

# Passaic Nitrate Initiative

1

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**DEPARTMENT of  
ENVIRONMENTAL  
PROTECTION**

# Passaic River and Drinking Water

Used as a drinking water source for millions of New Jersey residents

Nitrate drinking water maximum contaminant level = 10 mg/L

Flow is dominated by STP effluent during dry weather – Passaic River is NOT impaired for Nitrate at this time.

Many STP discharges are upstream of large potable intakes.





# What Happened?

3

Intake Nitrate  
levels above 5  
mg/L; peaks > 7  
mg/L  
(see next slide)

Some  
peaks >  
7 mg/L

Discrete  
sampling  
May to  
Sept



# The Problem

- ▶ **USGS Gage:** In the Fall of 2017 and Winter 2018 (low flow conditions) in-stream data (USGS real time gage at Passaic River below Pompton River at Two Bridges) show elevated nitrate concentrations in the Passaic River Basin on the Passaic side.
- ▶ **Intake:** Passaic Valley Water Commission's (PVWC) Little Falls intake is directly downstream.
- ▶ **Denitrification** at STPs is extremely costly.



# Cross Programmatic Nitrate Team was formed

Representatives of:

- ▶ Safe Drinking Water
- ▶ Freshwater Monitoring
- ▶ NJPDES
- ▶ Compliance and Enforcement
- ▶ Water Monitoring and Standards

**Goal:** To investigate potential sources of elevated nitrate and determine appropriate responses.

**Actions:** Reviewed aerials; on-site investigations; NJPDES permit modifications; on-site STP visits and coordination with wastewater dischargers; synoptic and grab sampling for trackdown within the basin (May through September 2018); expanded monitoring being considered.

# Historical Actions Taken

6

- ▶ Wastewaters discharges have previously undertaken voluntary nitrate reduction with NJDEP approval.
  - ▶ Since 1999, in response to an Emergency Drought Declaration, Rockaway Valley Regional Sewerage Authority and Wayne Township Department of Utilities operate their wastewater treatment equipment to reduce nitrate.
  - ▶ In 2017/2018 Parsippany Troy Hills incorporated nitrate reduction in the operation of its STP facilities.
  - ▶ Morristown Township, Caldwell and Wanaque Valley Municipal Utilities Authority have consistently discharged low ( $< 10$  mg/L) levels of nitrate at their plants for many years.

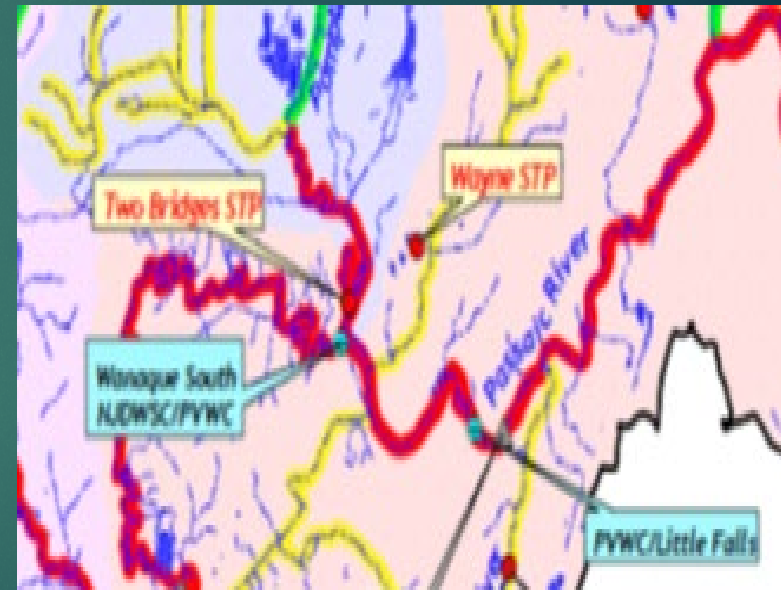
**NJPDES Regulations require water quality based effluent limits for any facilities that show cause to violate water quality for nitrate.**



# Largest STPs on Passaic River

7

<u>STP</u>	<u>Permitted Design Flow</u>
Parsippany Troy Hills	16 MGD
Wayne Township	13.5 MGD
Rockaway Valley	12 MGD
Two Bridges	7.5 MGD
Hanover	4.61 MGD
Livingston	4.6 MGD
Caldwell	4.5 MGD
Molitor	3.5 MGD



# Next Steps

- ▶ Reducing nitrate at each STP throughout the watershed will not result in the most cost effective measure and provide the most effective solution.
- ▶ We need to find a new approach.