Great Bay
Total Nitrogen General Permit

NEWEA

January 24, 2022

Ellen Weitzler, EPA Region 1
Chief, Wastewater Permits Section

Clean Water Act

National Pollutant Discharge Elimination System
(NPDES)
Program

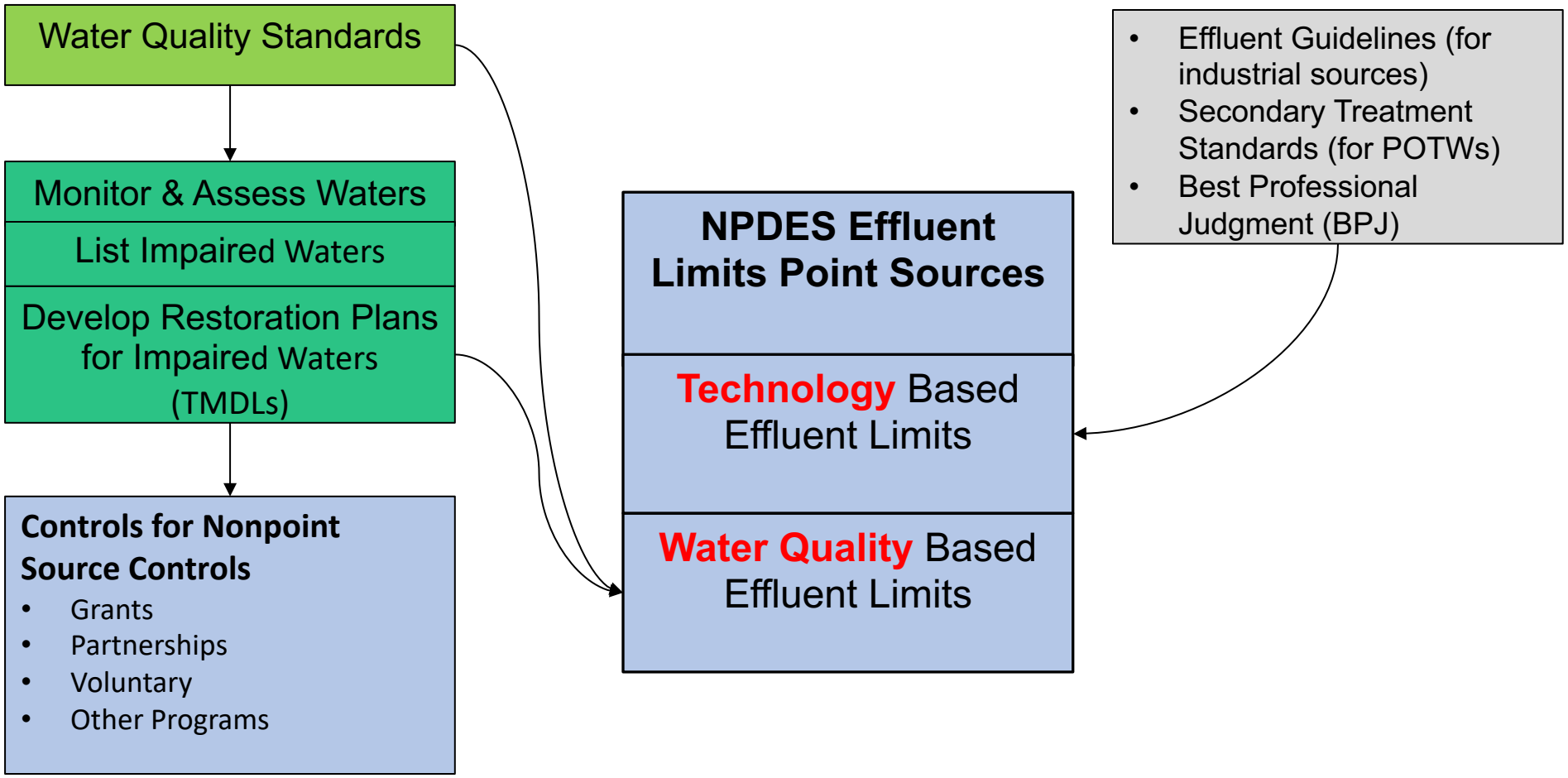
NPDES permits are required for:

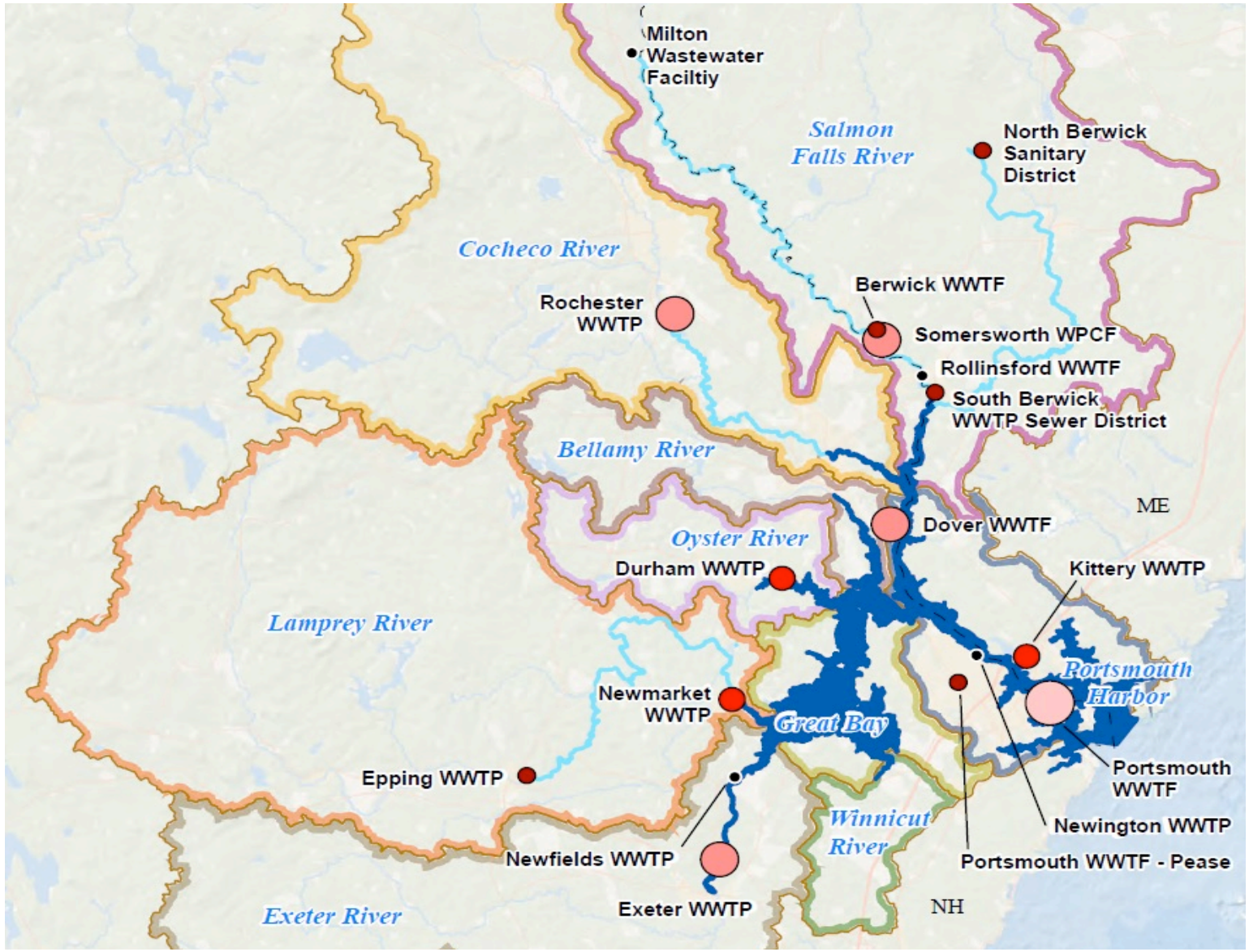
- Any point source discharge of a pollutant to “waters of the US”

They provide:

- legal authority to discharge

How do NPDES integrate with other Clean Water Act Programs?





Great Bay Watershed:

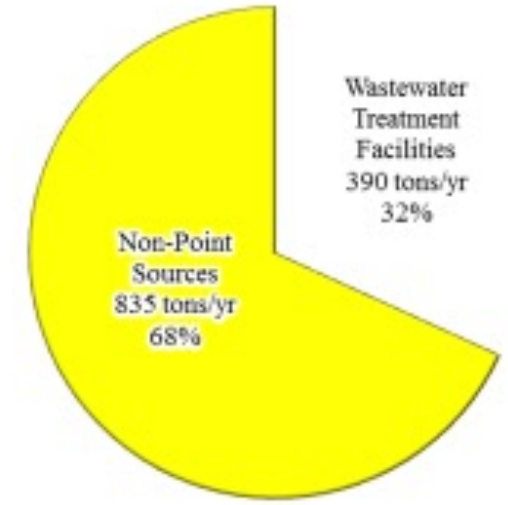
13 New Hampshire Publicly Owned Treatment Works (POTWs)

4 Maine POTWs

General Permit – Non-Point Source

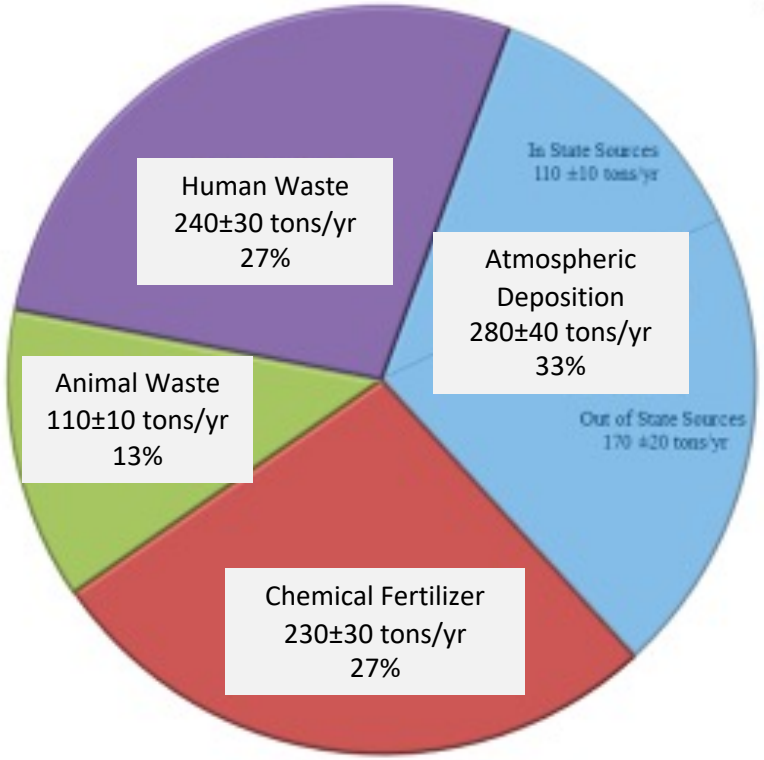
From PREP (2013)

DES Great Bay Nitrogen Non-Point Source Study



Total Load
1,225 Tons/yr

Nitrogen Loading Model



Non-Point Source Load
900 ±100 tons/yr

Non-Point Source Load
Delivered by Stormwater = 26%

Timeline Part 1

1996 – 2006+

Steady eelgrass loss throughout Great Bay

2006 nitrogen load at historical peak of 277 kg/ha-yr

2007 – 2009

NHDES develops draft nitrogen criteria to protect water quality and restore eelgrass (~0.3 mg/L)

2012

Permits issued for Exeter and Newmarket WWTFs with limit of 3 mg/L

2014

As a result of lawsuit from municipal coalition, NHDES withdraws support for draft nitrogen criteria

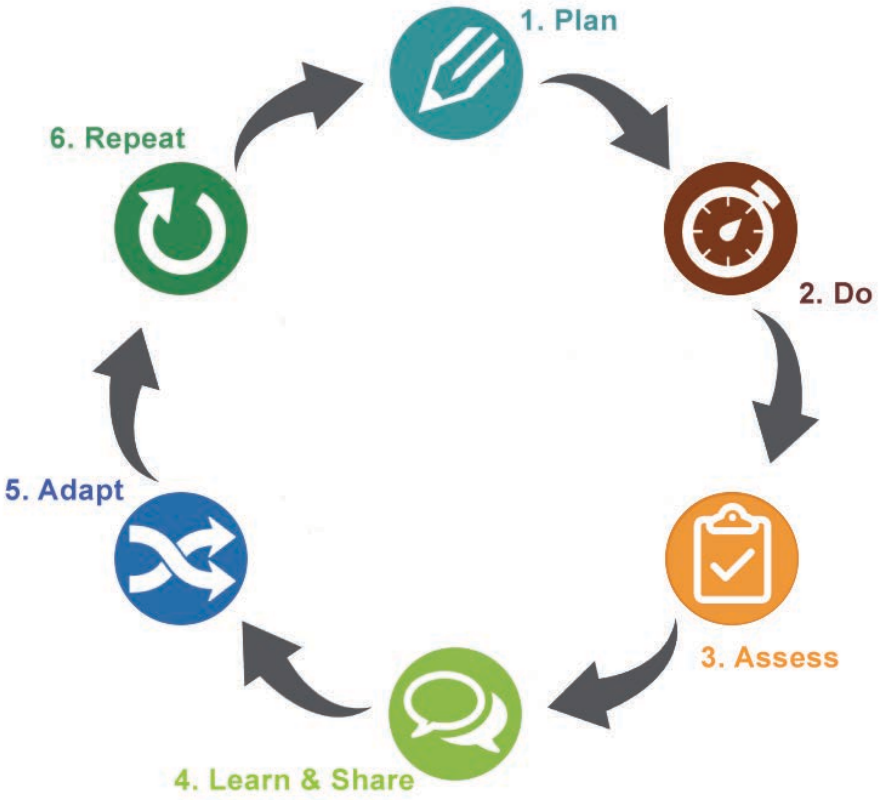
Strong encouragement from NH municipalities for EPA to consider an adaptive management approach in future permits

2017

EPA begins working on permit for Rochester WWTF

EPA must develop new numeric target for establishing permit limits

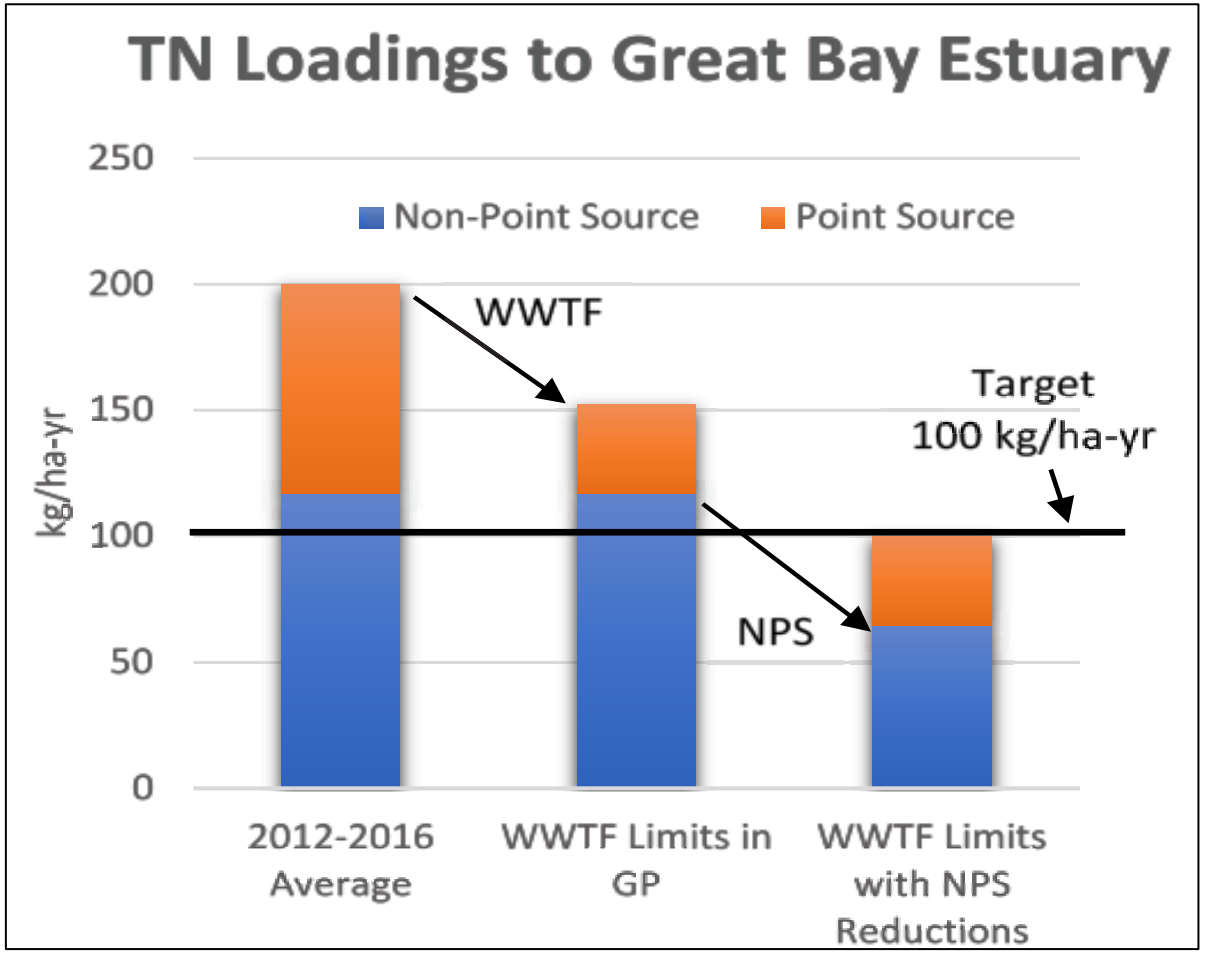
Adaptive Management



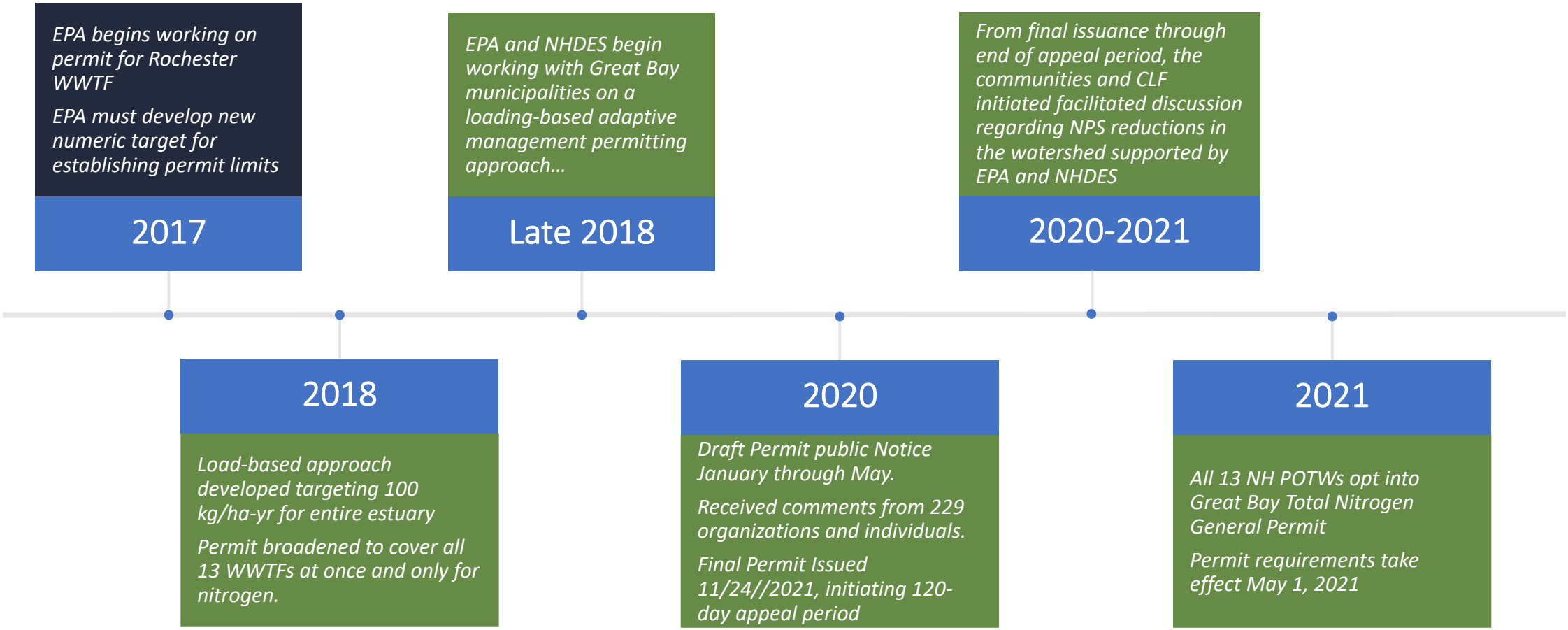
Adaptive management is an approach to natural resource management that emphasizes learning through management where knowledge is incomplete, and when, despite inherent uncertainty, managers and policymakers must act.

(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)

Point Source vs. Non-point Source Reduction



Timeline Part 2



Permit Requirements:

- TN limits based on:
- 8 mg/L at current flows for larger facilities and
- “hold the load” for smaller facilities

Permit Assumption:

- Communities within the Great Bay Watershed will be implementing strategies that reduce non-point sources of total nitrogen to Great Bay.

Total Nitrogen Limitations	
Facility	**Rolling Seasonal Average (lb/day) (April – October)**
Rochester	198
Portsmouth	248
Dover	167
Exeter	106
Durham	59
Somersworth	92
Pease ITP	93
Newmarket	30
Epping	43
Newington	15
Rollinsford	Report[1]
Newfields	16
Milton	Report[1]

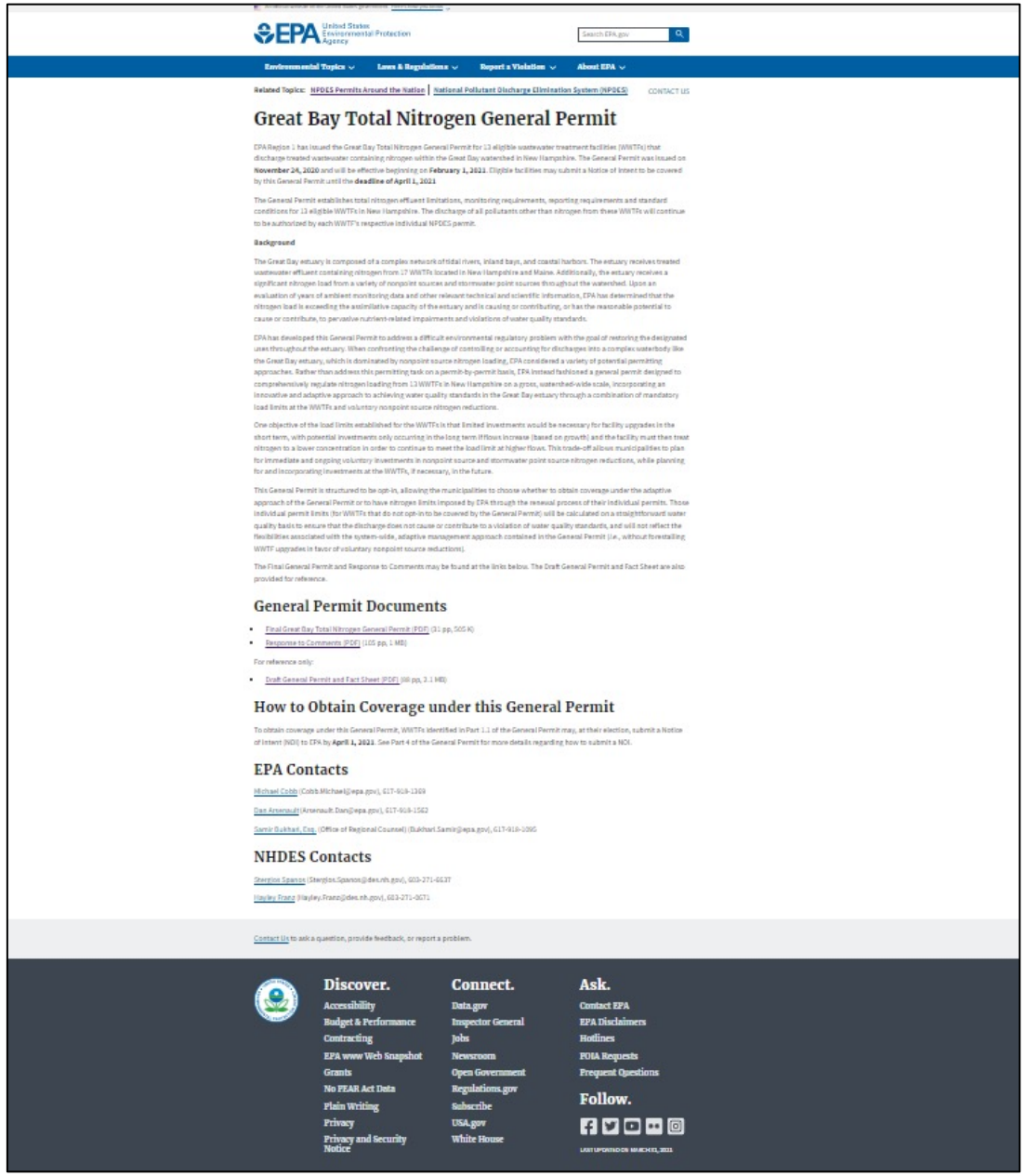
[1]Effluent limit to be established in 2023 based on new TN data.

Part 3 – Voluntary component of the permit (paraphrased):

1. By July 2021 submit a proposal as specified below:
    a. The approach to monitor the ambient water quality in the Great Bay estuary to determine progress and trends.
    b. The method(s) to track reductions and additions of total nitrogen over the course of the permit.
    c. An outline/plan for overall source reductions of total nitrogen over the course of the permit.
    d. An inclusive and transparent process for comprehensively evaluating any significant scientific and methodological issues relating to the permit, including the choice of a loadbased threshold of 100 kg ha-1 yr-1 versus any other proposed threshold, including a concentration-based threshold of 0.32 mg/L.
    e. A proposed timeline for completing a Total Maximum Daily Load (TMDL) for Total Nitrogen in Great Bay and for submitting it to EPA for review and approval.
2. Permittees may, at their election, submit this proposal jointly or separately. EPA encourages permittees to consult with NHDES, the Piscataqua Region Estuaries Partnership (PREP) and other interested parties in advance of their proposed submission(s).

More Information about the Great Bay Total Nitrogen General Permit at:

https://www.epa.gov/npdes-permits/great-bay-total-nitrogen-general-permit



EPA United States Environmental Protection Agency

Search EPA.gov

Environmental Topics | Laws & Regulations | Report a Violation | About EPA

Related Topics: NPDES Permits Around the Nation | National Pollutant Discharge Elimination System (NPDES) CONTACT US

Great Bay Total Nitrogen General Permit

EPA Region 1 has issued the Great Bay Total Nitrogen General Permit for 13 eligible wastewater treatment facilities (WWTFs) that discharge treated wastewater containing nitrogen within the Great Bay watershed in New Hampshire. The General Permit was issued on **November 24, 2020** and will be effective beginning on **February 1, 2021**. Eligible facilities may submit a Notice of Intent to be covered by this General Permit until the **deadline of April 1, 2021**.

The General Permit establishes total nitrogen effluent limitations, monitoring requirements, reporting requirements and standard conditions for 13 eligible WWTFs in New Hampshire. The discharge of all pollutants other than nitrogen from these WWTFs will continue to be authorized by each WWTF's respective individual NPDES permit.

Background

The Great Bay estuary is composed of a complex network of tidal rivers, inland bays, and coastal harbors. The estuary receives treated wastewater effluent containing nitrogen from 17 WWTFs located in New Hampshire and Maine. Additionally, the estuary receives a significant nitrogen load from a variety of nonpoint sources and stormwater point sources throughout the watershed. Upon an evaluation of years of ambient monitoring data and other relevant technical and scientific information, EPA has determined that the nitrogen load is exceeding the assimilative capacity of the estuary and is causing or contributing, or has the reasonable potential to cause or contribute, to pervasive nutrient-related impairments and violations of water quality standards.

EPA has developed this General Permit to address a difficult environmental regulatory problem with the goal of restoring the designated uses throughout the estuary. When confronting the challenge of controlling or accounting for discharges into a complex waterbody like the Great Bay estuary, which is dominated by nonpoint source nitrogen loading, EPA considered a variety of potential permitting approaches. Rather than address this permitting task on a permit-by-permit basis, EPA instead fashioned a general permit designed to comprehensively regulate nitrogen loading from 13 WWTFs in New Hampshire on a gross, watershed-wide scale, incorporating an innovative and adaptive approach to achieving water quality standards in the Great Bay estuary through a combination of mandatory load limits at the WWTFs and voluntary nonpoint source nitrogen reductions.

One objective of the load limits established for the WWTFs is that limited investments would be necessary for facility upgrades in the short term, with potential investments only occurring in the long term if flows increase (based on growth) and the facility must then treat nitrogen to a lower concentration in order to continue to meet the load limit at higher flows. This trade-off allows municipalities to plan for immediate and ongoing voluntary investments in nonpoint source and stormwater point source nitrogen reductions, while planning for and incorporating investments at the WWTFs, if necessary, in the future.

This General Permit is structured to be opt-in, allowing the municipalities to choose whether to obtain coverage under the adaptive approach of the General Permit or to have nitrogen limits imposed by EPA through the renewal process of their individual permits. Those individual permit limits (for WWTFs that do not opt-in to be covered by the General Permit) will be calculated on a straightforward water quality basis to ensure that the discharge does not cause or contribute to a violation of water quality standards, and will not reflect the flexibilities associated with the system-wide, adaptive management approach contained in the General Permit (i.e., without forestalling WWTF upgrades in favor of voluntary nonpoint source reductions).

The Final General Permit and Response to Comments may be found at the links below. The Draft General Permit and Fact Sheet are also provided for reference.

General Permit Documents

- Final Great Bay Total Nitrogen General Permit (PDF) (31 pp, 505 K)
- Response to Comments (PDF) (105 pp, 1 MB)

For reference only:

- Draft General Permit and Fact Sheet (PDF) (88 pp, 2.1 MB)

How to Obtain Coverage under this General Permit

To obtain coverage under this General Permit, WWTFs identified in Part 1.1 of the General Permit may, at their election, submit a Notice of Intent (NOI) to EPA by **April 1, 2021**. See Part 4 of the General Permit for more details regarding how to submit a NOI.

EPA Contacts

Michael Cobb (Cobb.Michael@epa.gov), 617-918-1369

Dan Arsenault (Arsenault.Dan@epa.gov), 617-918-1582

Samir Bukhari, Esq. (Office of Regional Counsel) (Bukhari.Samir@epa.gov), 617-918-1095

NHDES Contacts

Sheridan Spanos (Sheridan.Spanos@des.nh.gov), 603-271-0637

Hayley Franz (Hayley.Franz@des.nh.gov), 603-271-0671

Contact Us to ask a question, provide feedback, or report a problem.

Discover.
Accessibility
Budget & Performance
Contracting
EPA www Web Snapshot
Grants
No FEAR Act Data
Plain Writing
Privacy
Privacy and Security Notice

Connect.
Data.gov
Inspector General
Jobs
Newsroom
Open Government
Regulations.gov
Subscribe
USA.gov
White House

Ask.
Contact EPA
EPA Disclaimers
Hotlines
FOIA Requests
Frequent Questions

Follow.

LAST UPDATED ON MARCH, 2021