

NPDES General Permit – Great Bay Update

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Dover/Portsmouth Emergency Water System Interconnection

February 5, 2020

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Director of Community Services**

Adaptive management is an approach to natural resource management that emphasizes learning through management where knowledge is incomplete, and when, despite inherent uncertainty, managers and policymakers must act.

(Allen, C. and A. Garmestani. Adaptive Management. Chapter 1, Craig R. Allen, Ahjond Garmestani (ed.), Adaptive Management of Social-Ecological Systems. Springer Netherlands, Dordrecht, Netherlands, , 01-10, (2015)



Slide from EPA/DES presentation 3/8/19

General Permit – Non-Point Source

- PTAPP
- Nitrogen control plan
- Implementation



TN at Adam's Point – 2018 SOOE Report

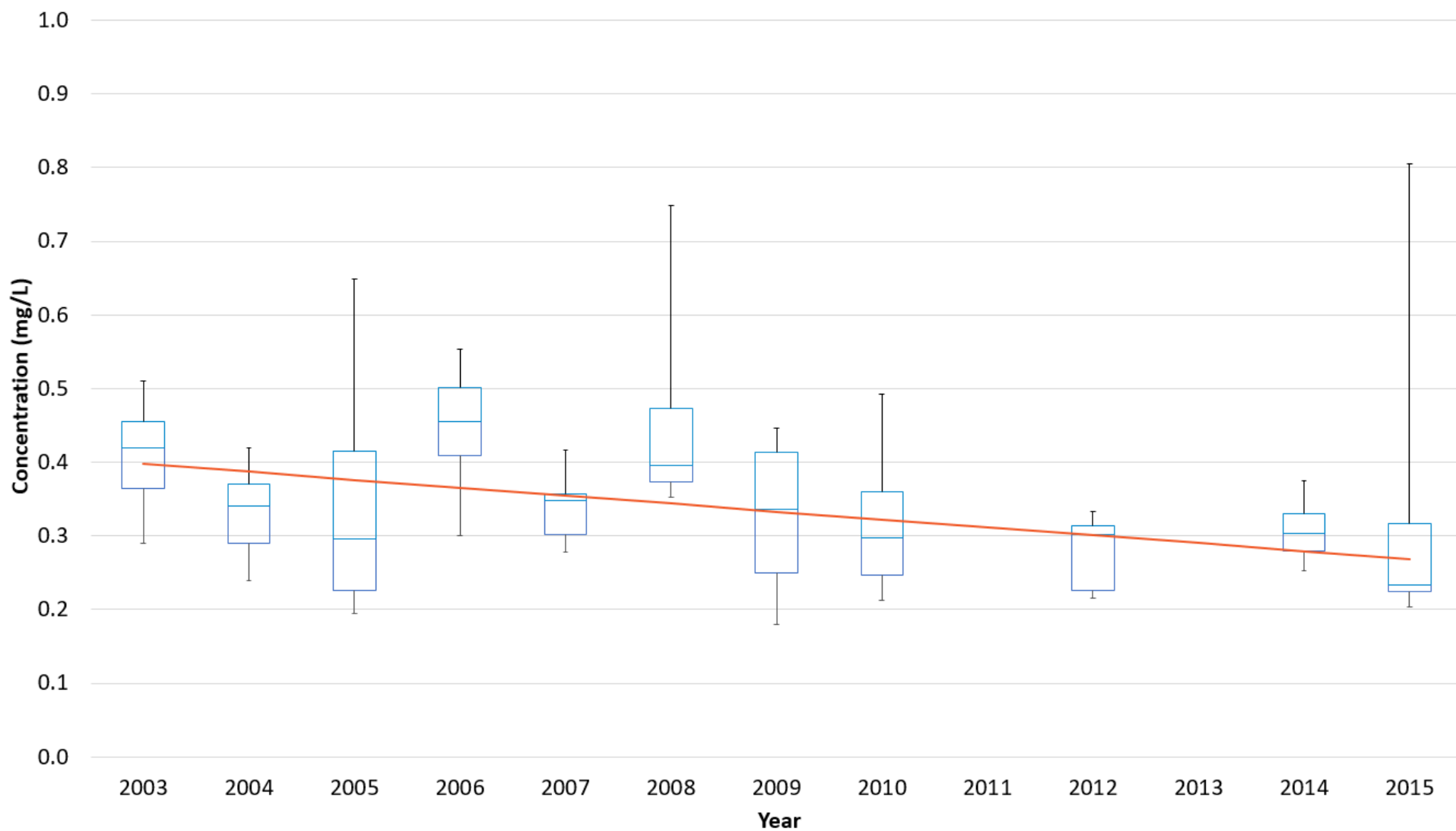
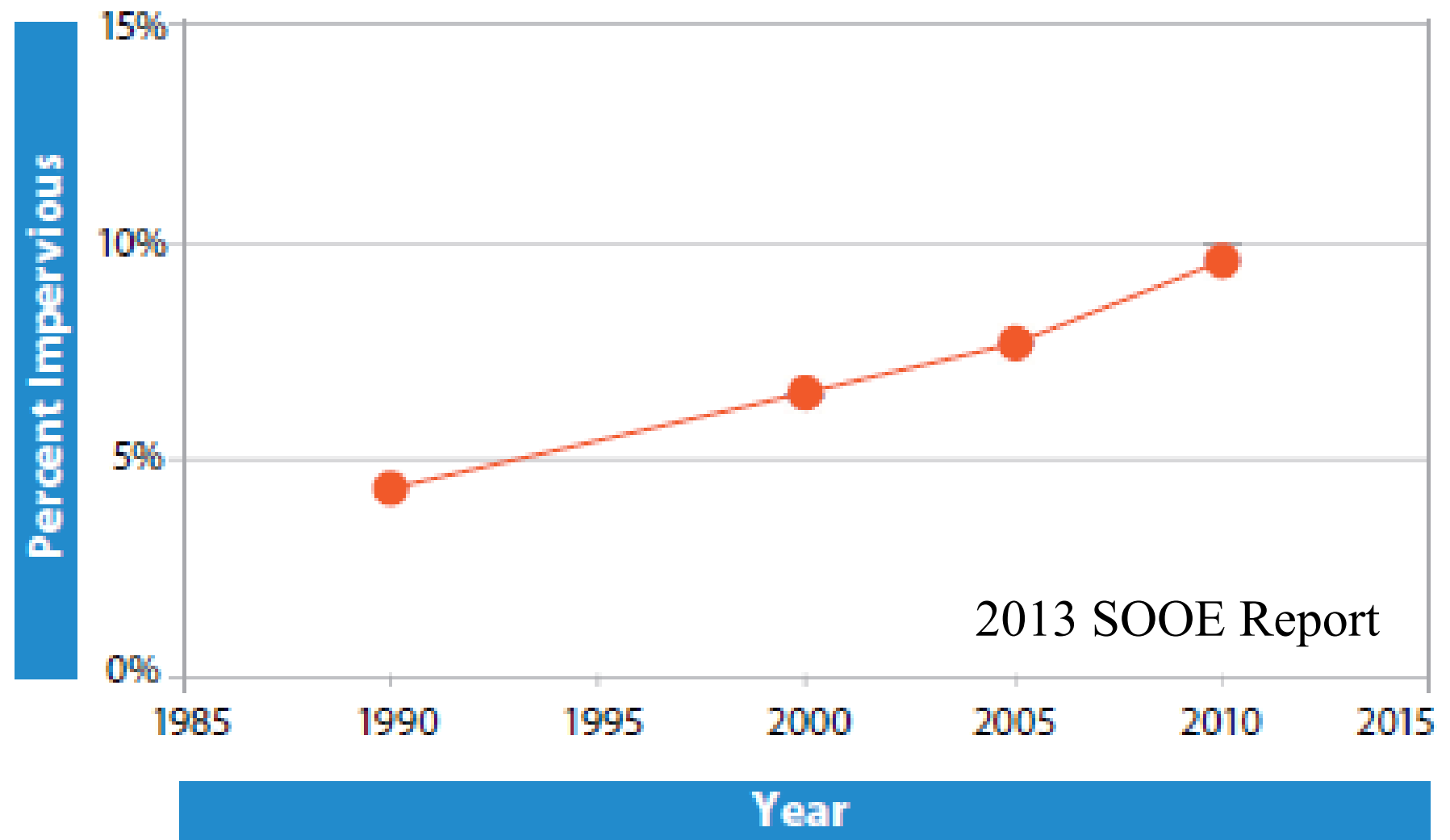
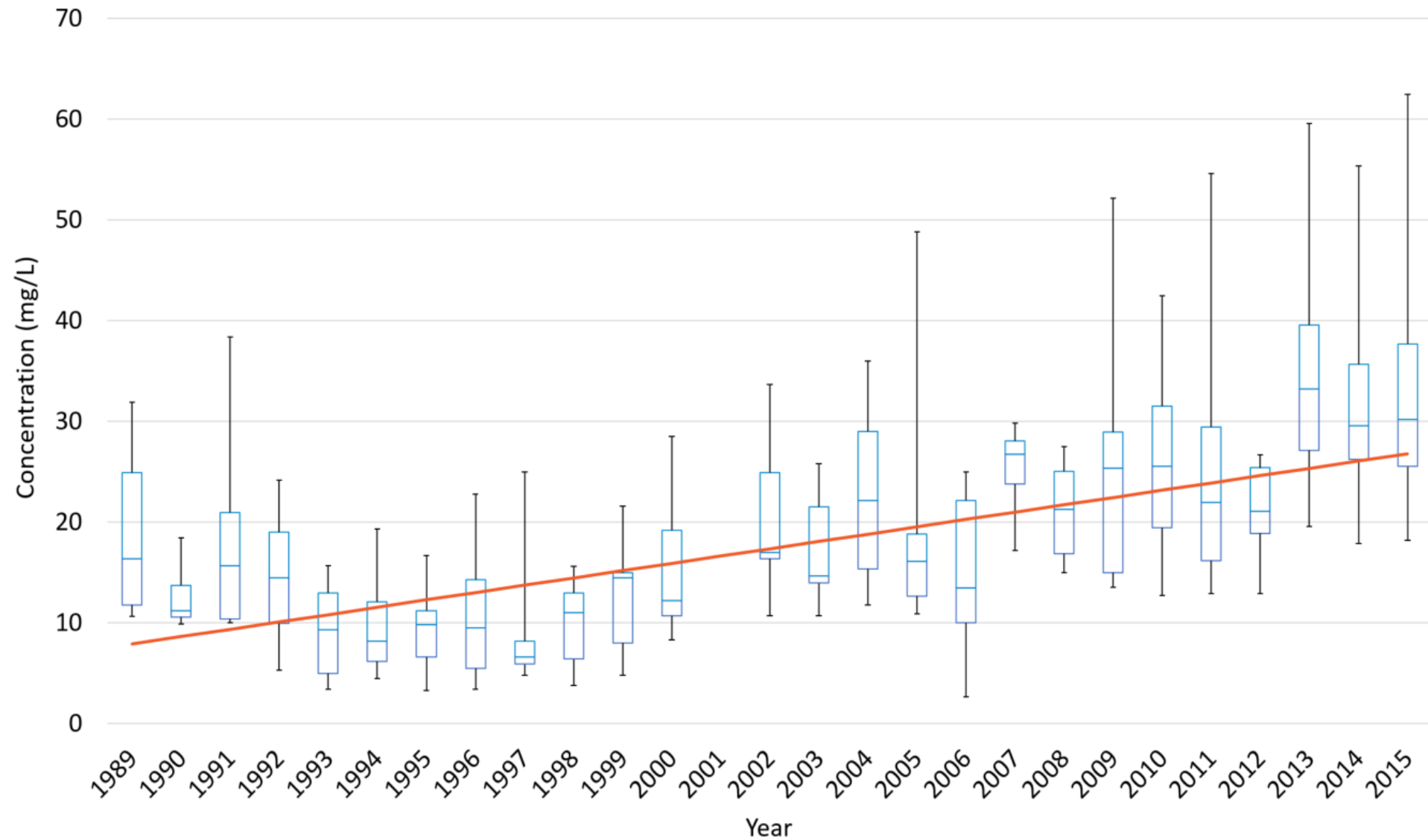


FIGURE 1.1 Percent of land area covered by impervious surfaces in the Piscataqua Region watershed, 1990-2010



TSS at Adam's Point – 2018 SOOE Report



- Dover Land area approx. 27.5 sq miles
- 25.1 sq miles actually land
- 2.3 sq miles are water features
- 2.1 sq miles (8.4%) is City owned/controlled
- 1.0 sq mile State of NH or DOT (4.0%)
- 22.0 sq miles privately owned (87.6%)

Figure ES: Summary of Non-Point Source Nitrogen Loads to the Great Bay Estuary

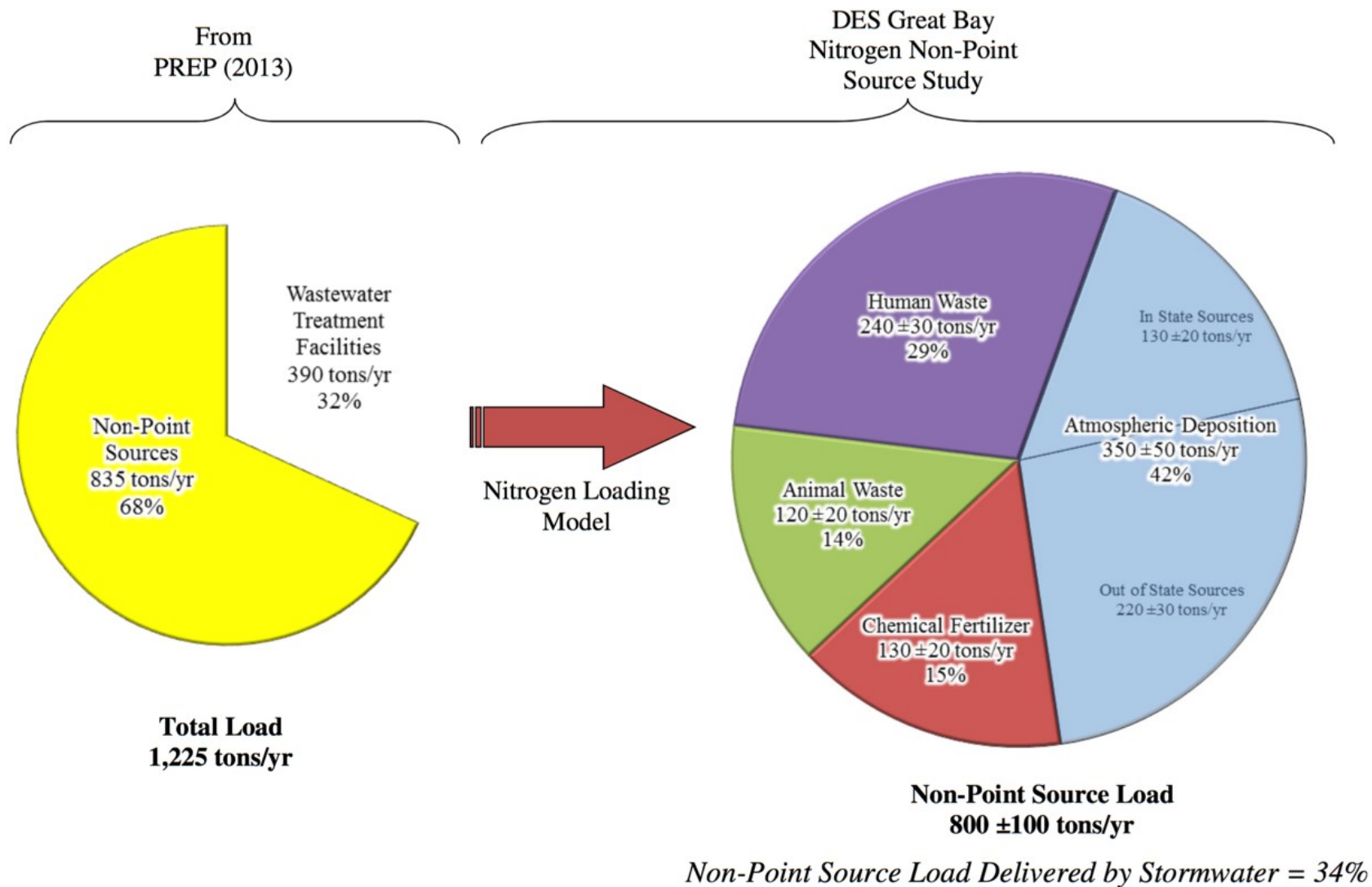
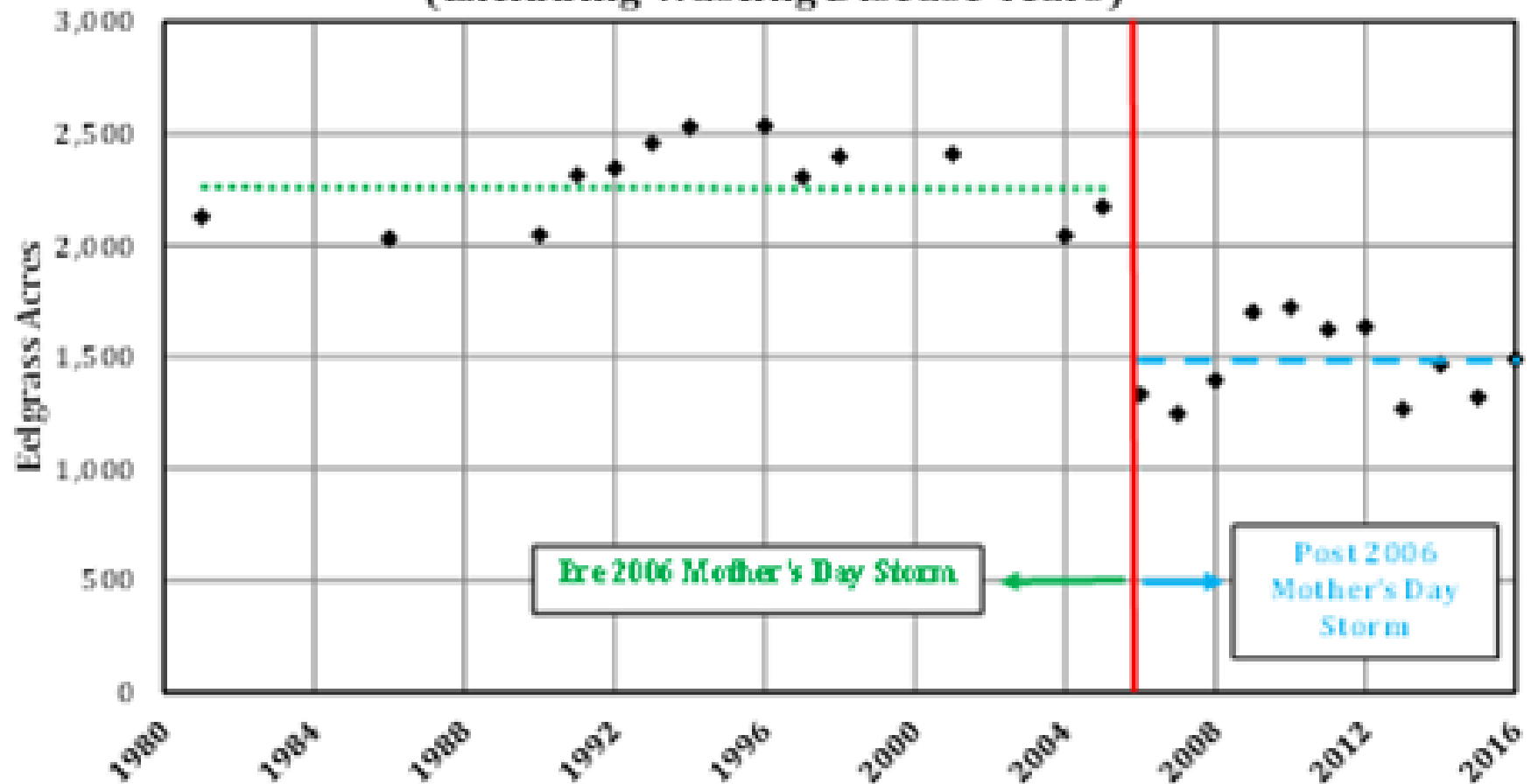
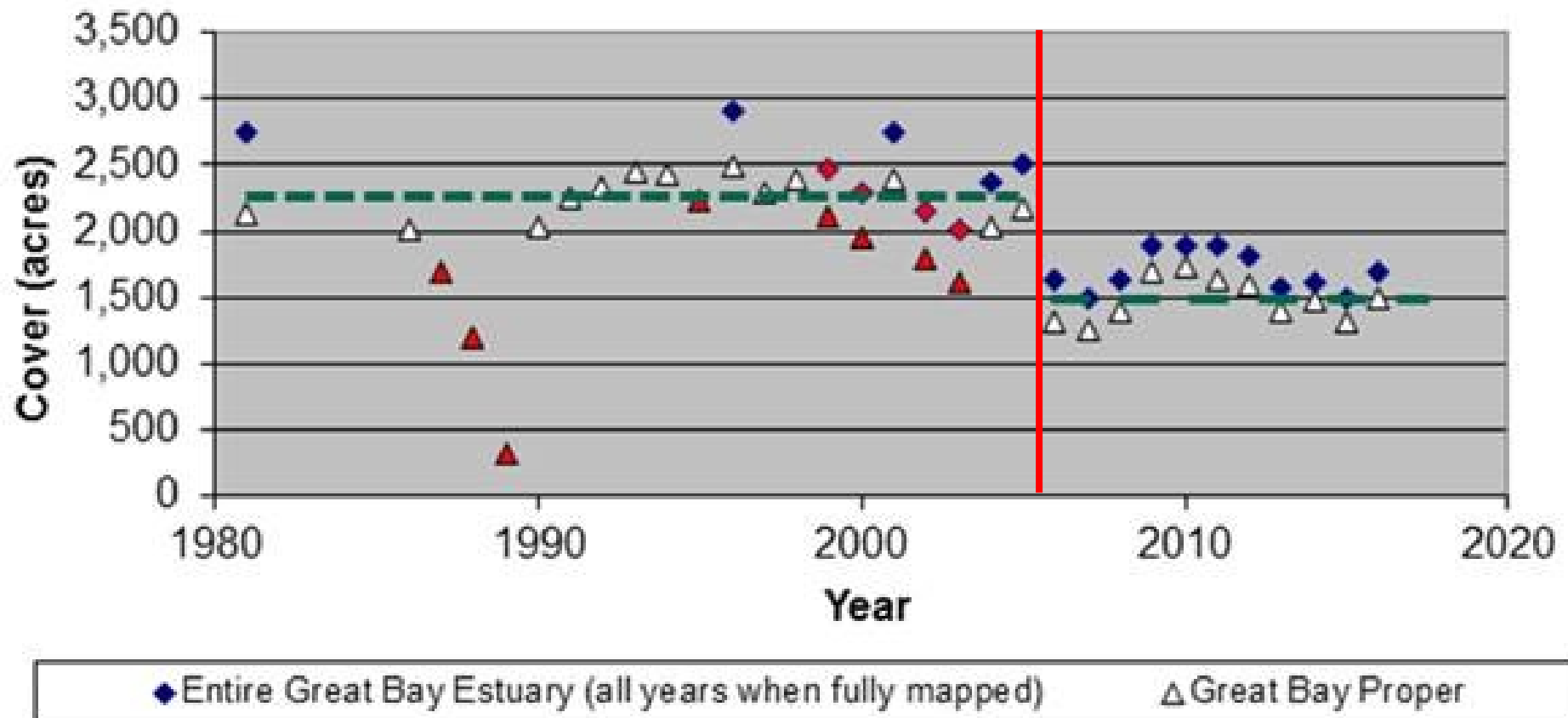


Figure from Great Bay Nitrogen Non-Point Source Study – June 16, 2014

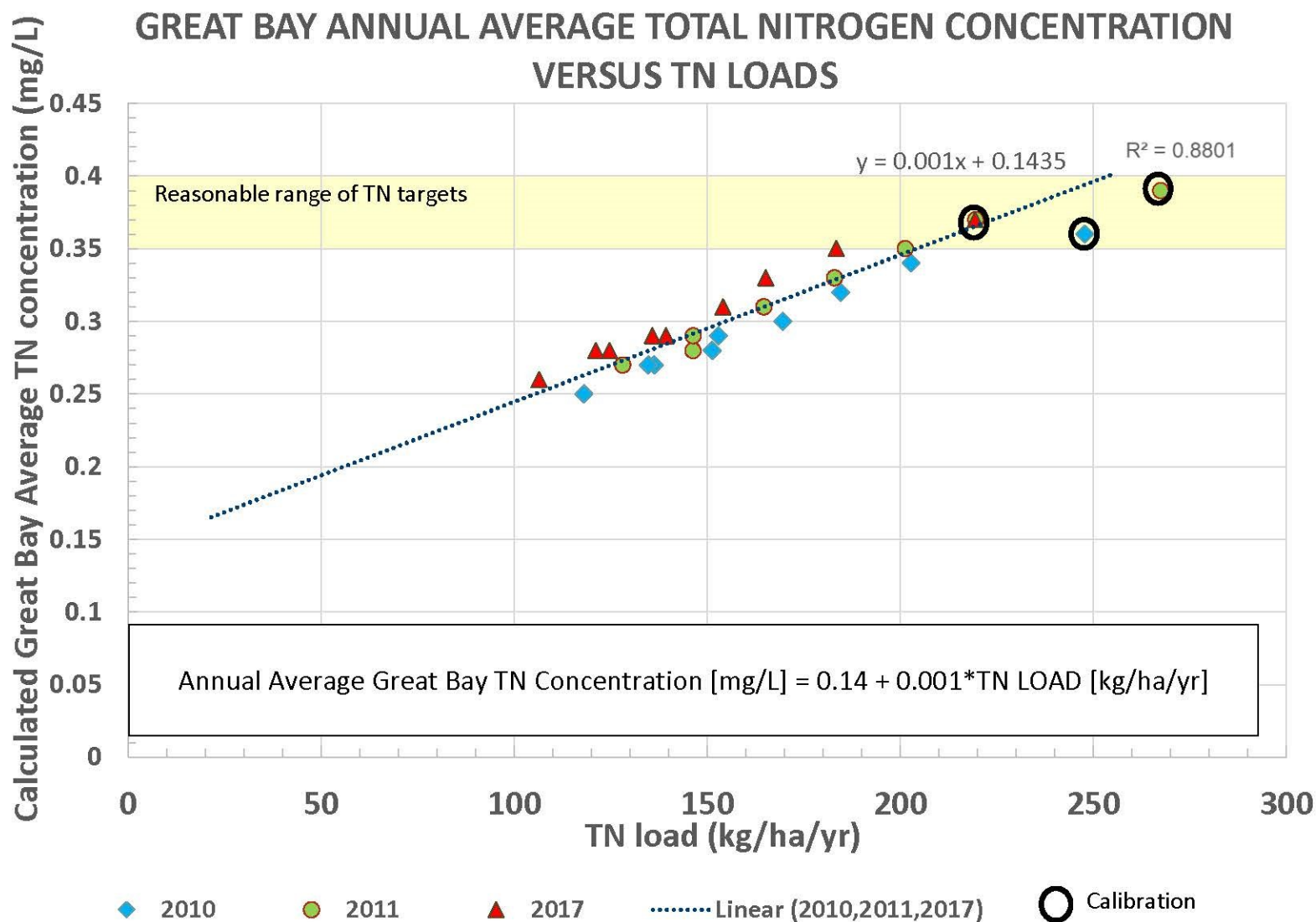
Eelgrass Cover in the Great Bay (Excluding Wasting Disease Years)



Eelgrass Cover in the Great Bay Estuary

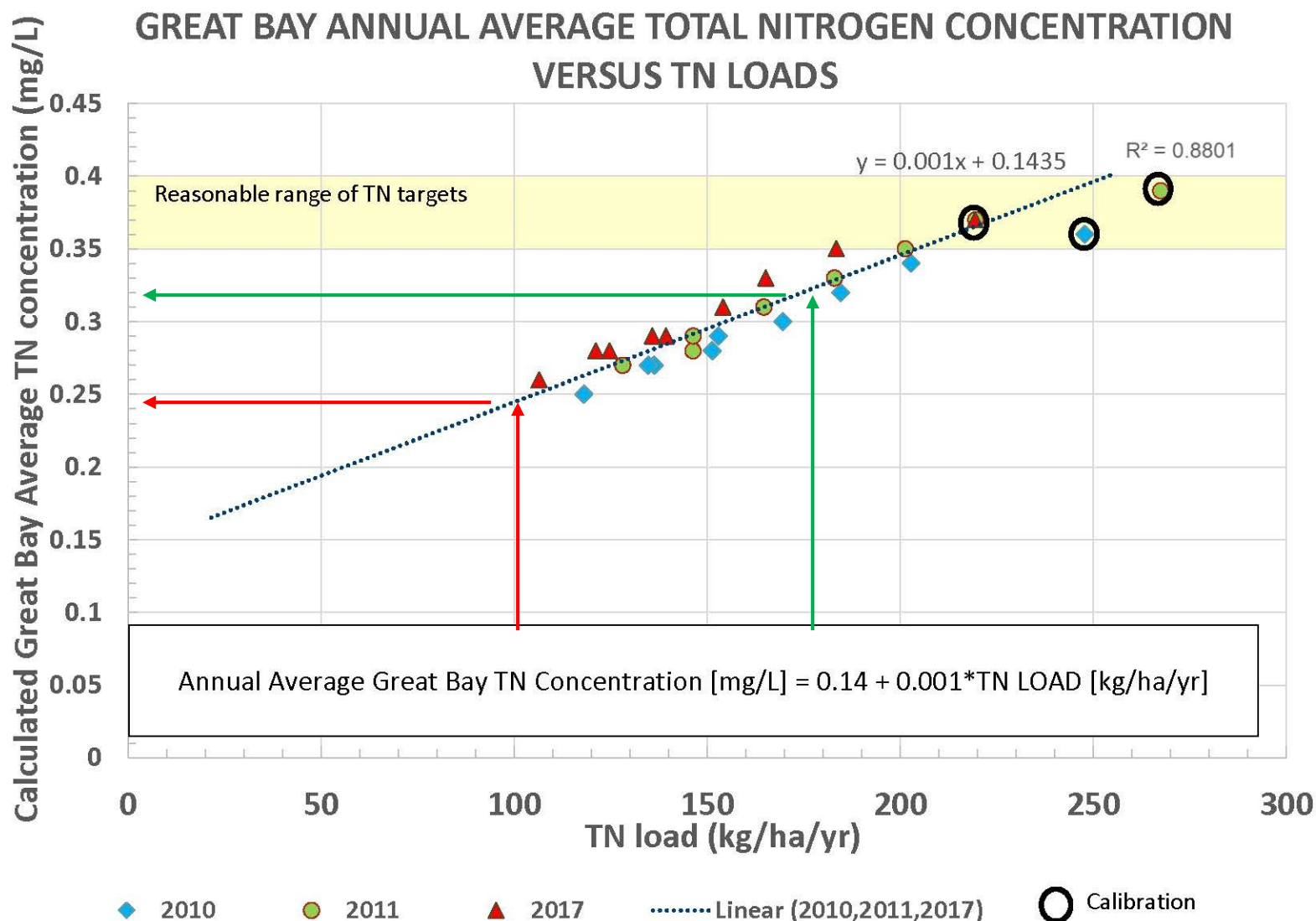


Great Bay TN vs. TN Loads (Station GRBGB)



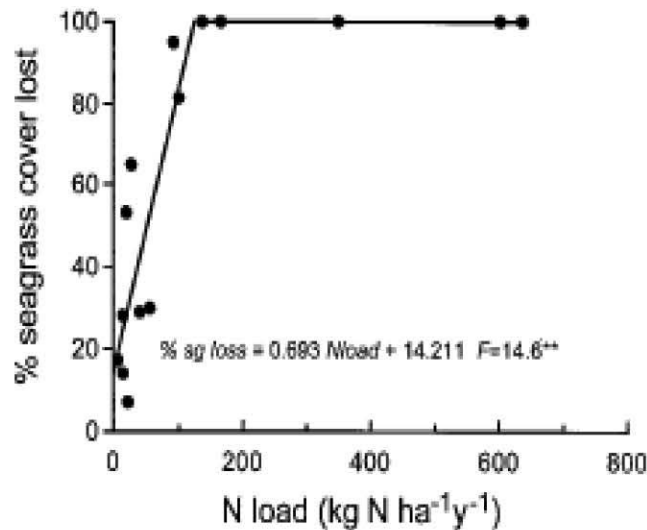
Note : Calibration data not used in regression

Great Bay TN vs. TN Loads (Station GRBGB)



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General Permit - Science

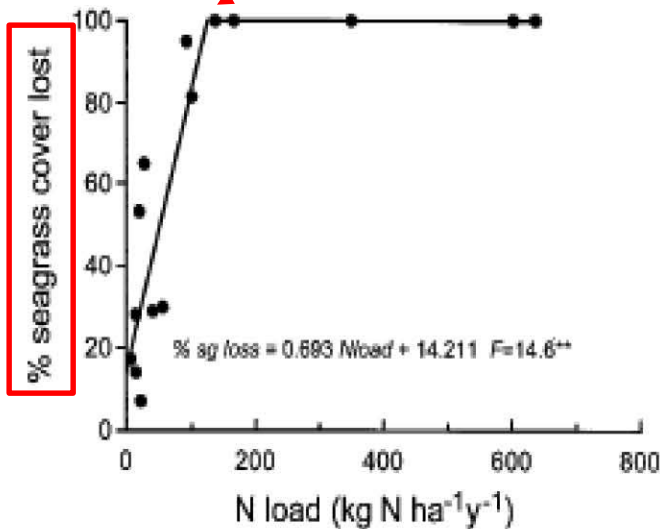


- Literature-based total nitrogen loading threshold to protect eelgrass ranging from 20 – 100 kg/ha-yr
- Narragansett Bay Comparison:
 - From 2000 to 2015 TN loading reduced from 158 to 80 kg/ha-yr
 - Resulted in 37% increase in eelgrass
 - However, DO still in an issue in the upper portions of the estuary
- Initial “Adaptive Management” Target:
100 kg/ha-yr

Slide from EPA/DES presentation 3/8/19

General Permit - Science

At 100 TN loading rate – all eel grass gone?



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