Planning and Developing Achievable Stormwater Water Quality Goals in New Hampshire

NEWEA Annual Meeting

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Renee L. Bourdeau, PE

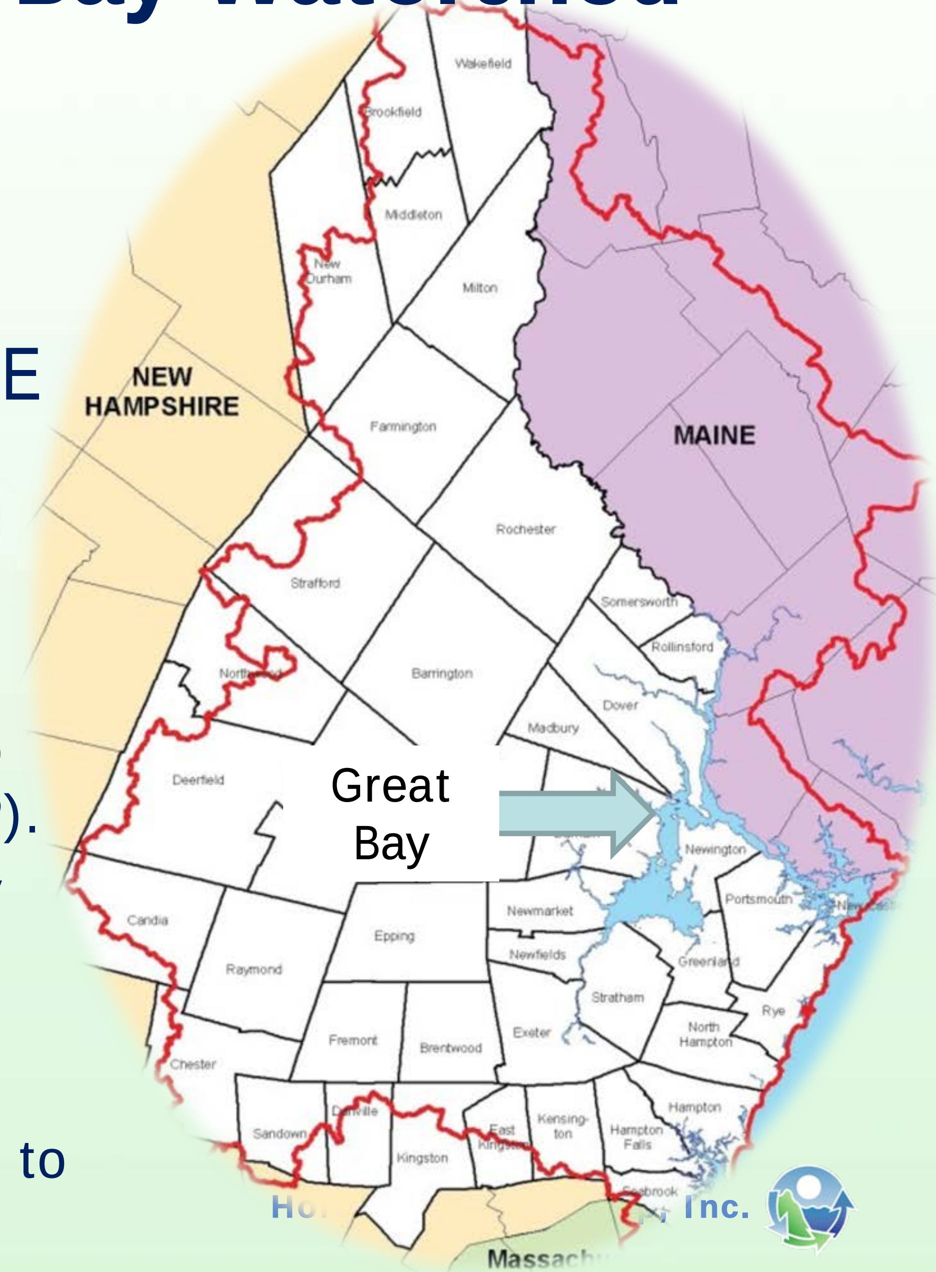
Horsley Witten Group, Inc.

Presentation Outline

- Regulatory Background
- Community Case Studies
- Conclusions

Background: Great Bay Watershed

- Home to 25% of NH's population
- Intersects 39 NH and 9 ME communities (48 total)
- Previous studies have found:
  - Dissolved inorganic nitrogen up 42% over the last 5 years (PREP).
  - Eelgrass biomass in the estuary declined by 64% between 1990 and 2008
  - Adult oyster populations have decreased from 125,000 (1997) to 10,044 (2009).



Background: Great Bay Watershed

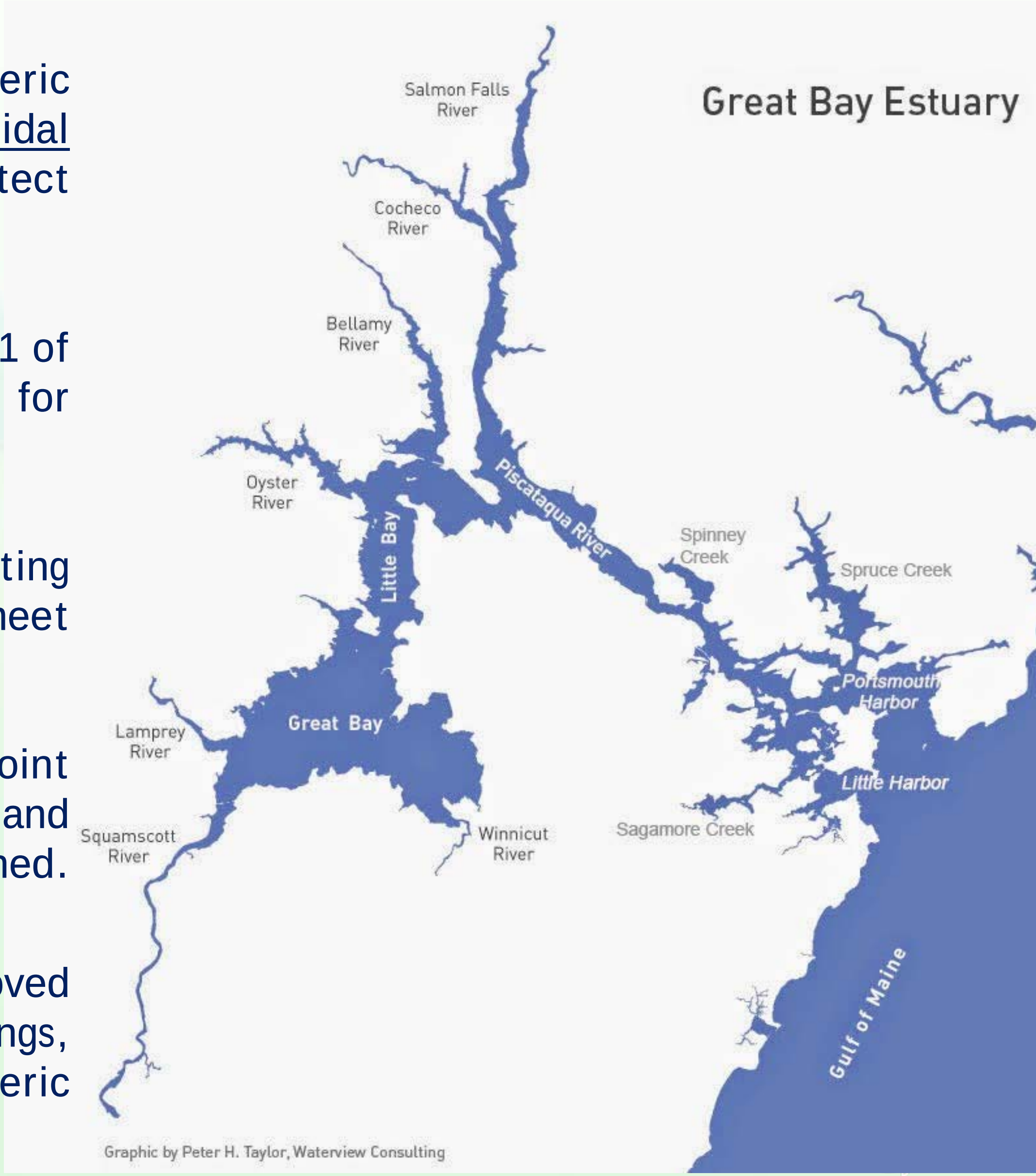
- **2009** – NHDES established numeric nutrient criterion for nitrogen in <u>tidal</u> waters of Great Bay to protect eelgrass and dissolved oxygen

- **2009** - NHDES lists Great Bay and 11 of the 18 sub-estuaries as impaired for nitrogen

- **2010** - NHDES established existing loads and load reductions to meet water quality criterion

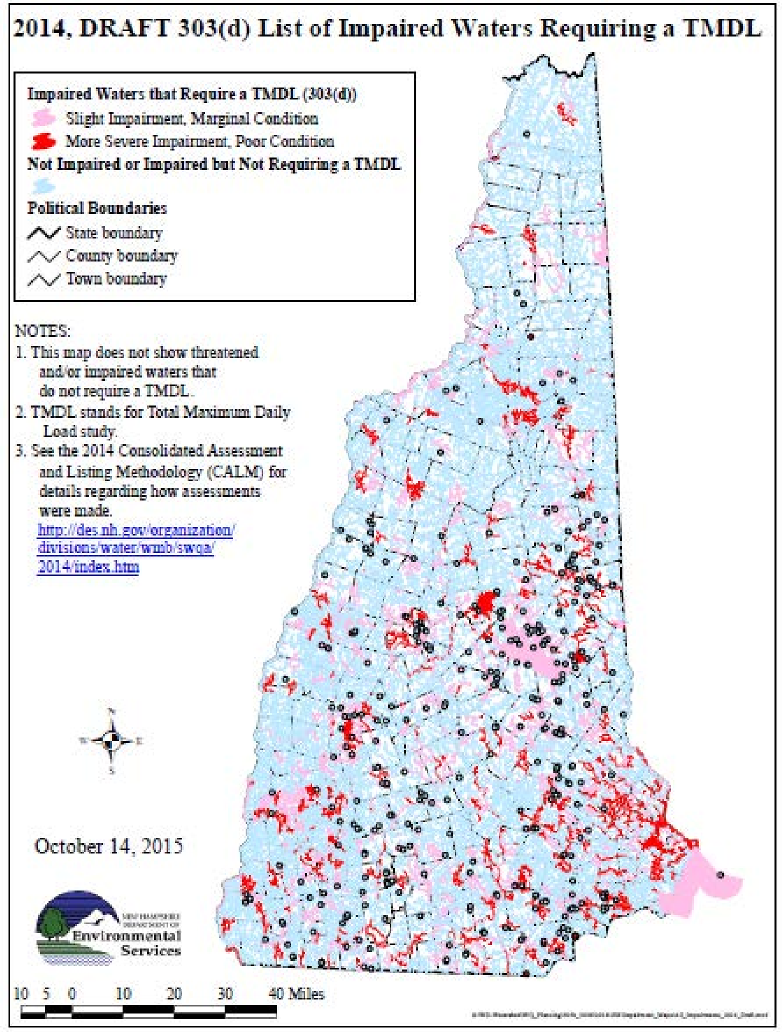
- **2014** - NHDES estimates non-point source load from all watersheds and towns within the Great Bay Watershed.

- **2014** – As result of a court approved settlement and peer review findings, NHDES will cease to use numeric nutrient thresholds



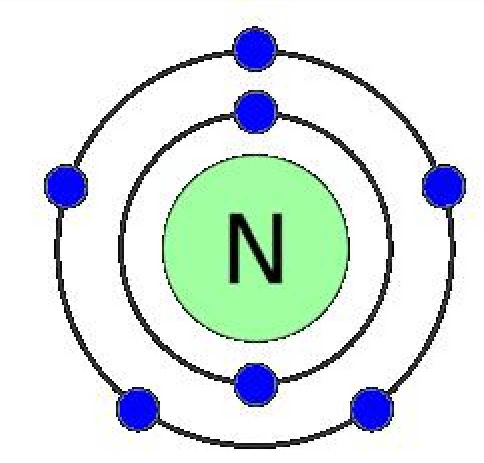
Background: 2017 Final NH MS4 Permit

- Discharges to Waters Impaired by Nitrogen
  - Public Education & Outreach
  - Amend/adopt regulations to include BMPs optimized for nitrogen removal
  - Management of municipal land
  - Nitrogen Source Identification Report
  - Potential Structural BMPs

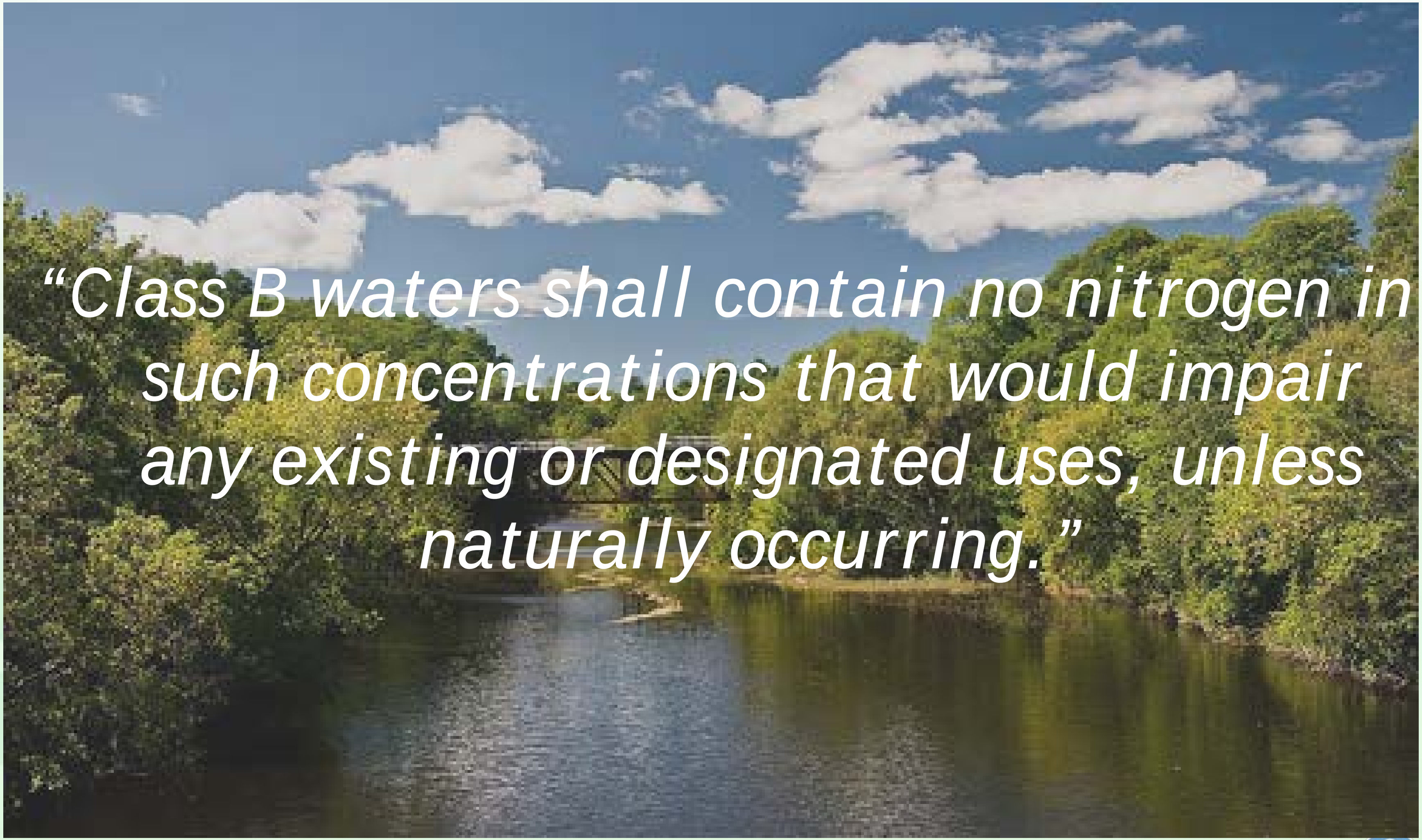


Background: WWTF Permits & AOC

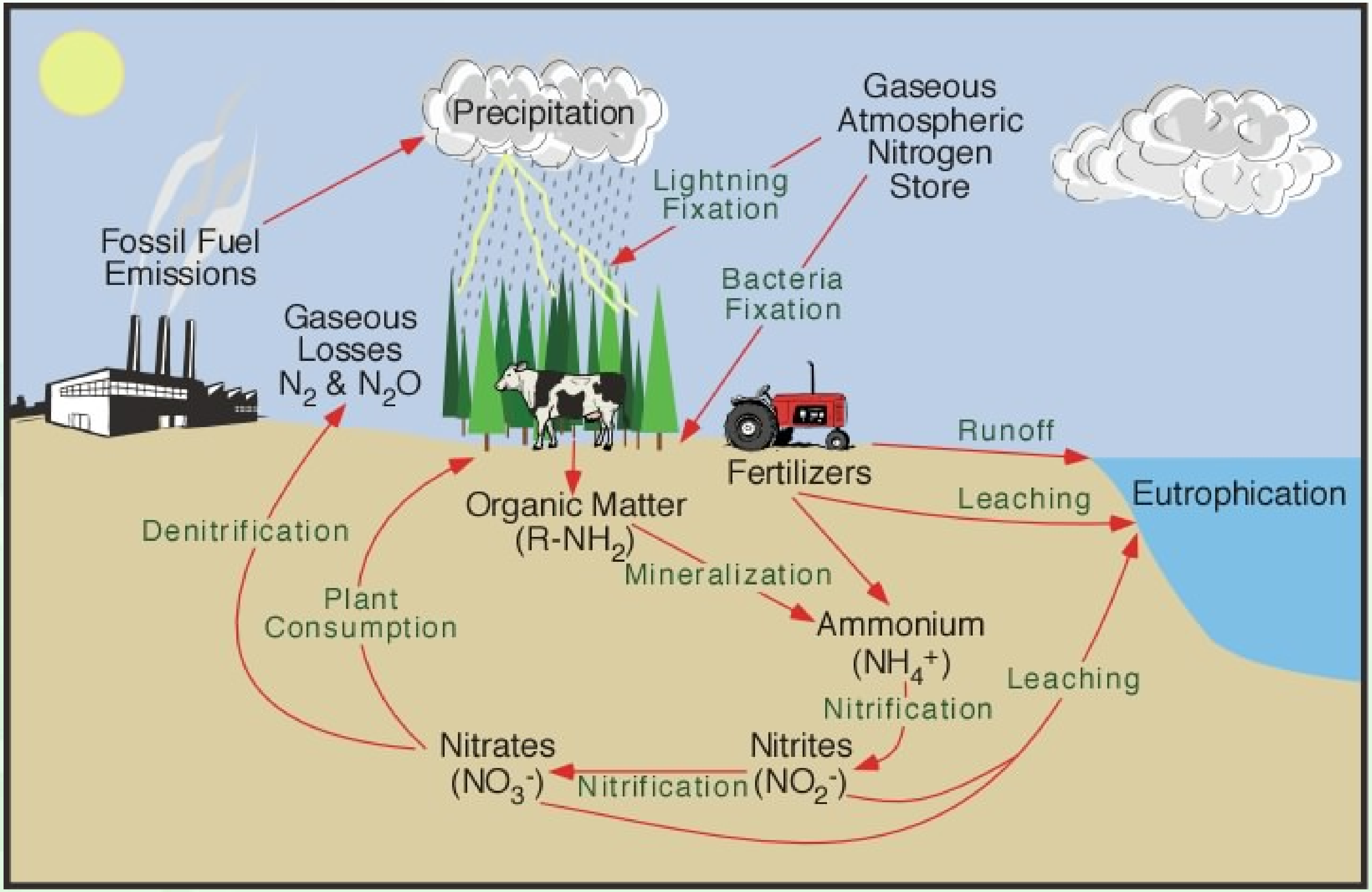
- Require tracking of all sources which contribute nitrogen to the Great Bay
- Development of a Nitrogen Control Plan
  - 5-year schedule
  - Identify specific measures to be installed to reduce non-point and point source stormwater



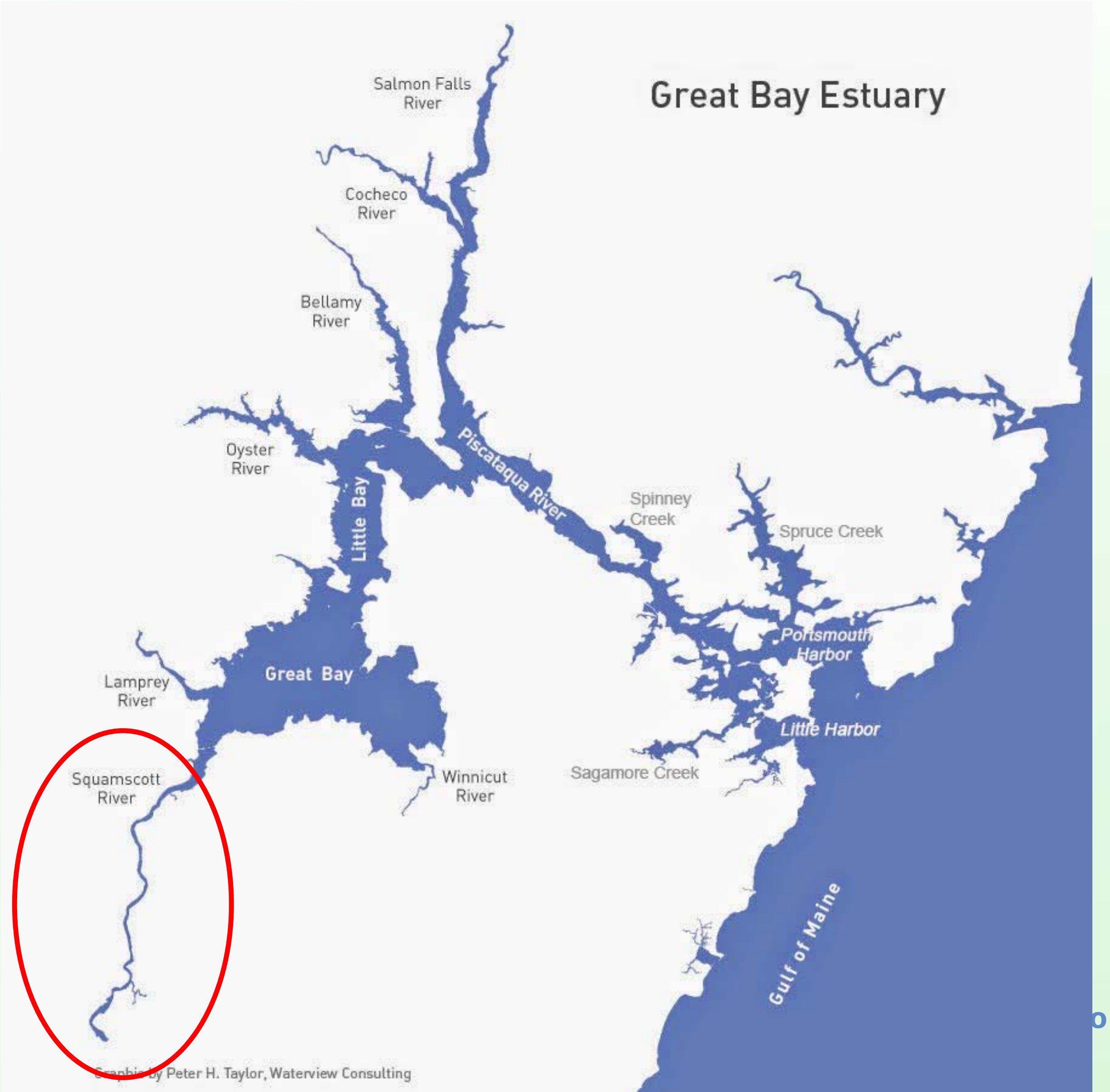
Background: NH State Water Quality Standard



Case Studies



Case Study 1: Exeter- Squamscott River



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Case Study 1: Exeter-Squamscott River

- Freshwater & Tidal Tributary

- Portions of 19 Towns
  - 11 Regulated MS4s
  - 8 with MS4 waivers

Case Study 1: Exeter- Squamscott River

- Town of Exeter
  - WWTF AOC
  - MS4 Community
  - Contributes greatest stormwater load in watershed (21%)

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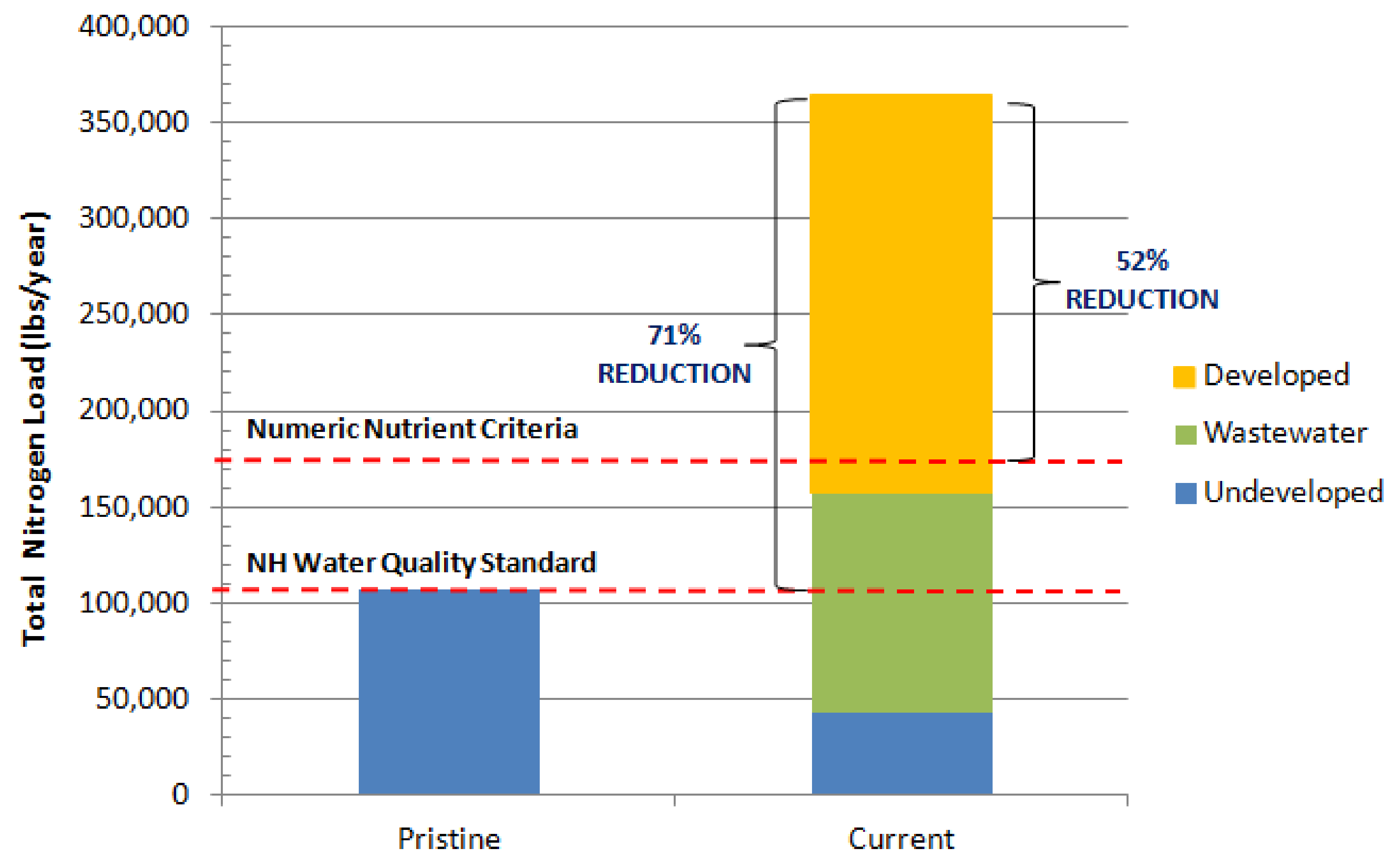

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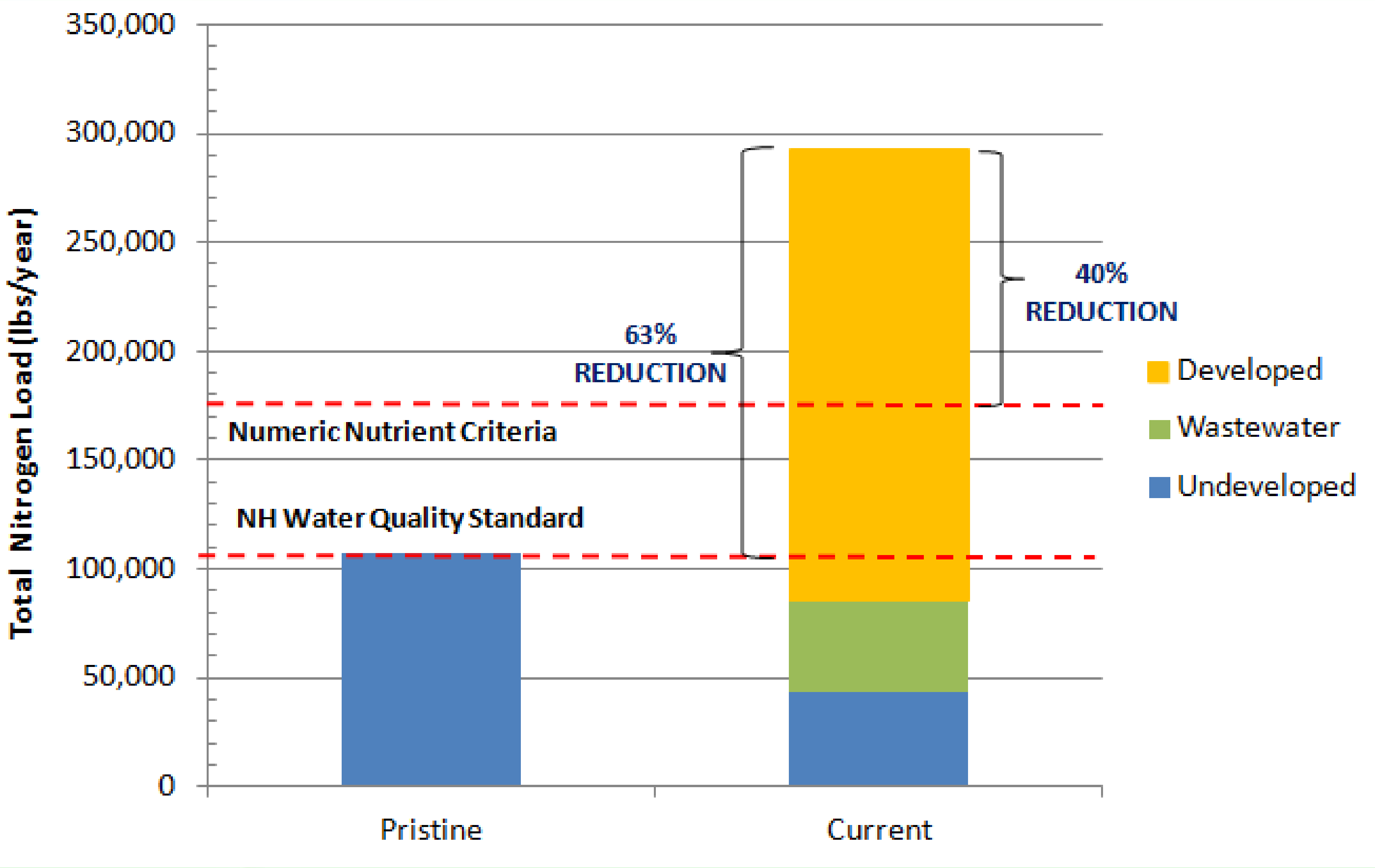

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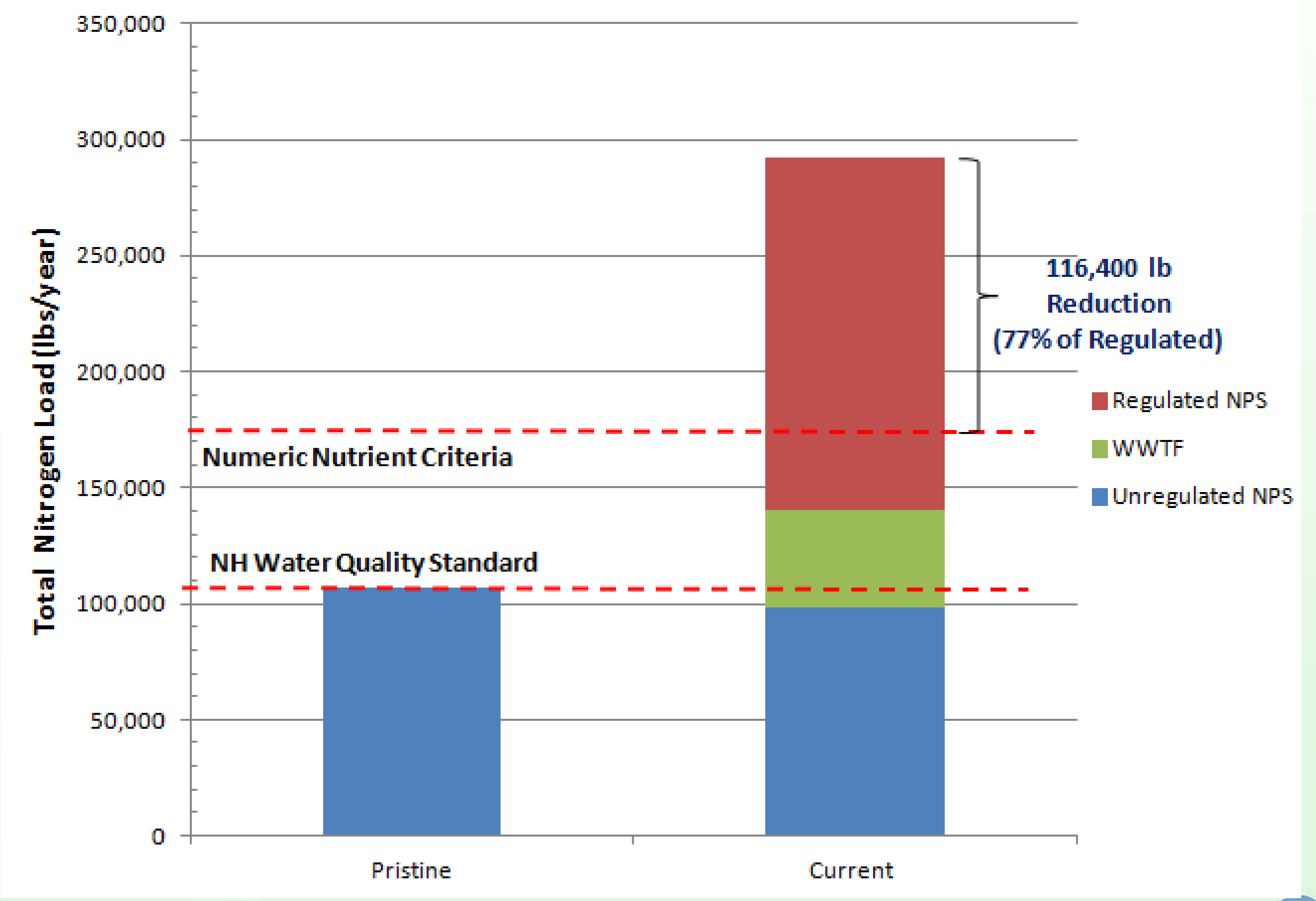

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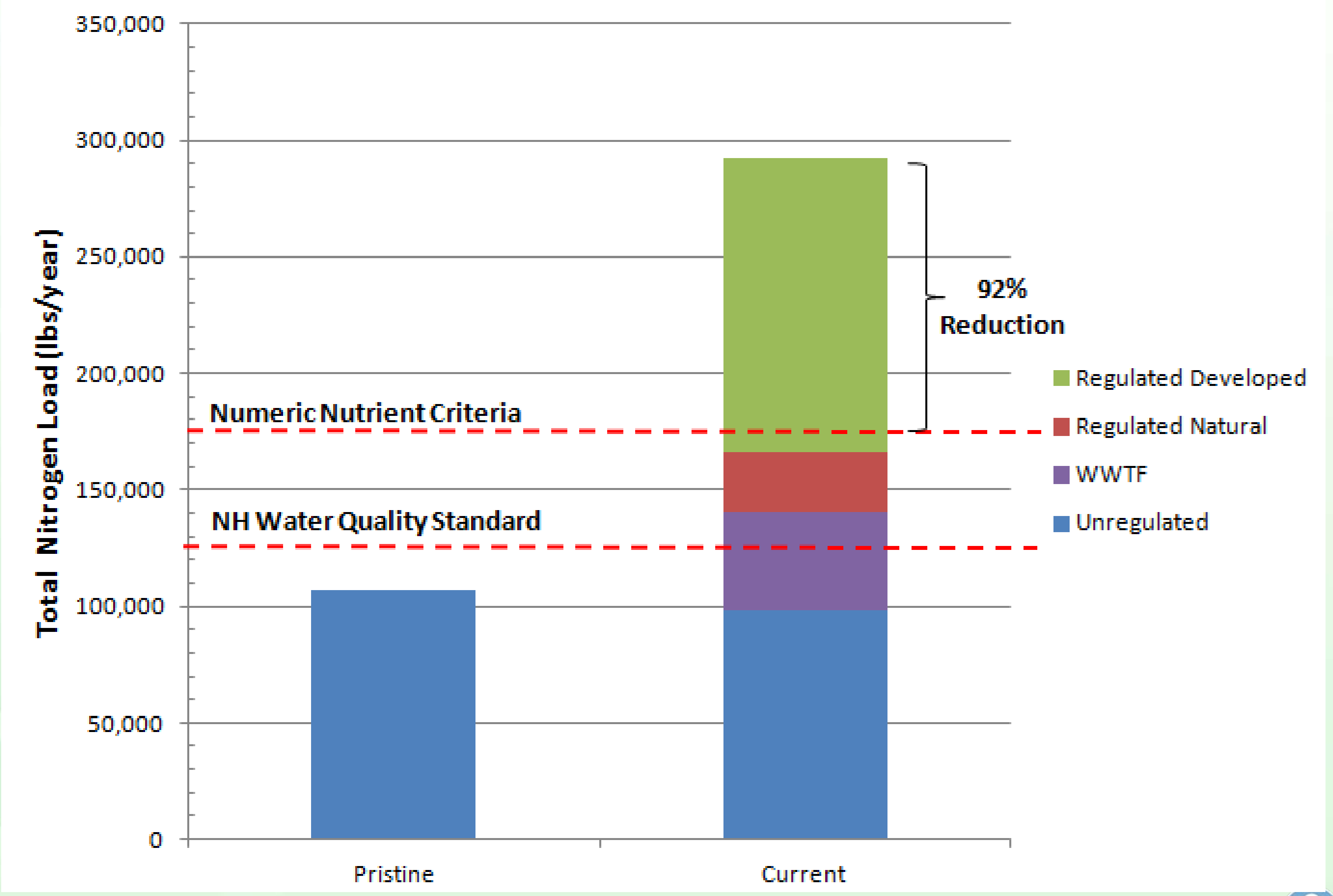
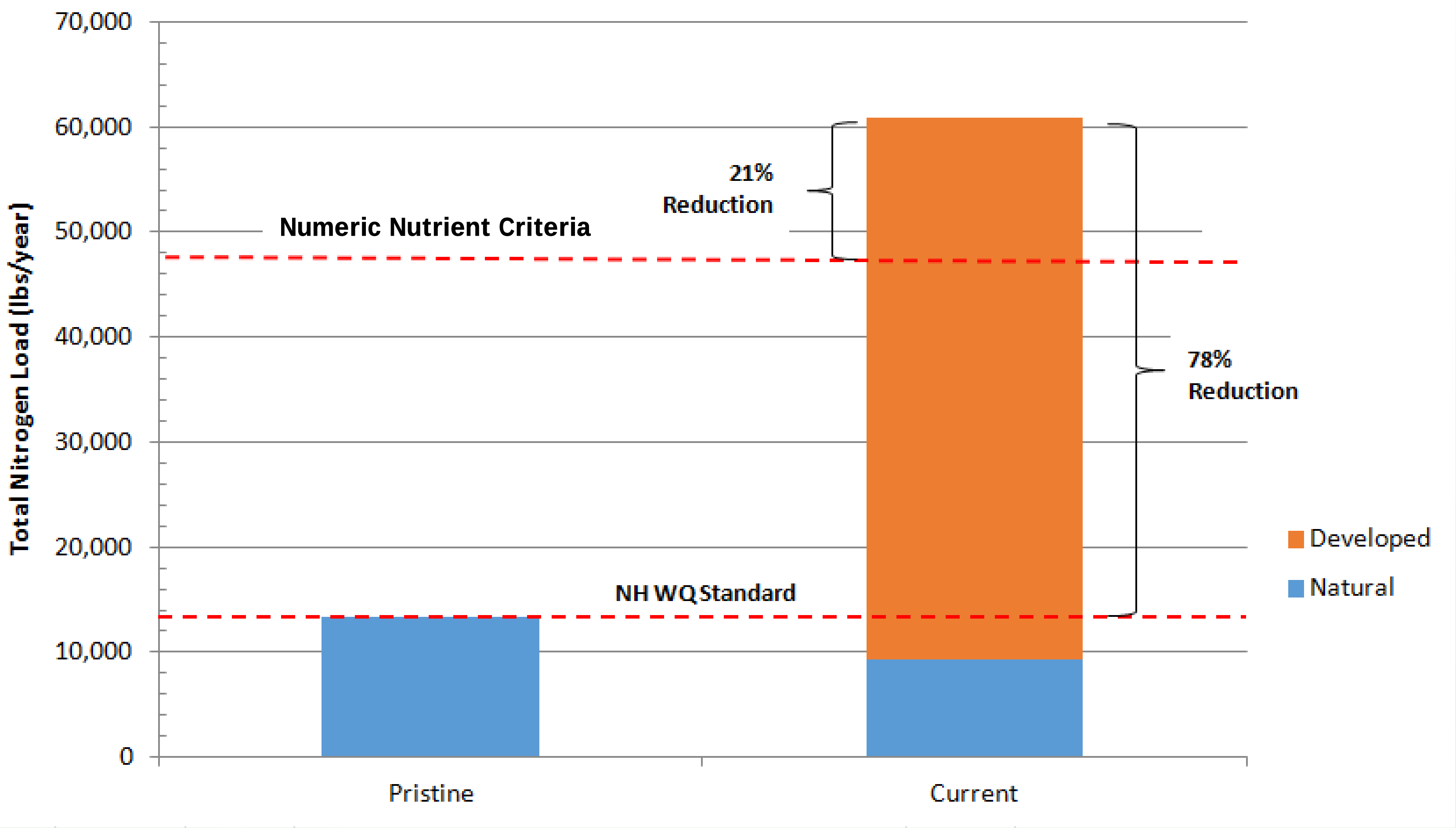


Case Study 1: Exeter- Squamscott River

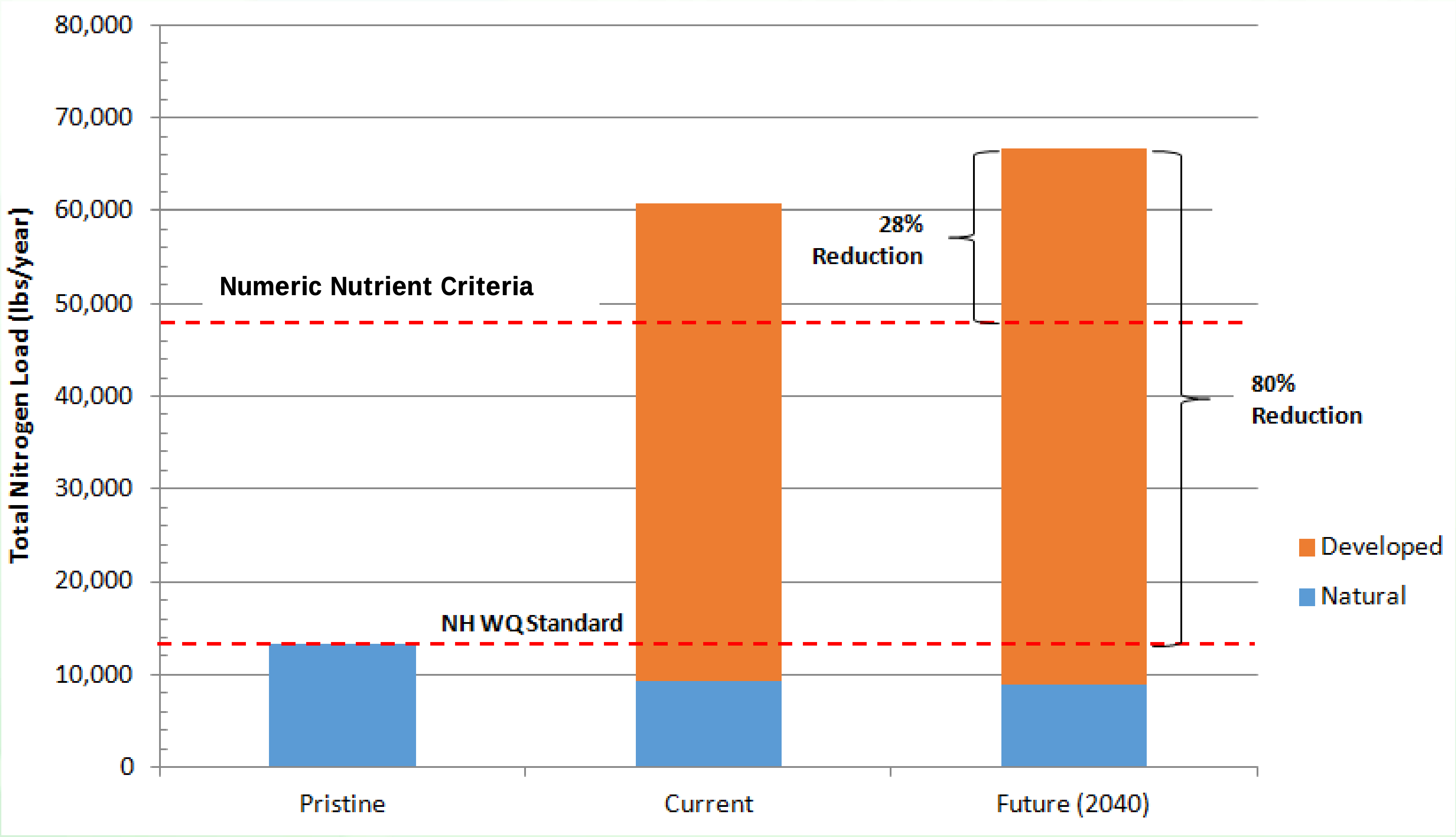
- Challenges to Exeter
  - Investing significant $ to reduce nitrogen loads at wastewater plant
  - NPS contributions in watershed will affect their future investments in wastewater
  - Future development load reductions are critical
  - Financial resources
  - Political buy-in
  - Septic System Regulations

Case Study 2: Current Loads



***Developed load includes stormwater, groundwater and septic systems**

Case Study 2: Future Loads



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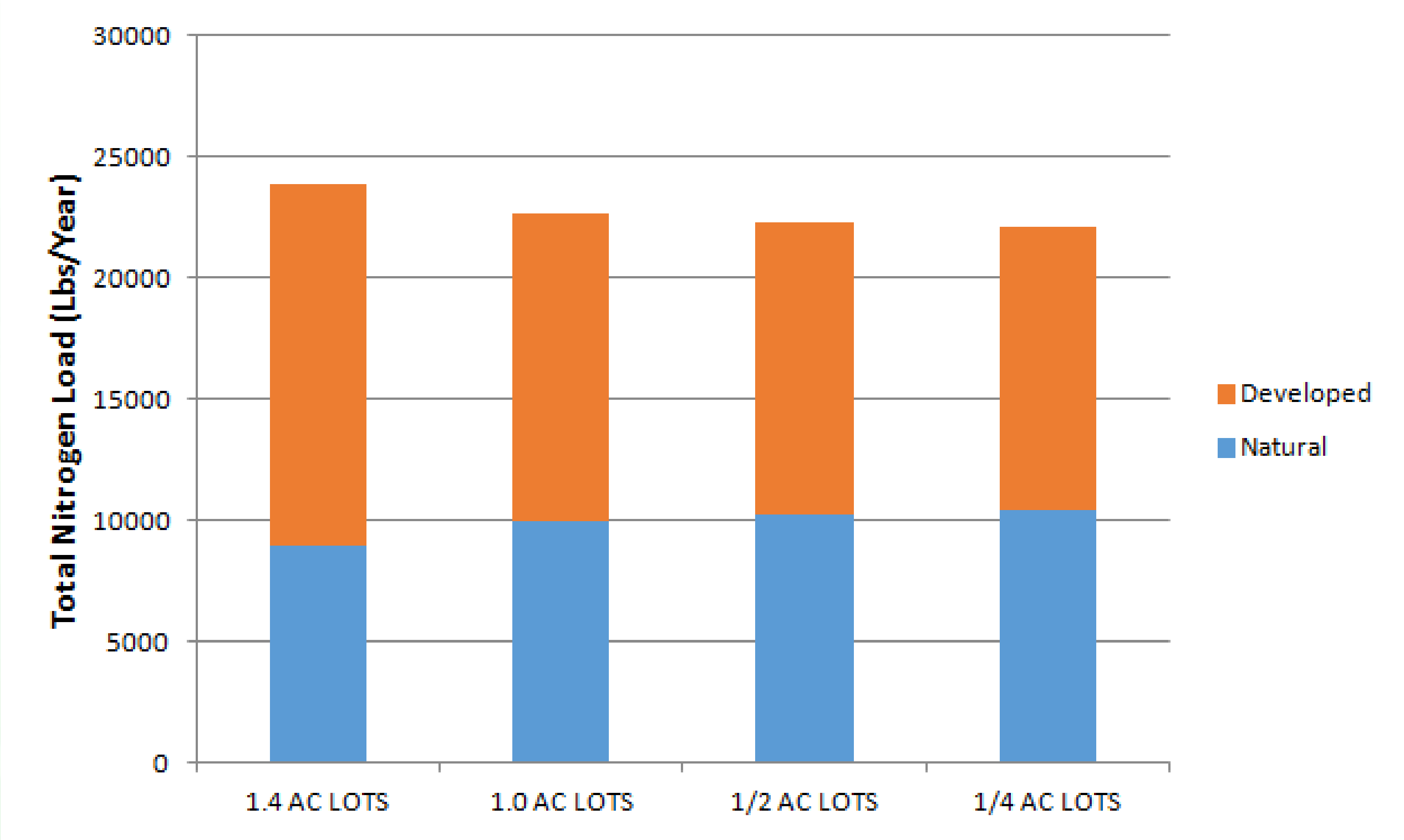
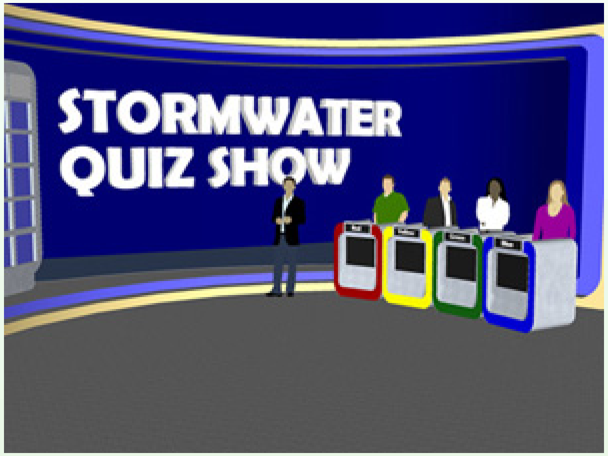
Case Study 2:
Example: Potential impacts of Zoning Changes



Future (2040) Stormwater Annual Nitrogen Load by Min. Lot Size

Conclusions

- Need to understand the complete picture
- Put local regulations in place to reduce future impacts
- Incorporate reduction strategies on EVERY project
- EDUCATE



Questions?

Contact Info:

Renee L. Bourdeau, PE
rbourdeau@horsleywitten.com