

Hydrologic Monitoring in the Central Pine Barrens

CENTRAL PINE BARRENS COMMISSION – ANNUAL PROJECT UPDATE
MAY 17, 2023 AT WERTHEIM NATIONAL WILDLIFE REFUGE
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Objective: 5-year monitoring program

Expand and operate a comprehensive water-resources monitoring program for the Central Pine Barrens region



- ▶ Publicly accessible database of hydrologic conditions
- ▶ Baseline of water-resources conditions to assess hydrologic changes and trends
- ▶ Provide a data resource to monitor ecohydrologic stress

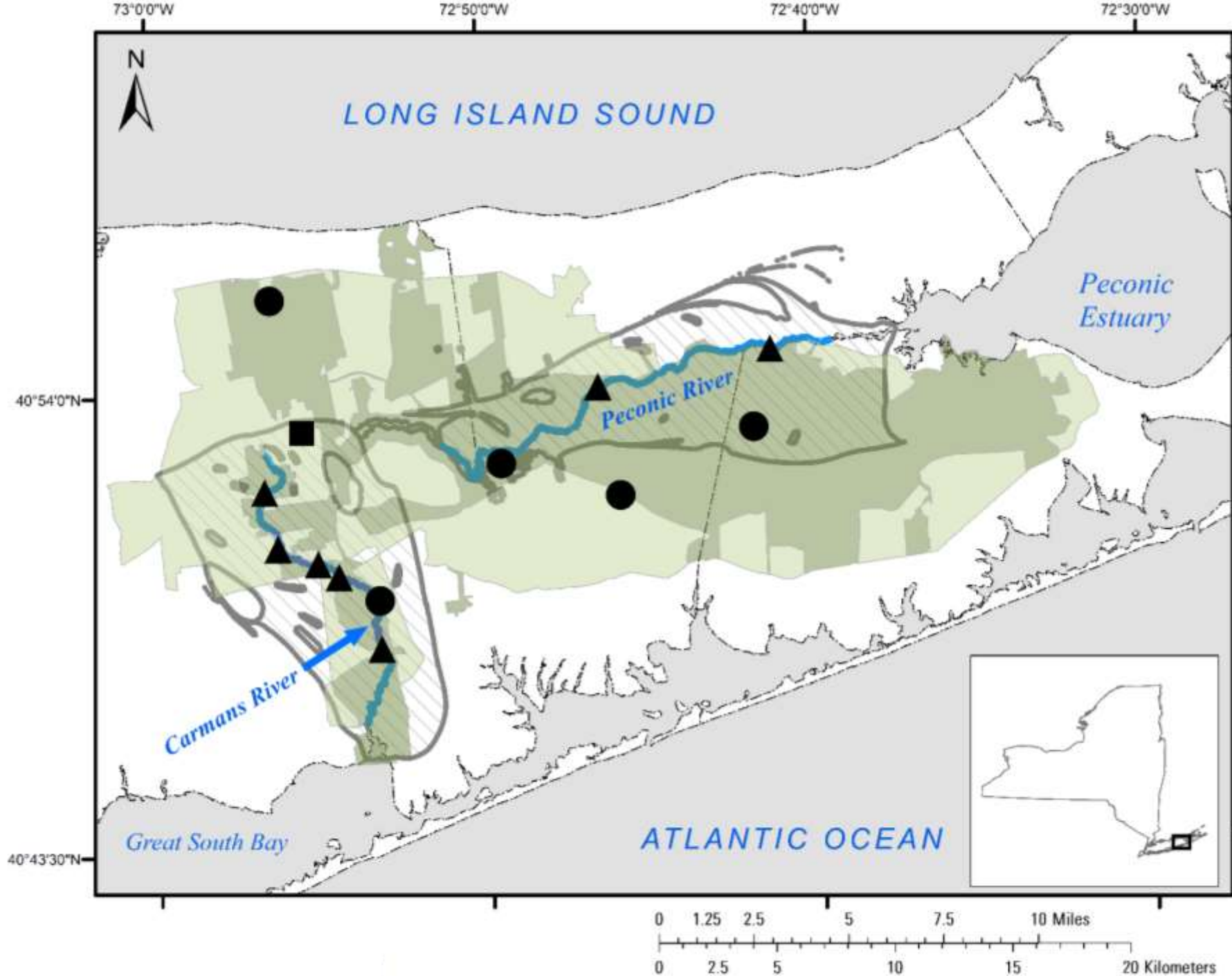
Monitoring Network of Surface and Groundwater

CPB Preservation Areas

- Compatible Growth Area
- Core Preservation Area

- ▲ Surface water-quality site
- Monthly groundwater levels site
- Continuous groundwater level site
- ⊕ Groundwatershed **

** Adapted from [Misut and others, 2021](#)



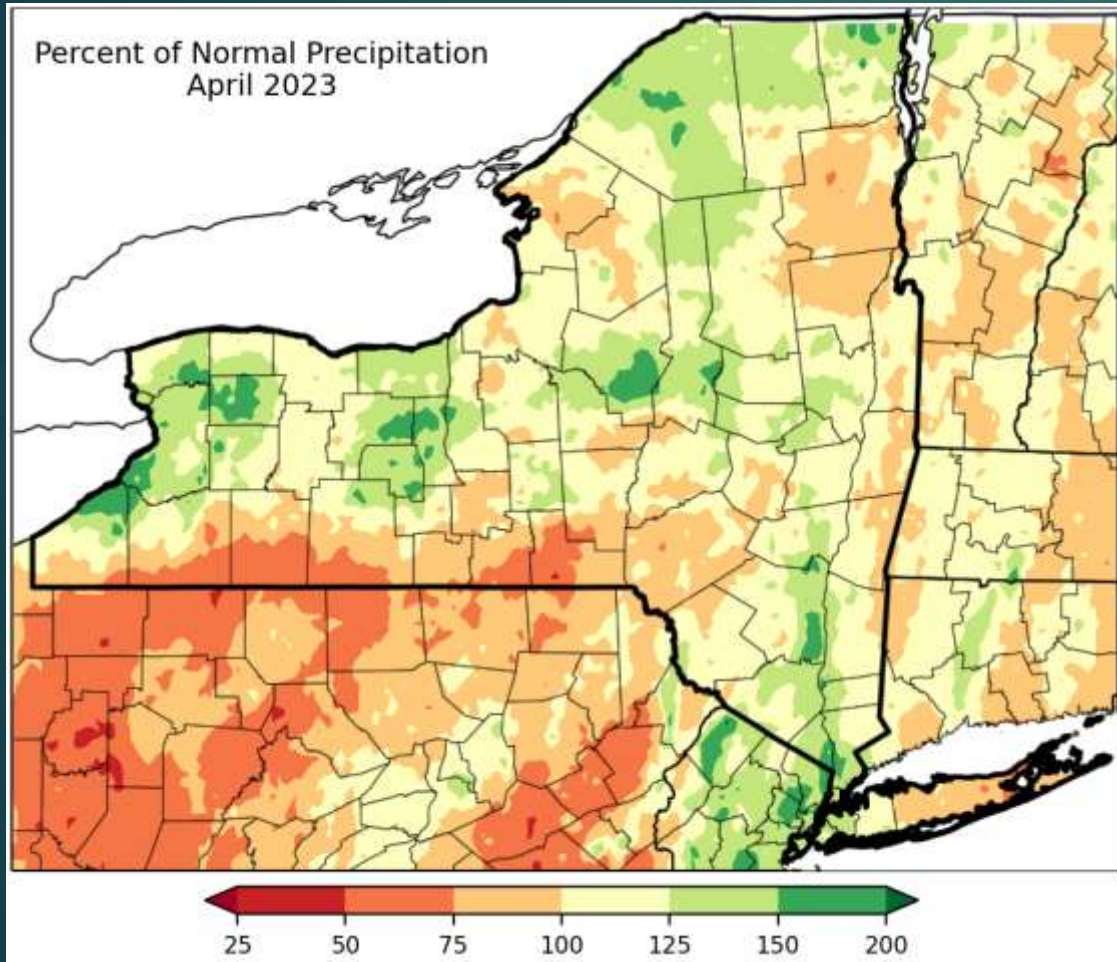
Project Timeline:

- ▶ Data collection Oct 2017 through June 2023
- ▶ Annual data summaries available on project webpage
- ▶ Interpretative report in progress
- ▶ Proposals for continued monitoring on Carmans and Peconic Rivers in progress

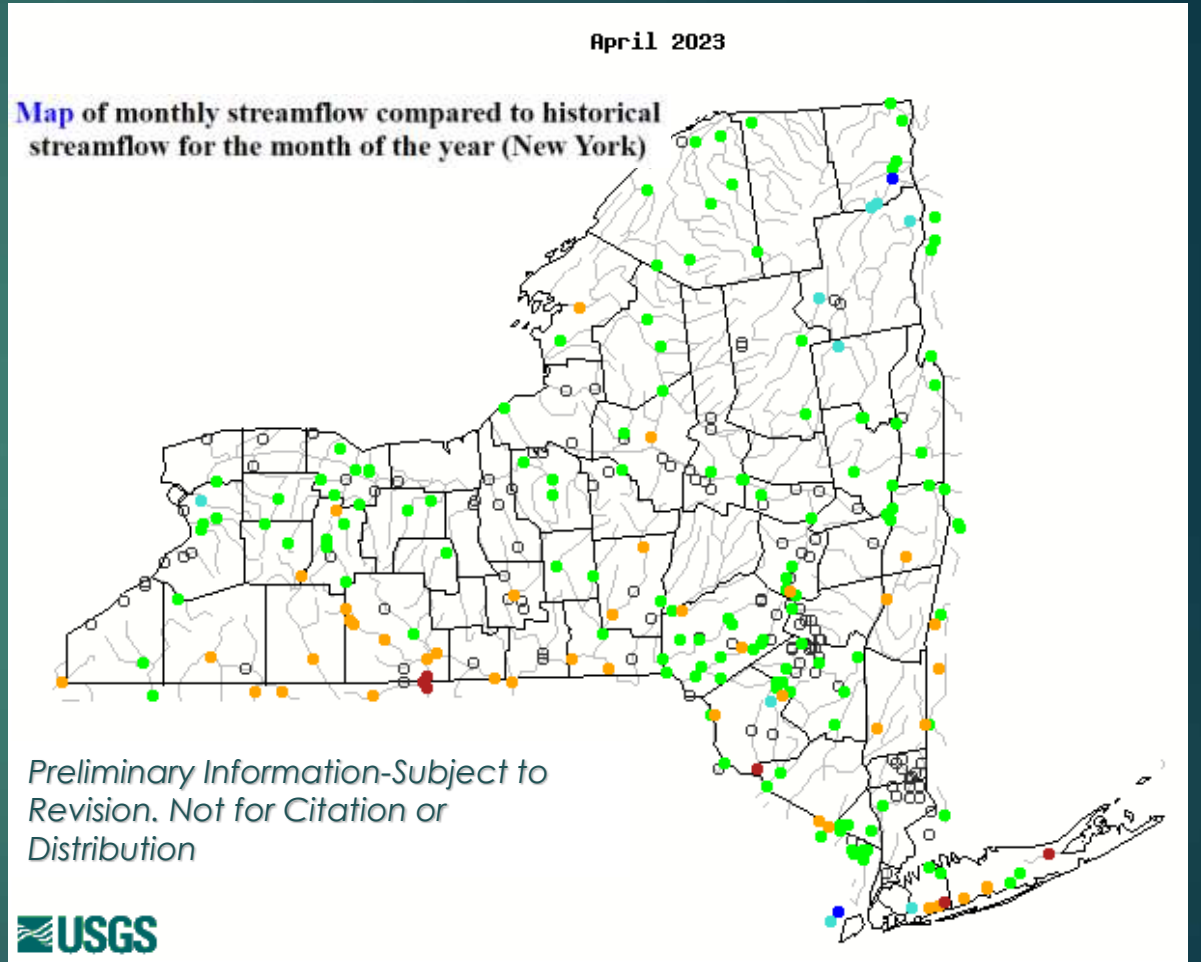


Northside of Carmans River Bartlett site

Precipitation & Streamflow, April 2023



<https://www.nrcc.cornell.edu>

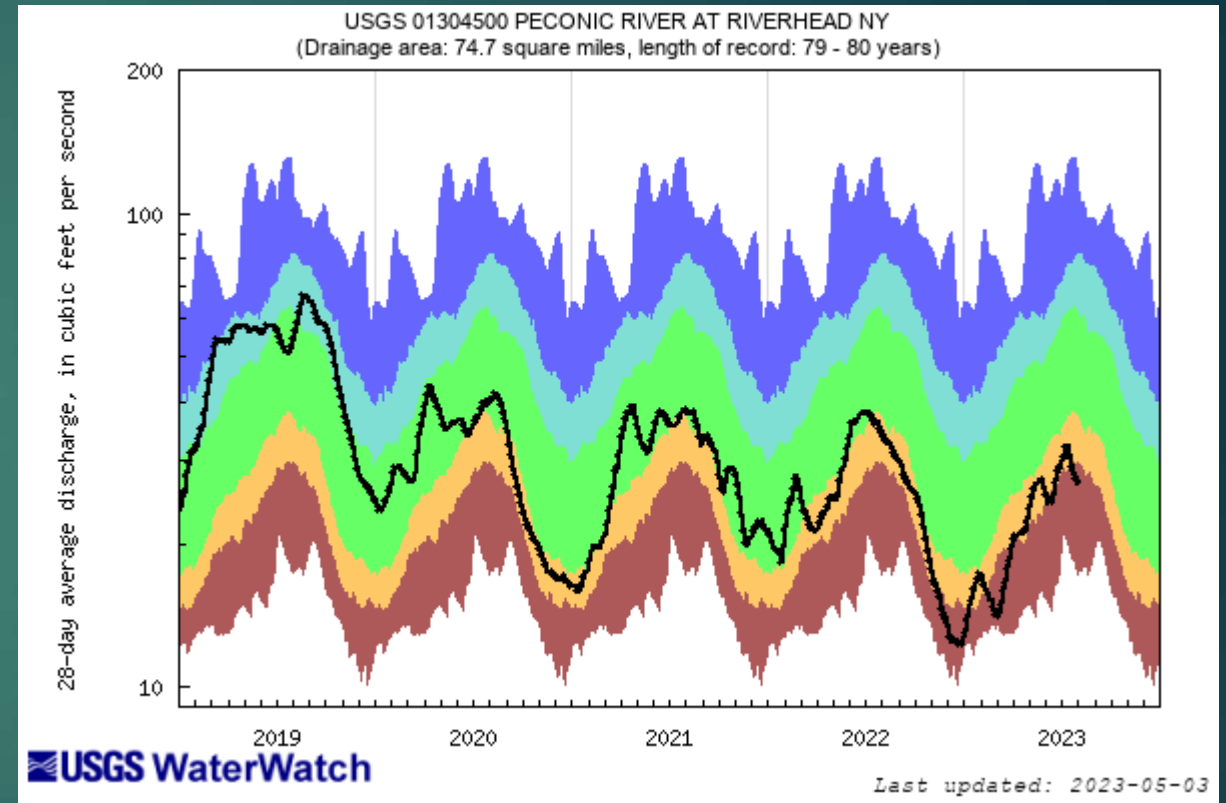
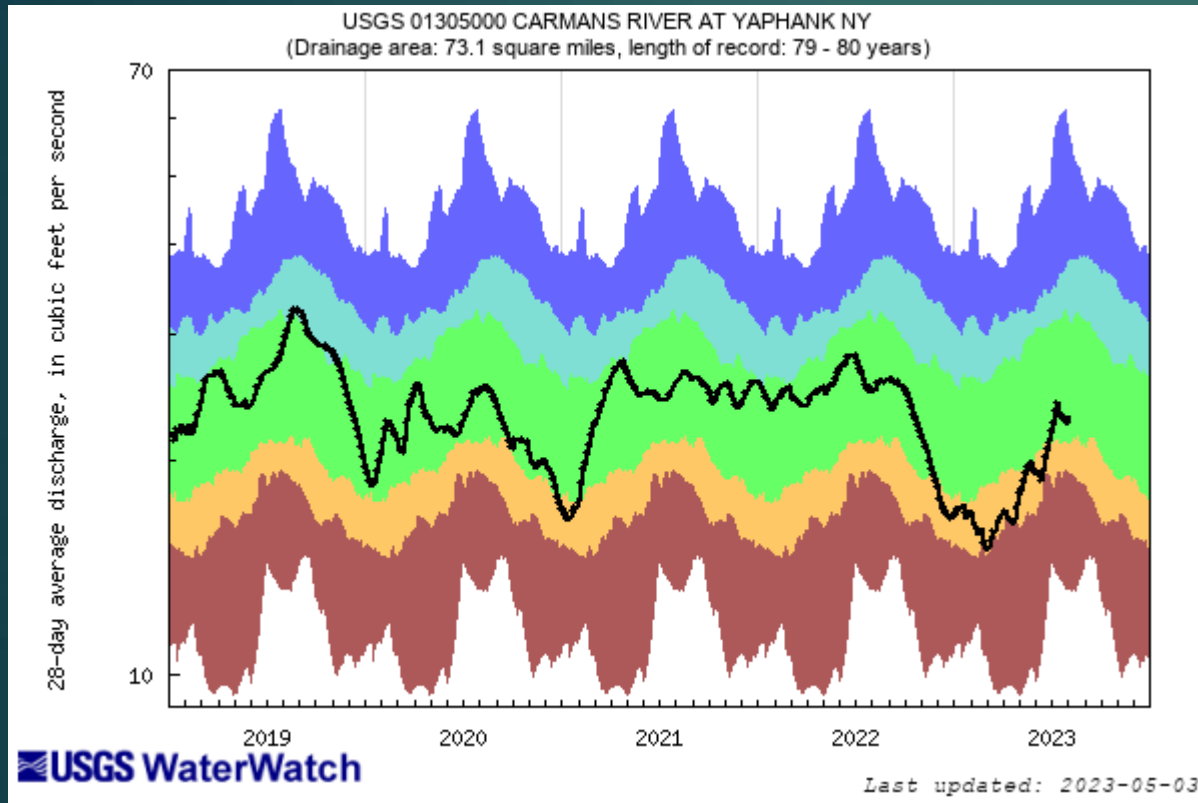


<https://waterwatch.usgs.gov/>

2019-2023 Duration Hydrographs

Carmans River (01305000)

Peconic River (01304500)



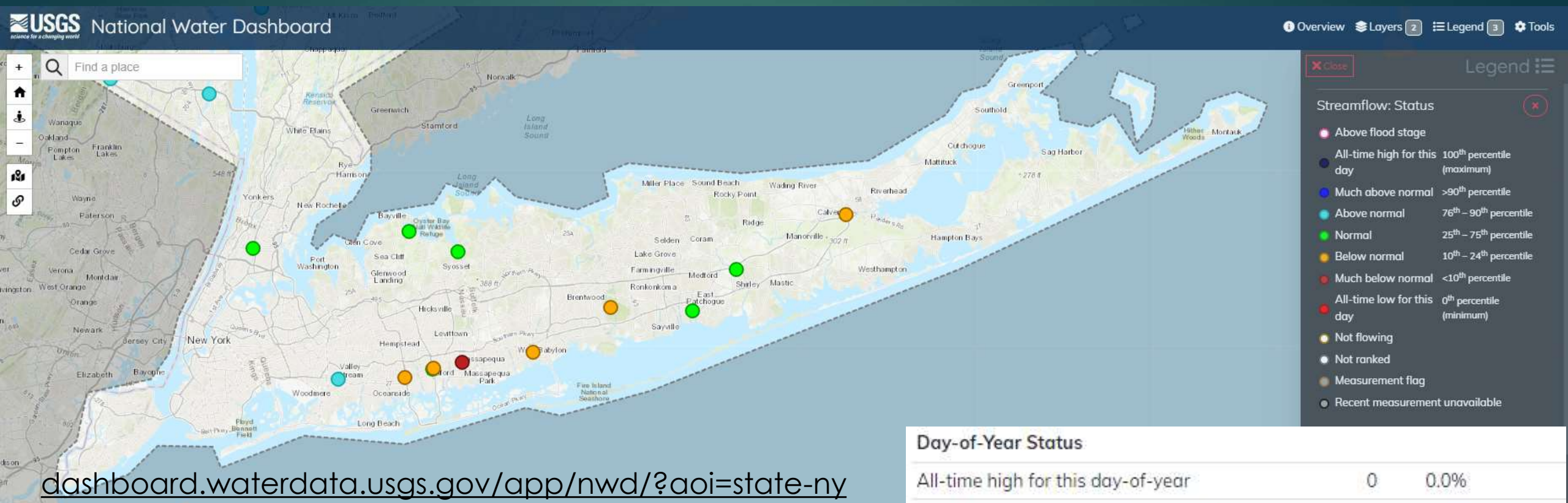
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<https://waterwatch.usgs.gov/>

Explanation - Percentile classes					
lowest-10th percentile	10-24	25-75	76-90	90th percentile-highest	Flow
Much below normal	Below normal	Normal	Above normal	Much above normal	

National Water Dashboard, Streamflow

As of 5/8/2023



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National Water Dashboard, Groundwater

As of 5/3/2023

USGS National Water Dashboard

Find a place

Overview Layers Legend Tools

USGS Stations

- STREAMFLOW
- SURFACE-WATER LEVELS
- GROUNDWATER LEVELS 148

ON

Station Summary

- All stations in layer
- SPF Stations in current map view
- WA Drag a box

For percentiles

dashboard.waterdata.usgs.gov/app/nwd/?aoi=state-ny

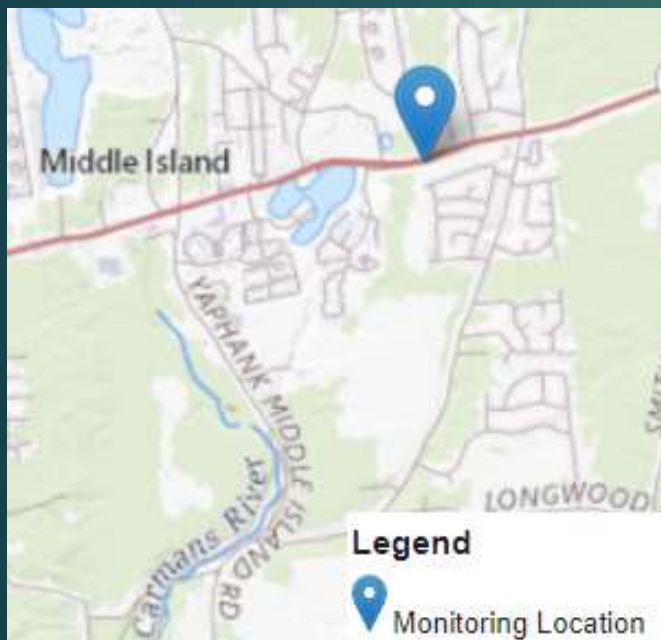
Day-of-Year Status

All-time high for this day-of-year	0	0.0%
Much above normal for this day-of-year	0	0.0%
Above normal for this day-of-year	1	2.7%
Normal for this day-of-year	5	13.5%
Below normal for this day-of-year	7	18.9%
Much below normal for this day-of-year	1	2.7%
All-time low for this day-of-year	3	8.1%

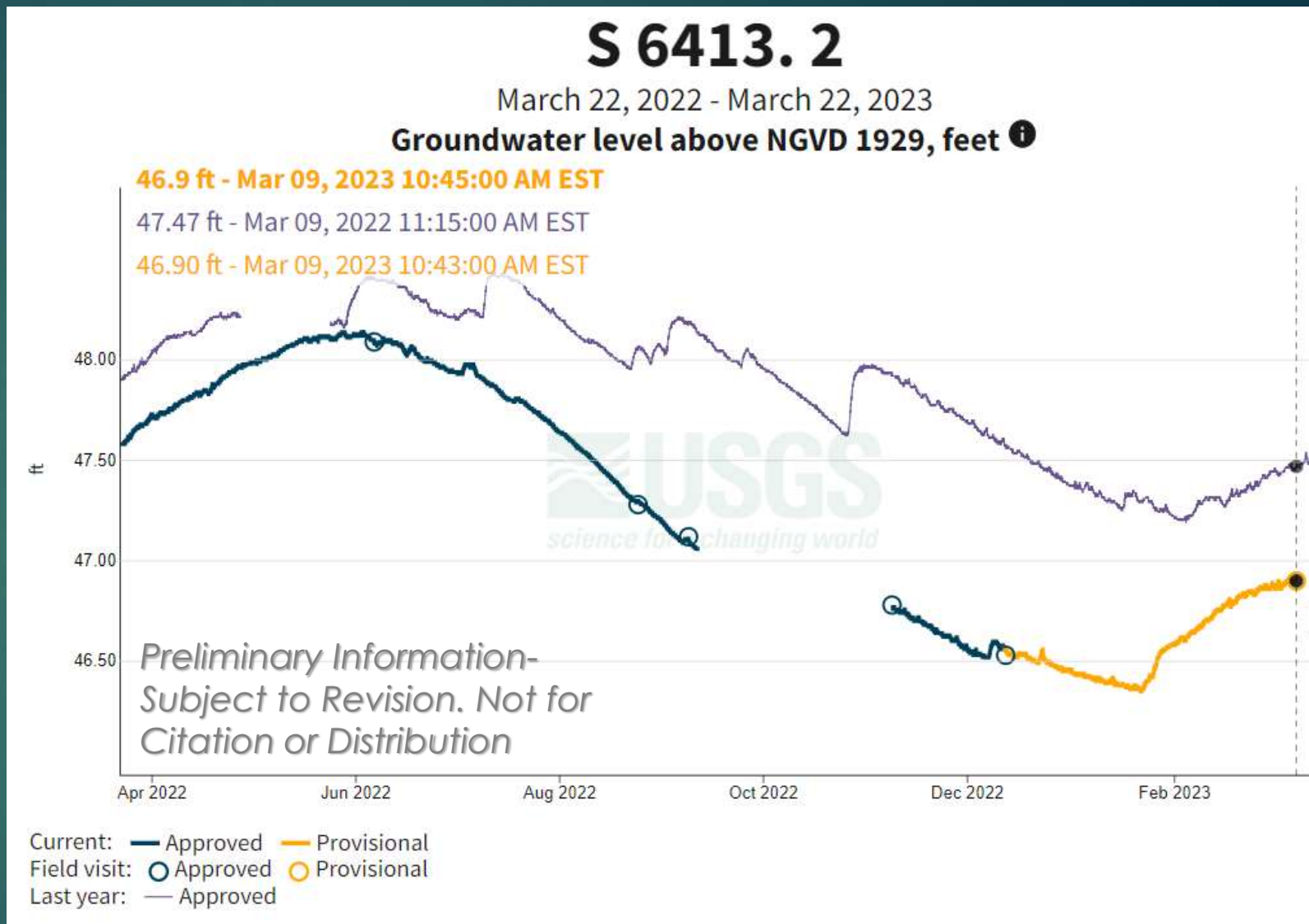
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Hydrograph 6413.2



<https://waterdata.usgs.gov/blog/how-to-use-nextgen-pages/>



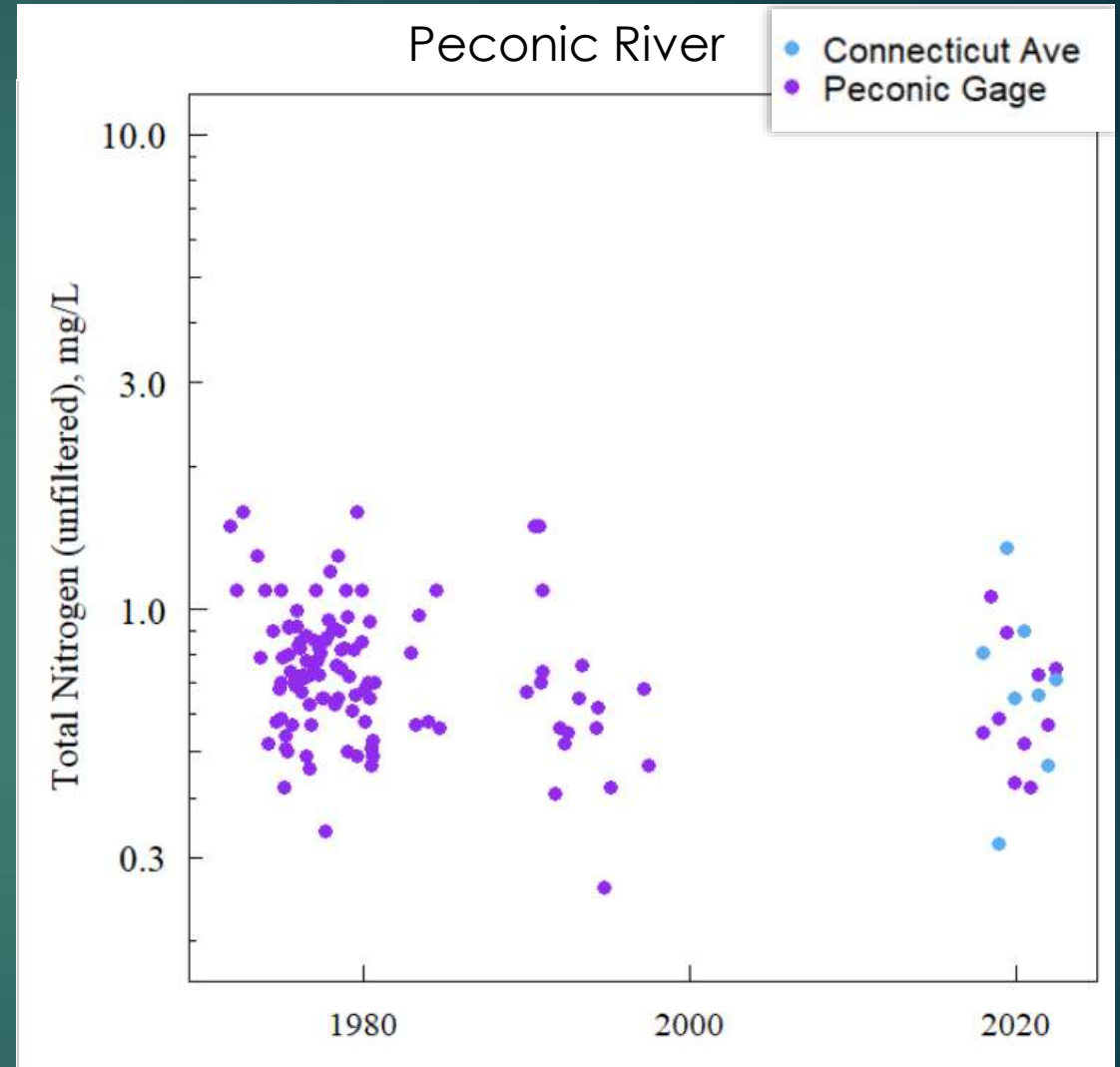
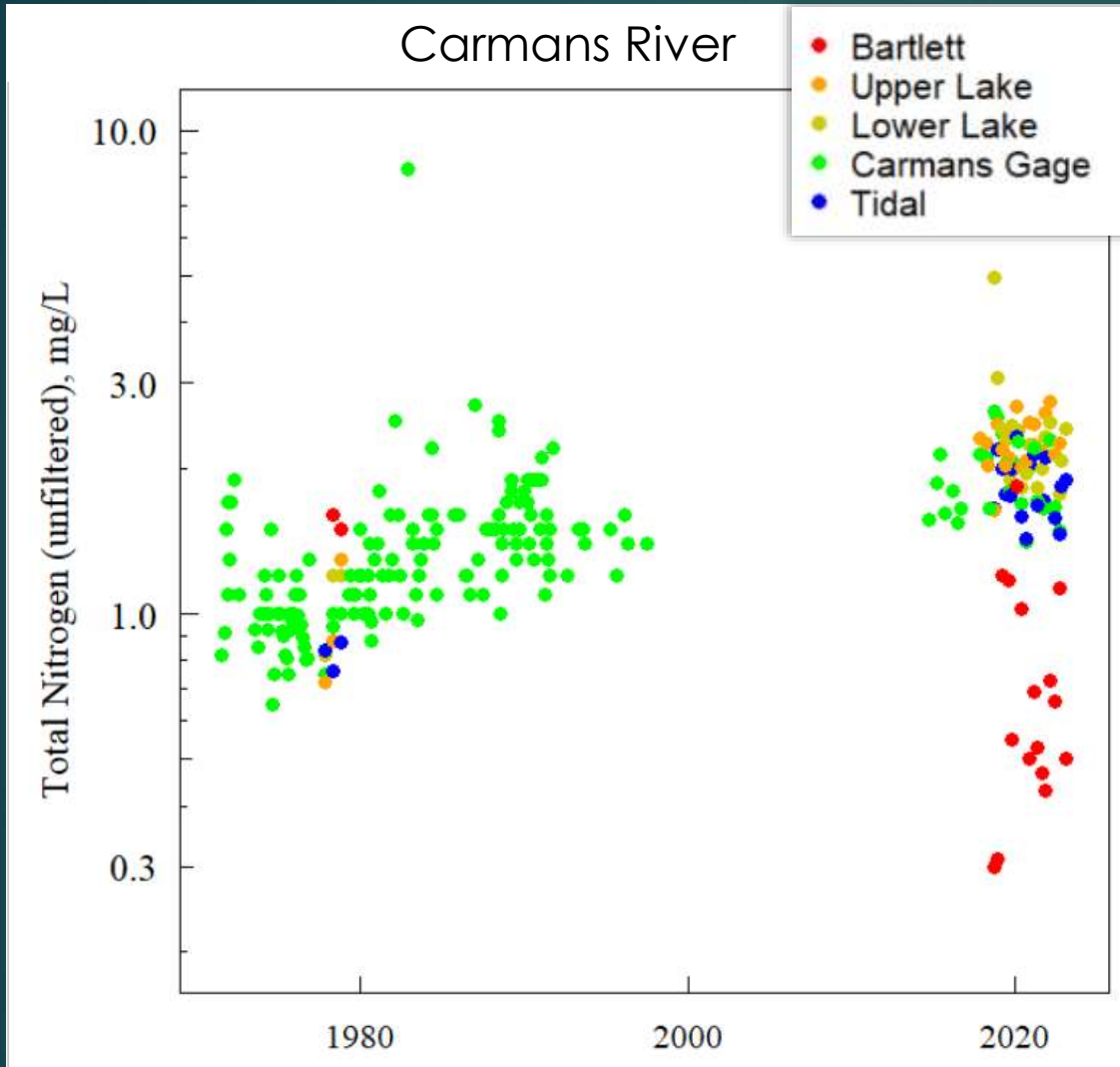
<https://waterdata.usgs.gov/monitoring-location/405308072553102/>



Water Quality

Total Nitrogen (unfiltered) mg/L

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*Different analytical methods were used between the historical and recent data for total nitrogen. See USGS publication on total nitrogen in Long Island, NY: Monti, Jack Jr., and Scorca, M.P., 2003: <https://pubs.er.usgs.gov/publication/wri024255>.



Total nitrogen in samples collected on the Carmans River in Feb 2022 and Sept 2022

EXPLANATION

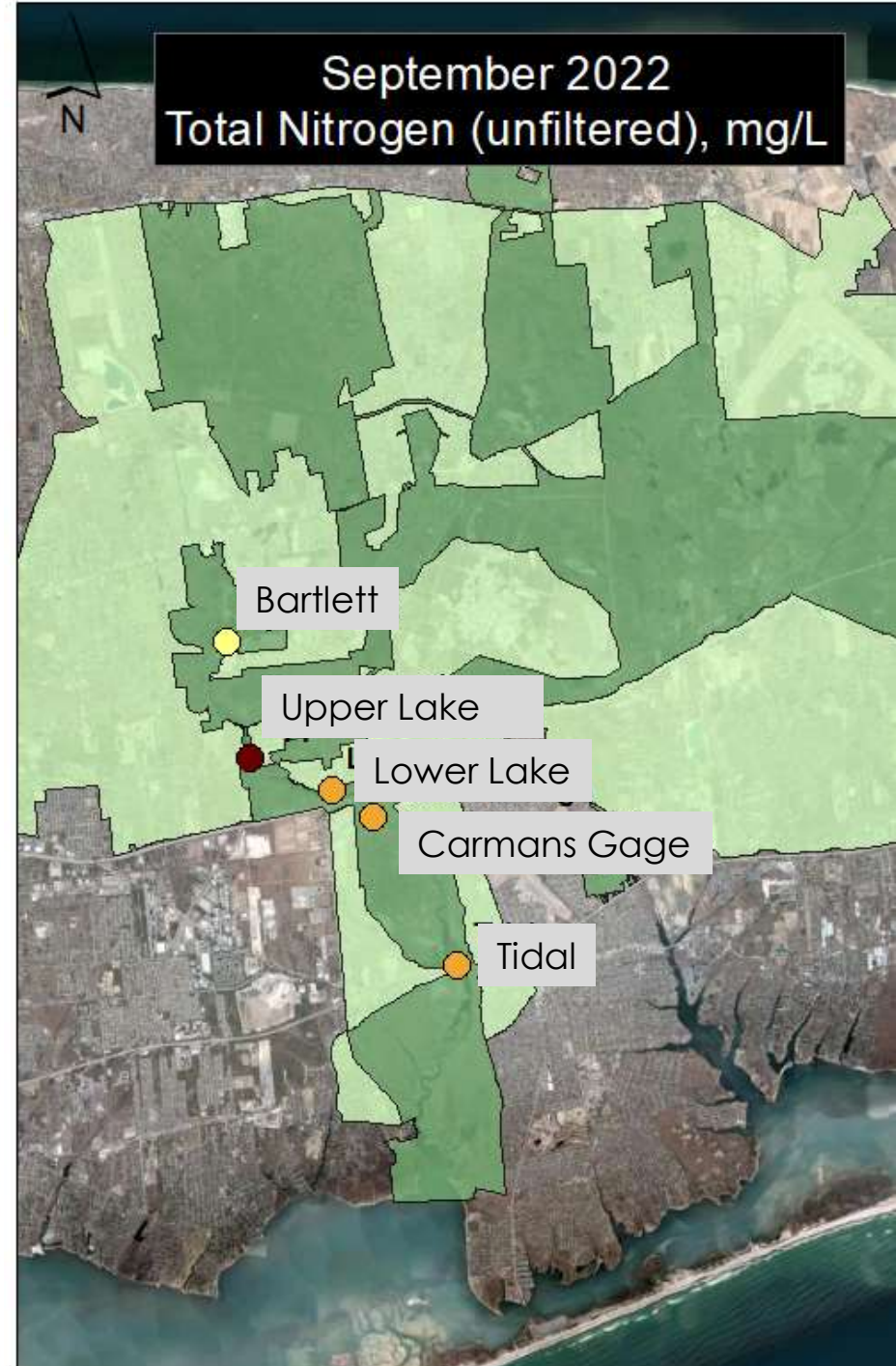
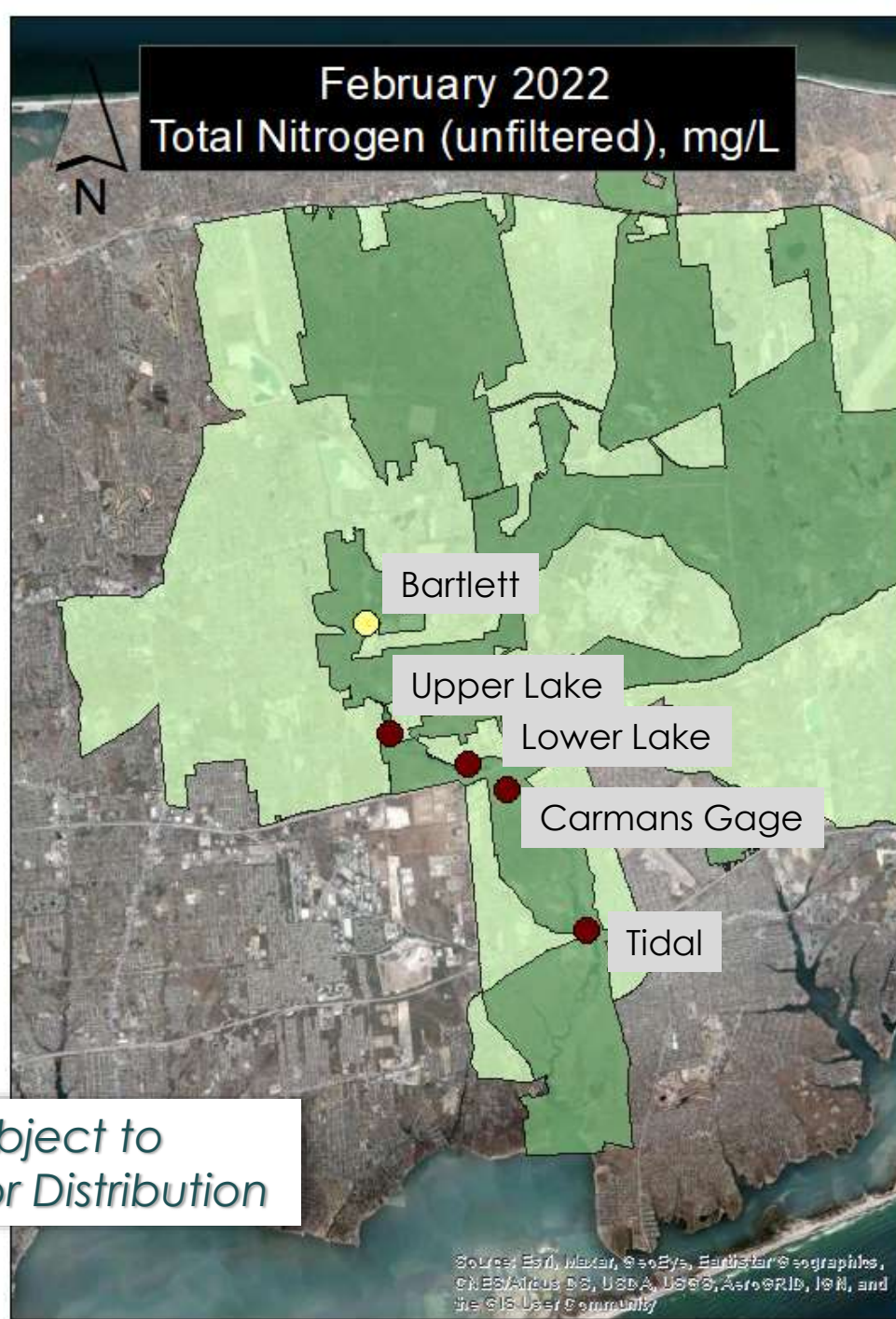
Total Nitrogen (unfiltered), mg/L

- 0.73 - 1.27
- 1.28 - 2.00
- 2.01 - 2.74

Pine Barrens Boundary

- Compatible Growth Area
- Core Preservation Area

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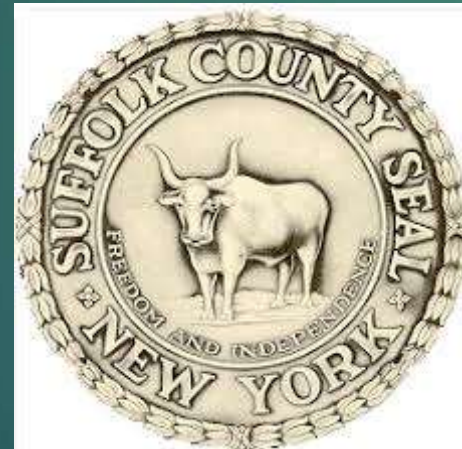
Organic Detections in Pine Barrens Streams

Sampling dates:
Fall 2017, 2019, 2021
Spring 2019 & 2021

Detections in Carmans & Peconic River:
14 different pesticides
12 different pharmaceuticals

Site	Number of pesticides detected (out of 222 analyzed for)	Number of pharmaceuticals detected (out of 109 analyzed for)
Carmans River – gage site (01305000)	9	6
Peconic River – upstream (01304440)	4	5
Peconic River – downstream (01304500)	11	9

Partners





Visit the project page at [USGS.gov/Lipinebarrens](https://www.usgs.gov/lipinebarrens)

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