

Attachment A:

# Glossary of Terms



# Glossary

**303(d) list:** The list of impaired and threatened waters (stream and/or river segments, lakes) that the Clean Water Act (CWA) requires all states to submit for USEPA approval every 2 years on even-numbered years.

**Adaptive management:** A systematic approach for improving natural resource management, with an emphasis on learning about management outcomes and incorporating what is learned into ongoing management. Adaptive management in water quality trading programs may focus on improving program operations, quantification methods, and overall program effectiveness.

**Additionality:** In an environmental market, the environmental benefit secured through the payment is deemed additional if it would not have been generated absent the payment provided by the market system.

**Aggregator:** A third party that collects pollutant reduction credits from several producers to sell in bulk to permitted industrial and municipal facilities.

**Antibacksliding:** As defined in CWA Sections 303(d)(4) and 402(o) and 40 CFR §122.44(l), unless falling under a relevant exception, a reissued permit must be as stringent as the previous permit.

**Antidegradation:** As defined in 40 CFR §131.12 and relevant state rules and implementation guidelines, these policies ensure protection of existing uses and of water quality for a particular water body where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. Antidegradation also includes special protection of waters designated as outstanding national resource waters. Antidegradation plans are adopted by each state to minimize adverse effects on water. See also “Tier 2 antidegradation review.”

**Attenuation (pollutant):** The change in pollutant quantity as it moves between two points, such as from a point upstream to a point downstream.

**Banking (of credits):** The generation of a credit in one-time period with the intention that it be used to offset a discharge in another time period—without an ecological justification for doing so.

**Baseline (general NPS control authority):** The level of pollutant reductions a state expects NPS landowners to achieve, as derived from general NPS control authority, prior to trading. Some states may have general, broad authority to control NPS pollution, which can be used to establish trading baseline levels for state trading guidance, frameworks, or particular trading plans.

**Baseline (regulatory requirements):** The level of pollutant load associated with specific land uses and management practices that comply with stated requirements in applicable, state, local, or tribal regulations. These regulations are typically affirmative water quality obligations or non-disturbance regulations (e.g., all farms must have nutrient management plans in place or riparian vegetation may not be actively disturbed).

**Baseline (TMDLs):** The level of pollutant reductions a TMDL and/or a TMDL implementation plan expects specific NPSs to achieve. A single NPS's baseline requirement from a TMDL is derived from the NPS's load allocation (if an NPS falls under an aggregate load allocation, then a portion of that load allocation should be assigned to each NPS).

**Baseline (trading):** The combined pollutant load and/

or BMP installation requirements that must be met prior to trading. At a minimum, all individual NPSs must meet existing state, local, and tribal regulatory requirements. Where a TMDL exists and it establishes, through the TMDL and/or the TMDL implementation plans, requirements that differ from existing state, local, and tribal requirements, then the requirements stemming from TMDL load allocations and/or TMDL implementation plans will supplement the existing regulatory requirements. Where general NPS control authority exists in a state, a state can rely on this authority to set or supplement its trading baseline level.

**BMPs:** Methods, measures, or practices determined to be the most reasonable and cost-effective means for landowners to meet certain—generally NPS—pollution control needs. BMPs include structural and nonstructural controls and operation and maintenance procedures. The states' specific definitions vary.

**Buyers:** Buyers of credits include any public or private entity that invests in water quality credits and other similarly quantified conservation outcomes. Buyers typically buy credits to meet a regulatory obligation.

**Cap load (lb):** The mass load of a pollutant authorized by an NPDES permit. Cap loads for TN and TP are implemented in NPDES permits by the establishment of annual net mass load limits. The term “net” is used to recognize that credits and offsets may be used to comply with the limits. The annual net mass load must be less than or equal to the cap load to achieve compliance.

**Credit:** Unit of pollutant discharge expressed in the mass-per-unit time created when a discharger reduces its discharge of the pollutant below its baseline requirement (Jones et al. 2006). The mass-per-unit time used to define a credit in all the bay states' trading programs is one pound of N or P delivered to the bay's tidal waters each year.

**Credit certification:** The application and approval process for a project intended to generate credits.

**Delivery ratio:** A ratio that compensates for the natural attenuation (degradation) of a pollutant as it travels in water before it reaches a defined compliance point. Ultimately, dischargers farther from the receiving water body of concern have less pollutants that end up reaching it.

**Designated uses:** As defined in 40 CFR §131.3(f) and 40 CFR §131.10, designated uses are those uses specified in water quality standards for each water body or segment whether or not they are being attained. As defined in 40 CFR §131.10(a), examples of designated uses include public water supply, protection and propagation of fish, shellfish, and wildlife, recreation, agriculture, industrial, and navigation.

**Discharge monitoring report:** A periodic water pollution report prepared by point sources discharging to surface waters of the United States and the various states. Point sources collect wastewater samples, conduct chemical and/or biological tests of the samples, and submit reports to a state agency or the USEPA.

**Discharge point:** The point at which a point source adds or discharges a pollutant (as defined in 33 USC §1362(6)) into a navigable water (as defined in 33 USC §1362(7)). A discharge of a pollutant is defined in 33 USC §1362(12).

**Effluent limit:** As defined in 33 USC §1362(11), an effluent limit means any restriction established by a state or USEPA on quantities, rates, and concentrations of chemical, physical, biological, and other constituents discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance.

**Environmental credit trading program:** A program created to help regulated parties comply with regulations by buying environmental improvements (credits) achieved at another location.

**Exceedance:** The difference between a facility's load discharge and its effluent limit.

**General permit:** An NPDES permit covering a category of dischargers rather an individual facility.

**Load allocation (LA):** As defined in 40 CFR §130.2(g), this is the portion of a receiving water's loading capacity that is attributed either to one of its existing or future NPSs of pollution or to natural background sources. Load allocations are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading. Wherever possible, natural and NPS loads should be distinguished.

**Localized impact:** A localized concentration of pollution that causes a violation of water quality standards at a particular location. In assessing potential near-field impacts, agencies should also consider whether trading will comply with the Endangered Species Act and other species and habitat protection laws; and whether or not near-field discharges addressed through trading will degrade groundwater in violation of any applicable state water quality regulations.

**Municipal separate storm sewer system (MS4):** A defined stormwater area regulated under an NPDES permit. MS4s may be Phase I (an urban area of 100,000 or more people) or Phase II (a U.S. Census-designated “urbanized area” with fewer than 100,000 people).

**National Pollutant Discharge Elimination System (NPDES):** A national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing operating permits for some sources of pollutant discharge into surface waters.

**Nonpoint source:** An undefined, nondiscrete pollution source covering a large area (e.g., septic tanks, animal-keeping practices, crop farms, forestry practices, urban and rural runoff).

**Nutrient:** N or P.

**Nutrient management plan:** Plan developed for a specific agriculture operation that outlines principles and practices for managing the amount (rate), source, placement (method of application), and timing of plant nutrients and soil amendments.

**Nutrient reduction:** The difference in nutrient or sediment discharges to surface waters achieved by activities such as best management practices or technical upgrades, compared to the applicable baseline and threshold.

**Nutrient trading:** Transactions that involve the exchange of quantifiable nutrient and sediment reduction credits, approved by the department.

**Onsite compliance:** Actions taken by the regulated party to comply with regulations at the site of the environmental impact.

**Offset(s):** (1) (noun) Offsite treatment implemented by a regulated point source on upstream land not owned by the point source for the purposes of meeting its permit limit; (2) (noun) Load reductions that are purchased by a new or expanding point source to offset its increased discharge to an impaired water body. This second use is the more common usage of offset. (Note: USEPA considers both types of offsets to be trading programs); (3) (verb) To compensate for.

**Permittee:** Any entity with a discharge approved or pending approval under state- or federally-issued permit (e.g., NPDES permit). This document focuses on point source permittees seeking or granted permission to purchase water quality credits as a means of permit compliance.

**Point source:** Any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, CAFO, landfill leachate collection system, or vessel or other floating craft, from which pollutants are or may be discharged. (e.g., a municipal WWTP, an industrial WWTP, municipal separate storm sewers).

**Post-project performance:** The estimated or measured pollution load associated with the post-project site conditions.

**Program administrator:** The organization responsible for the operation and maintenance of a water quality trading program. Responsibilities of a program administrator may include: defining credit calculation methodologies, protocols, and quality standards; project review; and credit registration.

**Project design and management plan (operation and maintenance plan):** The document that details: (1) how the proposed credit-generating actions will be designed and installed to meet BMP guidelines, including a description of the proposed actions, installation practices, anticipated timelines, restoration goals, and anticipated threats to project performance; and (2) how the project developer plans to maintain and/or steward the practice or action for the duration of the project life, keep the practice or action consistent with BMP guidelines, and report on that progress.

**Project review:** The process of confirming that a credit-generating project has completed certain elements, which should help ensure that the project provides the water quality benefits it promises. Specifically, confirmation that project site BMPs or credit-generating activities and credits conform to the quality standards required by a program administrator or regulator. This process includes: (1) an administrative review for the completeness and correctness of documentation, (2) technical review for the completeness and accuracy of quantification, and (3) confirmation of project implementation and/or performance.

**Protocols:** Step-by-step manuals and guidelines for achieving particular environmental outcomes. Protocols include the actions, sequencing, and documentation needed to generate credits from eligible BMPs.

**Quality standards (BMP):** The specifications associated with a particular credit-generating activity or BMP that ensures that the estimated ecosystem service benefits at a project site are actually achieved through implementation.

**Report (annual compliance):** Annual reports that aggregate the details of individual site performance reports into a comprehensive summary of overall trading plan performance. These reports may be required as special conditions in permits.

**Reserve pool:** A collection or bank of unused credits that is available to compensate for unanticipated shortfalls in the quantity of credits actually generated. See “retirement: reserve ratio.”

**Registry:** A ledger that includes more project-specific information. Credit registries may act as a mechanism for public disclosure of trading project documentation.

**Regulated entities/parties:** Person or persons who are required to comply with regulations. Specifically, these are entities regulated under the Clean Water Act. Typically, these entities are regulated via permits, but may also be regulated under operating licenses or judicial/administrative consent decrees.

**Regulator:** Government agency that develops, implements, monitors, and enforces the state or federal regulations to achieve environmental goals.

**Retirement:** reserve ratio: A trading ratio that discounts each credit into a credit insurance pool to ensure that a trade results in a net improvement of water quality. The states' definitions vary.

**Site performance (post-project):** The pollutant load (measured or anticipated) that will enter a waterway, as calculated by the relevant quantification method's interpretation of post-project conditions.

**Site performance (pre-project):** The modeled pollutant load entering a waterway, as estimated by the relevant quantification method, from a site prior to installing a BMP or action.

**Sources:** Point, nonpoint, and third-party sources of pollutants

**Technology-based effluent limit (TBEL):** As described in 33 USC §1311(b)(1)(A)–(B), a permit limit for a pollutant that is based on the capability of a treatment method to reduce the pollutant to a certain concentration. TBELs for publicly owned treatment works (POTWs) are derived from the secondary treatment regulations (40 CFR Part 133) or state treatment standards. TBELs for non-POTWs are derived from national effluent limitation guidelines, state treatment standards, or on a case-by-case basis from the best professional judgment of the permit writer.

**Third party:** Any entity that does not discharge nutrients or sediments and that participates in the trading program. This entity could include, but is not limited to, environmental groups, developers, watershed associations, aggregators/brokers, and nonprofit organizations.

**Tier 2 antidegradation review:** As part of a Tier 2 Antidegradation program, states and tribes can identify procedures that must be followed and questions that must be answered before a reduction in water quality can be allowed into “high quality” waters—water bodies where existing conditions are better than necessary to support CWA §101(a)(2) “fishable/swimmable” uses. In no case may water quality be lowered to a level which would interfere with existing or designated uses.

**Total mass load (lb):**

**Monthly total mass load** = The sum of the actual daily discharge loads for TN and TP (lb/d) divided by the number of samples per month, multiplied by the number of days in the month in which there was a discharge. The daily discharge load for TN and TP (lb/d) equals the average daily flow (mgd) on the day of sampling, multiplied by that day's sample concentration for TN and TP (mg/L), multiplied by 8.34.

**Annual total mass load** = The sum of the actual daily discharge loads for TN and TP (lb/d) divided by the number of samples per year, multiplied by the number of days in the year in which there was a discharge.

**Total maximum daily load (TMDL):** The sum of the individual waste load allocations for point sources, load allocations for NPSs and natural background, and a margin of safety expressed in terms of mass per time, toxicity, or other appropriate measures.

**TMDL implementation plans:** The management plans designed to implement the waste load and load allocations assigned to entities in the TMDL. In some states, a TMDL implementation plan is required in order to translate LAs into baseline requirements.

**Total nitrogen:** For concentration and load, total nitrogen is the sum of total Kjeldahl nitrogen (TKN) plus nitrite-nitrate as N ( $\text{NO}_2 + \text{NO}_3 - \text{N}$ ), where TKN and  $\text{NO}_2 + \text{NO}_3 - \text{N}$  are measured in the same sample.

**Toxics (persistent bio-accumulative):** Persistent bio-accumulative toxics (PBTs). PBTs are chemicals that are toxic, persist in the environment, and bioaccumulate in food chains and pose risks to human health and ecosystems. PBTs include aldrin/dieldrin, benzo(a)pyrene, chlordane, dichlorophenyltrichloroethane (DDT) and its metabolites, hexachlorobenzene, alkyl-lead, mercury and its compounds, mirex, octachlorostyrene, polychlorinated biphenyl (PCBs), dioxins and furans, and toxaphene.

**Tracking:** The process of following the status and ownership of credits as they are issued, used, retired, suspended, or cancelled.

**Trading area:** A geographic area within which credits can be bought and sold. A trading area should be defined ecologically where a pollution reduction in one part of a watershed can be linked to a water quality improvement at a point of compliance. Trading areas can also be defined to reduce the risk of localized water quality impairments or localized impacts.

**Trading guidance:** A state's statute, rule, policy, guidance, or other documents articulating how WQT should occur within that state.

**Trading framework:** Watershed-level documents that contain details of trading processes and standards.

**Trading plan:** Permittee-level trading details. The incorporation of trading elements into a permit or other binding agreement. A permittee's trading plan may incorporate the terms of relevant state-wide trading guidance or a watershed trading framework by reference, or it may include all specific details within the permit itself.

**Trading program:** The general term used to describe the approach to trading taken by a state agency and/or WQT stakeholders; the full range of policies supported by a state. Active trading programs have completed approved program designs and/or have completed transactions.

**Trading ratio:** A trading ratio is a numeric value used to adjust credits for a seller or credit obligation of a buyer based on various forms of risk and uncertainty. Ratios are applied to account for various factors, such as watershed processes (e.g., attenuation), risk, and uncertainty, both in terms of measurement error and project performance, ensuring net environmental benefit, and/or ensuring equivalency across types of pollutants.

**Trading period:** The time provided following each compliance year for a permittee to comply with cap loads through the application of credits and offsets. During this period, compliance for the specified year may be achieved by using registered credits that were generated during that compliance year.

**Uncertainty ratios:** Those trading ratios that account for the variability in nutrient removal efficiencies for agricultural best management practices that may be based on scientific uncertainty or random weather fluctuations. The states' definitions vary.

**Units of trade:** The quantity of tradable pollutants, typically expressed in terms of pollutant load per unit time, at a specified location (e.g., lb/year at the point of concern).

**Variance:** As authorized by 40 CFR §131.13 and implemented according to state law, a variance is a time limited change in the water quality standards for a particular regulated entity, typically limited to a 3- to 5-year duration, with renewals possible.

**Waste load allocation (WLA):** The portion of the receiving water's loading capacity allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation.

**Water quality benefit:** The environmental improvement directly attributable to BMPs installed at a site. Determining water quality benefit is the first step in determining the credits available for sale (it must be reduced by applicable attenuation or modeling factors, baseline factors, or ratios). One way water quality benefit may be calculated is by subtracting the modeled post-project performance from the modeled pre-project performance.

**Water quality criteria:** As defined in 40 CFR §131.3, water quality criteria are elements of state water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use.

**Water quality standard:** As defined in 40 CFR §131.3(i), water quality standards are provisions of state or federal law that comprise a designated use or uses for the waters of the United States and water quality criteria for such waters based on such uses. Water quality standards are to protect the public health or welfare, enhance the quality of water, and serve the purposes of the Clean Water Act.

**Water quality-based effluent limitation (WQBEL):** As described in 33 USC §1312(a), a WQBEL is an effluent limitation determined by selecting the most stringent of the effluent limits calculated using all applicable water quality criteria (e.g., aquatic life, human health, wildlife, translation of narrative criteria) for a specific point source to a specific receiving water for a given pollutant or based on the facility's waste load allocation from a TMDL.

**Watershed plan:** A TMDL-like regulatory strategy for managing and improving an impaired water body established by regulators before a TMDL is promulgated, or if a TMDL is not otherwise pursued for a watershed.

Permit compliance limit is the discharge limit with nutrient trading credits applied.

Effluent compliance limit is the discharge limit from a point source with no nutrient trading credits applied.



Attachment B:

# Coosa-North Georgia Stakeholder Meeting

- Invitation
- Attendee List
- Presentation
- Survey Responses
- Stakeholder Responses



990 Hammond Drive, Suite 400  
Atlanta, Georgia 30328

T: 770.394.2997  
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March 27, 2018

1016-151601

Subject: Alternative Permitting Nutrient Trading Workshop  
April 25, 2018, 1:30 – 3:00 P.M.

Dear Water Council Members and Interested Stakeholders:

On behalf of the North Georgia Water Resources Partnership, we would like to cordially invite you to the Alternative Permitting Nutrient Trading Workshop held in conjunction with the 2018 Spring Annual Meeting/Educational Seminar. The workshop will discuss an innovative and cost-effective tool for communities to use in meeting regulatory requirements. Nutrient Trading is an implementation strategy listed in the **Coosa-North Georgia Regional Water Plan**. The workshop and project are partially funded by a Georgia EPD Seed Grant awarded to the Water Council.

Nutrient Trading allows communities to pursue alternatives to meeting all permit requirements at a wastewater facility while protecting overall watershed health. At the workshop, we will provide an overview of Nutrient Trading and will seek feedback from stakeholders such as permit holders and land owners.

The 2018 Annual Meeting/Educational Seminar agenda and registration information are attached. Please share with others you think may be interested in this topic.

Please feel free to contact me if you have any questions, by email [lhawks@brwncauld.com](mailto:lhawks@brwncauld.com) or telephone 770.673.3602.

Very truly yours,

Brown and Caldwell

A handwritten signature in black ink that reads "Laurie J. Hawks".

Laurie J. Hawks  
Project Manager

cc: Brooke Anderson, North Georgia Water Resources Partnership  
Julianne Meadows, Northwest Georgia Regional Council

Attachments



## The Coosa - North Georgia Region Alternative Permitting Nutrient Trading Workshop

**What:** Learn about proposed tool to meet permit limits and improve water quality through Nutrient Trading

**Who:** NPDES permit holders, land owners, and the organizations that support them

**Goal:** Provide background on Nutrient Trading and seek feedback from stakeholders

**Where:** Booth Western Museum

501 N. Museum Drive, Cartersville, GA

**When:** April 25, 2018

1:30 P.M. to 3:00 P.M.

**RSVP**

[jmeadows@nwgrc.org](mailto:jmeadows@nwgrc.org)

<https://form.jotform.com/80376116836157>



## **Registration Information for the Wednesday, April 25, 2018 Annual Educational Seminar, Booth Western Museum, Cartersville Georgia**

The North Georgia Water Resources Partnership invites you to attend the Wednesday, April 25, 2018 Annual Educational Seminar at the [Booth Western Museum](#), 501 N. Museum Drive, Cartersville, GA 30120. The Seminar includes lunch and a self-guided tour of the beautiful western themed art exhibits. A registration fee of \$25.00 will be charged. However, Coosa North Georgia Water Council members attend at no charge.

The tentative agenda and session information is available [at this link](#). Registration will begin at 8:15 am. Sessions will begin at 9:00 am, and end at 3:00 pm. 4 CEs will be available. Please register to attend by using this [online registration form](#), by email to [jmeadows@nwgrc.org](mailto:jmeadows@nwgrc.org) or by calling (706) 295-6485, or.

A registration fee of \$25.00 will be charged, payable by check or cash, in advance or at the door. Please make the registration check payable to the Northwest Georgia Regional Commission, Water Partnership, PO Box 1798, Rome GA 30162-1798.



## **2018 Spring Annual Meeting/Educational Seminar**

**April 25, 2018**

### **Booth Western Art Museum**

501 N Museum Drive, Cartersville, GA 30120

<b>8:15-9:00</b>	Registration
<b>9:00-9:15</b>	Welcome
<b>9:15-9:30</b>	Partnership Update - Brooke Anderson
<b>9:30-10:00</b>	Introduction and Use of Green Infrastructure/Low-impact Development in North Georgia– Catherine Fox, Fox Environmental
<b>10:00-10:30</b>	Russell Creek Reservoir – Brooke Anderson, Etowah Water & Sewer Authority
<b>10:30-11:00</b>	Break - Please Tour the Booth Western Art Museum
<b>11:00-11:30</b>	Legislative Update - Pam Burnett, Georgia Association of Water Professionals
<b>11:30-12:00</b>	Georgia Environmental Protection Division – Jennifer Welte, Regulatory Development and Regional Water Planning
<b>12:00-1:00</b>	Lunch and North Georgia Water Planning Council Meeting
<b>1:00-1:30</b>	CMR4 – Ed Urheim, Georgia Rural Water Association
<b>1:30-3:00</b>	Alternative Permitting Nutrient Trading Workshop– Laurie Hawks, Brown & Caldwell
<b>3:00</b>	Adjourn

## April 25, 2018 Attendees North Georgia Water Resources Partnership Educational Seminar

First Name	Last Name	Organization	Email
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Michael	City of Rome
Mike	Dawson County
Mike	Mohawk Industries
Miles	Bartow County
Missy	GAWP
Pam	City of Calhoun
Paul	Mohawk Industries
Rebecca	Pickens County
Richard	Peoples and Quigley
Robert	Bartow County
Roger	City of Cartersville
Ronny	The Nature Conservancy
Sara	Lumpkin County WSA
Sean	City of Calhoun
Shane	Bartow County
Sheri	City of Cartersville
Sidney	Black and Veatch
Stephen	Chatsworth WaterWorks
Steve	City of Cartersville
Terry	City of Rome
Tim	Chatsworth WaterWorks
Tim	City of Calhoun
Tod	City of Cartersville
Todd	Water Council
Tom	Mohawk Industries
Tyler	City of Rome
Wayne	Bartow County
Will	FNI
Trooper	Smith
Carlton	Sherrr
Larry	FNI
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mwilliamson@calnet-ga.net	
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sforsyth@cityofcartersville.org	
simpsonSL@bv.com	
steves@chatsworthwater.com	
tjordan@cityofcartersville.org	
tbrunson@romega.us	
tims@chatsworthwater.com	
tlankford@calnet-ga.net	
tjames@cityofcartersville.org	
tobryant@whitecounty.net	
tyler_saunders@mohawkind.com	
wstanley@romega.us	
martinw@bartowga.org	
<u>tws@freese.com</u>	
<u>carleton.sherrr@freese.com</u>	
<u>lelykins@yahoo.com</u>	

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North Georgia Regional Water Partnership Coosa-North Georgia Water Council

## Nutrient Management Permit Alternatives

April 25, 2018





### Overview

- 01** Background
- 02** Range of Nutrient Management Alternatives
- 03** Nutrient Trading
- 04** Stakeholder Feedback

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## Background

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### Coosa - North Georgia Water Planning Region

- Lake Weiss TMDL and EPD policy led to Total Phosphorus Limits
  - 1 mg/L for NPDES permit holders
- Majority of TP from nonpoint sources
- Excessive TP can cause
  - Algae blooms
  - Discoloration
  - Taste and odor problems



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### Coosa - North Georgia Water Planning Region

Water Council and North Georgia Water Resources Partnership have explored Nutrient Trading alternatives

- Nutrient Trading Feasibility Study – 2013
- Coosa-North Georgia: Regional Water Plan - 2017
- Pilot Nutrient Trading Monitoring Study – 2016-2018
- Alternative Nutrient Management Permit Strategies – 2018
  - Engage stakeholders in permit alternatives

**Goal:** Improve water quality by implementing cost effective permit alternatives

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## Range of Nutrient Management Alternatives

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## Range of Nutrient Management Alternatives

**Regulatory Alternatives**

Water Quality Standards

- Site Specific Criteria
- Use Attainability Analysis

TMDLs

- Alternative 5R or 4B process

**Permit Alternatives**

- Meet Existing Permit Conditions
- Nutrient Trading with Others
  - Point to Point
  - Point to Nonpoint
  - Mitigation and Offset
- Individual Permittee Offset

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## Nutrient Management Traditional Approaches

- Water quality criteria and designated uses
- TMDL (total maximum daily load)
- Meet permit limit at plant

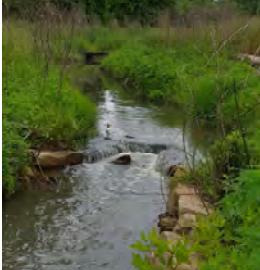
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## Nutrient Management Permit Alternatives

- Nutrient Trading with Others
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## Nutrient Trading

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## What is Nutrient Trading?

Trading allows for the exchange of credits between entities

**How a Water Quality (Nutrient) Trade Works**

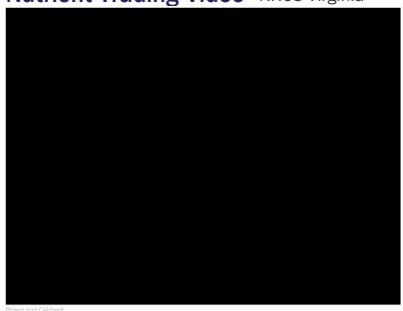


**SELLERS**  
LANDOWNERS  
PERMIT HOLDERS

**BUYERS**  
PERMIT HOLDERS

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## Nutrient Trading Video NRCS Virginia

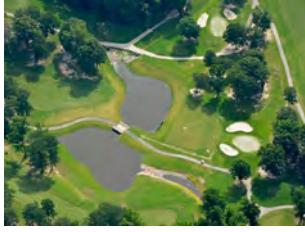


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## General Trading Program Requirements

- Established regulatory driver
- Trading partners must discharge within the same watershed
- Trades cannot result in localized "hot spots"
- Trades must be verified and enforceable
- Baseline or minimum standard must be met before trading excess credit
- GA EPD must approve trades; likely through a "Trading Plan"

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• 03

## Point to Point Trading

### Types of Trading Programs

- Trade between two or more facilities owned by one entity
- Trade between two or more facilities owned by different entities

### Organizational Options

- Individual permit
- Watershed permit
- Private trading organization
- State program

### How does it work?

- Authorized under existing NPDES permit
- Permittee prepares a Trading Plan, finds partners, reports annually
- 3rd party may assist
- Contract established with trading partner
- Documentation and verification required

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• 03

## Example: City of Atlanta Combined Permit

### 2011 NPDES Permit

- Chattahoochee River - receiving water for three plants owned by the City
- Total Phosphorous (TP) limit 0.5 mg/L Monthly Average
- Combined TP limit for 3 plants – daily, weekly and monthly averages
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15

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## Example: Neuse River Compliance Association

- Private association operating under a watershed permit
- Multiple entities (23)
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## Point to Nonpoint Trading

### Trading Framework

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- Agriculture BMPs
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- Stream Buffer Restoration or Protection
- Land Conversion
- Land Conservation
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• 03



## Example: Pennsylvania Nutrient Trading Program

- State facilitated program
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## Example: Wisconsin Water Quality Trading

- Permit holders set up trades
- State provides guidance, checklists, and forms including:
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  - Guidance for Implementing Water Quality
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  - Credit threshold (baseline)
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  - Location
  - Schedule



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## Nutrient Offset and Mitigation

- 3rd Party establishes credits
- Publicly or privately operated programs that allow credits to be purchased or practices installed offsite
- Off-site mitigation allows the construction of best management practices elsewhere in the basin to achieve nutrient load reduction
- Mitigation methods may apply to natural areas, stream buffers, or nutrient reduction projects
- Nutrient reduction credit applied to NPDES Permit



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## Example: Mitigation Banking

**Public Mitigation Programs**  
are operated by State or local governments

- City of Charlotte operates a stream and wetland mitigation bank; credit purchased by public entities to offset losses due to construction of public projects
- NC Division of Mitigation Services
  - States fees to add credits if private banks are not available in the area, fees support future mitigation projects

**Private Mitigation Banks**  
are operated by third party providers

- VA Chesapeake Bay TMDL
  - Permittees may purchase credits from mitigation banks to meet some or all required TMDL nutrient and sediment reductions



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## Individual Nutrient Offset Example: Lower Boise River

- Boise WWTP will exceed effluent limit
- Agriculture nutrient reduction project will reduce nutrient loading
- Removes 140 lbs/day of total phosphorus



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Boise River  
Shoshone River  
Lower Boise River  
Boundary

## Who Can Participate in Trading?

### Credit Buyers - Permit Holders

- NPDES municipal
- NPDES industrial
- Other regulated entities

### Credit Sellers – Property Owners/Permit Holders

- NPDES permittees
- Agriculture producers
- Land owners
- Urban areas

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## Benefits to Trading Partners

**Credit Buyers - NPDES Permit Holders**

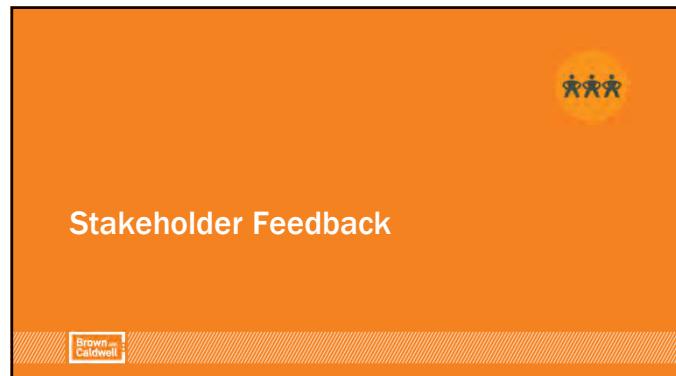
- Meet permit limits cost effectively
- Address majority of loading source (nonpoint)
- Flexibility with timing of upgrades or maintenance
- Broader spatial coverage for water quality improvements
- Help improve water quality of local streams and rivers

**Credit Sellers - Property Owners**

- Receive regular payment for project or program
- Earn income from lower yielding crop production areas
- Help improve water quality of local streams and rivers

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The slide has an orange background. In the top right corner is a yellow sun icon with three stylized human figures. Below the sun, the text "Stakeholder Feedback" is written in white. At the bottom left is the Brown and Caldwell logo, and at the bottom right is the number "28".

## Brief Live Survey

• Use your phone to answer questions now!  
• Or complete paper copy



Bit.ly/GATrade

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## Breakout Sessions

• What sounds interesting about what you have heard today?  
• What concerns do you have about what you have heard today?  
• What information would be useful to you to further evaluate trading?  
• What advice do you have for the Partnership and Water Council as they move forward with the project?



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## Wrap Up Discussion – Report Back to Group

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• What advice do you have for the Partnership and Water Council as they move forward with the project?



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## What's next?

- May 29, 2018 Savannah-Upper Ogeechee Water Planning Region Workshop
- Draft Alternative Permitting Strategies Report
- Review stakeholder feedback from both workshops and draft report
- Coordination meeting with GAEPD, Partnership, and others
- Final Alternative Permitting Strategies Report



For Questions:

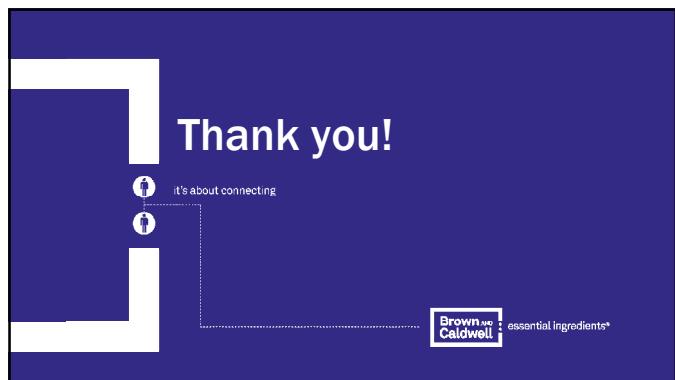
Laurie Hawks  
[lhawks@brwnclvd.com](mailto:lhawks@brwnclvd.com)

Juliane Meadows  
[jmeadows@nwgrc.org](mailto:jmeadows@nwgrc.org)

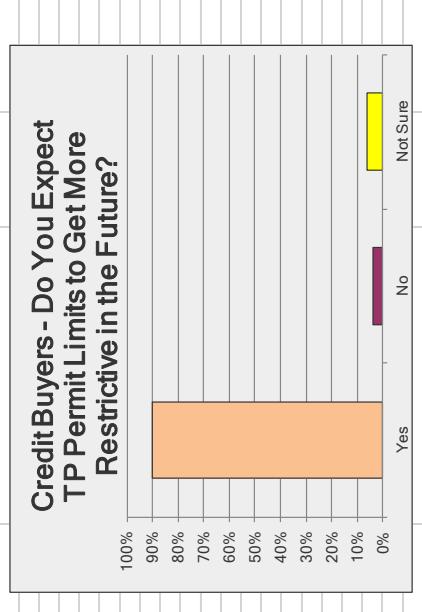
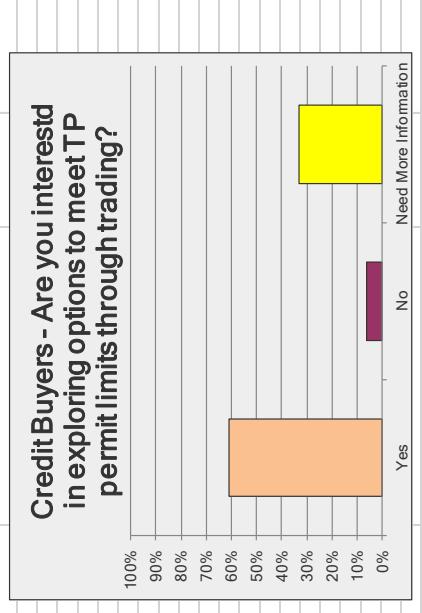
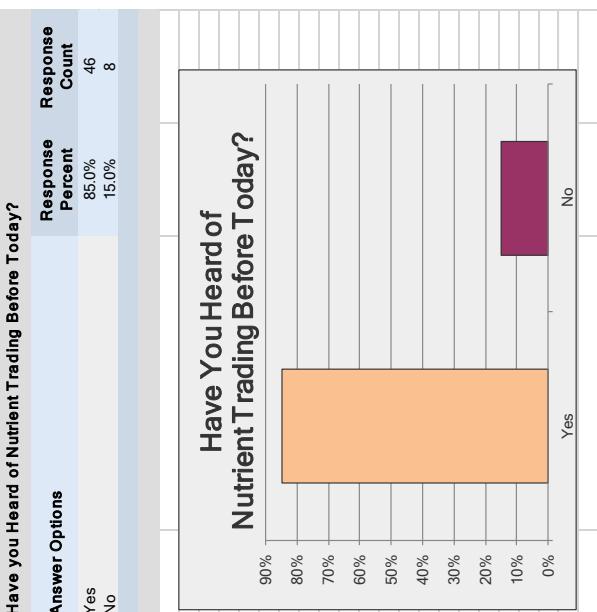
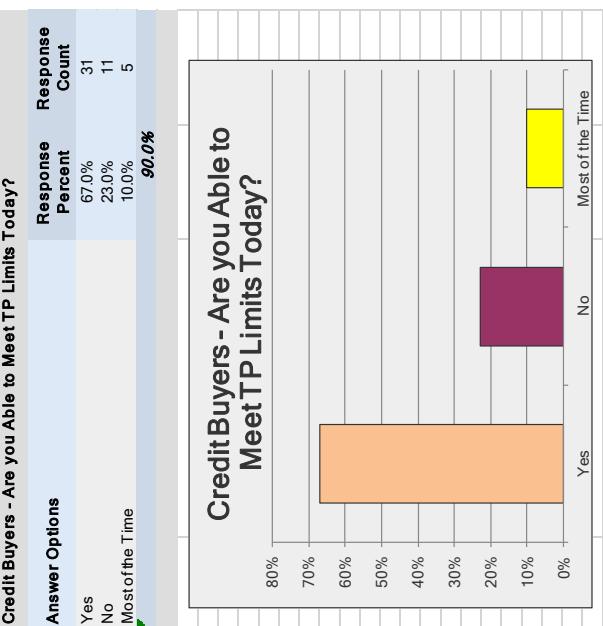
Brooke Anderson  
[banderson@etowahwater.org](mailto:banderson@etowahwater.org)

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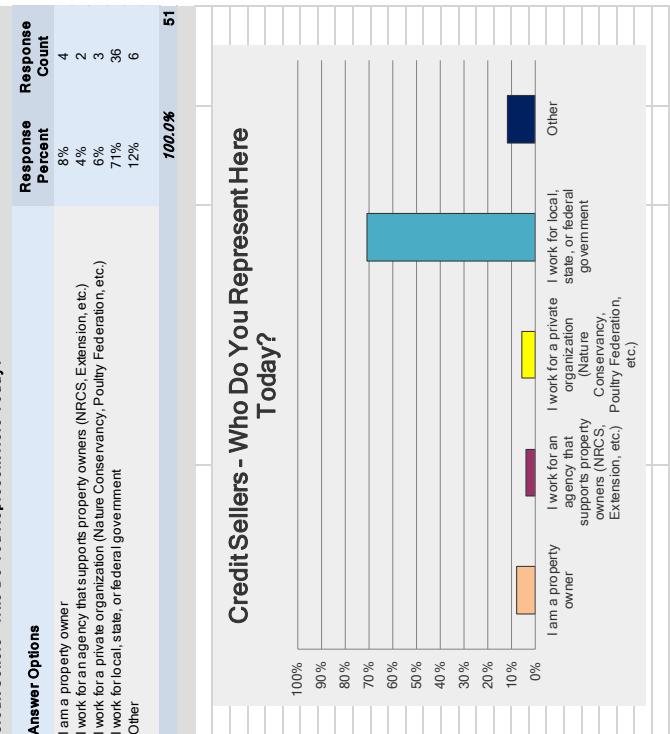
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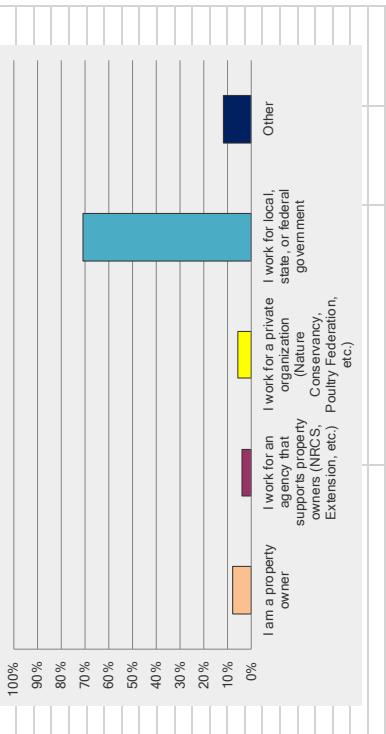
**Coosa River Basin  
Nutrient Trading  
Workshop  
Survey Responses  
April 25, 2018**



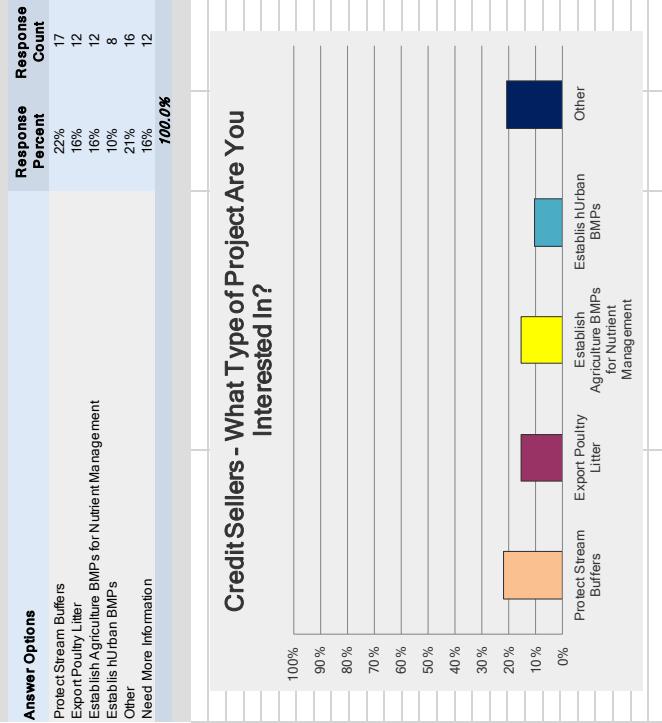
### Credit Sellers - Who Do You Represent Here Today?



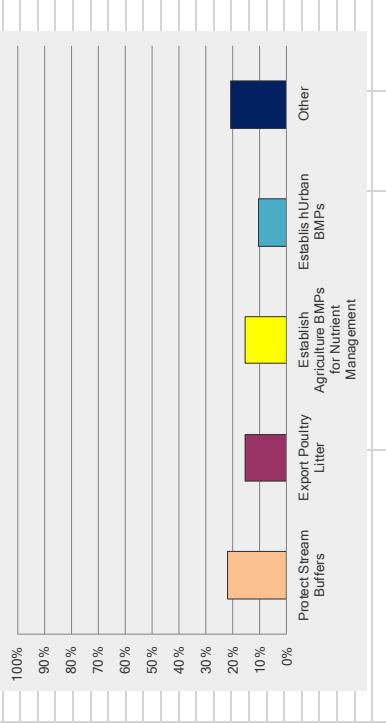
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### Credit Sellers - What Type of Project Are You Interested In?



### All - Would You Be Interested in a 3rd Party Coordinating Trades?



### All - Would You Be Interested in a 3rd Party Coordinating Trades?



### Other Questions or comments?

Answers :

You need to realize with poultry litter that many poultry producers sell to non-poultry producers as pasture/hayfield applications. They get a check off that sell. Any trading would have to be worth it financially to them. Also only about 60 lb of P per ton of poultry litter.

We are a NPDES permitted industry with a mass based limit. We consistently meet our limit with pounds left over that we could potentially sell

Are prices regulated? Who decides how much?  
Thanks for the info!



**Annual Educational Seminar, Booth Western Museum, Cartersville Georgia  
Wednesday, April 25, 2018**

**Nutrient Management Permit Alternatives**

**Stakeholder Feedback**

1. What sounds interesting about what you have heard today?
  - Trading will not solve your permit problems completely
  - All in the group are interested in the topic, especially the point to point source trading.  
This is a good opportunity to use buffers to prevent pollution
  - This gives multiple options for solutions
  - Total watershed compliance is a good concept
  - Gives poultry farms different options and incentives
  - It is important that bad practices are corrected before getting credit
  - Demonstrating the need for future credits – could this lead to ‘banking’?
2. What concerns do you have about what you have heard today?
  - Can’t cause excess of contaminants in another basin
  - Costs – how will they be determined and could wealthy buyers control/steer the market?
  - Who will regulate?
  - Lack of restrictions of non-point sources
  - Inconsistent limits with point-source
  - Unintended contaminants involved in trading
  - Will non-point sellers participate? What is their incentive?
  - Concerned about point to non-point source trades, as it seems less sustainable over time.
  - Will a trade have a reasonable chance for a WWTP to avoid tertiary treatment?
  - How will you make sure that the BMP used by the non-point source will stay (i.e. if you buy credits from someone who installs a stream buffer, then removes it later, who is liable and what are the consequences, etc.)
3. What information would be useful to you to further evaluate trading?
  - Possible cost of trade vs. capital cost to meet permit
  - How to make it cost effective
  - Having input from non-point sources
  - EPD input to help make it more attractive to non-point
  - Regulation model
  - In-state examples
  - Recourse if seller reneges on maintenance of property
  - How are sellers credits transferred via land sale?
  - Credits tied to the same watershed?
  - What type of monitoring is required?

4. What advice do you have for the Partnership and Water Council as they move forward with the project?

- Suggest we investigate other state's successes and problems
- Proceed with caution
- Would there need to be an inventory of credits per watershed
- Work on seller being responsible party to follow guidelines
- Think more about the idea of a third party broker or person to coordinate
- Make sure poultry industry understands these concepts, can't be successful without that
- Keep it as simple as possible. Public outreach to educate the poultry farmers and others that will be involved
- Wet vs. dry impacts for nutrient levels.

5. Other questions or comments?

- What reduction comes from areas where livestock are excluded from areas they use to roam
- How much nutrients are still being released from fields that are not currently receiving chicken litter, but did so for many years prior?



Attachment C:

# Savannah-Upper Ogeechee Stakeholder Meeting

- Invitation
- Attendee List
- Presentation
- Survey Responses
- Stakeholder Responses



990 Hammond Drive, Suite 400  
Atlanta, Georgia 30328

T: 770.394.2997  
F: 770.396.9495



April 30, 2018

1016-151601

**Subject: Alternative Permitting Nutrient Trading Workshop  
May 29, 2018, 1:00 – 3:00 P.M.**

Dear Water Council Members and Interested Stakeholders:

On behalf of the Savannah River Clean Water Fund and North Georgia Water Resources Partnership, we would like to cordially invite you to the Alternative Permitting Nutrient Trading Workshop May 29, 2018 in Augusta, GA. The workshop will discuss an innovative and cost-effective tool for communities to use in meeting regulatory requirements. Nutrient Trading is an implementation strategy listed in the Regional Water Plans and various nutrient TMDLs as an acceptable tool to meet regulatory requirements for NPDES permit holders. The workshop and project are partially funded by a Georgia EPD Seed Grant awarded to both the Coosa-North Georgia and the Savannah-Upper Ogeechee Water Councils.

Nutrient Trading allows communities to pursue alternatives to meeting permit requirements solely at a wastewater facility while still protecting overall watershed health. At the workshop, we will provide an overview of Nutrient Trading and will seek feedback from stakeholders such as permit holders and land owners.

Please feel free to contact me if you have any questions, by email [lhawks@brwncauld.com](mailto:lhawks@brwncauld.com) or telephone 770.673.3602.

Very truly yours,

**Brown and Caldwell**

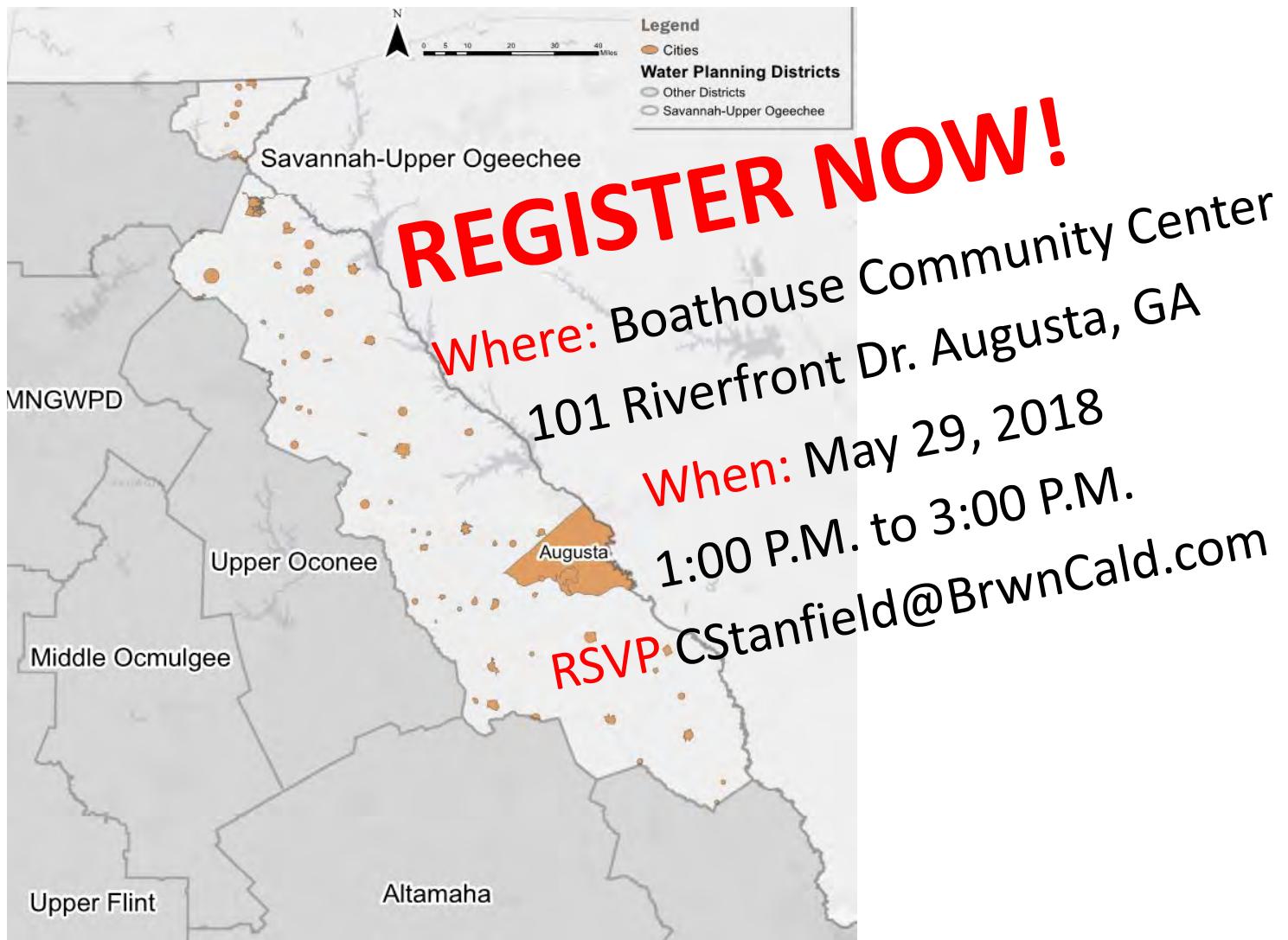
A handwritten signature in black ink that reads "Laurie J. Hawks".

Laurie J. Hawks  
Project Manager

cc: Brooke Anderson, North Georgia Water Resources Partnership  
Julianne Meadows, Northwest Georgia Regional Council  
Braye Boardman, Savannah Clean Water Fund

Attachment

# The Savannah – Upper Ogeechee Alternative Permitting Nutrient Trading Workshop



**What:** Learn about a proposed tool to meet permit limits and improve water quality through Nutrient Trading

**Who:** NPDES permit holders, land owners, and the organizations that support them

**Goal:** Provide background on Nutrient Trading and seek feedback from stakeholders

# May 29, 2018 Nutrient Trading Workshop

## Nutrient Management Permit Alternatives

Name	Organization	Email	Phone
Sara Gottlieb	The Nature Conservancy GA / GA	sgottlieb@tnc.org	404-253-7250
Lizde Haagenson	coastal region - water com	lhaagenson@tnc.org	904-253-7213
TENIA Norleman	Savannah Open Water Fund	tenia@acsac.com	765-319-1224
Michelle Bidette	coastal region - water com	michelle.lid@acsac.com	912.826.6120
Stephanie DuQue	Americans Land Trust	stephanie.d@otherslandtrust.org	
Brooke Anderson	Cross GA water concil	banderson@crosswater.com	202-216-8674
Jeff Boss	BJWUSA	jeff.boss@bjusa.org	843-487-8055
Jeff deBergot	SC Dept	tedbergot@the.s.s.gov	803-826-4157
Hera Saxon	Augusta Utilities	asaxon@augusta.gov	706-312-4153
John McKinnon	RCF	john.mckinnon@nutrien.com	706-469-6236
Matthew Gibbs	Col. Co. water utility	mgibbs@columbiacountyga.gov	706-847-4224
Joey Bruegink	Nutrien	joey.bruegink@nutrien.com	706-469-1239
Margot Doss	Columbia County Water Mdesd Columbia County Ga, SOV	706-285-36928	
Mike Grives	Coastal Boultry Federation	mike@coastalbirds.org	770-532-0423
Matt Peery	Mitigation Management	matt@mitigationconsult.com	404-376-4098
Kotic Bell	High River Basin Ctr.	kotic.bell@highriverbasin.org	704-542-1768
Mark Rose	UCA	mrise@uca.edu	706 542 - 1596
Pat Fowler	Stonewall River Power BP	pfowler@att.net	706 - 855 - 8357
Oscar Pyle	Arguske Engineering Dept	oflife@arguske.org	762 - 333 - 5620

Damon Modlin	Phinney Center for Water Science	damon.modlin@phmny.edu	978-231-7219

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North Georgia Regional Water Partnership Savannah Clean Water Fund Savannah-Upper Ogeechee Water Council

## Nutrient Management Permit Alternatives

May 29, 2018





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### Overview

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Water Council and North Georgia Water Resources Partnership have explored Nutrient Trading alternatives

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- Pilot Nutrient Trading Monitoring Study – 2016-2018
- Alternative Nutrient Management Permit Strategies – 2018
  - Engage stakeholders in permit alternatives

**Goal: Improve water quality by implementing cost effective permit alternatives**

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### Savannah-Upper Ogeechee Water Planning Region

**Issues**

- Source Water Protection
- Low Dissolved Oxygen in river and harbor
- Proactive nutrient management
  - Potential future TMDL
- Coordination with South Carolina
  - Governor's Committee for the Savannah River
- Salt water intrusion
- Savannah Harbor Expansion Project

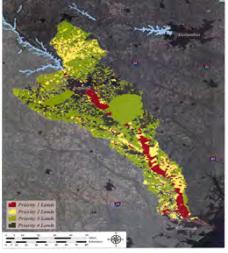
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## Savannah-Upper Ogeechee Water Planning Region

Activities

- Alternative TMDL (5R) for Dissolved Oxygen approved – 2015
  - Stakeholder led modeling and permit allocation process
- Savannah River Clean Water Fund – 2016
  - Permanent land protection
  - Land management
  - Science and research
- Savannah River Research Roundtable – 2018 conference, both states, active research presentation



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## Range of Nutrient Management Alternatives

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TMDLs

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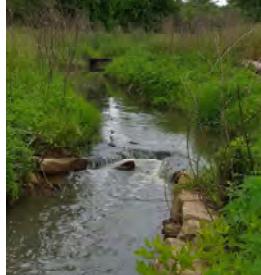


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**SELLERS** (LANDOWNERS, PERMIT HOLDERS) **BUYERS** (PERMIT HOLDERS)

SELL → Nutrient Reduction Credits → BUY  
PROFIT → SAVINGS

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- Nutrient reduction credit applied to NPDES Permit



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## Example: Mitigation Banking

**Public Mitigation Programs** are operated by State or local governments

- City of Charlotte operates a stream and wetland mitigation bank; credits purchased by public entities to offset losses due to construction of public projects
- NC Division of Mitigation Services - State provides fee-based credits if private banks are not available in the area; fees support future mitigation projects

**Private Mitigation Banks** are operated by third party providers

- VA Chesapeake Bay TMDL - Permittees may purchase credits from mitigation banks to meet some of all required TMDL nutrient and sediment reductions



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### Individual Nutrient Offset Example: Lower Boise River

- Boise WWTP will exceed effluent limit
- Agriculture nutrient reduction project will reduce nutrient loading
- Removes 140 lbs/day of total phosphorus

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### Who Can Participate in Trading?

<b>Credit Buyers - Permit Holders</b>	<b>Credit Sellers - Property Owners/Permit Holders</b>
<ul style="list-style-type: none"> <li>NPDES municipal</li> <li>NPDES industrial</li> <li>Other regulated entities</li> </ul>	<ul style="list-style-type: none"> <li>NPDES permittees</li> <li>Agriculture producers</li> <li>Land owners</li> <li>Urban areas</li> </ul>

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### Benefits to Trading Partners

<b>Credit Buyers - NPDES Permit Holders</b>	<b>Credit Sellers - Property Owners</b>
<ul style="list-style-type: none"> <li>Meet permit limits cost effectively</li> <li>Address majority of loading source (nonpoint)</li> <li>Flexibility with timing of upgrades or maintenance</li> <li>Broader spatial coverage for water quality improvements</li> <li>Help improve water quality of local streams and rivers</li> </ul>	<ul style="list-style-type: none"> <li>Receive regular payment for project or program</li> <li>Earn income from lower yielding crop production areas</li> <li>Help improve water quality of local streams and rivers</li> </ul>

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### Stakeholder Feedback

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### Brief Live Survey

- Use your phone to answer questions now!
- Or complete paper copy

<http://bit.ly/Sav2018>

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### Breakout Sessions

- What sounds interesting about what you have heard today?
- What concerns do you have about what you have heard today?
- What information would be useful to you to further evaluate trading?
- What advice do you have for the Partnership and Water Council as they move forward with the project?

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### Wrap Up Discussion – Report Back to Group

- What sounds interesting about what you have heard today?
- What concerns do you have about what you have heard today?
- What information would be useful to you to further evaluate trading?
- What advice do you have for the Partnership and Water Council as they move forward with the project?

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### What's next?

- Review stakeholder feedback from Coosa and Savannah workshops and draft report
- Draft Alternative Permitting Strategies Report
- Coordination meeting with GAEPD, Partnership, and others
- Final Alternative Permitting Strategies Report with recommendations

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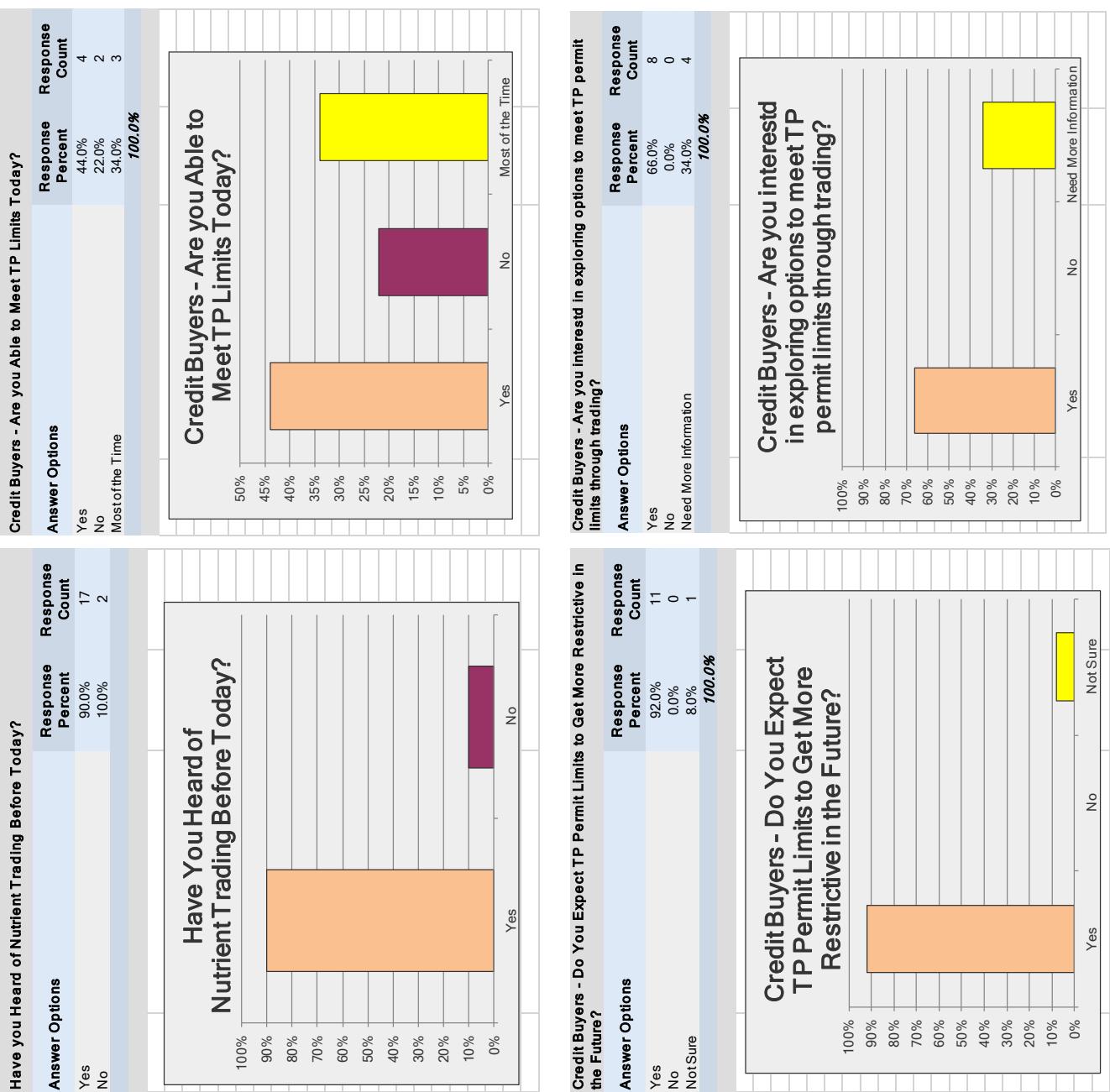
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# Thank you!

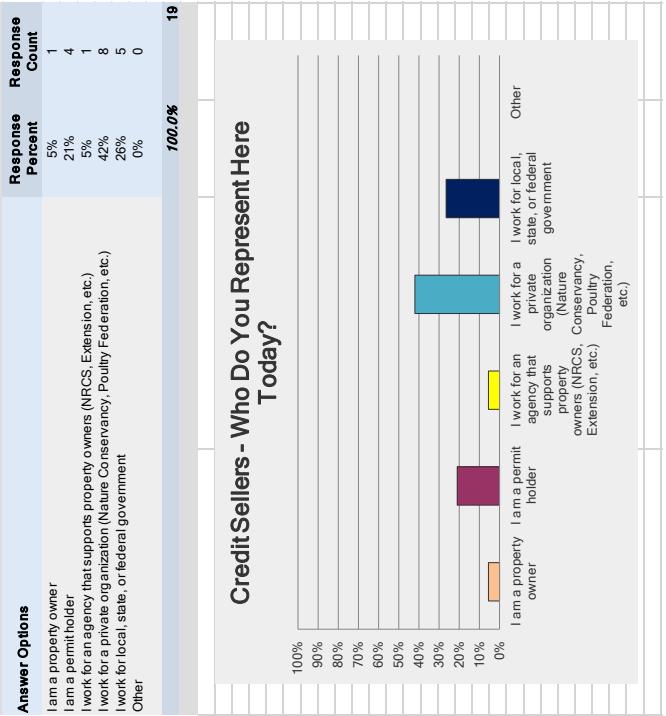
it's about connecting

**Brown & Caldwell** essential ingredients\*

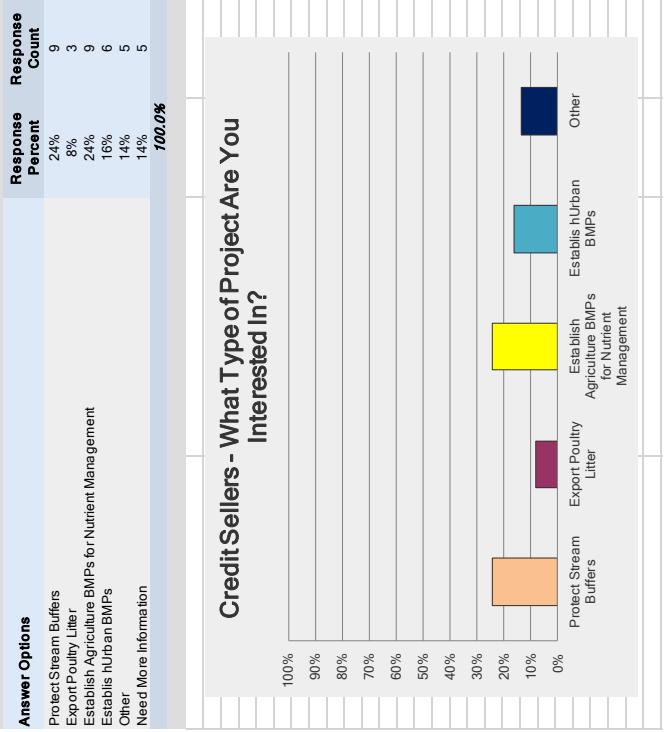
**Savannah River  
Basin Nutrient  
Trading Workshop  
Survey Responses  
May 29, 2018**



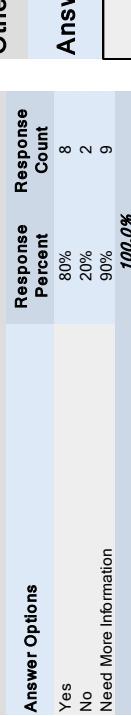
### Credit Sellers - Who Do You Represent Here Today?



### Credit Sellers - What Type of Project Are You Interested In?



### All - Would You Be Interested in a 3rd Party Coordinating Trades?



### Other Questions or comments ?

**Answers:**

My farm is about to plant trees after generations of farming.
Worry about setting unrealistic limits in order to get trading started
Need more info on regulatory drivers and administration, monitoring. Many programs have failed.





**Boathouse Community Center, Augusta, GA**  
**Tuesday, May 29, 2018**

## Nutrient Management Permit Alternatives

### Stakeholder Feedback

1. What sounds interesting about what you have heard today?
  - Interested in combined permits and how that would work between the facilities
  - Land conservation/buffers – impacts, how to determine credits and document compliance with monitoring, etc.
  - Involving a third party, like the Savannah-Upper Ogeechee Water Council to assist in the process
  - Examples of previous states/cities or watersheds that have implemented similar programs successfully
  - Glad to hear that people are interested in trading, and that the agriculture community is being engaged in the process
2. What concerns do you have about what you have heard today?
  - What role will EPD play in oversite, funding, etc?
  - How will the BMPs be monitored after implementation?
  - Permit holders seem to be bearing most of the burden
  - Are we going to have to set higher or artificial limits in order to incentivize trading?
  - Concerned that strict regulatory compliance will cost a lot of money (Virginia)
  - Easier to control in an urban watershed than in a 2.8 million acre watershed, and the challenges associated with that
  - What happens if the land owner sells or removes the BMP?
  - How much of a hassle will working with EPD be? If complicated or difficult, most will not participate
  - How to calculate removal efficiencies or trading ratios? For example, tree buffers will remove different amounts of N/P during the life-cycle of the tree
  - Needs to be monetarily advantageous for the permit holder, otherwise they will just upgrade the plant to meet the removal goals
3. What information would be useful to you to further evaluate trading?
  - What limits will EPD set to start out
  - How many dischargers do we have and what are their limits?
  - Would conservation groups trust EPD to be the enforcer?
  - Data to determine where hot spots are in relation to where the opportunity exists for BMPs
  - Who would verify BMPs, etc?
  - Would it be suggested that the land include easement agreements so that the BMPs stay in place if the land is sold, etc?
  - How does the trading work?
  - Is the trading limited to the entire basin, or only a sub-basin?

4. What advice do you have for the Partnership and Water Council as they move forward with the project?

- Suggest we investigate other state's successes and problems, maybe have them come and speak to stakeholders
- Will EPD accept national averages of BMP effectiveness? Or will there need to be more studies done to determine specific numbers to state/each watershed?
- Continue seed grant opportunities
- Involve stakeholders in the entire process, similar to 5R.
- Design a system that is predictable and transparent – needs to be simple and not complicated
- Study programs that have failed or have limited trades
- Educate land owners, farmers, etc. Need to get the word out to them in order to have good participation – also be sure to talk about co-benefits such as reduction of algal blooms, source water protection, etc.
- Do not eliminate the trading tool before we try to work on a program
- Look at New York City Source Water Protection

5. Other questions or comments?

- Is there data on buffer nutrient reduction?
- Currently for this area there is not TP limits in permits, only monitoring – TN is the issue
- When will rivers and streams have nutrient standards? Estuaries are next on the list before rivers/streams?
- Additional ideas for Savannah area the water quality improvements include oxbow restoration (projects already in the works for this)

Attachment D:

# Fact Sheet and Permit Example

## Fact Sheets

- North Carolina - Tar-Pamlico Nutrient Strategy Fact Sheet
- North Carolina - Tar-Pamlico Nutrient Sensitive Waters Implementation Strategy: Phase IV
- Ohio - Water Quality Trading Program Great Miami River
- Pennsylvania - Phase 2 Watershed Implementation Plan Nutrient Trading Supplement
- Virginia – Fact Sheet Reissuance of a General VPDES Permit to Discharge to State Waters and State Certification under the State Water Control Law
- Wisconsin – Water Quality Trading

## Permit Example and Rules

- City of Boise, Idaho - NPDES Permit ID-002398-1. I.B.6. Dixie Drain Offset.
- North Carolina - Neuse River Compliance Association – NPDES Permit NCC000001
- North Carolina – 15A NCAC 02B.0234. Neuse River Basin Nutrient Sensitive Waters Management Strategy: Wastewater Discharge Requirements
- Pennsylvania – 25 PA. Code Ch. 96. Rules and Regulations Water Quality Standards Implementation
- Pennsylvania – 96.8 Use of offsets and tradable credits from pollution reduction activities in the Chesapeake Bay Watershed.
- Virginia – 9VAC25-820 VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia, including 9VAC25-820-70 General Permit.
- Virginia – Guidance Memo No. 07-2008, Amendment No. 2, Permitting Considerations for Facilities in the Chesapeake Bay Watershed
- Wisconsin – Effluent Standards and Limitations for Phosphorus. Chapter NR 217.13 (8)(c) Calculation of water quality based effluent limitations for phosphorus, NR 217.14 Expression of limitations, and NR 217.17(3)(f) Schedules of compliance.
- Wisconsin – Pollution Discharge Elimination. Chapter 283.84 Trading of water pollution credits.