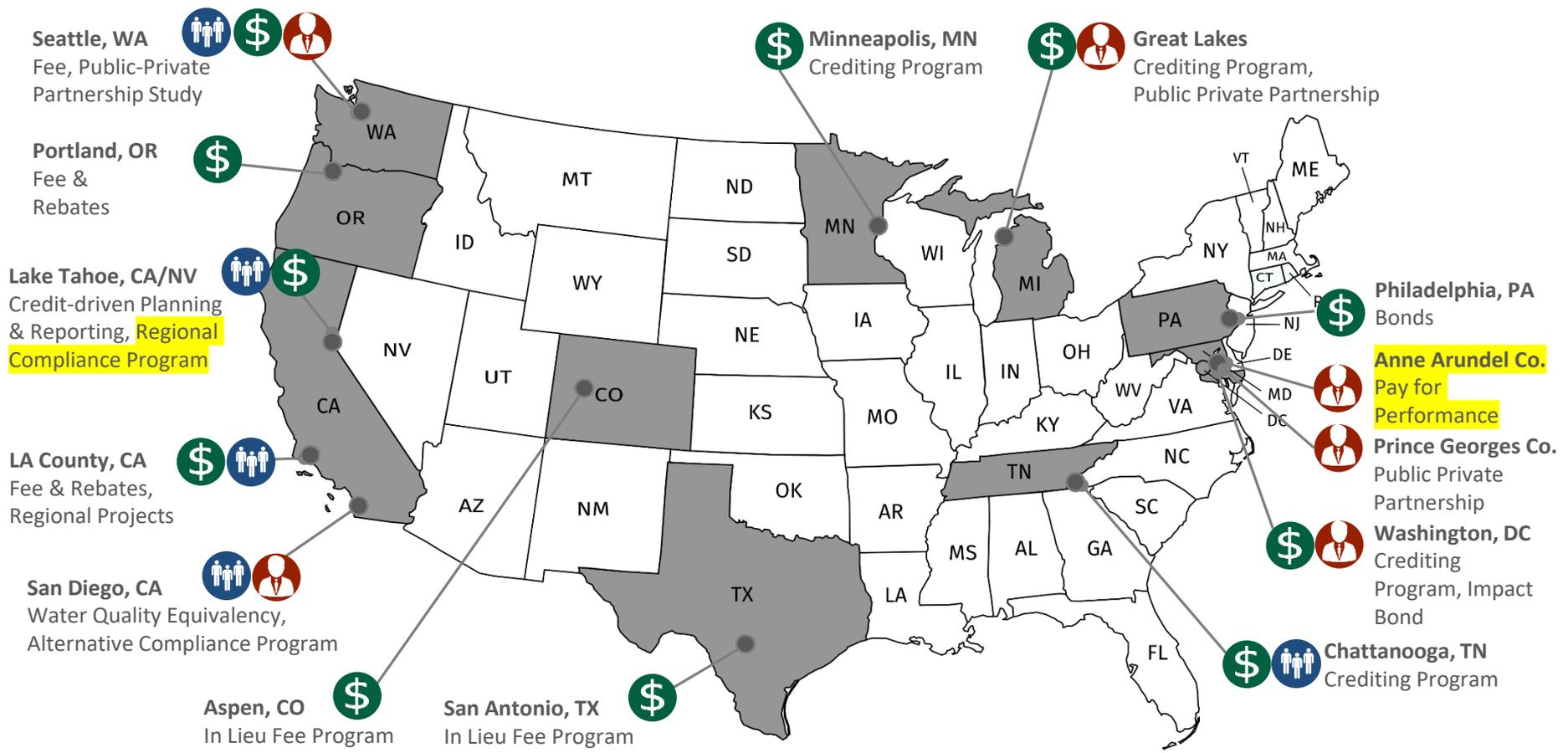
Increase funding
and its
effectiveness



Engage partners to
help implement



Leverage the
private sector



RESOURCES

- Pay for Performance

- Portfolio of Stormwater Funding & Partnering Strategies: <https://goo.gl/583aFP> An overview of the many strategies that permittees can use to improve funding, engage partners, and leverage the private sector to achieve stormwater goals.
- Pay for Performance Toolkit: <http://bit.ly/2QUu0js> A website with sample contract terms and other resources for using this alternative procurement approach for stormwater and habitat conservation.

- Regional Compliance Program

- Lake Tahoe TMDL Program: <https://clarity.laketahoeinfo.org/> See news about the latest credit transactions, review current results of the program and find the protocols that make it really work.
- USEPA’s announcement of the new WQT Policy Memo: <https://www.epa.gov/newsreleases/epa-announces-new-water-quality-trading-policy-memorandum> This short memo describes the six market-based principles recently released by EPA.

Questions?

Please type them into the Questions box.



Virginia Nonpoint Source Trading

Derick Winn

Nonpoint Source Trading Coordinator, Virginia
Department of Environmental Quality





Virginia Nonpoint Source Trading

EPA Webinar Series on Innovative Financing Strategies for Reducing Nutrients

Derick Winn

Nonpoint Source Trading Coordinator

Virginia Department of Environmental Quality

July 24, 2019

Overview

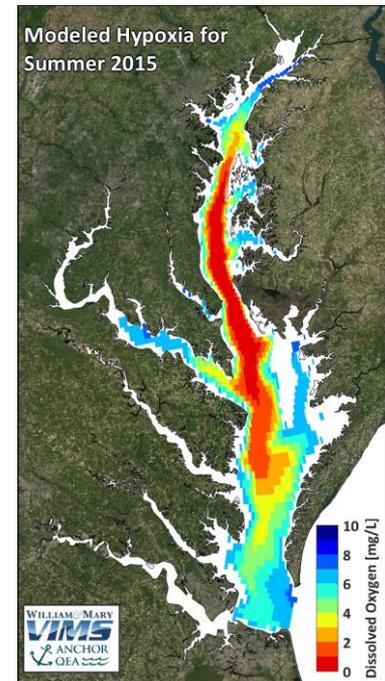
- Nutrient Trading Terminology and VA DEQ Roles and Responsibilities
- Chesapeake Bay & Point Source Trading
- Nonpoint Source (NPS) Trading
 - Water Quality Issues
 - Enacting Policy
 - Market Driving Permit: VSMP
- Status of NPS Trading & Emerging Markets
- NPS Trading Challenges
- What it Takes to Start a NPS Trading Program That Will Have an Active Market

VA Nutrient Trading Terminology and DEQ's Roles and Responsibilities

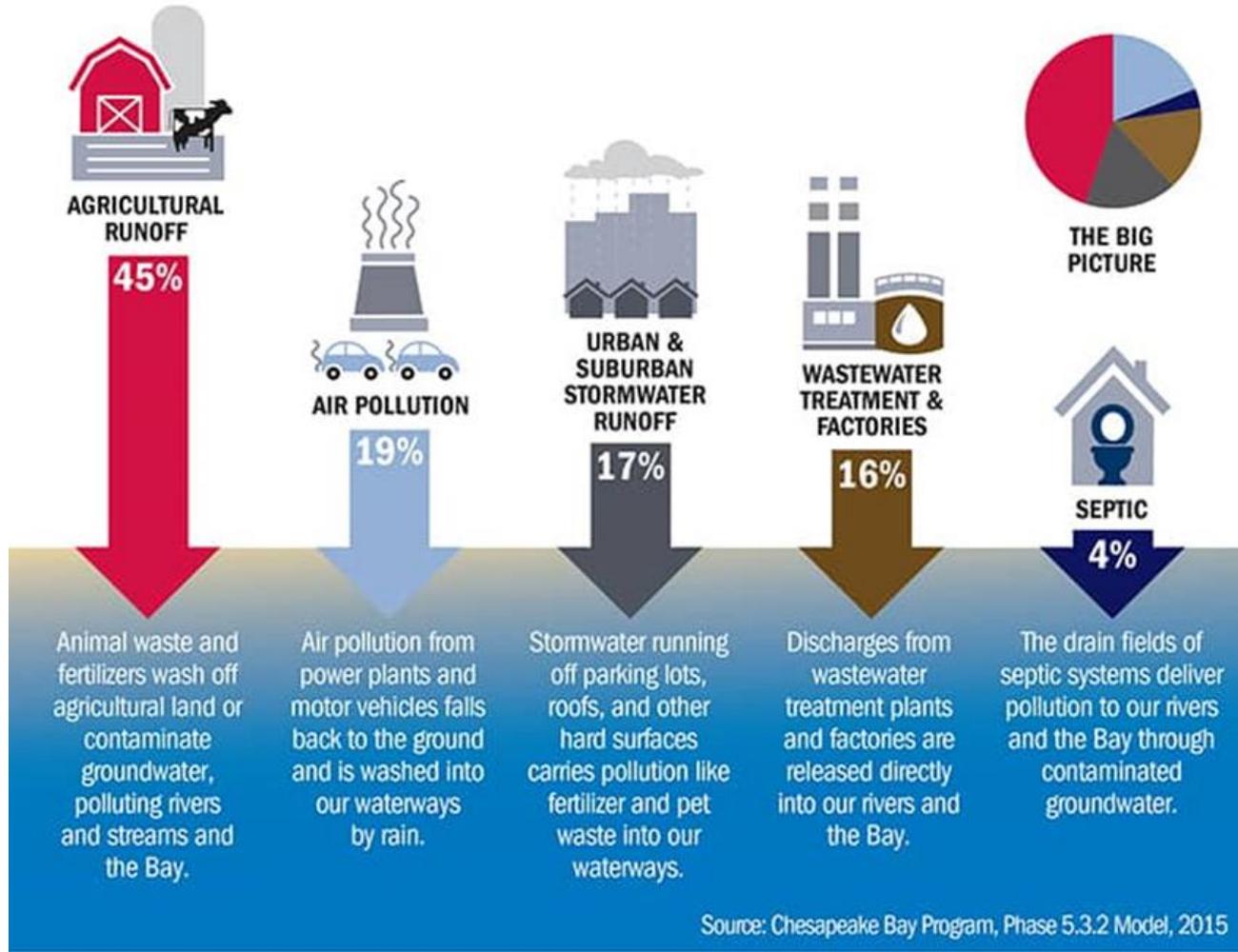
- Nutrient credits are measured in lbs of nitrogen or phosphorus reductions delivered to tidal waters of the Chesapeake Bay
- Credits are generated by a project and may be transferred for the purpose of satisfying nitrogen and/or phosphorus reduction permit conditions offsite from the permitted activity
- A nutrient bank is a project where at least one credit generating practice is implemented
- Nitrogen and phosphorus credits are tracked separately and are not added together
- Term credits are generated by practices that must be certified annually and can be used for one year of permit compliance
- Perpetual credits are generated by permanent practices on deed restricted land and can be used to permanently satisfy pollution reduction requirements
- DEQ approves credit generating practices and certifies the generation of credits for individual nutrient banks
- DEQ facilitates credit sales by tracking credit transactions and providing a registry of available credits to the public
- DEQ does not generate, sell, or broker credits
- DEQ does not set prices for nutrient credits, this is left for the free market to determine

Water Quality Issue: Nutrient and Sediment Pollution in the Chesapeake Bay

- Watershed contains portions of 6 states and DC
 - 64,000 square miles watershed
 - Home to over 18 million people
- Nutrient and sediment pollution causing:
 - Eutrophication/harmful algal blooms
 - Decline of oyster and blue crab fisheries
 - Decline in submerged aquatic vegetation habitat
 - Annual summer hypoxic conditions
- Listed impairments for dissolved oxygen and aquatic life with nitrogen, phosphorus, and sediment identified as the stressors for these impairments
- The Chesapeake Bay has been issued a TMDL



SOURCES OF NITROGEN POLLUTION IN THE CHESAPEAKE BAY



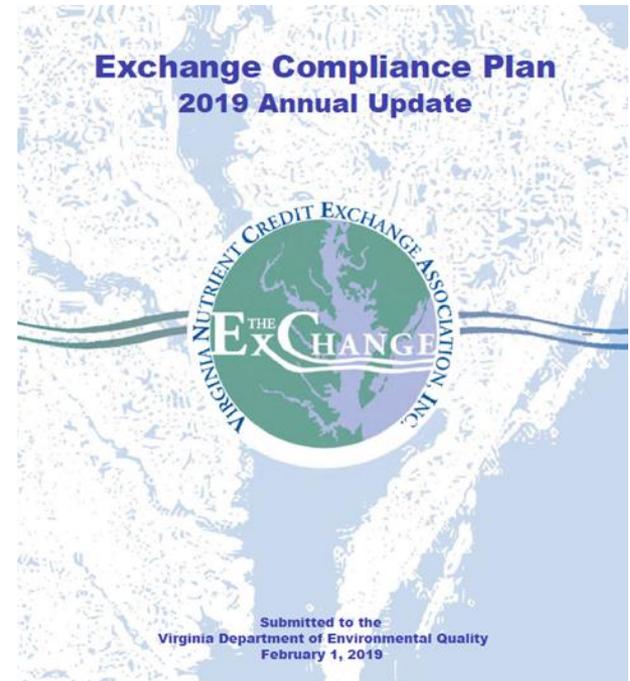
Point Source Trading Enacting Policy: Watershed General Permit Regulations

- Watershed General Permit issued in 2007
- Cap & Trade Program
- Point Source-to-Point Source trading for existing facilities to meet an initial load cap
- Point Source-to-Nonpoint Source trading reserved to accommodate new and expanding facilities
- Allows WTP to generate annual term nutrient credits



Point Source Market Driving Permit: NPDES Individual Permit

- Watershed GP overlays Individual NPDES permits and addresses nutrient loads in Chesapeake Bay watershed
- NPDES WLA limits are based on Bay TMDL implementation
- Allows WTPs to work together with the most cost effective upgrades being built by facilities that can provide credits to facilities with the least cost effective upgrades to achieve tributary-wide nutrient load reductions



NPS Trading: Enacting Policy

- In response to new and expanding facilities being able to purchase NPS credits, trading guidance for agricultural landowners was published in 2008
- Establishes credit rates in lbs of reduction per acre of practice implemented for ag BMPS and landuse conversions
- First nutrient bank was approved in 2008 generating credits through agricultural landuse conversion/reforestation
- The nutrient bank conversion areas were deed restricted in perpetuity prohibiting ag landuse and development for perpetual credit generation
- Guidance requires the implementation of baseline practices prior to credit generation



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



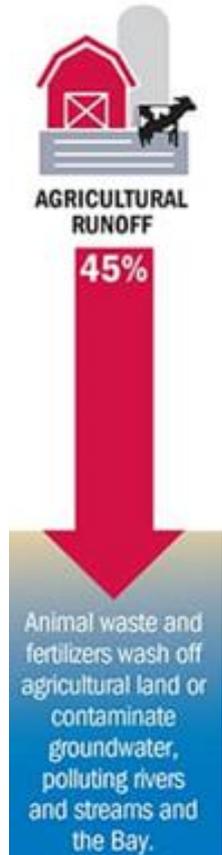
Agricultural Baseline & Credit Generating Practices

Baseline Practice

- Soil Conservation Plan
- Nutrient Management Plan
- Cover Crops
- Livestock Stream Exclusion Fencing
- 35' Riparian buffer
- All practices generate annual term credit but land conversion can generate perpetual credits
- VA strategy for incentivizing unregulated agricultural nutrient reductions through trading
- Baseline requirements create a level playing field and prevents the worst land stewards from generating the most credit
- Implementing a baseline also generates additional nontradable nutrient reductions providing a net uplift in watershed water quality (so trading is not just a lb of credit generated and lb of credit sold to offset a permitted activity)

Credit Generating Practice

- Continuous No-Till
- 15% N reduction on corn
- Early planted cover crops
- **Land Conversion** beyond buffer

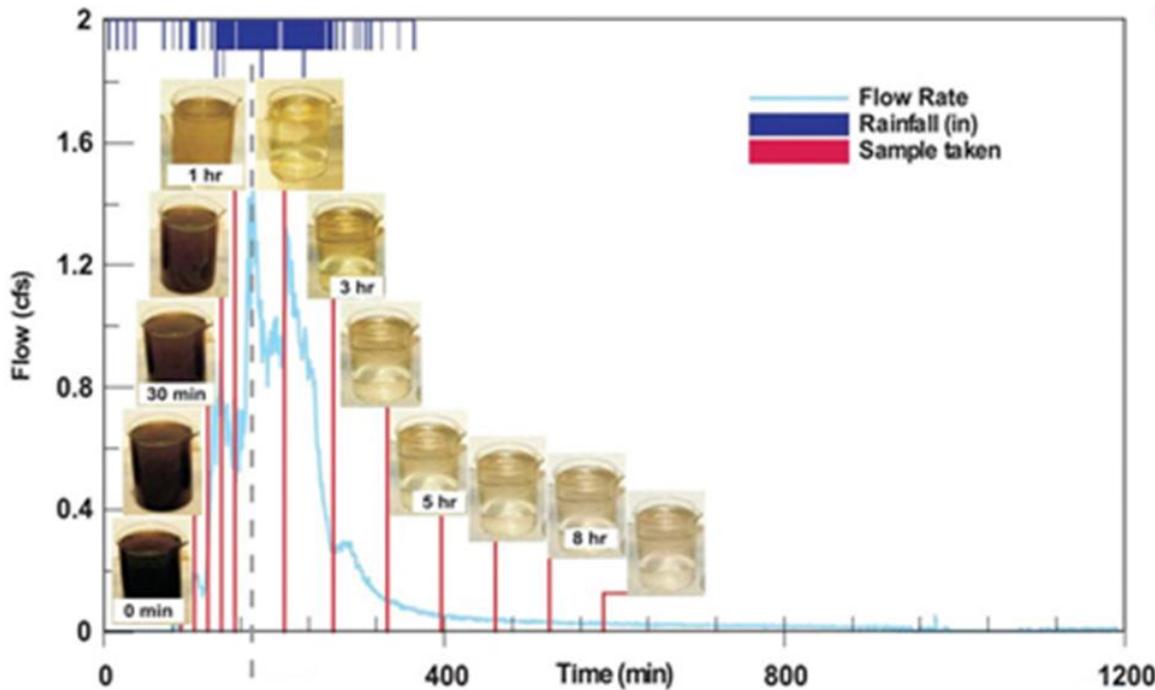


So Why Are There No NPS-to-PS Trades in VA?

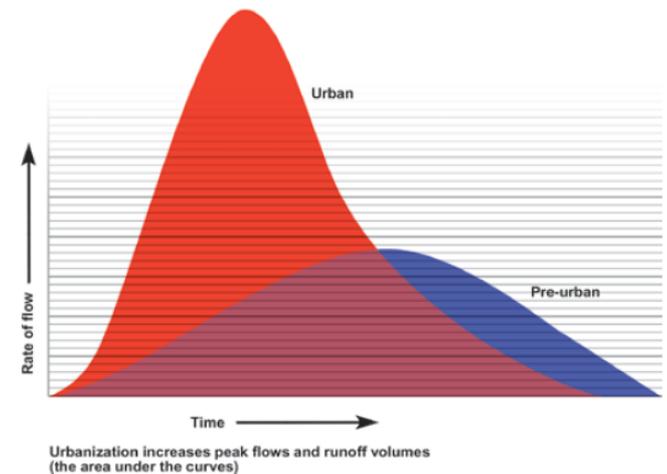
- Expanding WTPs were able to upgrade and stay under their load cap
- Adequate credits were available from other point sources
- A 2:1 uncertainty ratio is applied to NPS-to-PS source trades
- It takes a lot of land – it's a problem of scale
- For example, it would take 2,000 acres of early planted cover crop to generate 500 lbs of TN reduction which is enough credit to offset one 10,000 GPD facility operating at 8mg/l of TN
- Ag BMPs can be expensive compared to the cost of point source credits

NPS trading lacked a smaller scale water quality issue and permit driving market

Smaller Scale Water Quality Issue: Stormwater Runoff Impacts on Local Water Quality in Urban/Suburban Watersheds



Effects of urbanization on volume and rates of surface water runoff



Stream Impacts



8-10%



20%

Impervious Cover

> 65%



In-stream erosion results in the release of nutrients into the stream. These nutrients are/were attached to soil particles and in pore spaces.

Generally in VA, streams become impacted when a watershed exceeds 10% impervious cover

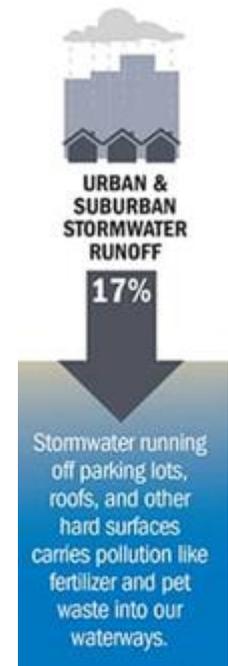
NPS Trading Market Driving Permit: Virginia Stormwater Management Program (VSMP)

- In 2004 the VSMP permit went into effect requiring post-construction stormwater quality and quantity criteria statewide
- The permit is required for construction activities one acre or greater
- Identifies phosphorus as a keystone pollutant which is used as a surrogate for nitrogen and sediment
- Permit requires post-construction stormwater runoff not exceed phosphorus loads greater than 0.41 lbs/acre/year



NPS Trading Enacting Policy: VSMA Amendment

- In 2009 nutrient credit provisions of VA Stormwater Management Act became effective
- Provisions allow permittees to meet post-construction water quality criteria with the purchase of perpetual NPS phosphorus credits generated by permanent practices such as landuse conversion, stream restoration, and urban stormwater BMPs
- Associated TN credit must be retired for all VSMP TP purchases
- Nutrient Bank and construction activity must be in the same or adjacent 8-digit HUC within the same tributary
- Localities have the ability to restrict trading based on water quality impairments and for protection of sensitive waters such as drinking water reservoirs
- All water quantity requirements must be met onsite
- Use of state or federal water quality grants is prohibited for generating NPS credits (baseline implementation can be grant funded)



Current Status of NPS Trading in VA

Over 140 Nutrient Banks: All Permeant Practices Generating Perpetual Credits

Phosphorus

- 8,800 lbs generated
- 4,900 lbs sold
- Average cost: \$12,500 per lbs

Pricing driven by:

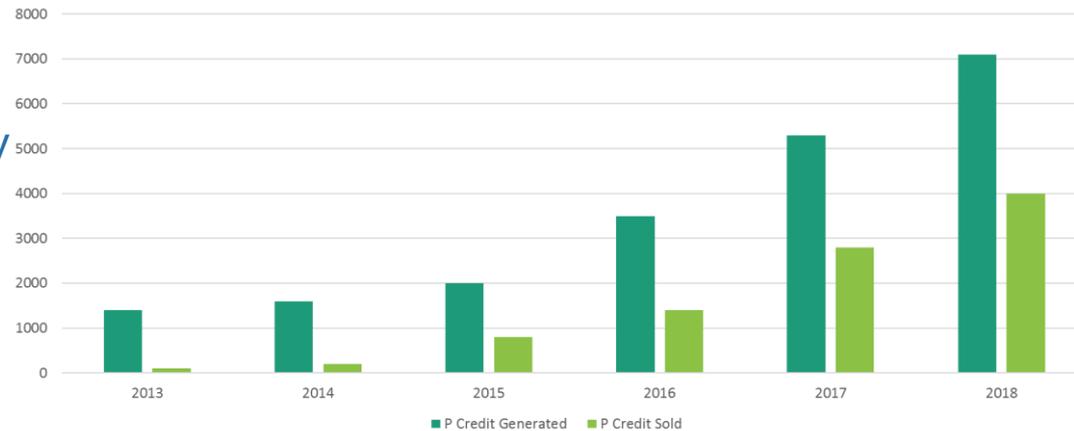
- On-site treatment cost
 - Nutrient bank land value
 - Bank competition in a tributary
- 1,000s of trades ranging from 0.01-100 lbs

Total Annual Market:

\$15 Million

Nitrogen

- 58,300 lbs of TN credit generated
- 32,100 lbs of TN credit retired



Nutrient Bank Locations & High Development Areas



All but 3 banks generate credit through ag landuse conversion

Emerging Markets

- 2012 Legislation allows MS4 and Industrial Stormwater permittees to purchase NPS nutrient credits
- Credits can be utilized for meeting Chesapeake Bay TMDL load reduction permit requirements for nitrogen, phosphorus, and sediment
- Only a few MS4 purchases have been made by VDOT to date
- 2016 legislation allows for Nutrient Banks to generate sediment credits for sale to MS4s

Point Source Vs. Nonpoint Source Trading

Point Source:

- Traditional Cap & Trade
- Scale of annual trading in the 100,000s of lbs
- Number of annual trades in the teens
- Credit type is annual term credits
- Trades limited to tributary
- Chesapeake Bay only
- 2018 market \$1.5 million

Regulatory Drivers:

- Bay TMDL
- NPDES Individual Permit

Active Permit Market

- Watershed GP

Emerging Permit Markets

- MS4

Nonpoint Source:

- Mimics mitigation “banking model”
- Scale of annual trading about 1,200 lbs
- Number of annual trades approximately 1,000
- Credit type is perpetual in most cases
- Trades limited by tributary, same or adjacent 8-digit HUC, and local water quality based limitations
- Statewide
- 2018 market \$15 million

Regulatory Drivers:

- Post Construction Stormwater Management

Active Permit Market

- VSMP

Emerging Permit Markets

- MS4
- Industrial Stormwater

NPS Trading Challenges

- Incentivizing ag BMP implementation for term credit generation (VA has yet to find a market for term NPS credits)
- Credit tracking growing pains
 - VA is currently tracking credit generation from over 140 banks with 1,000s of sales in an excel spreadsheet for a registry (we'll be upgrading to the RIBITS platform used for mitigation banking this fall)
- Continuing programmatic development with an existing trading market that may oppose change
 - Draft NPS Credit Certification Regulations have several areas of contention expressed in the recent public comment period such as: baseline requirements, local water quality provisions, credit release schedules etc.
 - Updating land conversion credit rates using latest Chesapeake Bay Model to establish sediment reduction rates

What Does it Take to Establish a NPS Trading Program?

- **Regulatory drivers for NPS Trading**
 - Enacting policies that allow or encourage trading
 - Permits that require numeric nutrient reductions
 - Permit flexibility that allows trading to meet reduction requirements
- Addressing a water quality issue with the appropriate scale for NPS trading (will credit generation match credit demand cost effectively?)
- Establishment of baseline requirements to generate reductions beyond what is tradable
- Allowing credits to be generated in a sector less regulated where cheaper reductions can be achieved (i.e. agriculture)
- Private sector investment in cost effective nutrient reduction practices that can be profitable to bank sponsors and marketable to permit holders for satisfying water quality criteria

These are the factors that have led to NPS trading being an effective tool for achieving cost effective nutrient reductions from multiple pollution source sectors in VA



Questions?

Virginia Department of Environmental Quality

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Open Q&A



Q&A

Thank you!



Thank you for attending the webinar.