

Dover City Council Workshop

Everything Water

January 3, 2018



Everything Water

- Drinking Water
- Wastewater
- Stormwater

Drinking Water

- 9,500 metered connections
- 8 existing wells, 4.3 mgd capacity
- 3 treatment plants, 1 chemical feed bldg
- 170 miles water main, 1,200 fire hydrants
- 2 storage tanks – 4.76 mg capacity
- Avg Day Demand = 2.2 mgd
- Max Day Demand ~ 3.0 mgd
- FY18 Operations Budget \$5.3 million

Drinking Water

- Major ongoing upgrades ~ \$27 million
 - Phase 1 Improvements, SRF Loan - \$9.35 million
 - 10% Principal Forgiveness
 - Completion projected May 2018
 - Reconstruct Lowell Ave Filtration Plant
 - ❖ Provides iron & manganese removal, along with chemical treatment for Smith & Cummings wells
 - ❖ Designed for added capacity for 2 new wells at Willand Pond
 - ❖ Equipped with back-up generators

Filtration Tanks Lowell Ave



Drinking Water

- Phase 1 Improvements – cont.
 - Campbell & Calderwood Wells
 - Connected both wells into a new treatment facility
 - Disinfection, corrosion control, fluoridation
 - Added standby power generator
 - Also added standby power at North End Tank

Chemical Feed Building Calderwood Well



Drinking Water

- Phase 2 Improv. - \$9.1 million SRF Loan
 - 10% Principal Forgiveness
 - Design 30% complete, construction into 2019
 - Smith/Cummings wells
 - Install new control building
 - Add backup power generator
 - Garrison Hill Reservoir improvements
 - 4 mg, 60 year old concrete tank
 - Inspect, repair, new exterior coating
 - Add internal mixer for improved water quality

Drinking Water

- Phase 2 Improv. - continued

- Isinglass Recharge Facility

- Augments capacity of Calderwood & Campbell wells
 - Will relocate river intake
 - Construct new pump station out of floodplain

- Willand Pond

- 1 existing well and 1 new well – will add 1 mgd capacity
 - New transmission main to Smith Well, allows for connection to Lowell Ave WTP for iron & manganese removal

- Somersworth interconnection

- Qualified for \$1.3 million grant from NH Groundwater Trust Fund
 - Will be located in same bldg. as Willand Pond controls
 - Emergency use only – 1 mgd either way

Drinking Water

- Phase 2 Improv. - continued
 - Pudding Hill aquifer
 - Bellamy Intake and Recharge Facility
 - Griffin well taken out of service December 2015
 - Contamination from former Madbury Metals site
 - Observed elevated levels of PFOA/PFOS
 - Ongoing hydrogeological work & water quality testing
 - Artificial recharge will keep plume confined
 - Researching remediation options & treatment options

Everything Water

- Clean Water Act
 - EPA issues permits to discharge to water bodies with conditions
 - NHDES determines whether water bodies are healthy or not
 - 303(d) impairment list
 - City of Dover discharges from stormwater system and at WWTP
 - Stormwater MS4 General permit
 - Wastewater Individual NPDES permit

Everything Water

- Bacteria
- Nutrients (nitrogen and phosphorous)
 - 2009 NHDES issued numeric nutrient criteria and impaired most of the GB estuary for N
 - EPA began issuing permits at WWTP's with LOT nitrogen limits (3 mg/l)
 - Seacoast communities formed GB Coalition
 - Protect estuary by implementing solutions based on sound science
 - Proposed an Adaptive Management approach

Everything Water

- Great Bay Municipal Coalition

- Funded expert analysis of WQ data and review of numeric nutrient criteria
- Funds water quality monitoring annually
- Funds habitat monitoring
- Funded independent peer review
- Funded development of hydrodynamic model of Great Bay estuary
- Comments on draft impairment lists

Everything Water

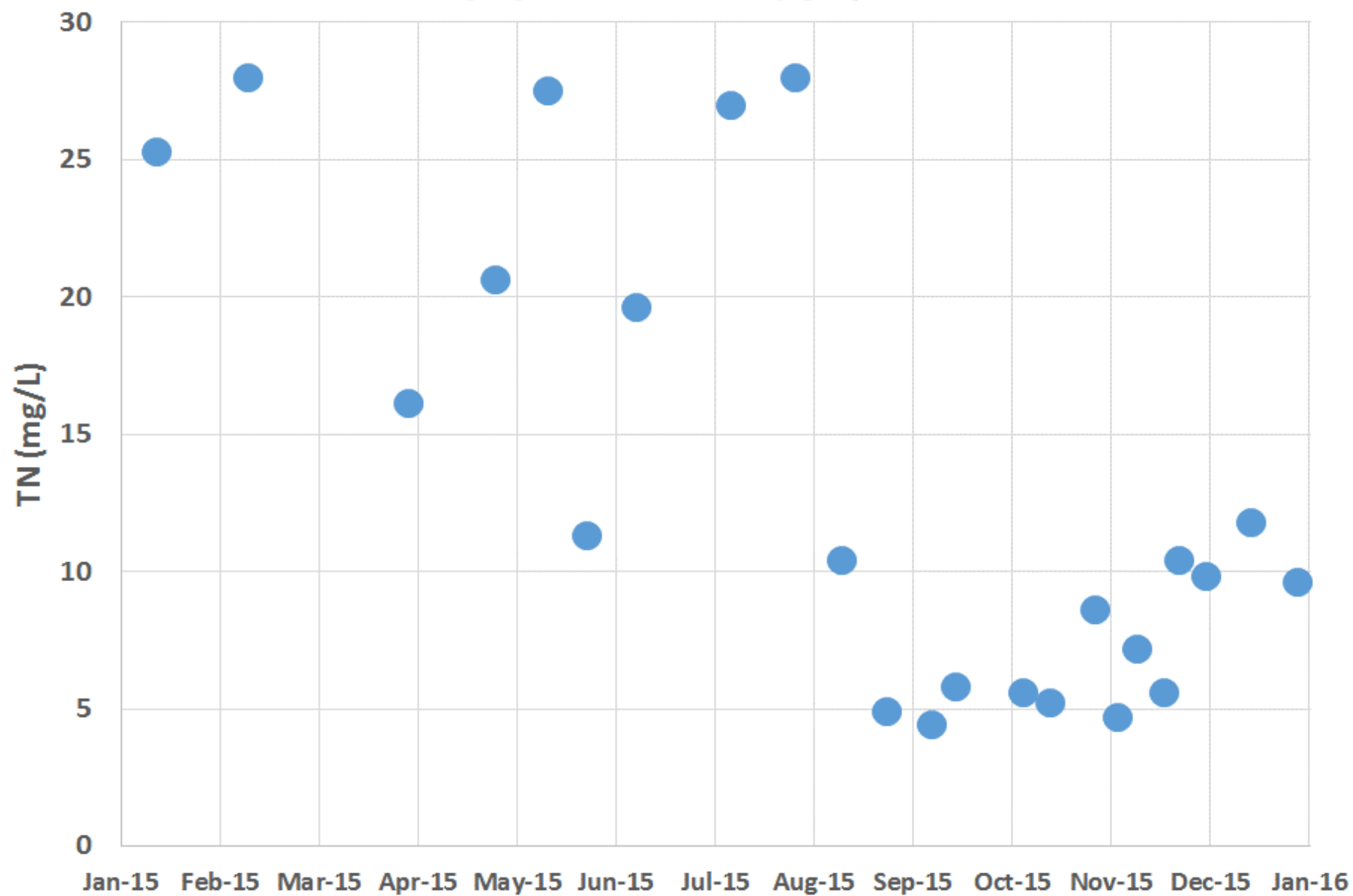
- Stormwater
 - Berry Brook Restoration
 - Completed 2017 (Dover, NHDES, UNH)
 - Nationally recognized
 - MS4 Stormwater General Permit
 - EPA Issued January 2017
 - NH Stormwater Coalition funded permit appeal
 - 1st District Federal Court
 - Mediation

Everything Water

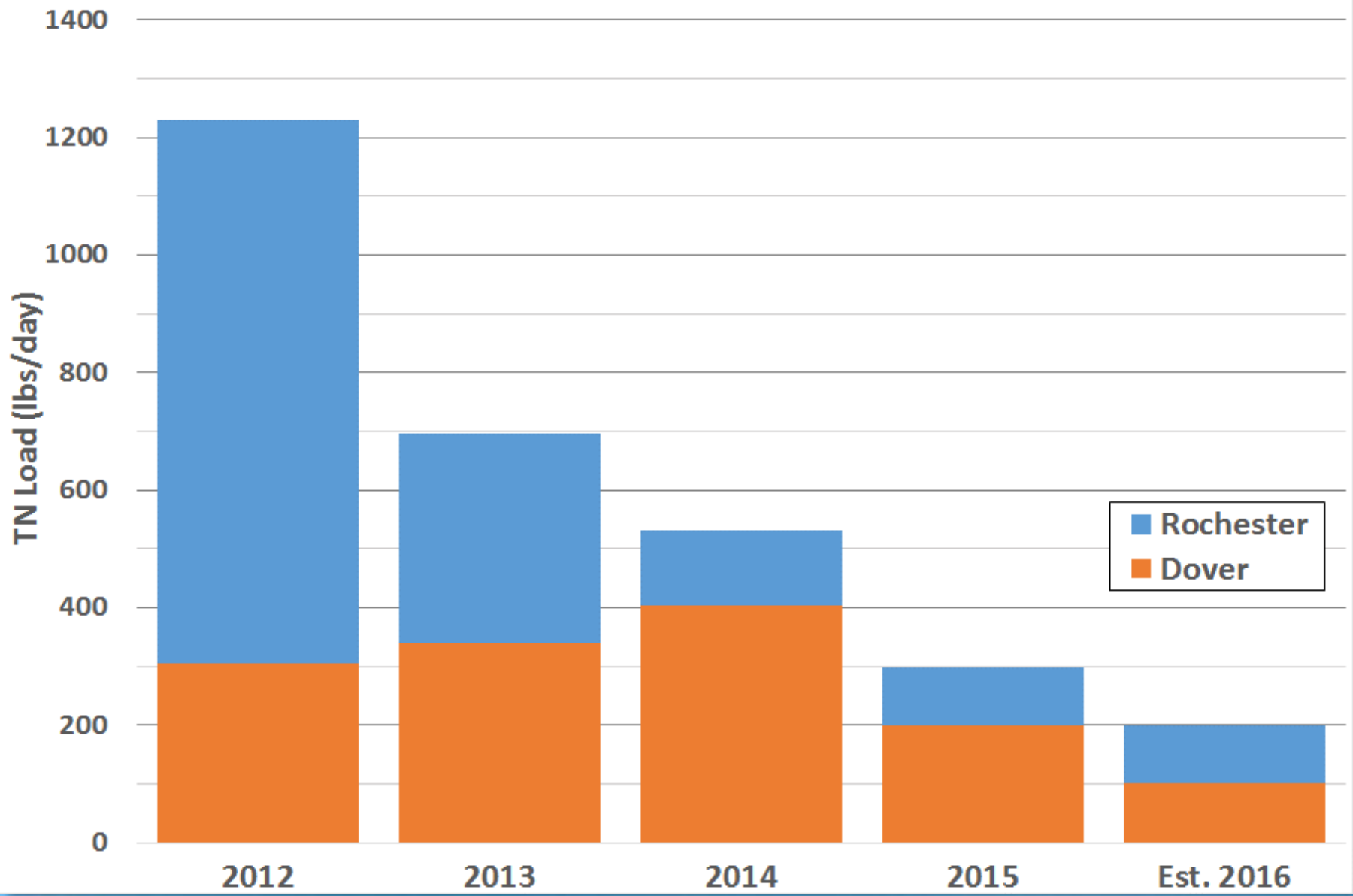
- Wastewater

- Draft permit issued 2011
- Dover voluntarily upgraded plant to reduce nitrogen (online August 2015)
 - Growing season Average < 6 mg/l; as low as < 4 mg/l
- Funded annual WQ monitoring
- Funded river studies and a hydrodynamic modeling of estuary
- Extended sewer service to Nute Rd

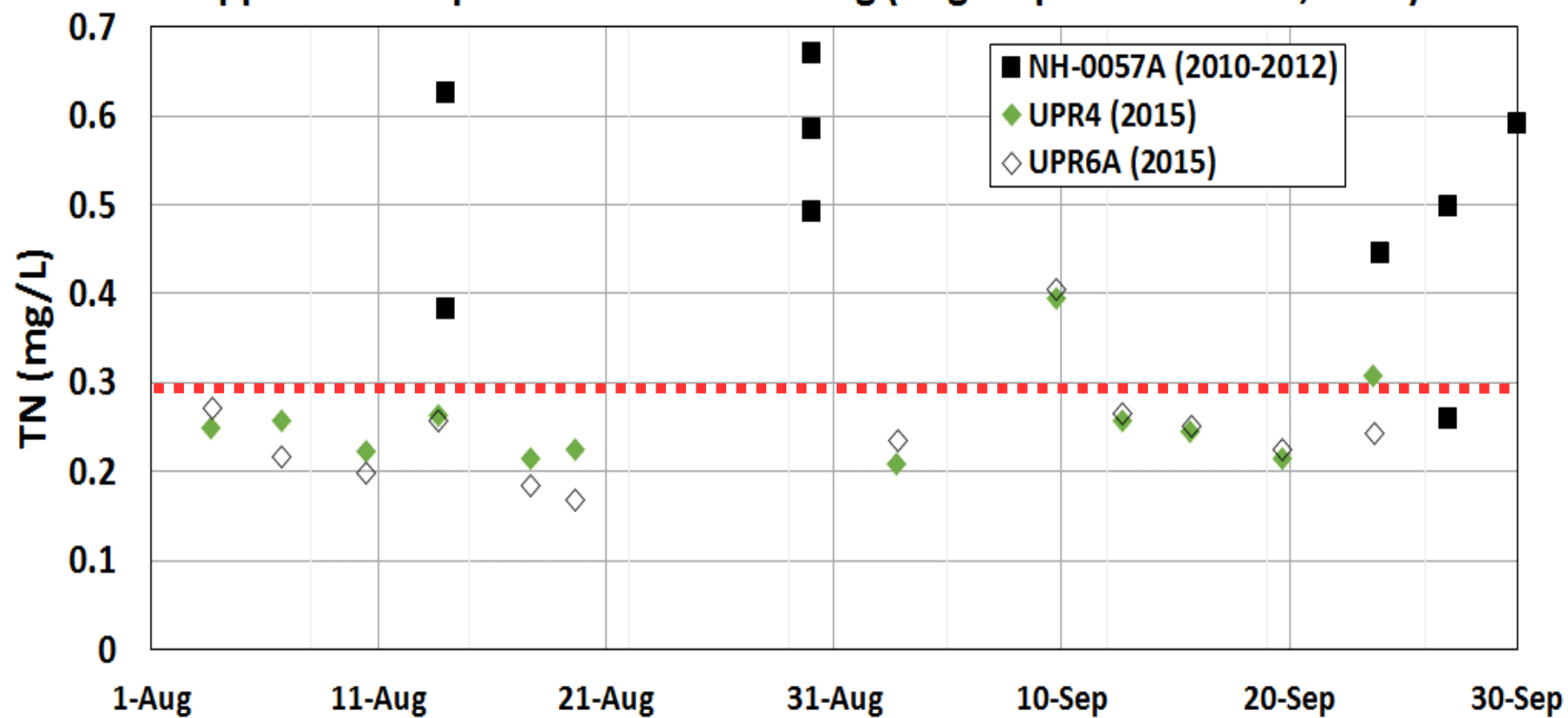
Dover WWTP Effluent TN



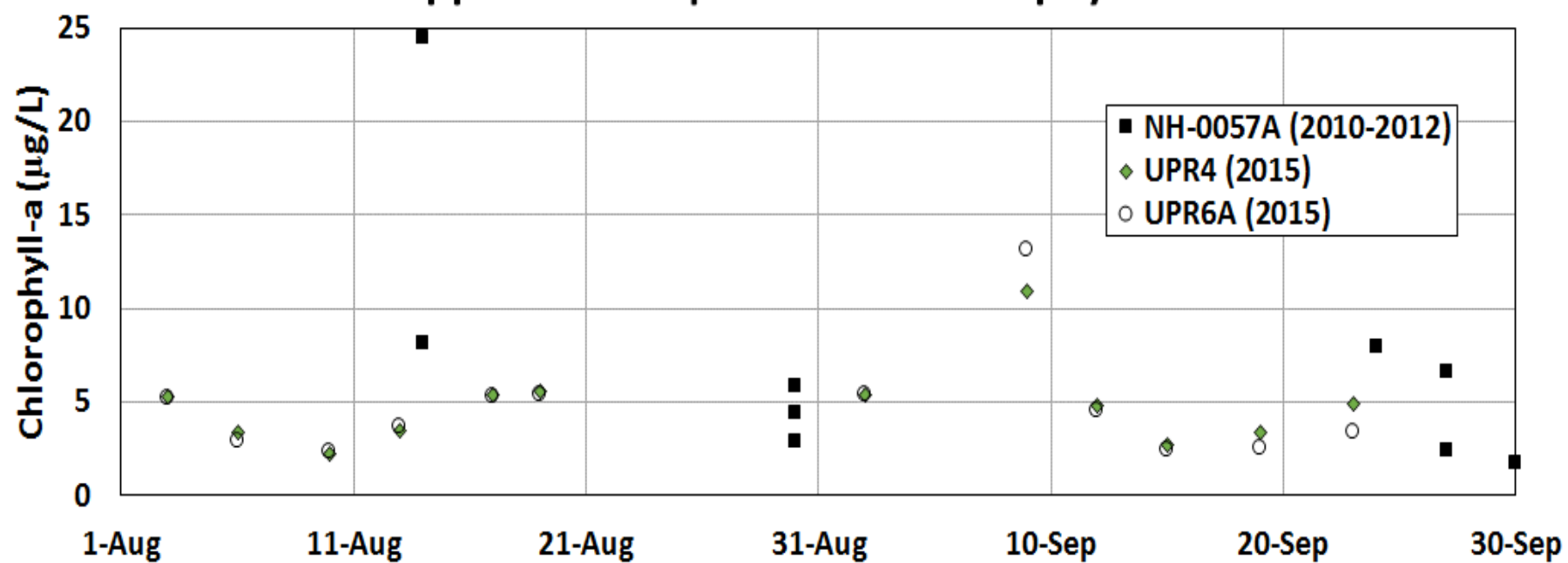
Rochester and Dover WWTP TN Load Reductions (July-Oct. Ave)



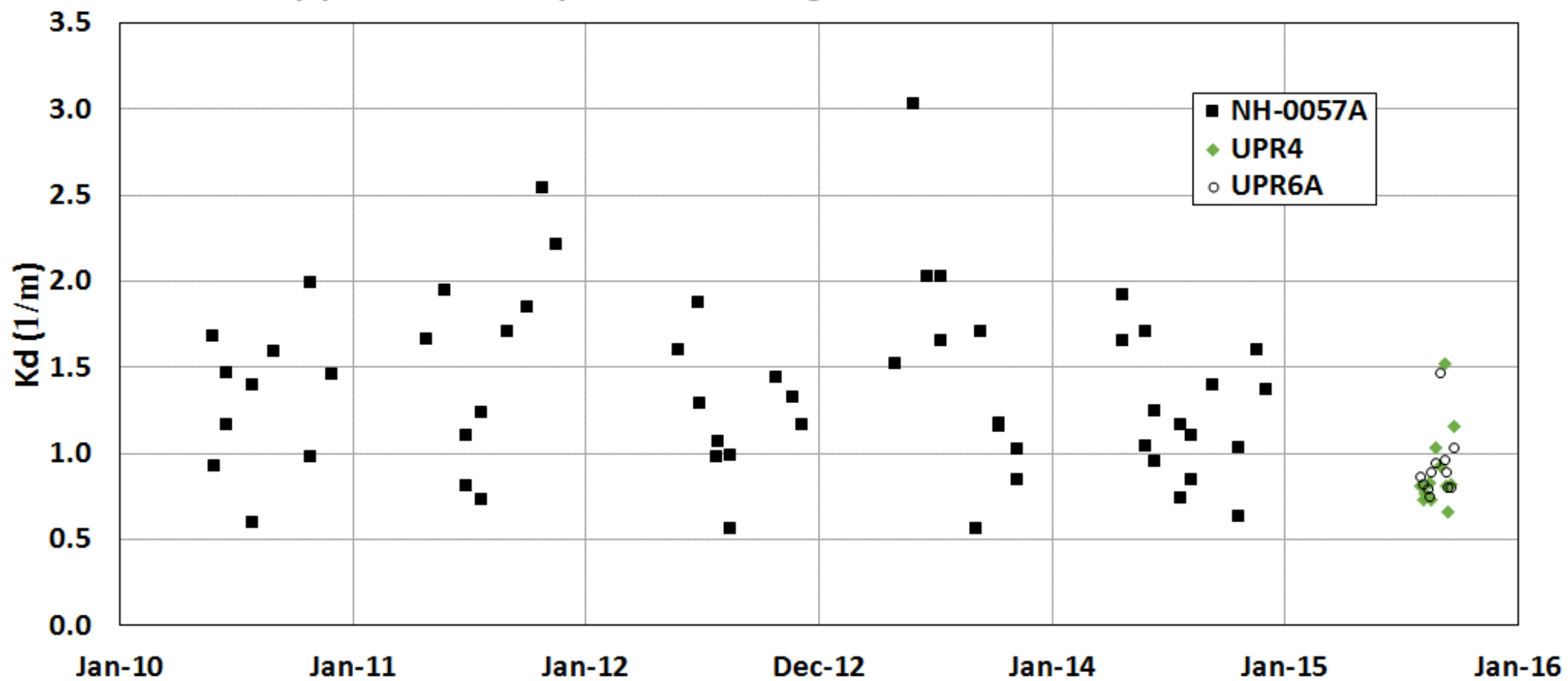
Upper Piscataqua River TN Monitoring (Aug.-Sept. 2010 - 2012, 2015)



Upper Piscataqua River - Chlorophyll-a



Upper Piscataqua River - Light Extinction Coefficient



Everything Water

- Going Forward
 - Made great progress
 - Continue to work with GB Coalition
 - Continue to monitor (Adaptive Management)
 - Water Quality
 - Affects on Estuarine Habitat, if any
 - Extend sewer service in high priority areas
 - Continue implementing green stormwater BMP's