



Connecticut Department of Energy and Environmental Protection



Connecticut's POTW Nitrogen Trading Program

October 26, 2020

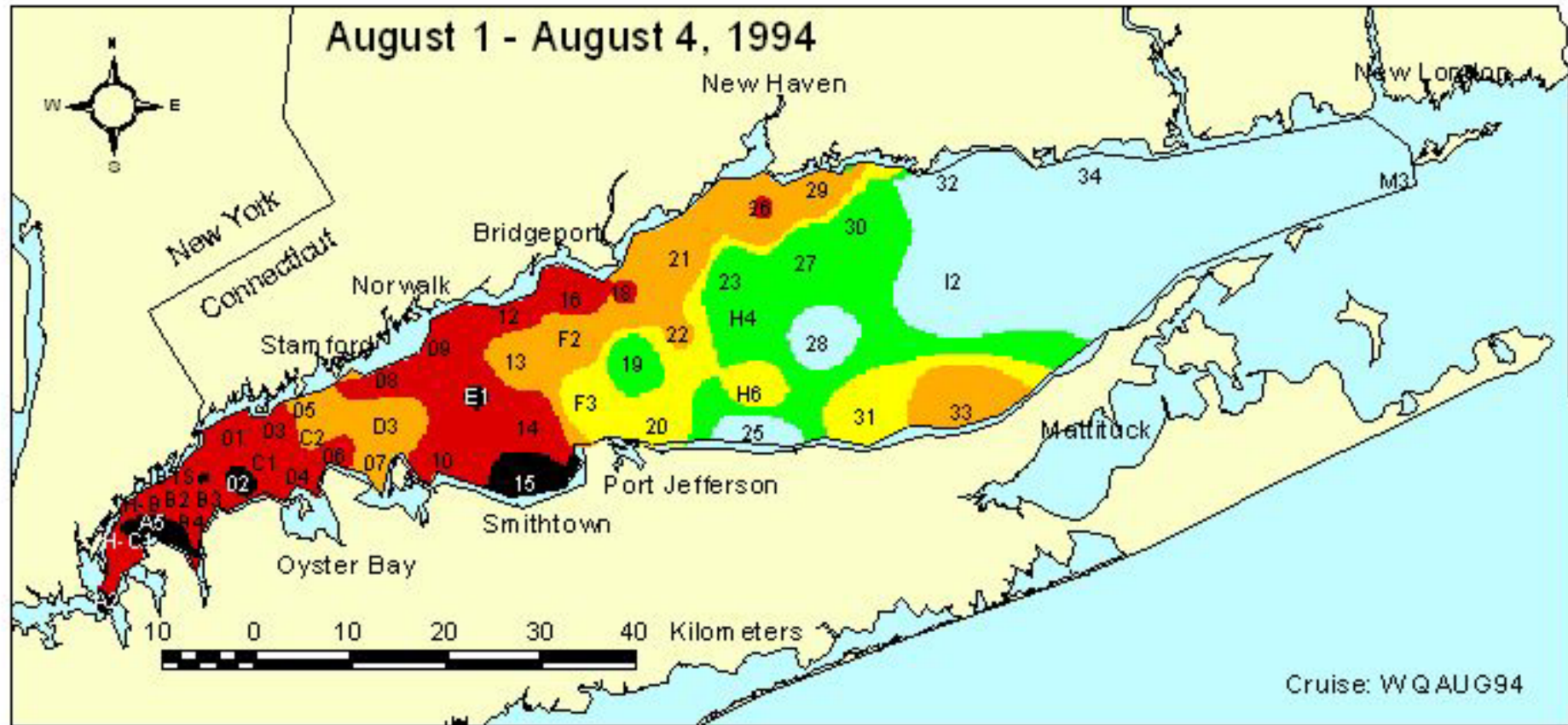
ACWA - 2020 Nutrients Permitting Workshop

Rowland C. Denny, Supervising Environmental Analyst



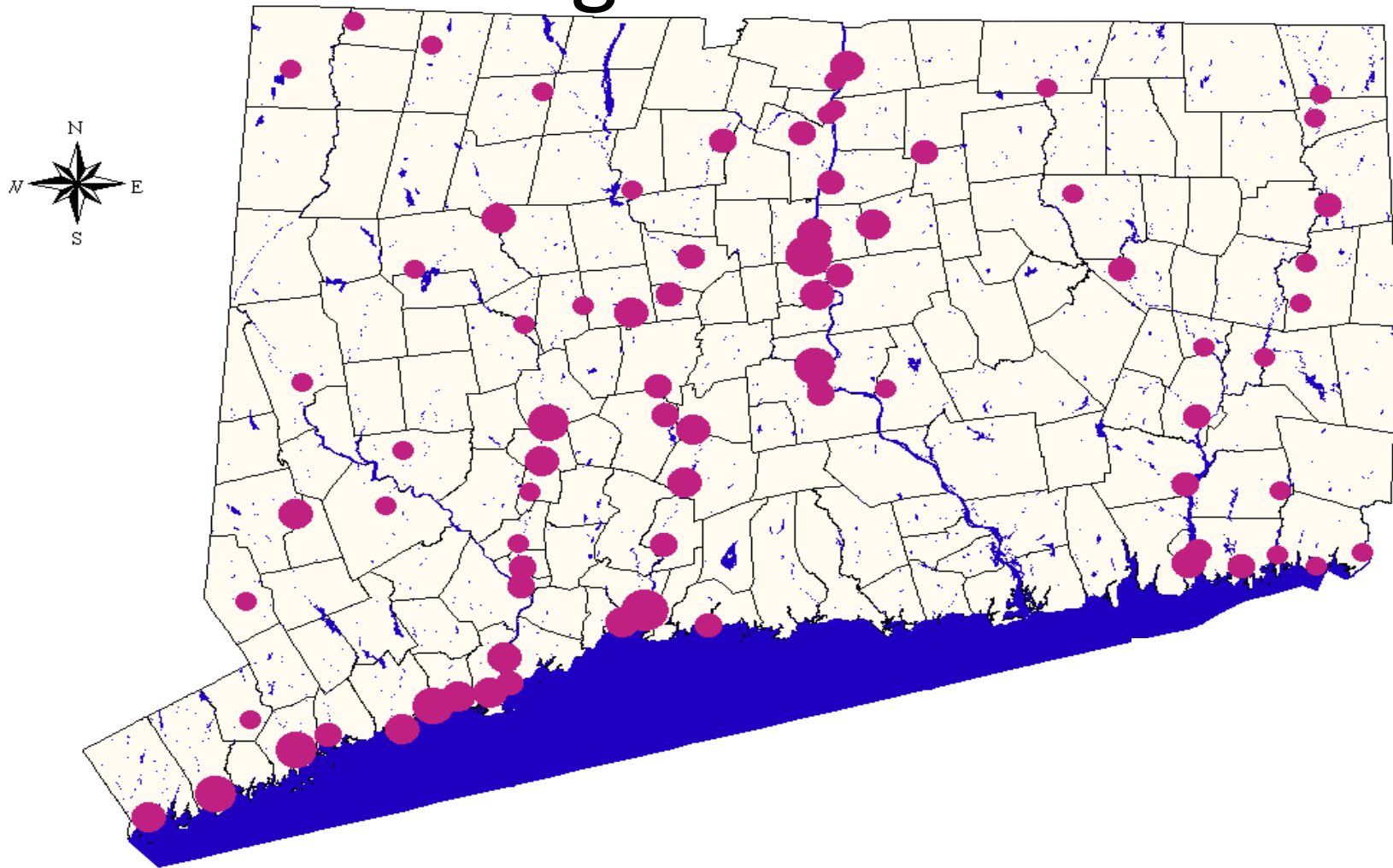
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Long Island Sound Hypoxia 1994

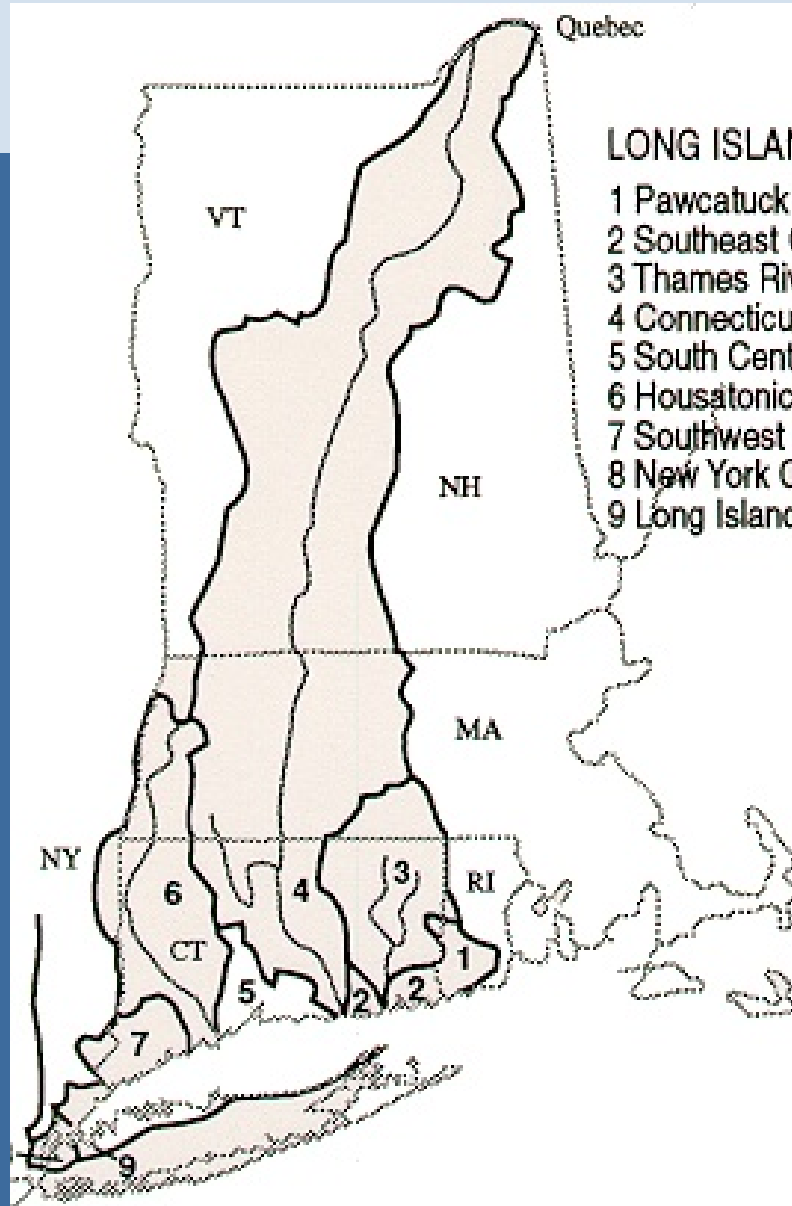


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STP Nitrogen Baseline Loads



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



Quebec

LONG ISLAND SOUND DRAINAGE BASINS

1 Pawcatuck River - 297 sq. mi.

2 Southeast Coast - 149 sq. mi.

3 Thames River - 1478 sq. mi.

4 Connecticut River - 11,263 sq. mi.

5 South Central Coast - 482 sq. mi.

6 Housatonic River - 1946 sq. mi.

7 Southwest Coast - 355 sq. mi. (includes Westchester County)

8 New York City - 66 sq. mi.

9 Long Island - 210 sq. mi.



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Connecticut Nitrogen Trading Program

- The Long Island Sound TMDL
- The General Permit
- Trading
 - The 2002 Trading Program Goal
 - The Trading Program Accomplishments
 - Near-Term Goals of the Trading Program





The Long Island Sound TMDL

- Prepared together by New York and Connecticut - 1999
 - Revised 2000
- EPA reviewed and approved - 2001
- In-basin Nitrogen Reduction Goal
 - 58.5%
 - 63.5% in point source reductions in Connecticut
- Enforceable Schedule – final reductions due 2014
- Allows for Trading between POTWs



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 renewal effective January 1, 2019
- Lists WLA for all 79 point sources covered
- Authorizes the discharge of Total Nitrogen



General Permit for Nitrogen Discharges

- Set limits from TMDL stepping down until 2014
- Set frequency of monitoring
- Requires operation of installed processes
- Allows for trading to meet limits



General Permit for Nitrogen Discharges

Nitrogen WLA for Connecticut Point Source Discharges

EQ factor	Facility Name	Baseline End-of-Pipe (lbs/day)	WLA End-of-Pipe (lbs/day)
0.14	Thompson	28	10
0.20	MDC Hartford	6512	2377
0.49	Meriden	1230	449
0.67	Stratford	974	356
0.85	Fairfield	1113	406
1	Norwalk	1967	718



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Trading Fundamentals

	Point Source	Non-Point Source
Common water quality problem	YES	YES
Technically feasible to meet pollutant reduction target	YES	UNCERTAIN
Compelling member benefits, especially economic	YES	PS to NPS/SW
Ability to quantify and track pollutant loads	YES	NO
Credit costs based upon agreed protocols	YES	YES
Diverse market, viable supply and demand	YES	NO
Reduce overall cost	YES	PS to NPS/SW
Transaction costs low relative to price	YES	NO



Connecticut's Nitrogen Trading Program

- Governed by the General Permit
- Public Act 01-180, An Act Concerning Nitrogen Reduction In Long Island Sound – Established NCAB to manage
- Not Free Market
- NCAB Sets Credit Prices Based on Legislated Formula
 - Annual CWF Project Capital Costs and Annual O&M Costs
- Scheduled Annual Trades
- Transactions through the State “Bank”
- POTW to POTW only





Goals of the Trading Program in 2002

Meet the TMDL by 2014 cost-effectively by

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

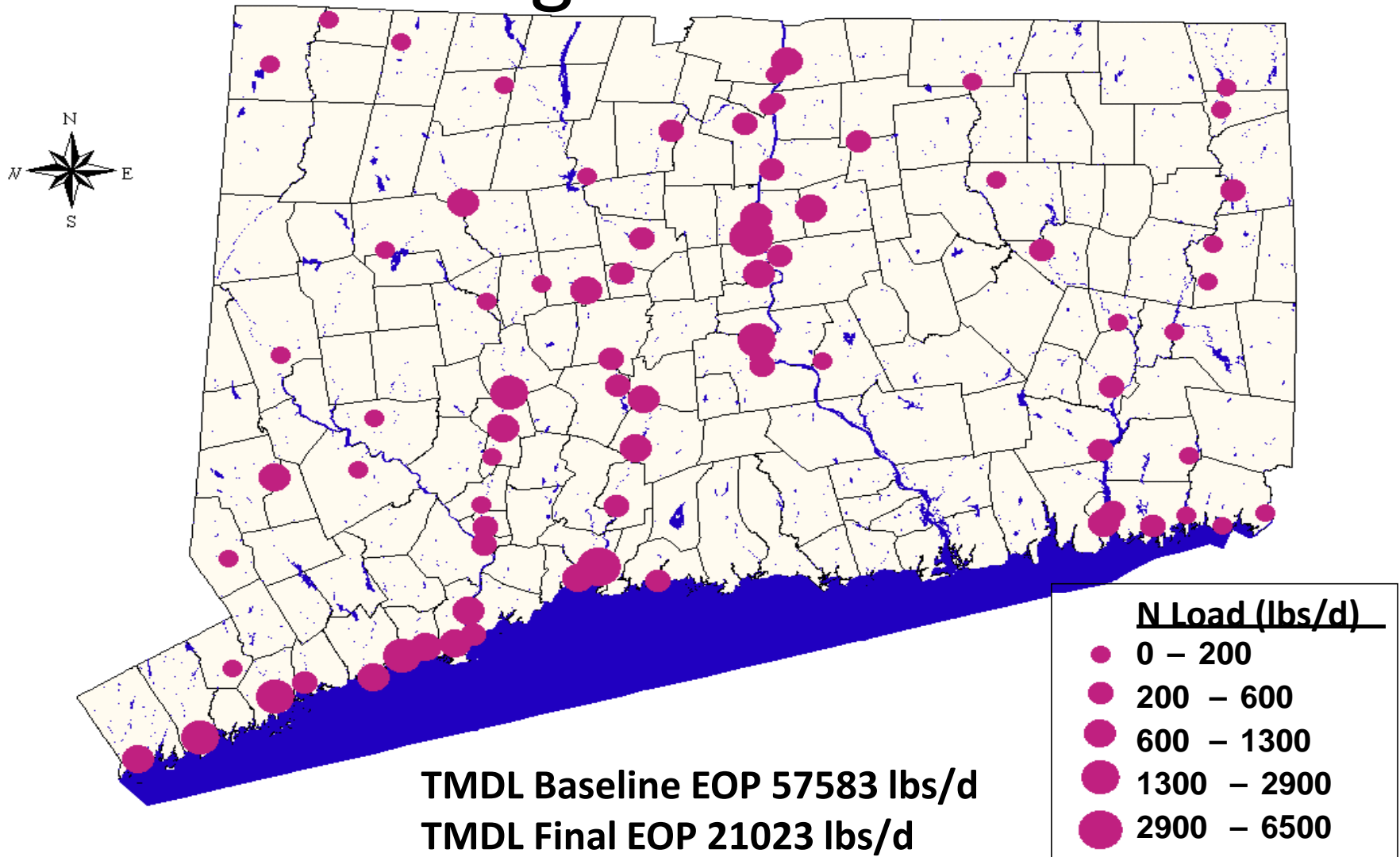


Encouraging denitrification at STPs

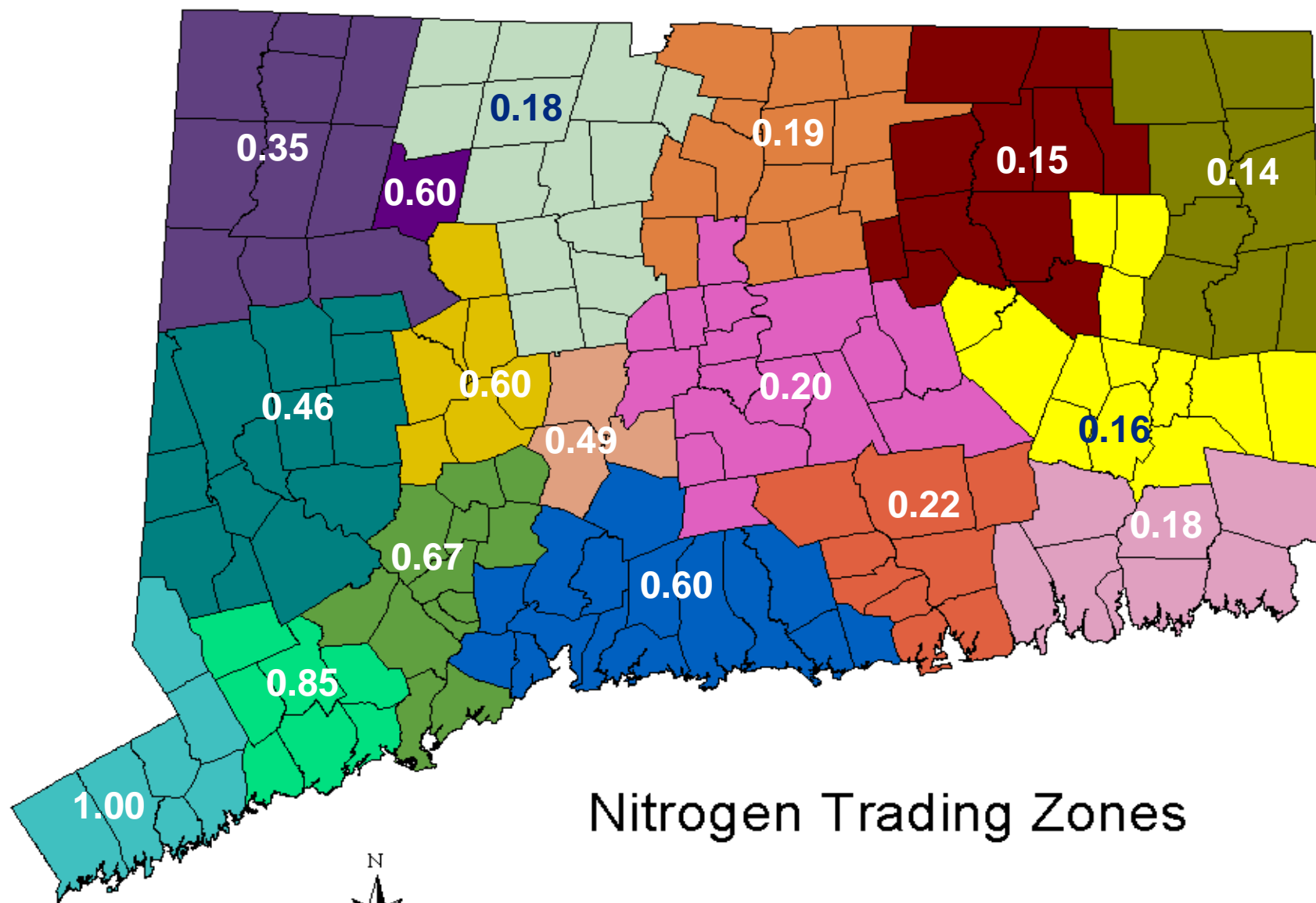
- Some grant only projects for interim BNR
- Increased grants to 30% on costs related to BNR from 20%
- 20% grant on other costs continued
- 20 year loan at 2% continued



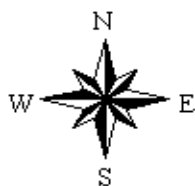
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Nitrogen Trading Zones



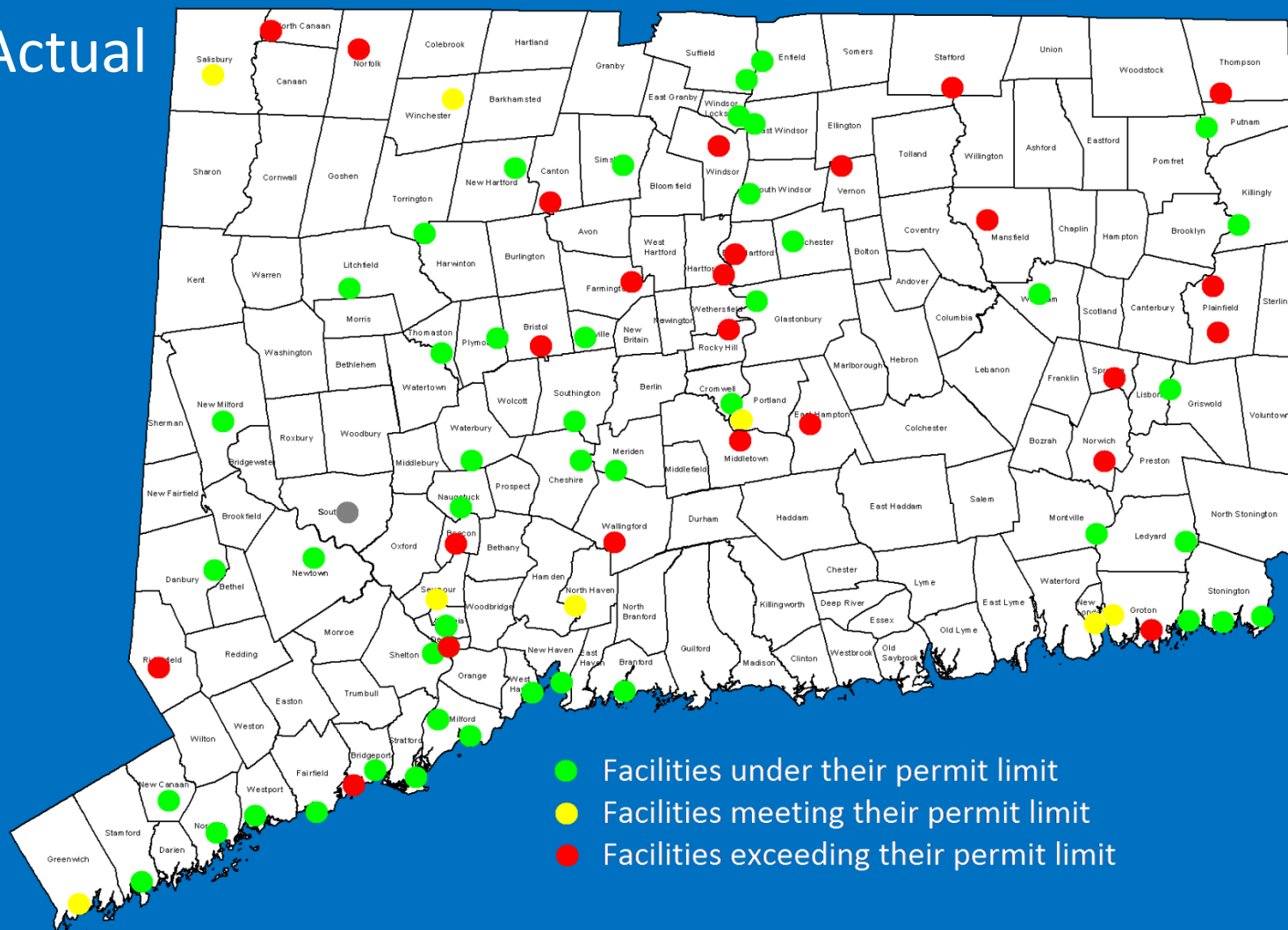
Trading Program Accomplishments

- Compliance with the TMDL by 2014
- Cost-effective implementation of the TMDL
 - (estimated cost savings of over \$400 million)
- 59 facility upgrades
 - \$410 million invested in CWF project facilities to remove TN
- Moved the trading program to self-sufficiency



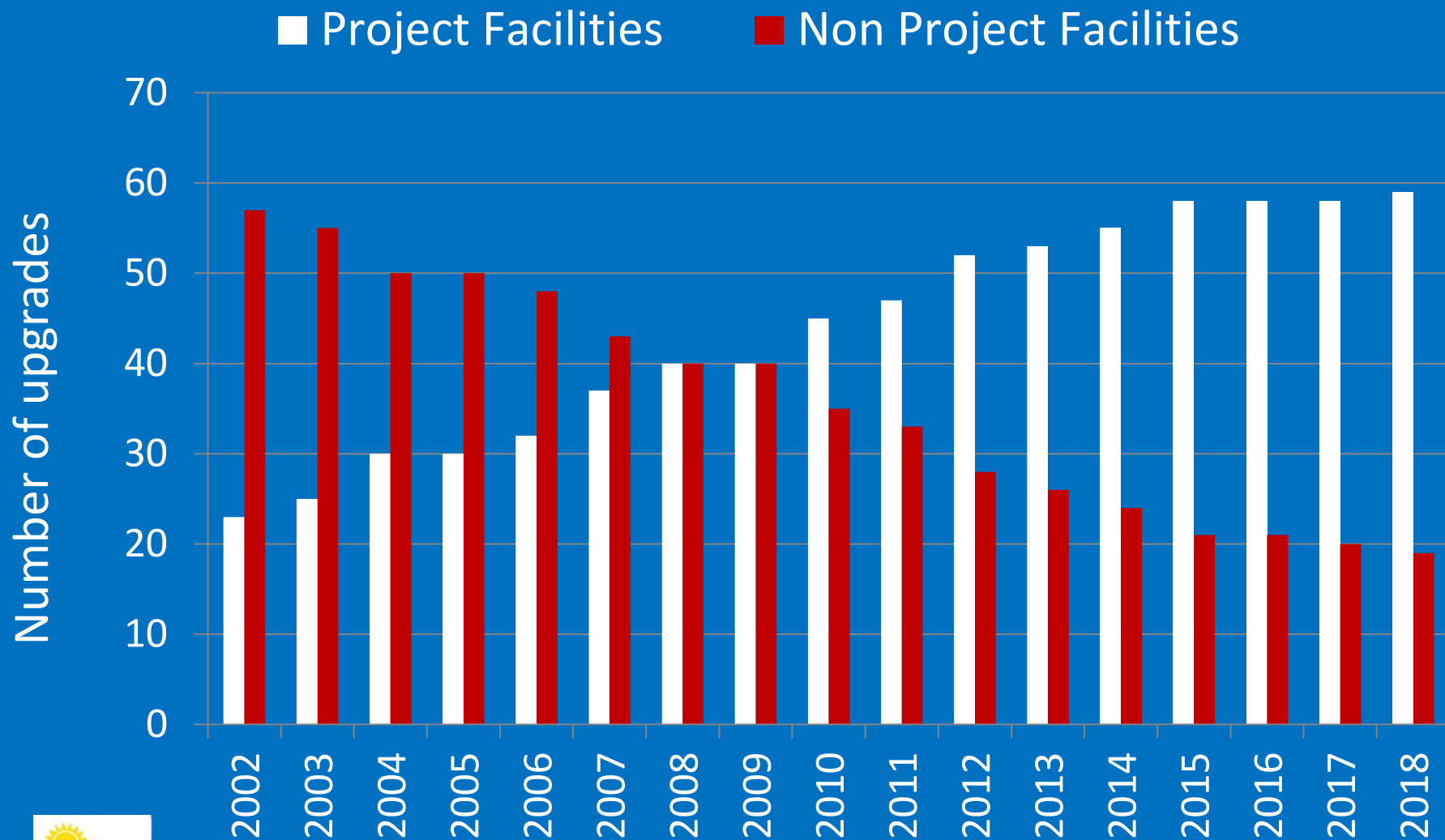
Trading Program Accomplishments

2019 Actual



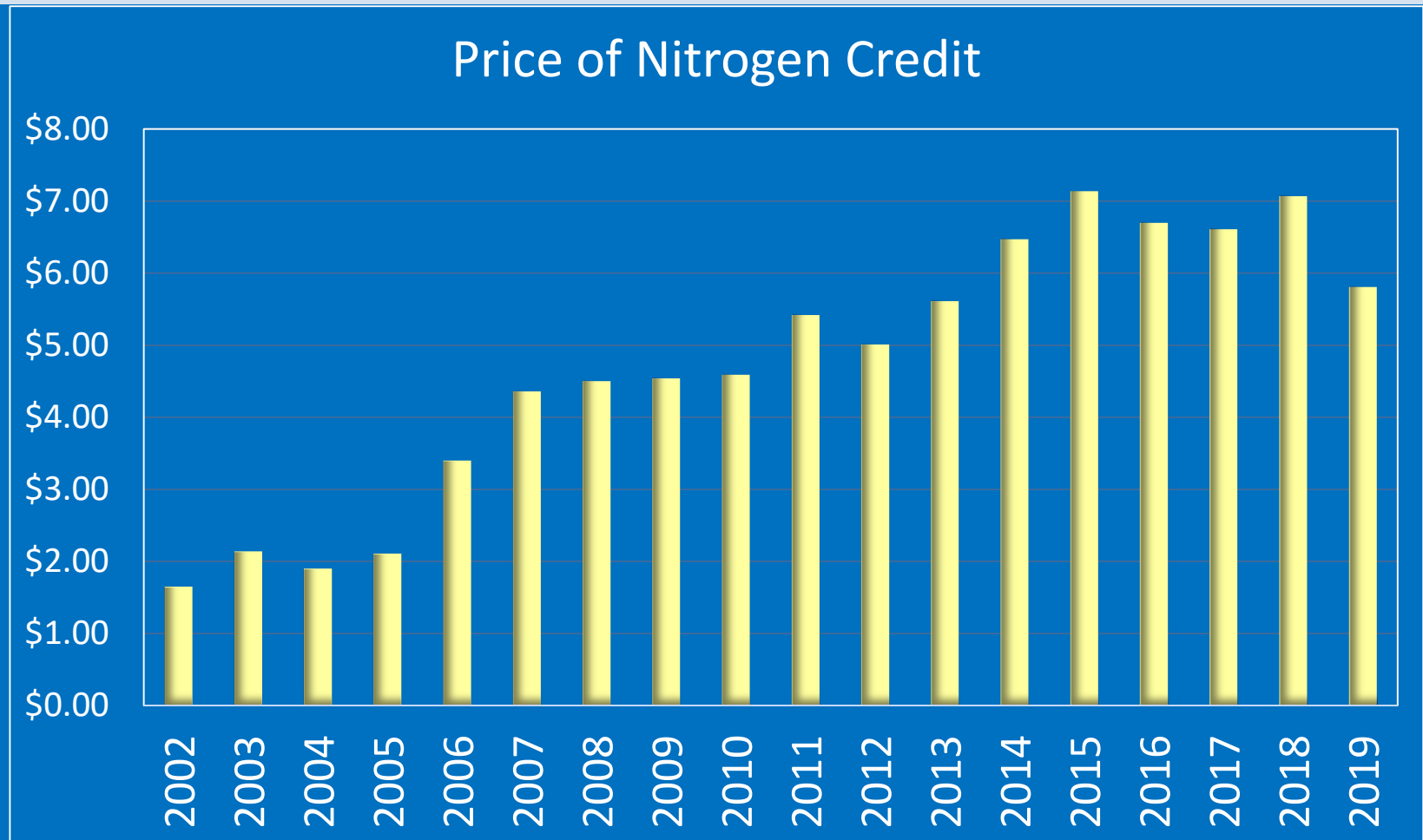
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Upgrades spread out over time



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Cost of a Credit 2002 – 2017



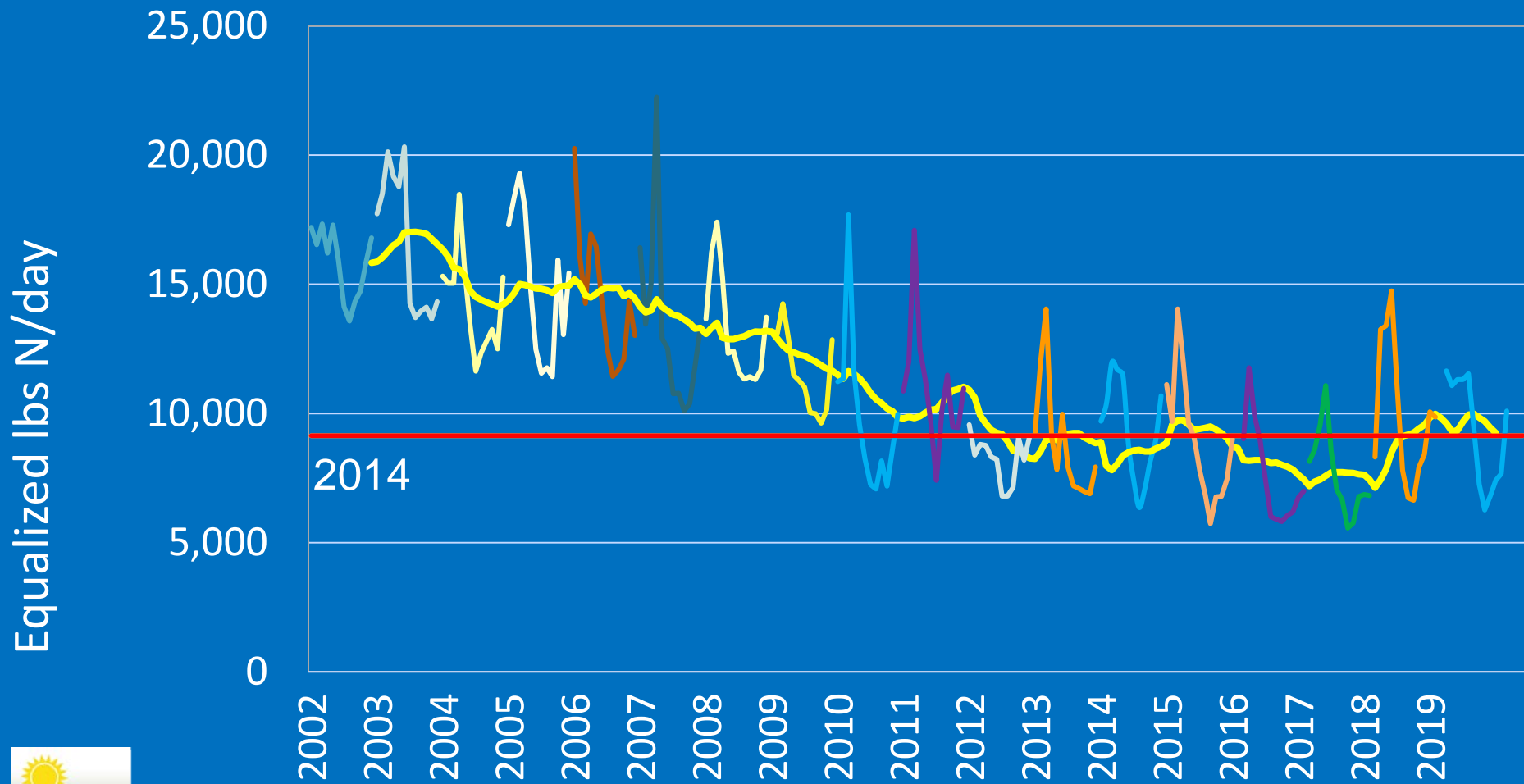
* In 2018 – the price of a credit for sellers is \$10.94

* In 2019 – the price of a credit for sellers is \$6.45



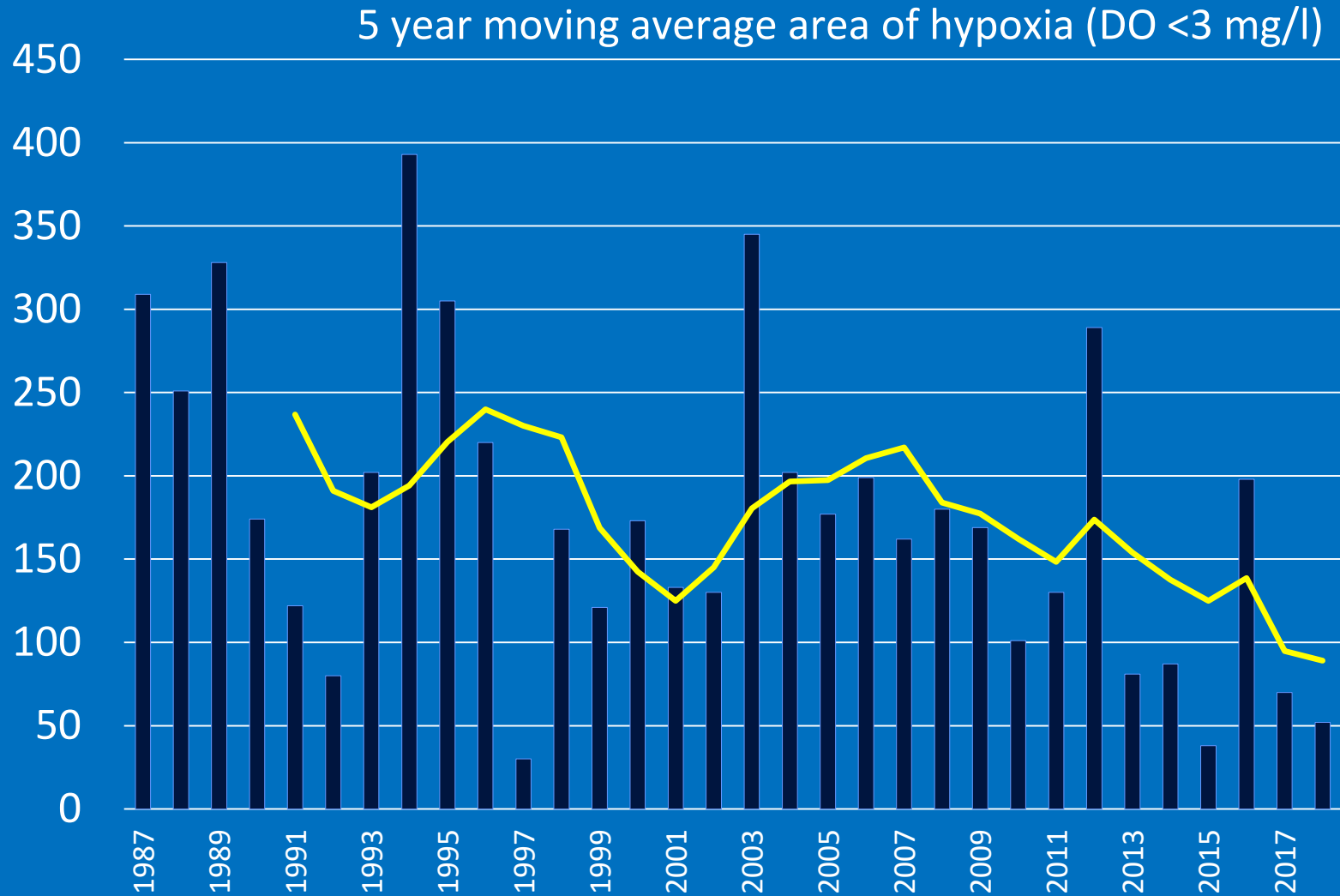
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Monthly average total equalized nitrogen loading to LIS



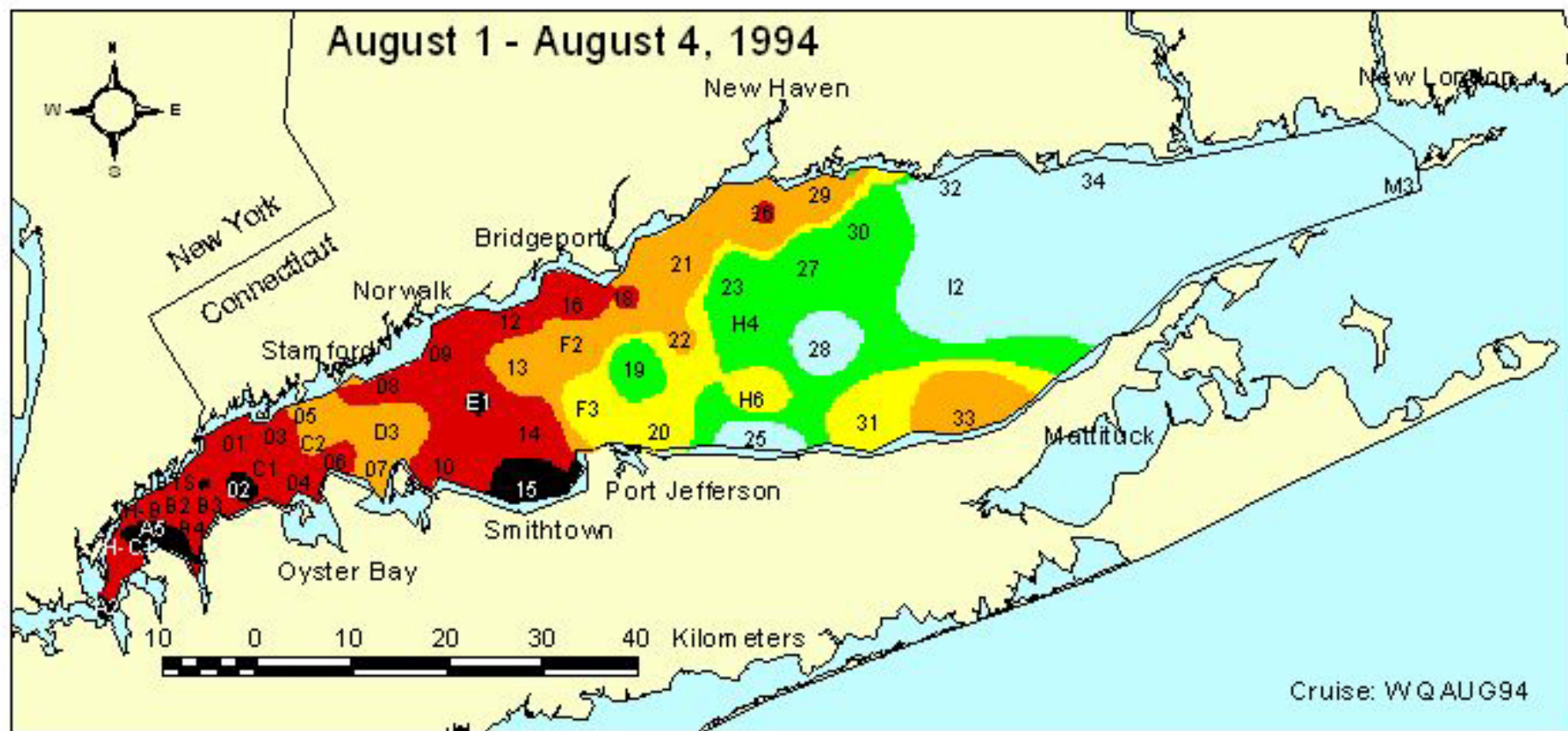
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Impact on Long Island Sound Hypoxia



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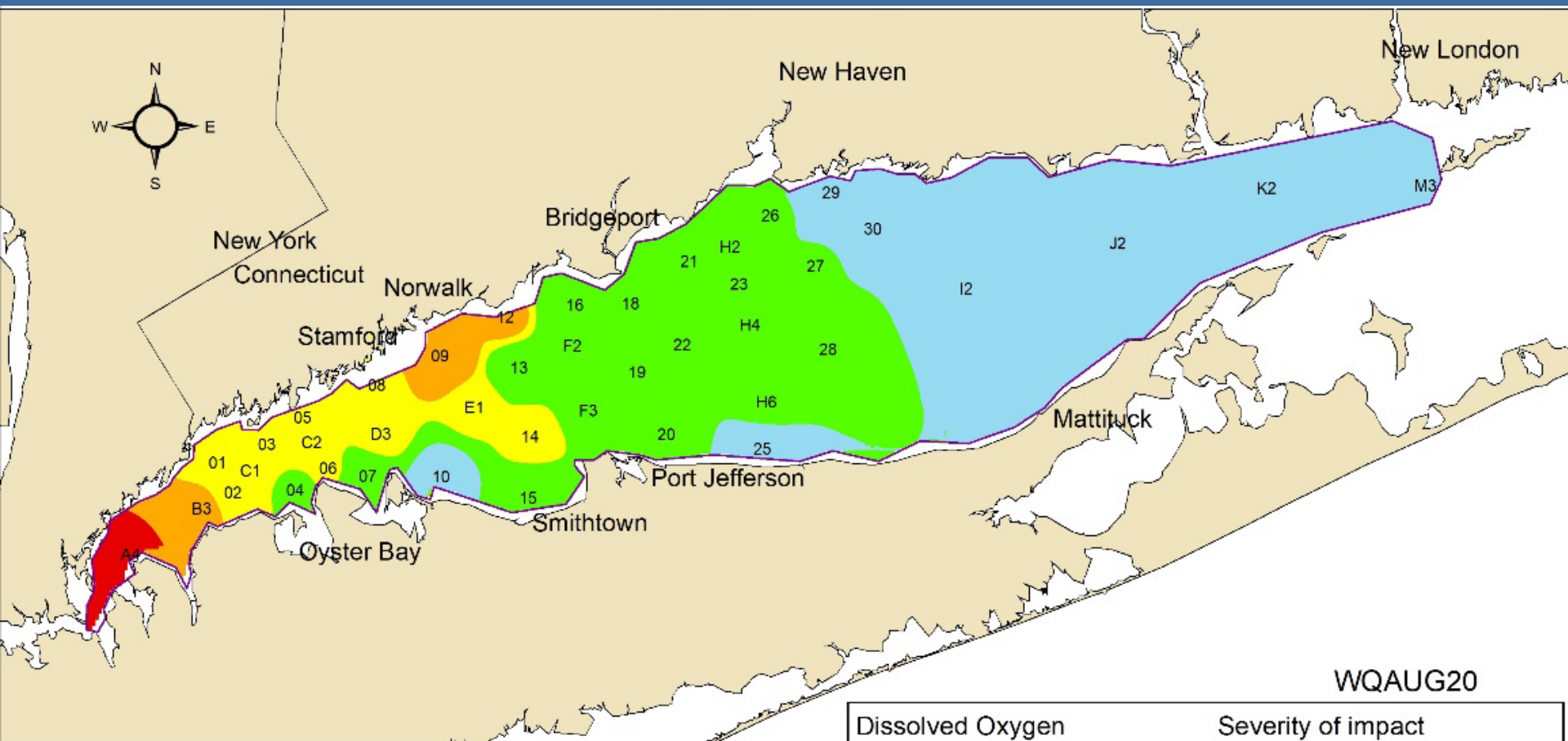
Trading Program Accomplishments



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Trading Program Accomplishments

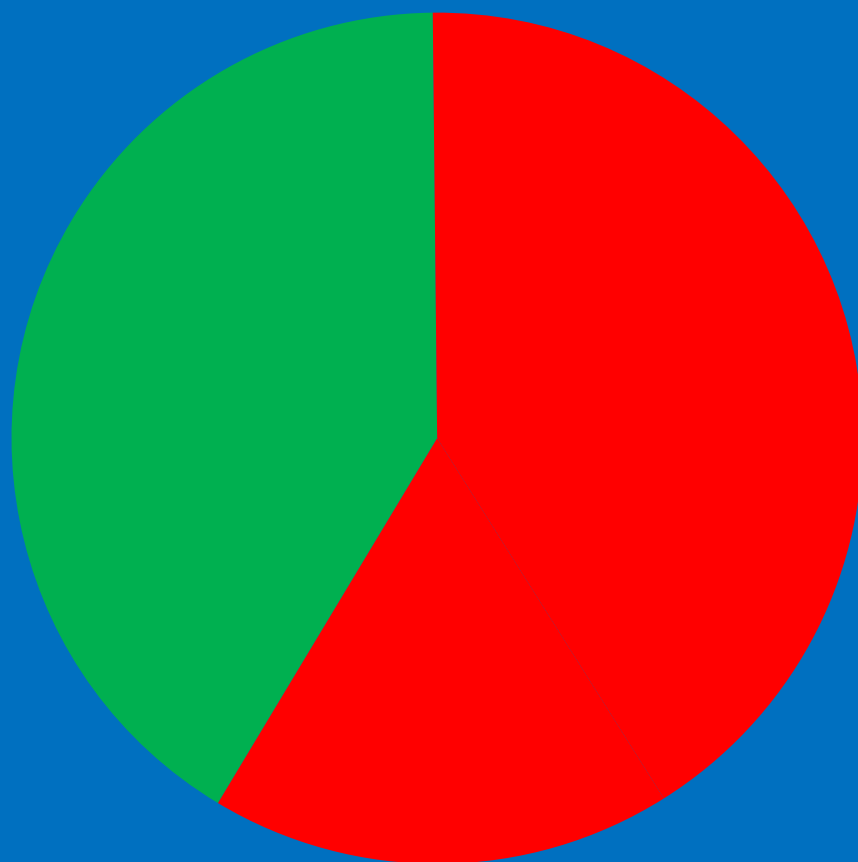
3 August, 10 – 12 August 2020



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Self-sufficiency

2013



■ Buyer's credits needed

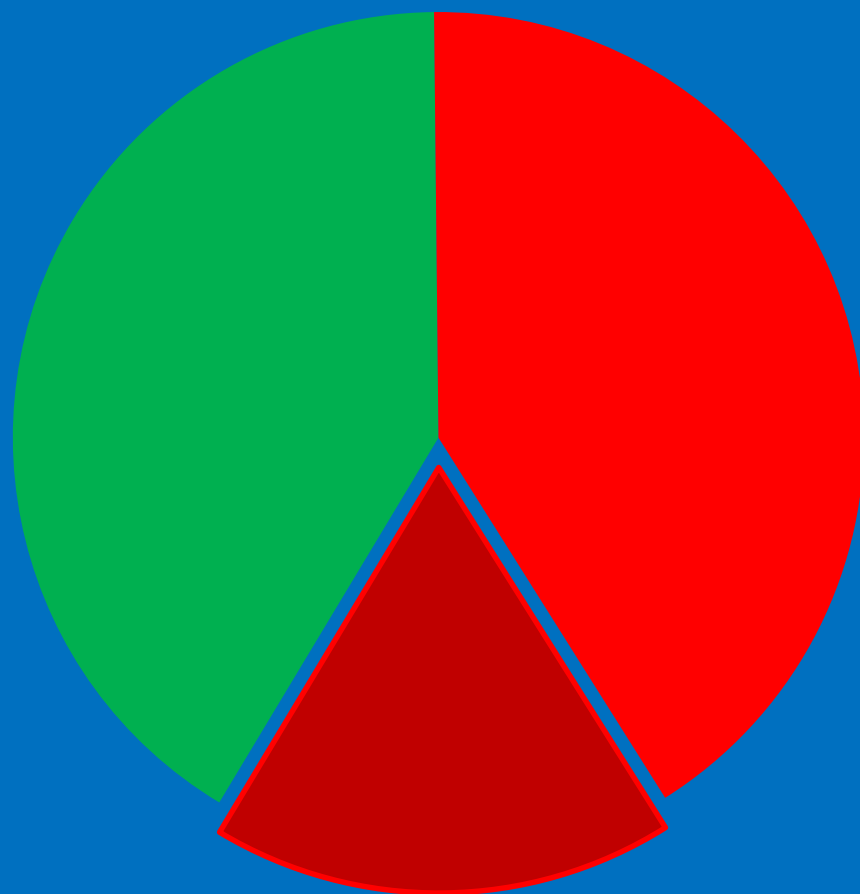
■ Sellers's credits available



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Self-sufficiency

2013

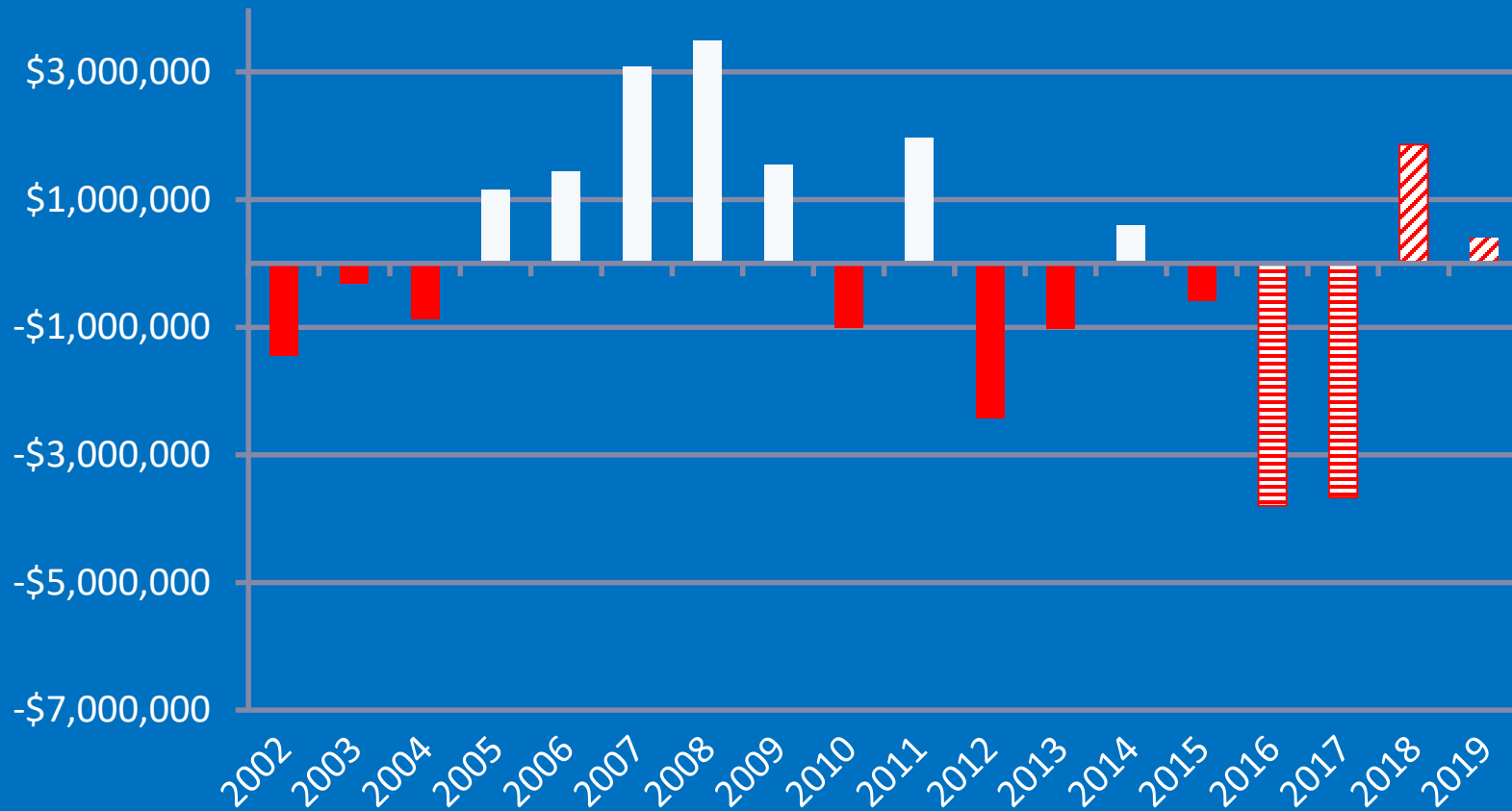


- Buyer's credits needed
- Sellers's credits available
- Trading account subsidy



Changes to the Trading Program

Impact on Program

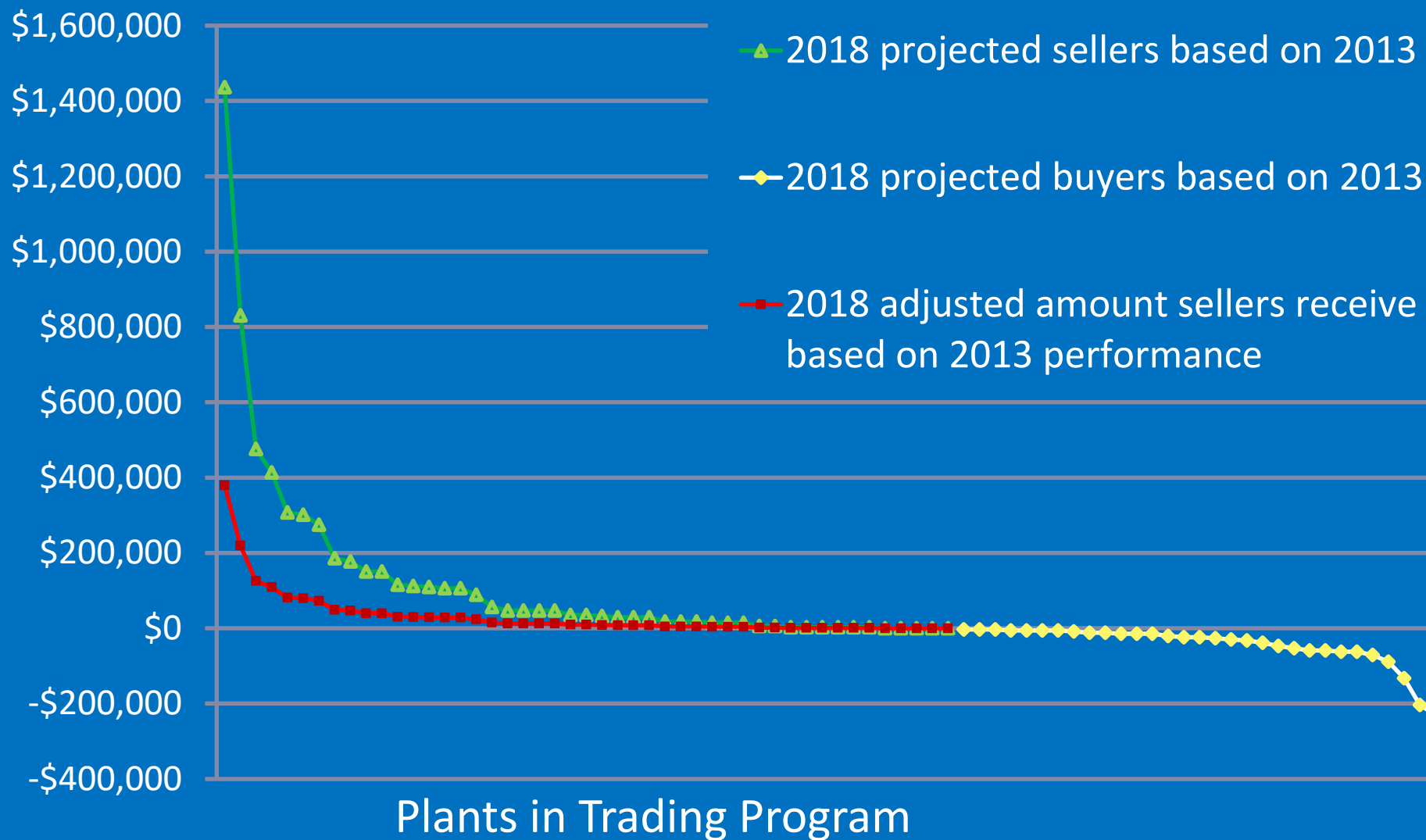


Scenarios evaluated

- 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



Self-sufficiency



Near-term Goals of the Trading Program

- Continue to maintain compliance with TMDL
 - Encourage optimized denitrification at WWTPs
 - Continue efficient use of resources & funding
- Continue utilization of General Permit
 - Renewed at the end of 2018
- Maintain Options for future TMDL compliance
 - Continue to incentivize upgrades



The near-term

2018 – 2022 Nitrogen Upgrades:

- Under Construction
 - Enfield
 - Torrington
 - Killingly
 - Ridgefield
 - Vernon
- Under Design
- In Planning
 - Bridgeport
 - Naugatuck
 - Wallingford
 - Fairfield
 - Norwich
 - Plainfield
 - Sprague





Questions?

www.ct.gov/deep/municipalwastewater

Please contact:

Rowland Denny at rowland.denny@ct.gov
or 860-424-3749

or

Iliana Raffa at iliana.raffa@ct.gov
or 860-424-3758



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