



The Narragansett Bay Quahog Dilemma

Challenges, Opportunities and Recommendations

SPECIAL LEGISLATIVE COMMISSION TO STUDY AND PROVIDE
RECOMMENDATIONS ON THE ISSUES RELATING TO THE REDUCED
CATCH OF QUAHOGS IN NARRAGANSETT BAY

March 5, 2024

Rhode Island Shellfisherman's Association

Michael McGiveney, President

David Ghigliotty, Vice President

James Boyd, Board Member

Quahog Seeding Program

A Cooperative Program between RISA, Roger William's University and DEM



Upweller at Warwick Cove



Quahog seed ready for planting

RISA-RWU-RIDEM Quahog Seeding Project

2023 Annual Report

Funded by Rhode Island Department of Environmental Management



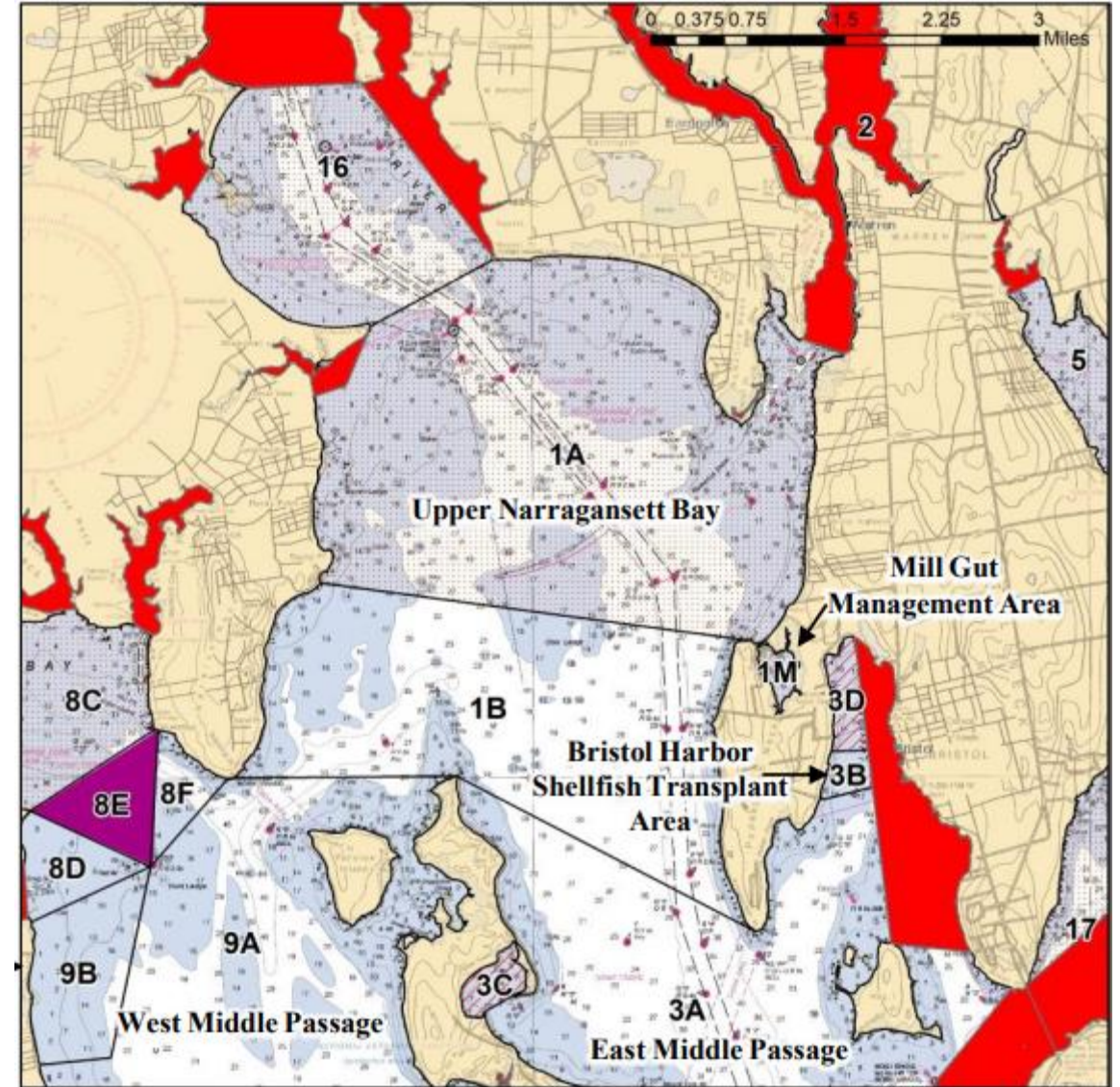
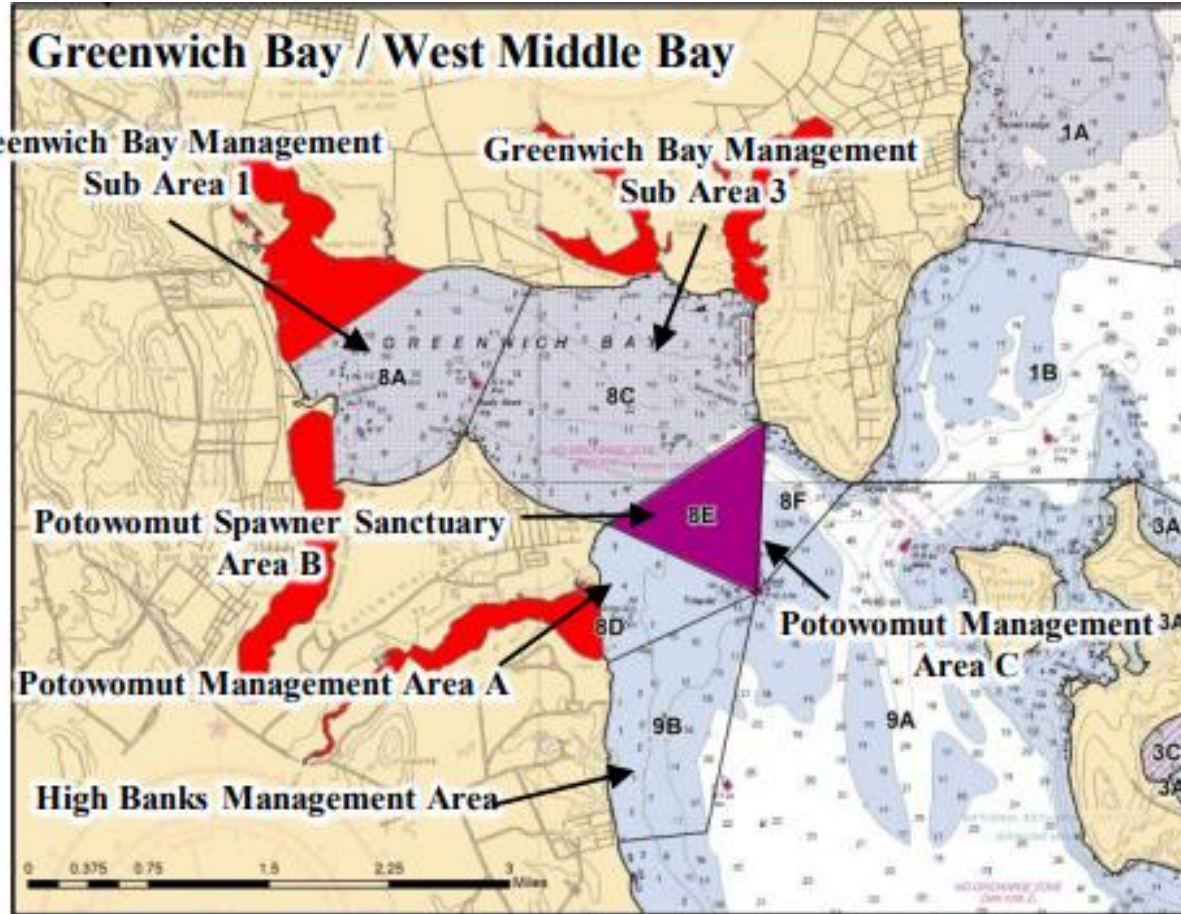
Bo Christianson captaining the boat during November 2023 planting (left). Adam McGiveney releasing quahogs in Greenwich Bay during 2023 planting (right). Photos by Susanna Osinski

Quahog Seeding Program



From left: Mike McGiveney, Rich Lonks, and Adam McGiveney planting clams in Greenwich Bay, November 2023. Clams from October 2023 sample date with large noticeable growth rings (right). Photos by Susanna Osinski.

Quahog Transplant Program



Source: RIDEM

Quahog Transplant Program

A Cooperative Program between RISA, DEM and Narragansett Bay Commission



Shellfishermen offloading quahogs onto buy boat



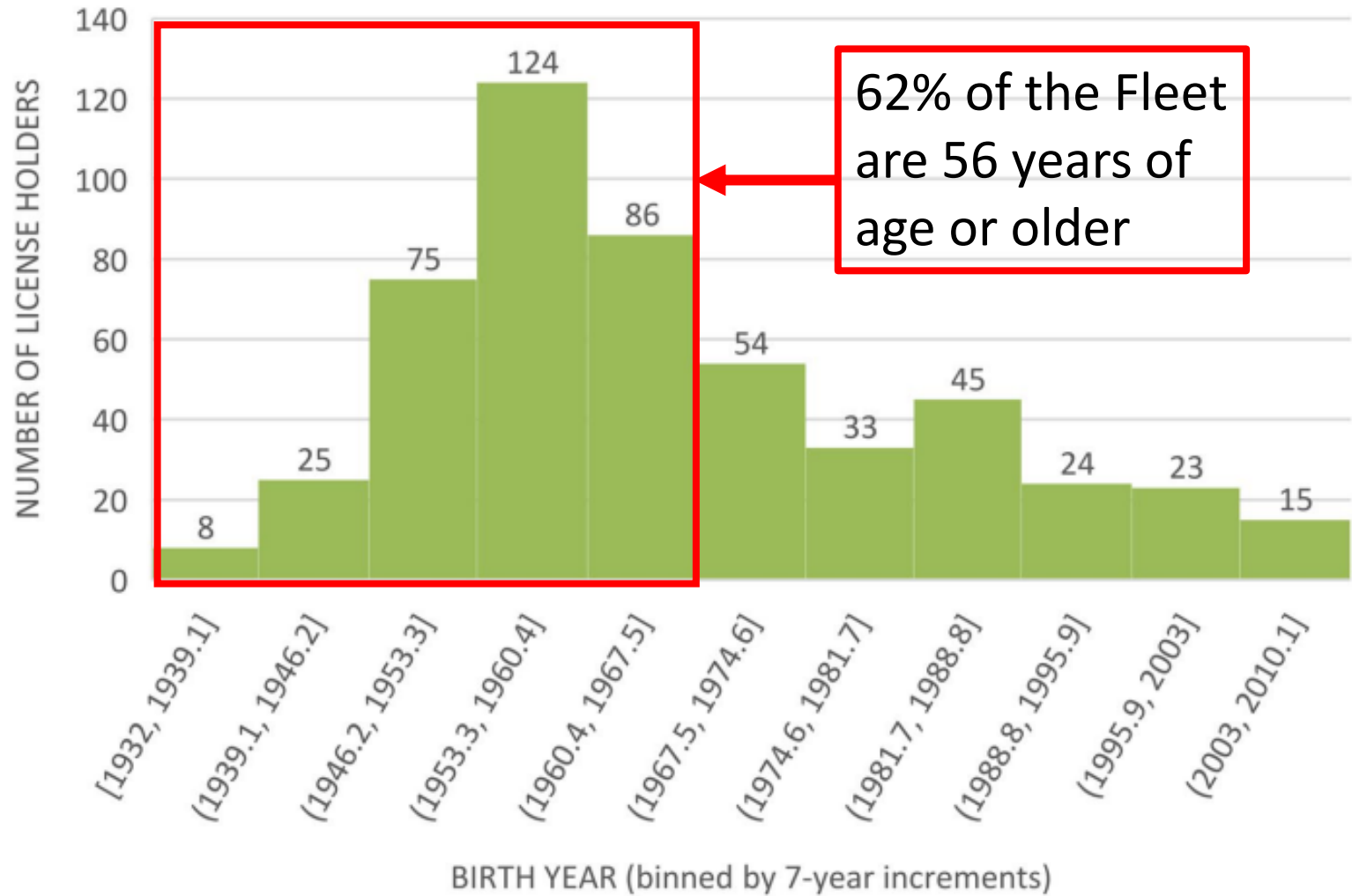
Quahog buy boat loaded and ready for transplanting into Greenwich Bay Management Area

Inside Rhode Island's Quahog Industry, A Shrinking Workforce



Source: Sofia Rudin, The Public's Radio – March 28, 2019

Birth Year of License Holders harvesting quahogs in 2022



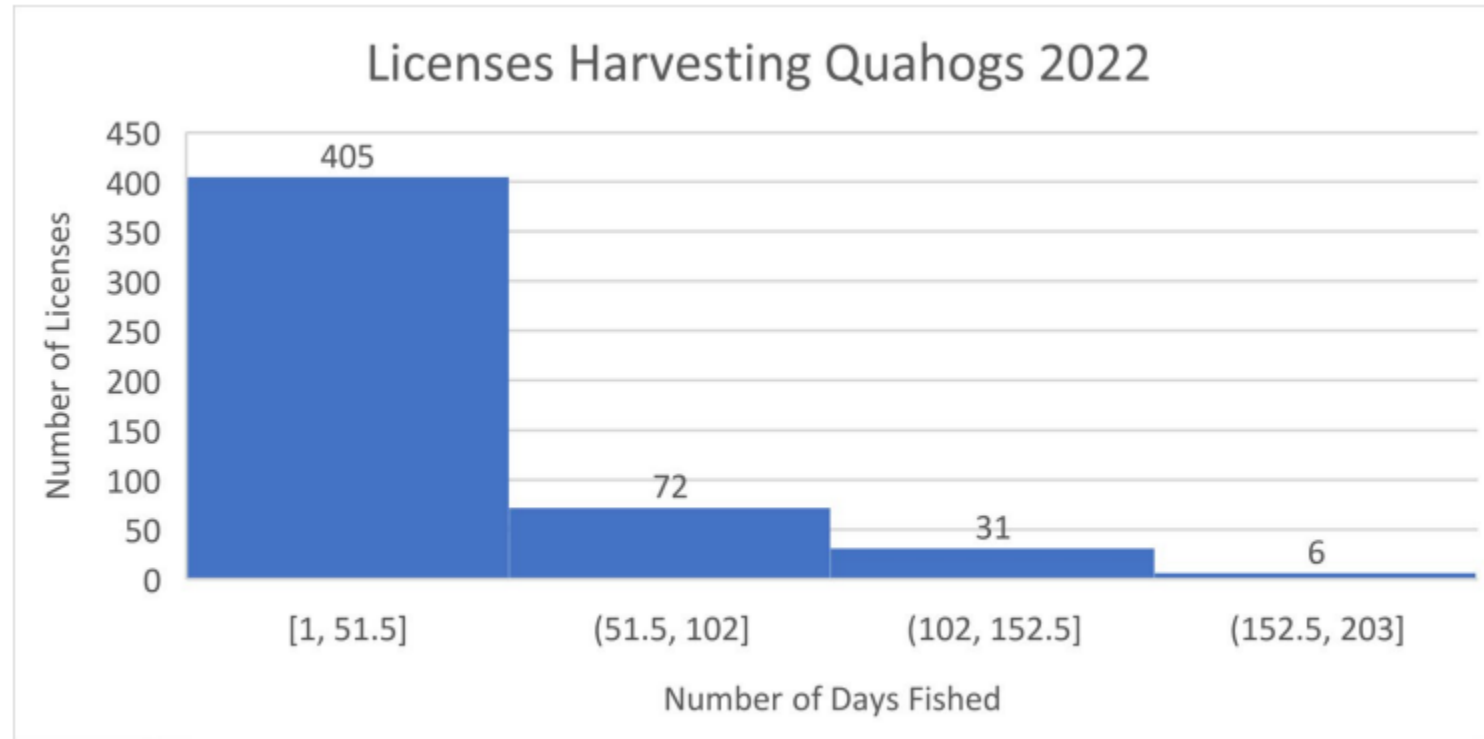
62% of the Fleet are 56 years of age or older

The largest number of license holders (124) are between the ages of 63-70 years old

17% between 42-55 years old
14% between 27-41 years old
8% < 26 years old

Source: DEM DMF - A summary of the Rhode Island historical quahog wild harvest landings and the quahog fishery fleet demographics 12/22/23

Number of Licenses vs. Active Days Fishing in 2022



79% of License holders fish less than 52 days per year!

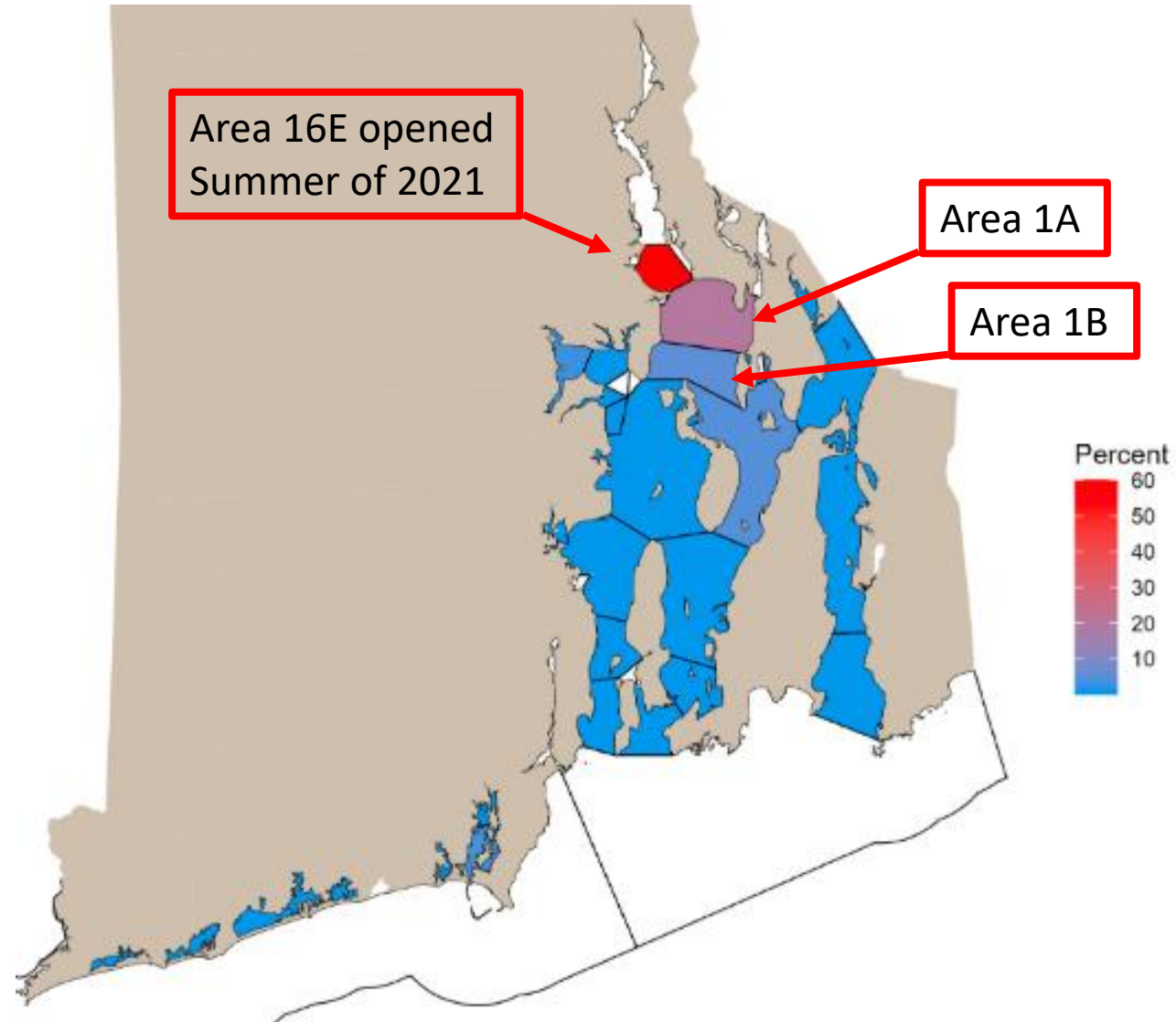
Source: DEM DMF - A summary of the Rhode Island historical quahog wild harvest landings and the quahog fishery fleet demographics 12/22/23

Bay Quahogs Fifth in the Top Ten Most Valuable RI Wild Harvest Commercial Landings

Table 1: Pounds landed and corresponding value for top ten commercial, wild harvest species landed (by value) for terminal year, 2022. Note that all species volumes are provided in pounds landed, except for quahogs, which are recorded as meat pounds. Percent changes are relative to 2021.

Common name	2022 Dollars	% change dollars	Pounds	% change pounds
AMERICAN LOBSTER	7,898,248	-30	1,151,717	-13
BLACK SEA BASS	2,337,068	6	824,345	25
JONAH CRAB	4,560,065	64	2,408,343	12
LONGFIN SQUID	37,033,159	71	25,327,155	72
QUAHOG	4,706,988	9	397,273	24
SCUP	2,563,040	-13	3,624,231	-15
SEA SCALLOP	18,308,846	-41	1,363,053	-31
SHORTFIN SQUID (ILLEX)	4,140,697	-72	6,211,206	-74
SUMMER FLOUNDER	5,744,497	-5	2,090,000	10
WHELK, CHanneled	2,235,745	36	176,766	35

Quahogs Landed by Tagging Area 2022



Source: 2022 Rhode Island Annual Fisheries Report, RIDEM DMF 2023

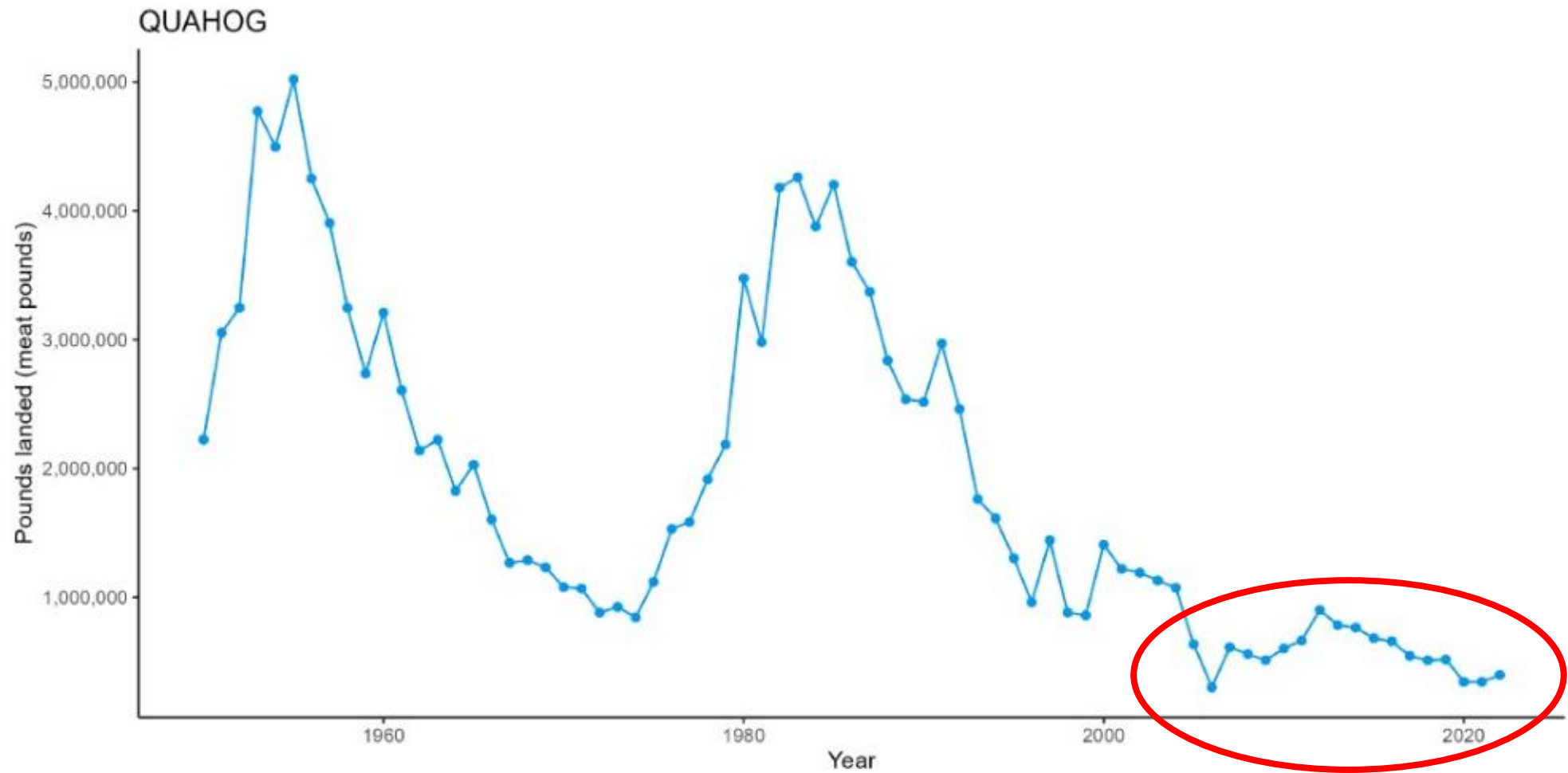


Figure 21: Pounds landed of quahog from 1950 - 2022

Source: 2022 Rhode Island Annual Fisheries Report, RIDEM DMF 2023

The Greenwich Bay Fish Kill – August 2003

Causes, Impacts and Responses

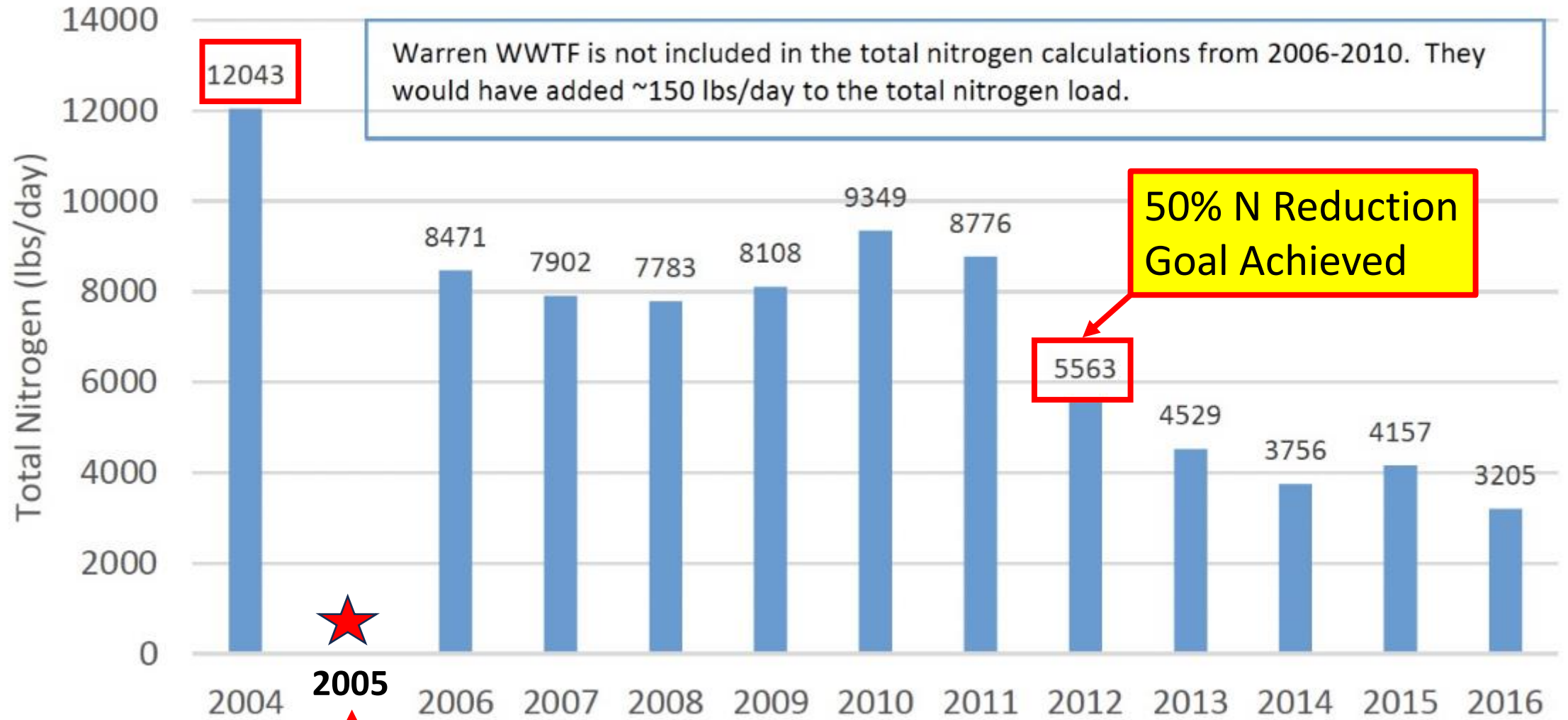


Rhode Island Department of Environmental Management
September 3, 2003



In 2004 the General Assembly enacted legislation that required RIDEM to “implement measures to achieve an overall goal of reducing nitrogen loadings from wastewater treatment facilities by fifty percent (50%) by December 31, 2008.” See R.I. Gen. Laws § 46-12-2(f). To meet this goal RIDEM established a 5mg/L N wastewater effluent discharge limit from May through October to reduce the incidences of hypoxia (low dissolved oxygen) in the Bay.

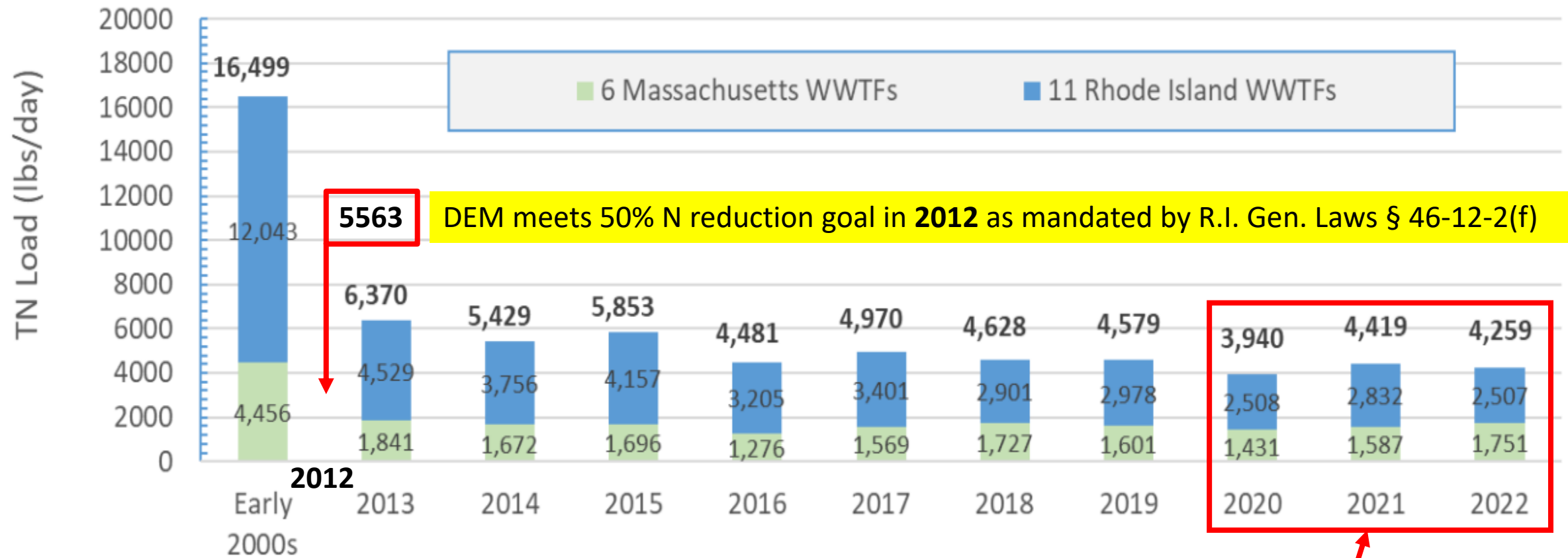
May - October Total Nitrogen at 11 Rhode Island WWTFs



Source: RIDEM 2017

DEM implements WWTF N reduction permit limits of 5mg/L (May-October)

Summer WWTF Nitrogen Loads

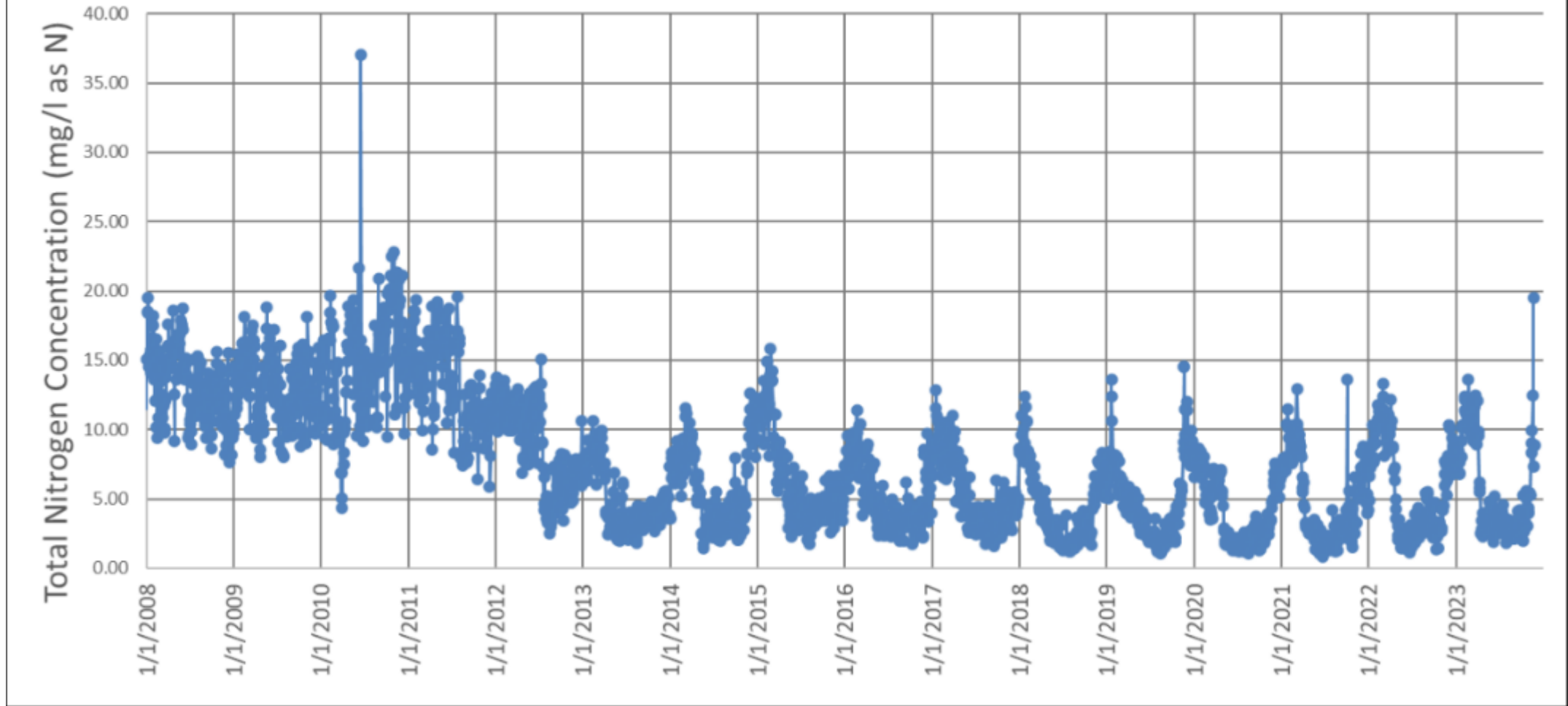


DEM meets 50% N reduction goal in 2012 as mandated by R.I. Gen. Laws § 46-12-2(f)

Average N reduction between 2020-2022 is 78% of early 2000s

RI WWTFs: Burrillville, East Greenwich, East Providence, NBC Bucklin Point, NBC Fields Point, Smithfield, Cranston, Warren, Warwick, West Warwick, Woonsocket; MA WWTFs: Attleboro, Graton, North Attleborough, Northbridge, UBWPAD, Uxbridge

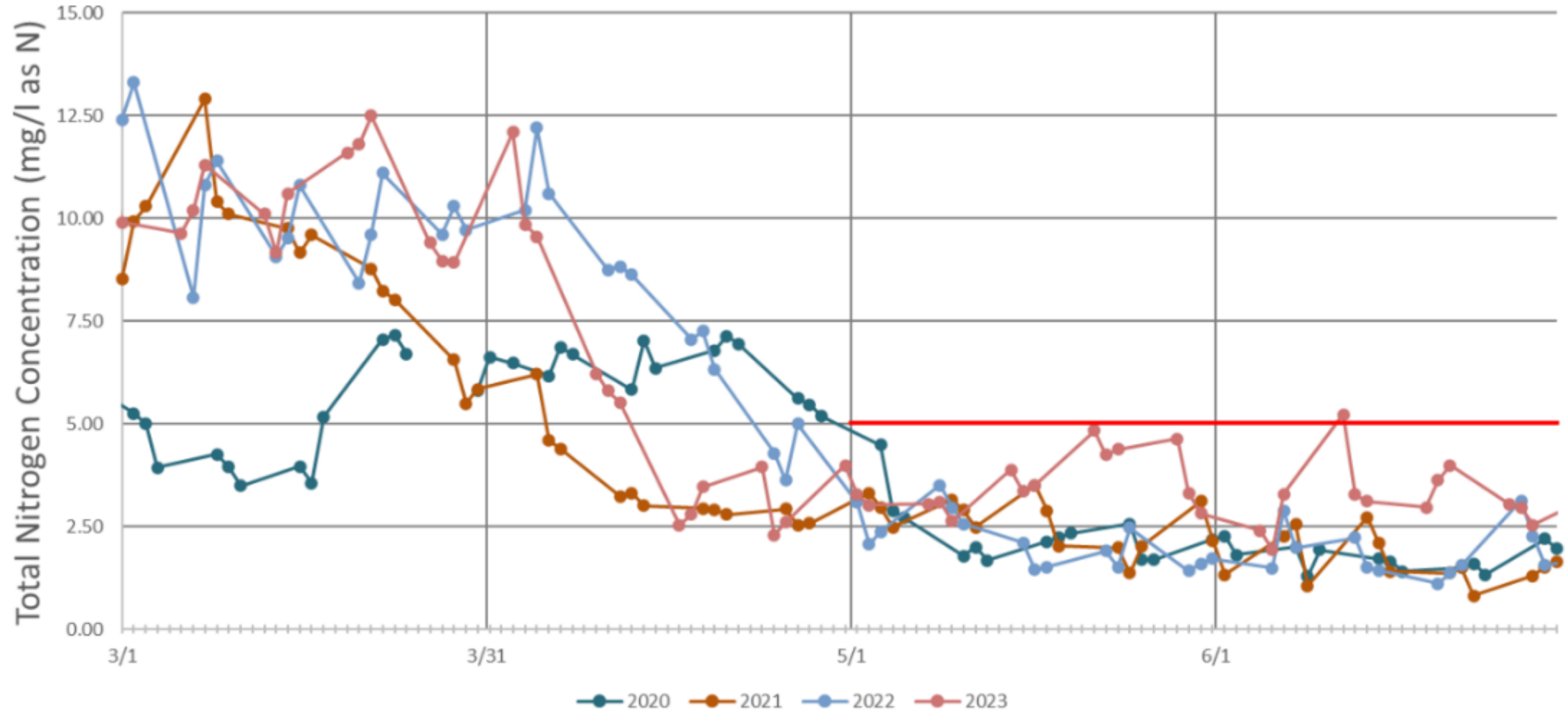
Field's Point Final Effluent Daily Total Nitrogen Concentration



DEM WWTF Discharge Permits require off-season (Nov-Apr) N reduction to the maximum extent possible

Source: Jim Kelly - Narragansett Bay Commission 12/5/23

Field's Point Final Effluent Daily Total Nitrogen Concentration (March - June)

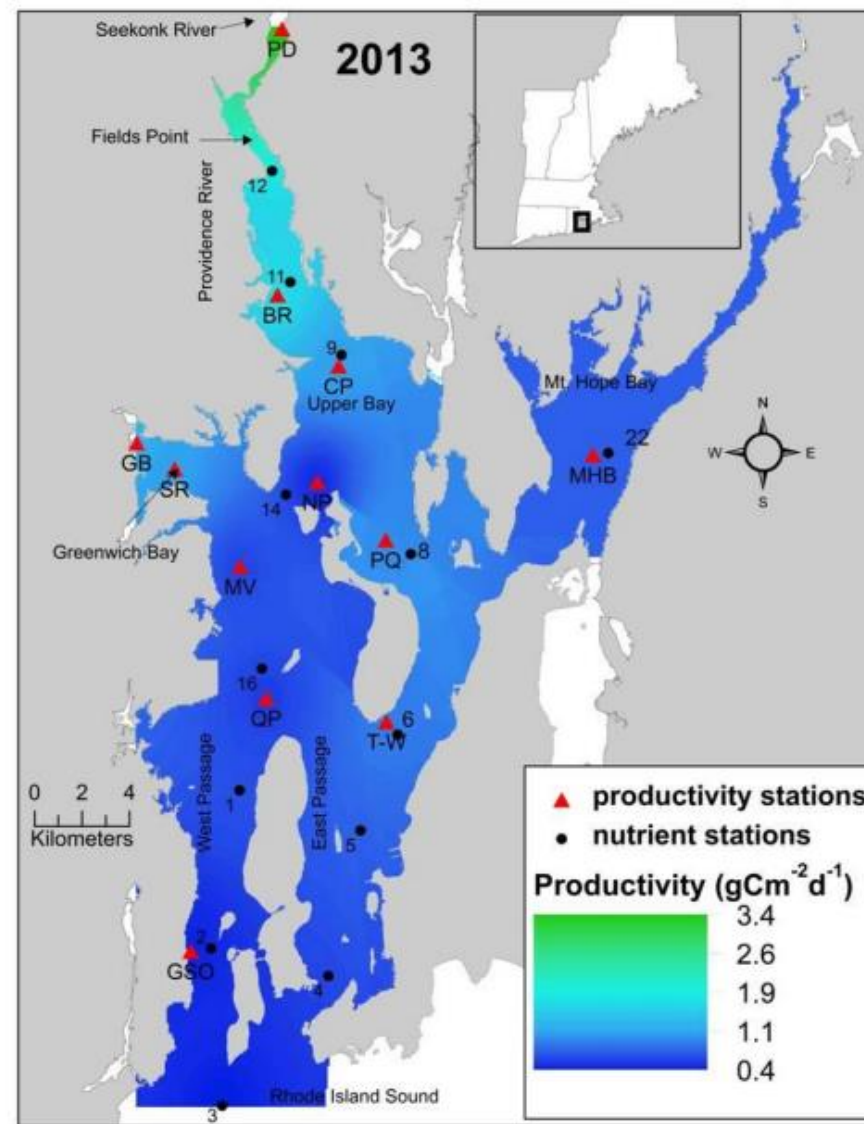
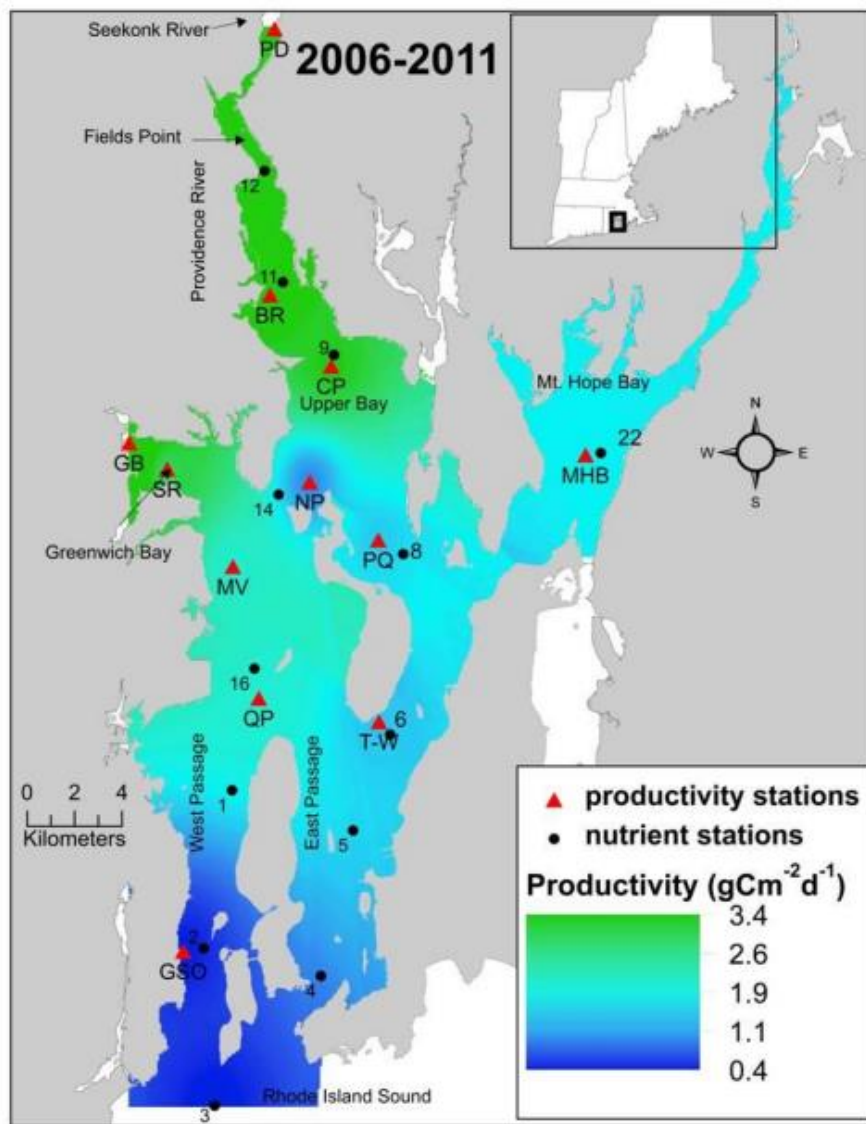


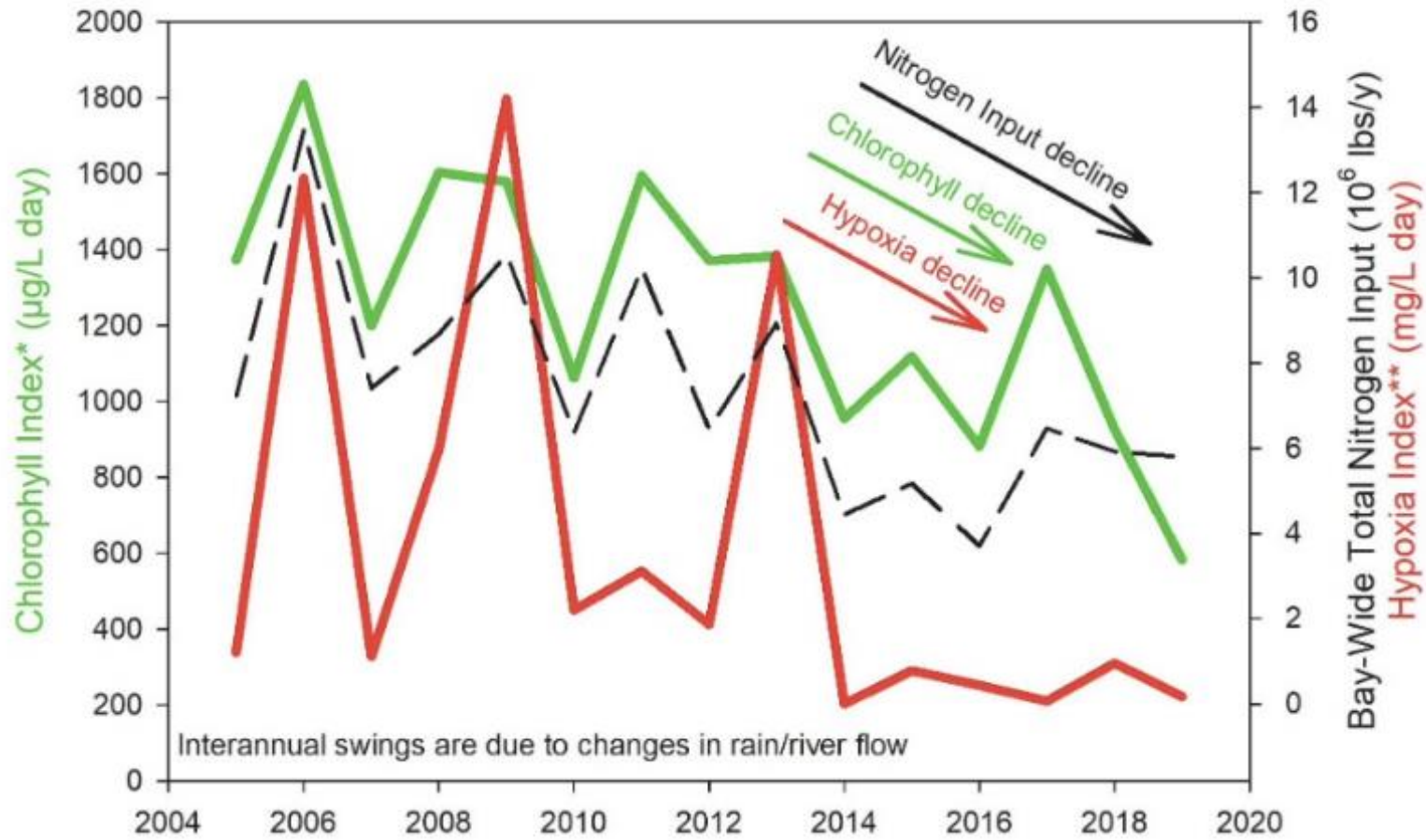
Source: Jim Kelly - Narragansett Bay Commission 12/5/23

Effects of Nitrogen Reduction in the Bay

- Nutrient reduction has decreased primary production in the Bay by a third.
- Fishermen have supplied evidence of quahogs in poor condition in the upper Bay after the nutrient reduction.
- Experimental evidence suggests that quahog summer condition is improved by bigger winter-spring phytoplankton blooms.
- An option for quahog improved condition is to release more sewage nutrients during the winter period when the nutrients will promote intense winter-spring phytoplankton blooms, but not cause summer hypoxia.

Change in Primary Production: 300 to 200 $\text{gC m}^{-2} \text{y}^{-1}$

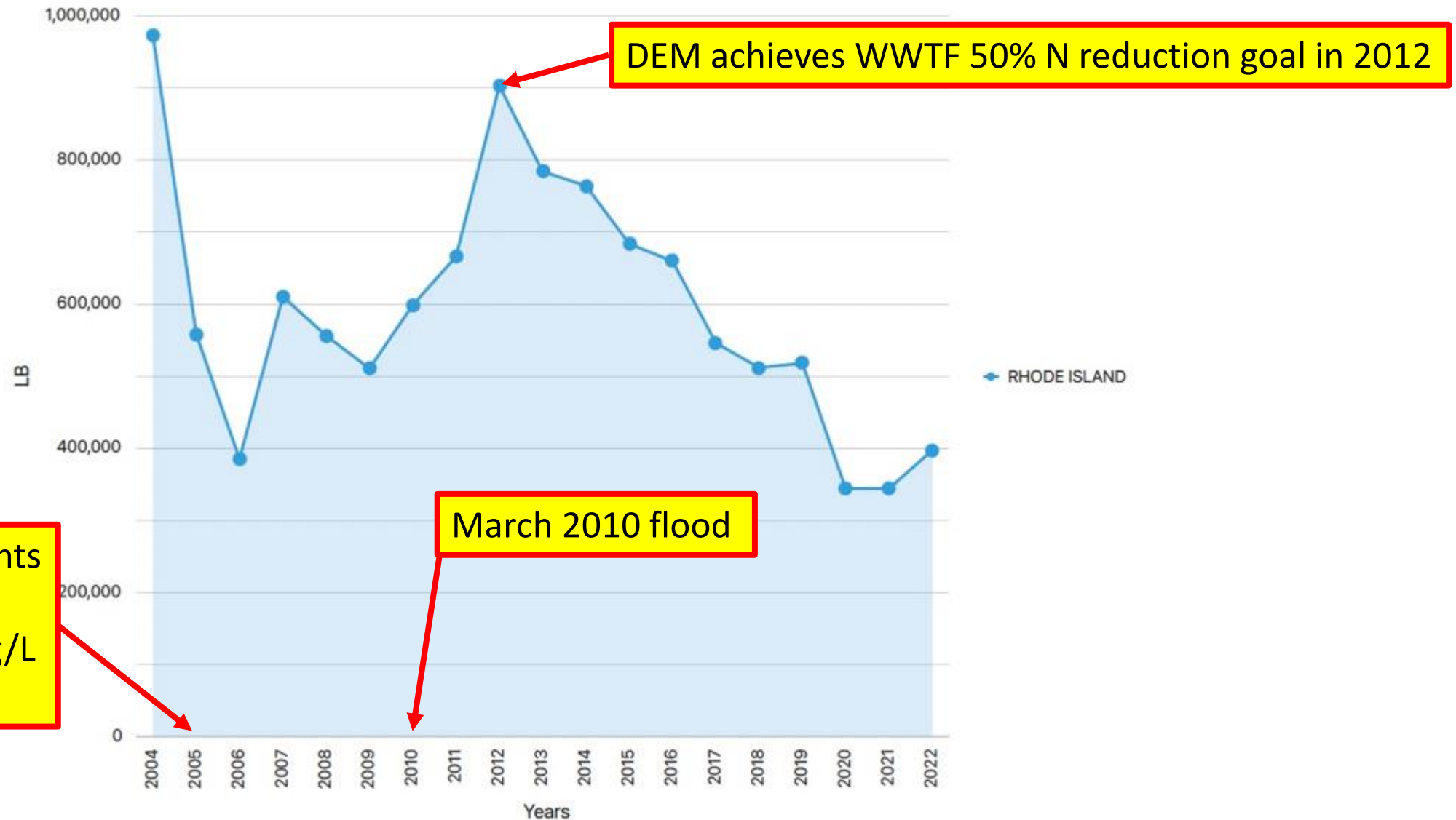




Notes: Bay-wide nitrogen input is calculated from wastewater treatment facilities and river sources that discharge to Narragansett Bay. The units for the indices describe the extent and duration of the chlorophyll or hypoxia relative to a threshold. *Chlorophyll Index relative to $9.4 \mu\text{g/L}$ **Hypoxia Index relative to 2.9 mg/L

Citation: Narragansett Bay Estuary Program (NBEP). 2021. Science Update: Changes to Chlorophyll and Hypoxia as a Result of Reduced Nutrient Pollution. NBEP-21-247. DOI: 10.6084/m9.figshare.15124992

Rhode Island Bay Quahog Landings

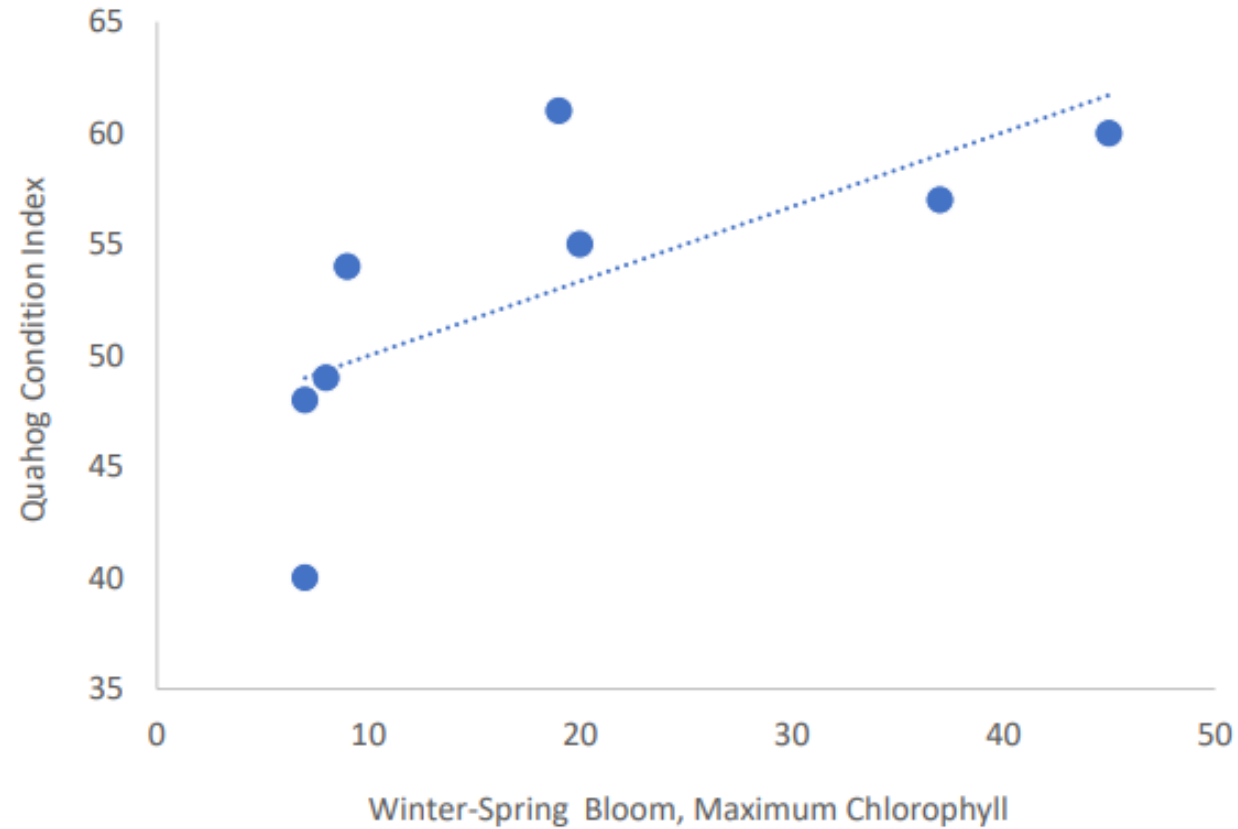


2005 DEM implements WWTF N reduction permit limits of 5mg/L (May-October)

March 2010 flood

DEM achieves WWTF 50% N reduction goal in 2012

Quahog Condition Improves as Winter-Spring Phytoplankton Bloom Intensity Increases



Recommendations

- 1. DEM should develop a plan to modify the discharge permits for the big three WWTFs on the Providence/Seekonk Rivers (NBC Bucklin and Fields Points and E. Prov.) to increase nutrients to support winter-spring phytoplankton blooms in the Bay. URI GSO data indicate that summer hypoxia will not be a problem.**
- 2. Plan development should begin immediately with meetings to include DEM Director (or designee), DEM Water Resources, DEM Division of Marine Fisheries, WWTF Operators, Shellfish Industry and University Scientists (e.g., URI GSO, RWU).**
- 3. Plan must be implemented by November 2024 to allow WWTFs in the Providence/Seekonk Rivers to discharge higher levels of Nitrogen during the winter to enhance robust winter-spring phytoplankton blooms starting in 2025.**
- 4. Explore feasibility of increasing the May-October WWTF discharge limits of 5mg/L N (perhaps 6-7mg/L N?) to improve year-round phytoplankton biomass and improve the quahog resource throughout the Bay.**
- 5. Ensure accountability and implementation of Plan (progress reports to the General Assembly?)**