Connecticut’s Nitrogen Reduction Program

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ACWA Nutrients Permitting Workshop
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Connecticut’s Nitrogen Reduction Program

- The TMDL
- Permitting
- Trading
The TMDL

Dissolved Oxygen in Long Island Sound Bottom Waters

August 1 - August 4, 1994

Cruise: WQ AUG94

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The TMDL

Long Island Sound TMDL

To meet Water Quality Standards:

• In-basin Nitrogen Reduction Goal — 58.5%

• Enforceable Schedule — final reductions due 2014

• Allows “Trading” between POTWs

• Future Actions
  — Out of State Sources (runoff – 10%, point sources – 25%)
  — Atmospheric Deposition (CAIR Rule and SIPs)

• Periodic Revision (Adaptive Management)
Distribution of 79 Connecticut STPs participating in nitrogen trading. Dots are proportional to baseline, end of pipe nitrogen loads (lbs/day).
Permitting

Using NPDES Permits to set limits

- Your Pipe
- Your Permit
- Your Problem

- High Compliance Cost
- High Non-Compliance Cost
- Rewards those that go last

Difficult to implement
Using a General Permit and Trading to meet goals

- Our Pipe
- Our Permit
- Our Problem
- Lower Compliance Cost
- Lower Non-Compliance Cost
- Rewards those that go first

Incentive to reduce nitrogen
General Permit for Nitrogen Discharges

• Public Act 01-180, An Act Concerning Nitrogen Reduction In Long Island Sound – GP authority
• First issued January 1, 2002
• Latest version expires December 31, 2018
• Lists POTWs covered
• Authorizes the discharge of Total Nitrogen
• Requires operation of installed processes
• Allows for trading to meet limits
General Permit for Nitrogen Discharges

Sets limits from TMDL stepped over 14 years

Sets frequency of monitoring:

– Total Nitrogen Concentration
– POTWs Less Than 10 MGD Design - Weekly
– POTWs Greater Than 10 MGD Design - Twice per Week
– Average Flow - Daily
– Sample Location - Final Effluent
– Sample Type - Daily Composite
Connecticut’s Nitrogen Trading Program

- Governed by the General Permit
- Public Act 01-180, An Act Concerning Nitrogen Reduction In Long Island Sound – Establishes NCAB
- Incentive Based – Not Free Market
- Managed by Nitrogen Control Advisory Board (NCAB)
- NCAB Sets Credit Prices Based on Set Formula —Annual CWF Project Capital Costs and Annual O&M Costs
- Scheduled Annual Trades
- Transactions through the State “Bank”
Meet the TMDL by 2014 cost-effectively by

- Encouraging denitrification at STPs - grants
- Spreading out upgrades over thirteen years
  - Western and larger facilities expected first
- Efficiently using funding and resources
Trading Program Accomplishments

- Cost-effective implementation of the TMDL
  - (cost savings of $325 – 425 million)
- 59 facility upgrades
  - $450 million invested in CWF project facilities to remove TN
- Compliance with the TMDL in 2013
Trading Program Achievements

- **Number of Upgrades**
  - **Project Facilities**
  - **Non Project Facilities**

Year-wise comparison from 2002 to 2018.
Trading Program Accomplishments

Price of Nitrogen Credits

* In 2016 – the price of a credit for sellers is $2.66
Trading Program Accomplishments

Monthly Average Total Equalized Nitrogen Loading to Long Island Sound

- 12 Mo Moving Avg
- Linear Regression

Equalized lbs N/day

Year


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Trading Program Accomplishments

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Trading Program Accomplishments

2017 – 2022 Nitrogen Upgrades:

- Under Construction
  - Farmington
  - Middletown Abandonment
  - Rocky Hill

- Under Design
  - Norwich
  - Ridgefield

- In Planning
  - Plainfield
  - Sprague
  - Vernon
  - Wallingford
Changes to the Trading Program

• Continue to maintain compliance with TMDL
  – Encourage optimized denitrification at WWTPs
  – Continue efficient use of resources & funding
  – Continue support of data collection

• Continue utilization of General Permit
  – Renewal coming due at the end of 2018

• Maintain Options for future TMDL compliance
  – Continue to incentivize upgrades

• Moved the trading program to self-sufficiency
Changes to the Trading Program

2015

- **Buyer's credits needed**
- **Sellers's credits available**
- **Trading account subsidy**
Changes to the Trading Program

Impact on Program

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Changes to the Trading Program

Self-sufficient scenarios evaluated

• Discontinue the trading program
• Drop low producing sellers
• Drop inefficient sellers
• Buyers buy all of the credits produced
• Buyers buy the credits they need to meet their General Permit limit and those payments are shared by the sellers
Proposed self-sufficiency scenario

2018 Sellers Projection based on original program and 2013 performance

2018 Buyers Projection based on 2013 performance

2018 Sellers Projection based on buyers credits being shared with sellers and 2013 performance

Plants in Trading Program

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Next steps

- Changes to the TMDL
- Public participation
Questions?

www.ct.gov/deep/municipalwastewater

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