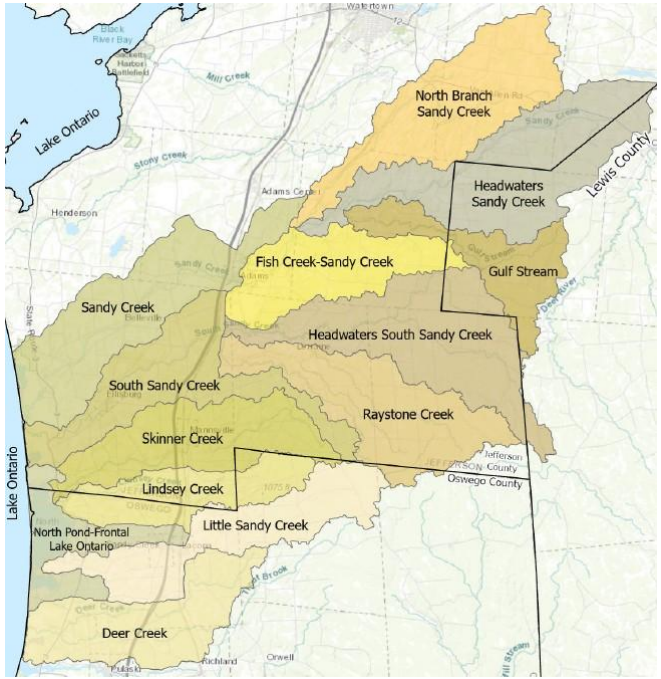
Sandy Creeks 9E Plan:

Watershed Modeling Results and Next Steps



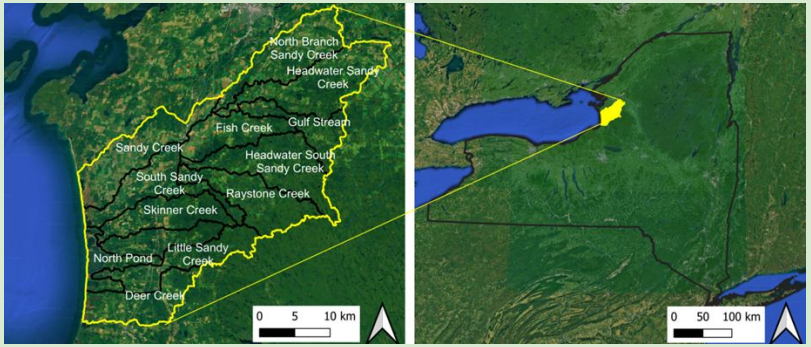
Sandy Creek Town Hall
May 12, 2026

Today's Agenda

1. **About this Meeting**
   Study area overview and scope
2. **Nine Element Plan Overview**
   What is a 9EP and why it matters?
3. **Recap of Progress**
   Monitoring and data collection
4. **Modeling Results**
   Total phosphorus loads and scenarios
5. **9EP Goals**
   Overview and discussion
6. **Best Management Practices**
   Overview and discussion of options

→ ***Project next steps and sharing of feedback***

About This Meeting



Study Area

13 HUC12 watersheds draining to eastern Lake Ontario (Sandy Creeks area)

Focus

Surface water only (*e.g.*, groundwater is outside the scope of this plan)

Waterbodies

Tributary streams, not the ponds or lakes they flow into

Department of Environmental Conservation

Clean Water Planning in the Sandy Creeks Watershed

DEC Division of Water

DATE: 5-12-26 Sandy Creeks Public Meeting

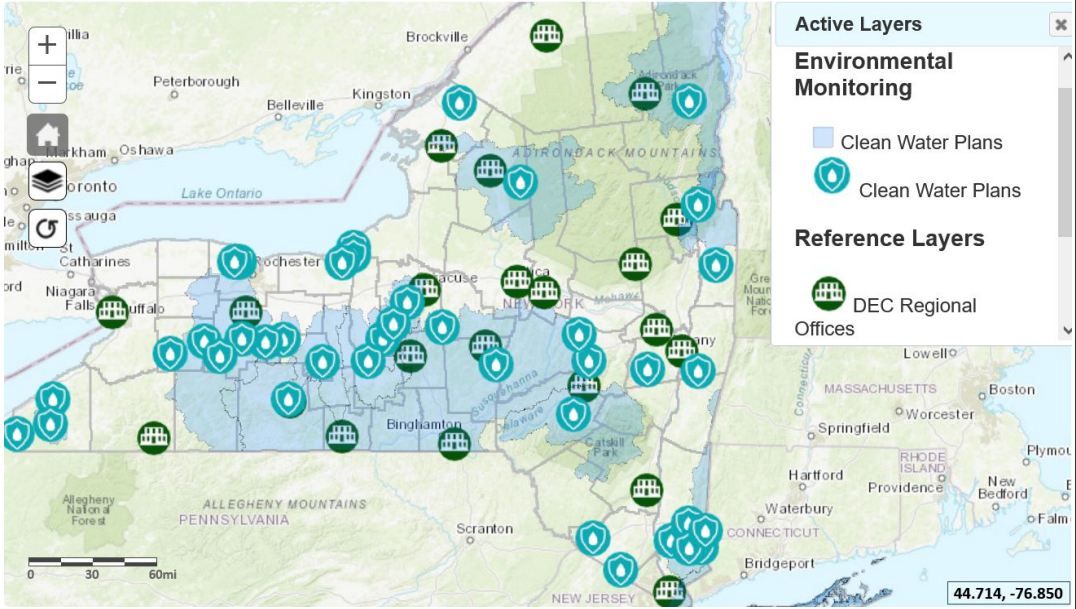
New York State Department of Environmental Conservation Mission

“To conserve, improve and protect New York's natural resources and environment and to prevent, abate and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well-being.”

New York State Clean Water Plans

Clean water plans are a strategic, watershed-based approach to improve or protect water quality in a waterbody, and include:

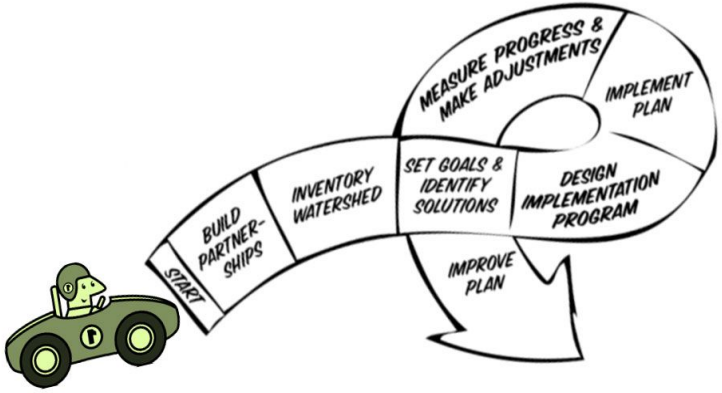
- documenting pollution sources,
- setting pollutant reduction goals, and
- identifying strategies that communities may use to improve water quality.
- Includes “9 Element” Watershed Plan



DEC Infolocator map of Clean Water Plans

What is a Nine Element Watershed Plan (9E Plan)?

- Non-regulatory Clean water plan
- Identifies pollution sources in the watershed
- Developed by people who live and work in the watershed, with support from state agencies
- Applies US Environmental Protection Agency framework and identifies 9 Key Elements for watershed-based plans
- Identifies Best Management Practices to implement in targeted areas to improve water quality (WQ)

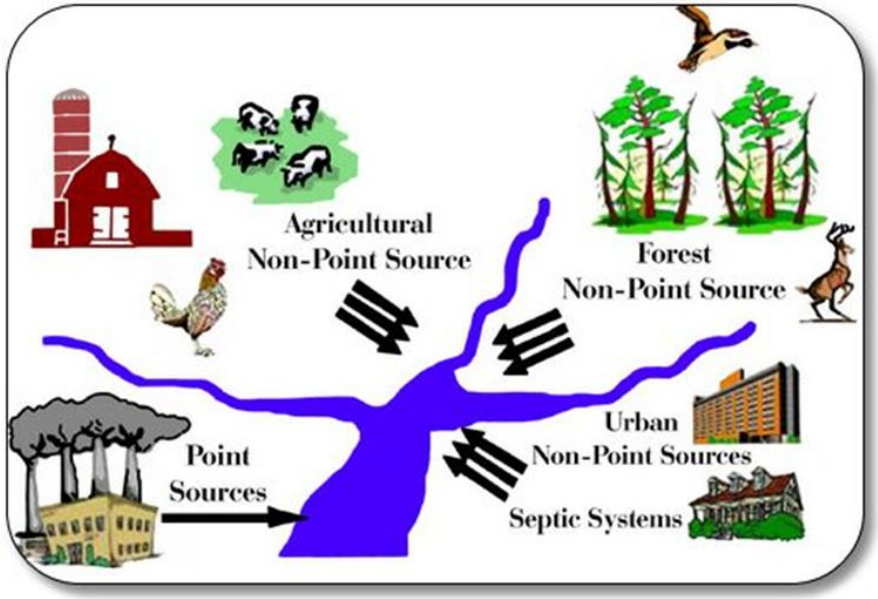


US Environmental Protection Agency. 2013. A Quick Guide to Developing Watershed Plans to Restore and Protect our Waters

Element	Description
A	Pollution load sources identified & quantified in watershed
B	Identify target or goal to reduce pollutant load to reach water quality goal(s)
C	BMPs to get reductions (estimated load reduction/BMP to achieve total reduction needed to improve WQ
D	How to pay for and implement BMPs identified in C
E	Stakeholder input & getting help at local level to implement plan
F	Schedule to implement C
G	Progress on implementation of BMPs
H	Criteria to assess water quality improvement due to implementation of BMPs
I	Monitoring plan to collect water quality data to measure water quality improvement against criteria in H

Element A—Quantify Pollutant Loads

- Identify point and nonpoint sources
- Assign loads from each source



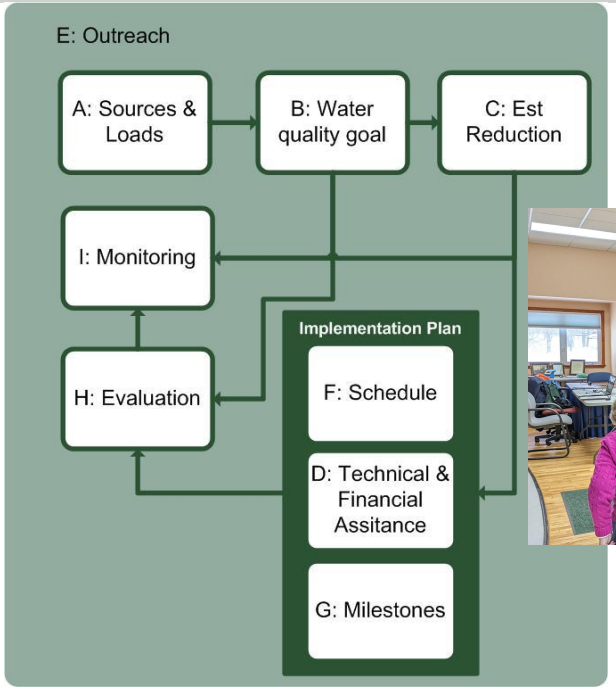
Element B – Water Quality Goal

- Identify water quality target or goal
  - Meet water quality standards or best uses
- Determine pollutant reductions needed to reach water quality goal(s)
  - How much of the pollutant needs to be reduced from the sources?

Element E—Outreach

- Watershed plans depend on partnerships to be successful
- Coordinate efforts
- Combine resources
- Build awareness
- Identify new ideas

** Outreach is important throughout the 9E planning process and beyond, to optimize implementation



March 2024 Sandy Creeks Clean Water Planning meeting

Element G – Track Progress of Implementation (part of implementation plan)

Identify milestones:

- Measurable and quantifiable
- Appropriate measure goal/target for plan
- Can be narrative – “to reduce the extent of HABs”

Examples:

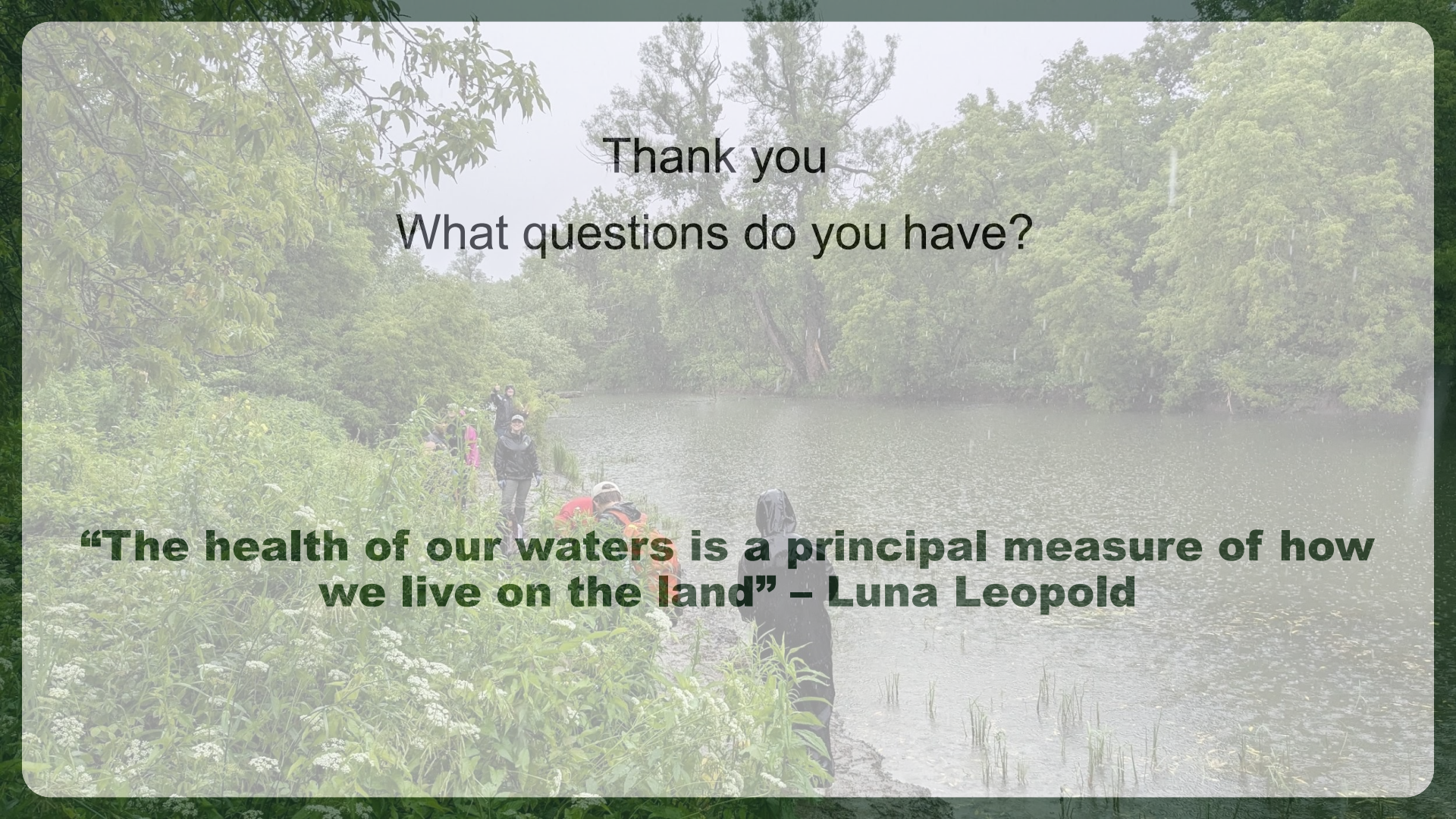
- Completion of projects in critical areas
- Acres or miles of practices installed
- Indirect (number of beach closures, frequency of blue-green algae blooms)

Tour of riparian restoration project fall 2024

“If you can’t measure it, you can’t manage it”

Technical Support

- Technical support from DEC
  - Funding questions
  - Informal review
  - Modeling questions and support
  - QAPP templates & review
  - Reviewer guidance and checklist
- DEC approves QAPPs and final plans
- Funding and coordination assistance for BMP implementation



Thank you

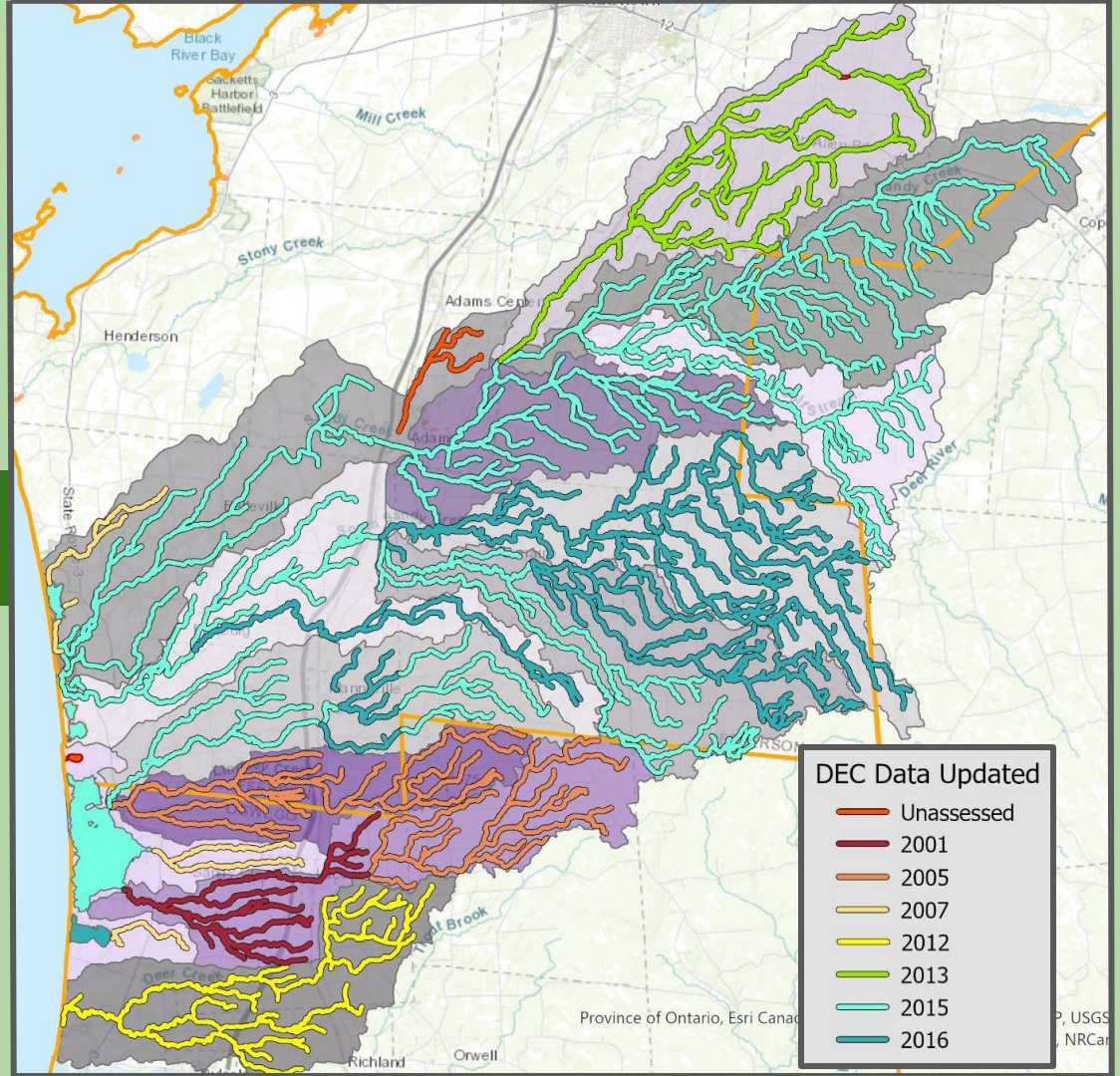
What questions do you have?

“The health of our waters is a principal measure of how we live on the land” – Luna Leopold


NEW YORK STATE
Department of Environmental Conservation

Water Quality Sampling

Year of Last Available DEC Assessment

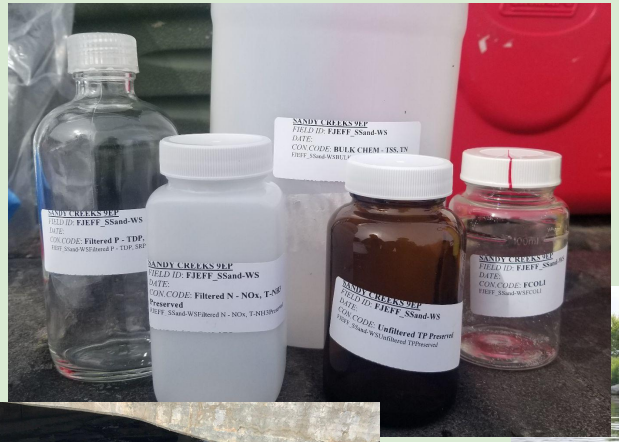


2023 Sampling

2x a month; Mar.- Nov.

Sampled for:

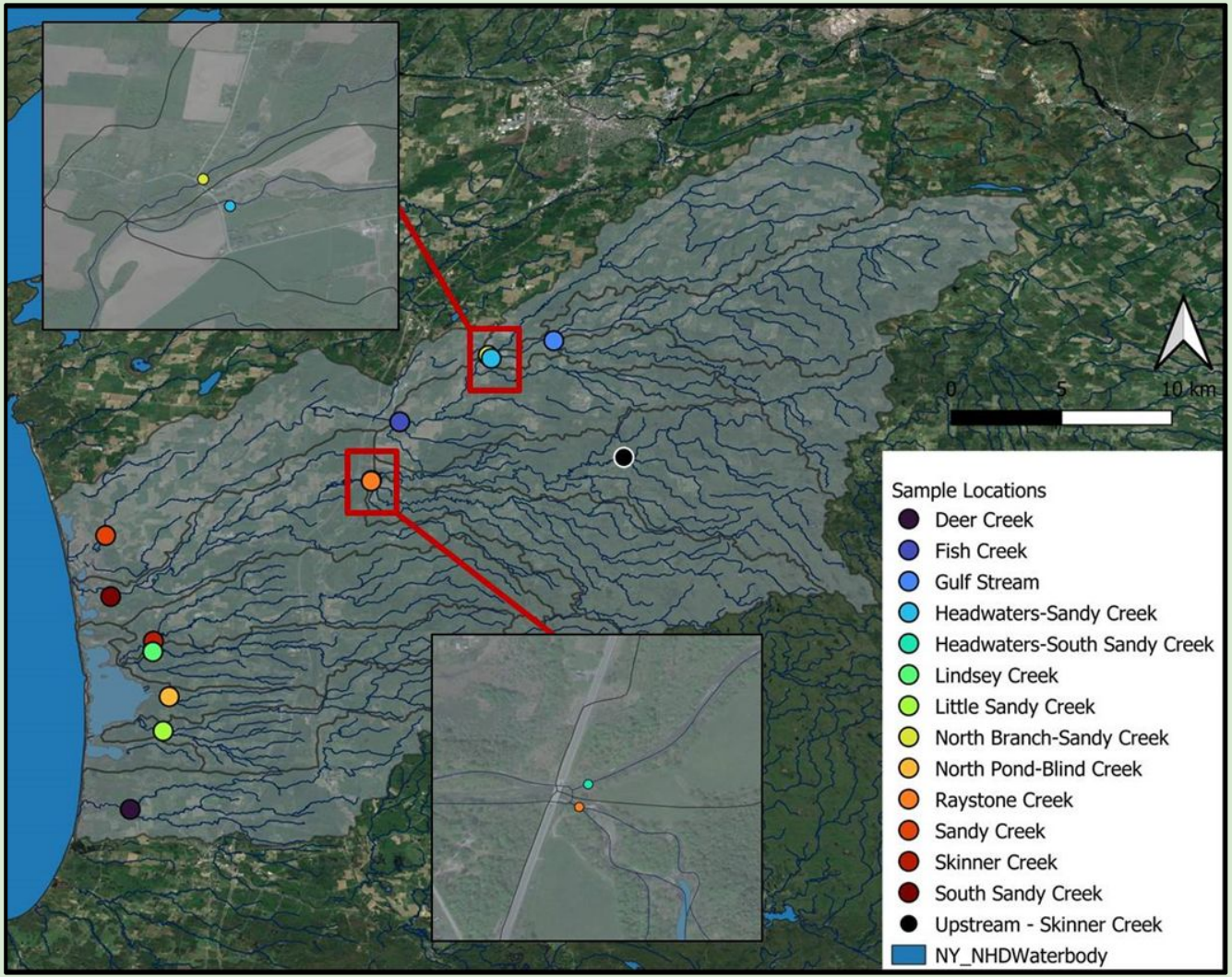
- Nutrients
  - TP, TDP, SRP
  - TN, NOx, T-NH3
- Total suspended solids
- Fecal coliform (bacteria)
- Water velocity/flow
- Temperature, pH, dissolved oxygen (DO), specific conductance, turbidity



2023 Sampling continued…

14 sites x 2 per month x 9 months= **252 total sampling events**

252 events x 5 lab samples= **1,260 individual water samples collected**



WATERSHED MODELING

Results & Findings

How models inform the Sandy Creek Nine Element Plan

Full technical details available in the Watershed Modeling Report (forthcoming)

What Do the Models Do?

… and why do they matter for the 9EP?

Quantify Current Phosphorus Loading

Estimate how much P is reaching streams from different land uses and sources across all 13 subwatersheds

Evaluate Future Scenarios

Test management actions and climate change effects before they are implemented

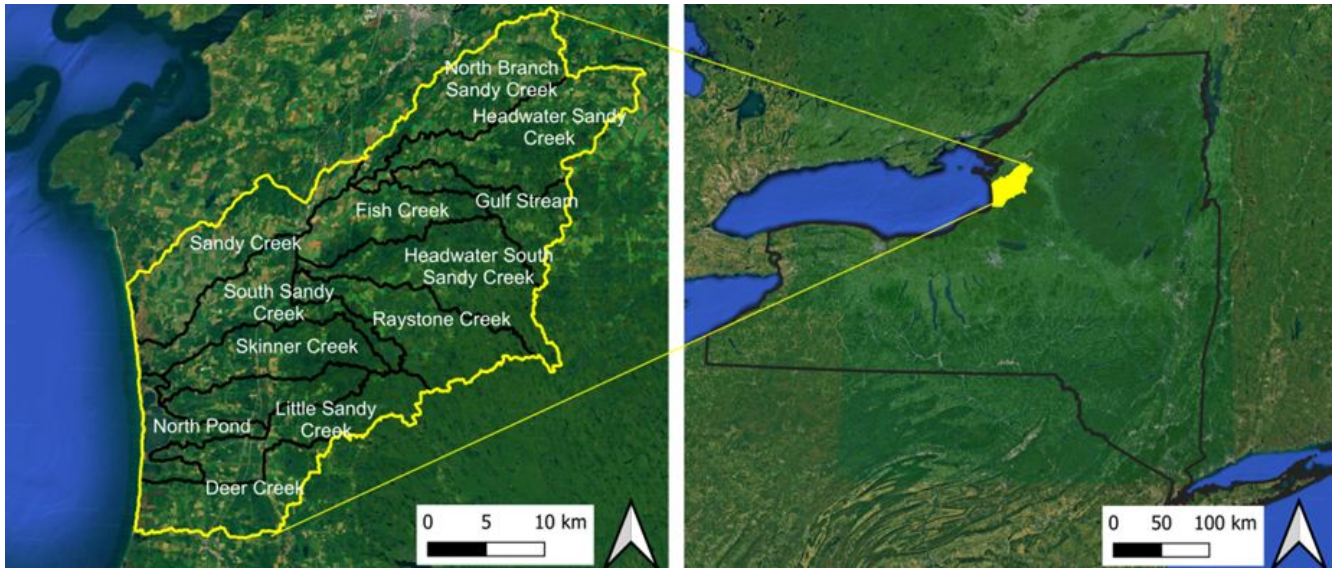
Look Back at Existing BMPs

Hindcast what loading would look like today without management practices already in place

NYSDEC Review: Modeling results were independently reviewed and approved by the New York State Department of Environmental Conservation through a Modeling Usability Assessment Report (MUAR). *The full technical report will be publicly available*.

The Study Area

13 HUC12 watersheds draining to eastern Lake Ontario



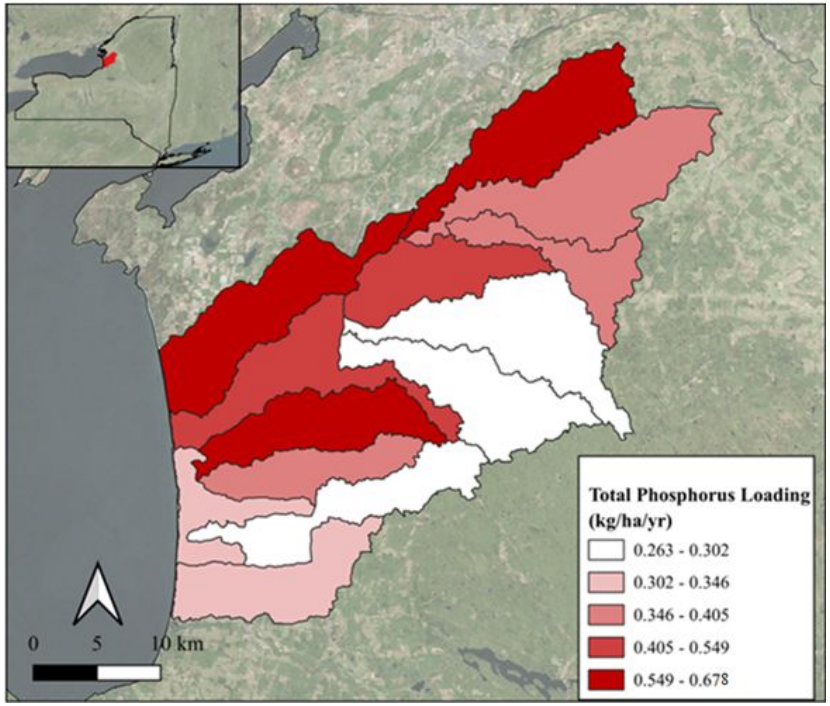
Jefferson, Oswego, and Lewis Counties

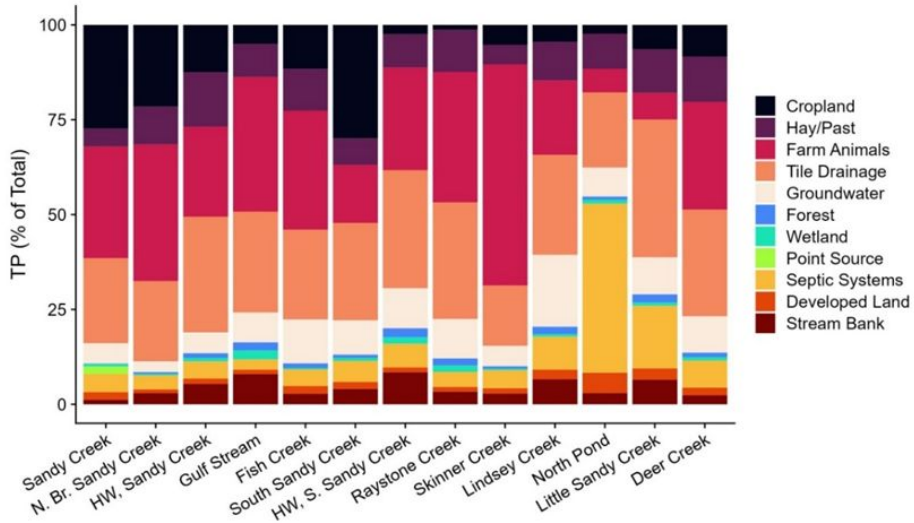
Land use covers a mix of agricultural, forested, and low-density residential areas

~ 1,000 km^2 study area

What are the Sources of Phosphorus?

Relative source contributions across the 13 study subwatersheds **(2014-2023)**



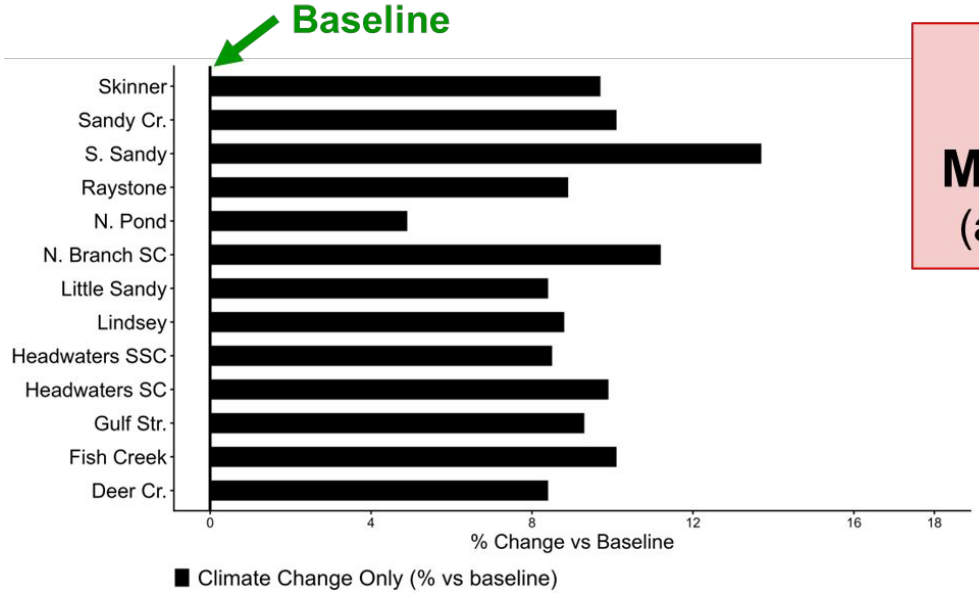


Baseline (current):

0.3 - 0.7 kg/ha/year range of TP loading rates

Looking Ahead - **Climate Change**

Project phosphorus loading by 2050 (RCP4.5 scenario)



(+) 5 - 14%

Modeled increase in TP loading

(avg. ~ 10% across all subwatersheds)

"Holding the line" on current water quality conditions will require action … climate change raises the baseline

RCP4.5 = moderate greenhouse gas emissions scenario that projects roughly a 10% increase in precipitation and warmer air temperatures by 2050. Used as a planning horizon for this study

Overview of Management Scenarios

Four strategies selected through stakeholder and public input, then evaluated using the watershed models:

1

NY Phosphorus Index 2.0 (NY-PI 2.0)

→ Limiting manure application within 300 ft. of streams in high-risk floodplain areas

2

Ag Land Retirement & Reforestation

→ Voluntary retirement of ag land per watershed (10%) and converting to forest

3

Land Use Change & Development

→ Conversion of agricultural or forested land to low-density residential development

4

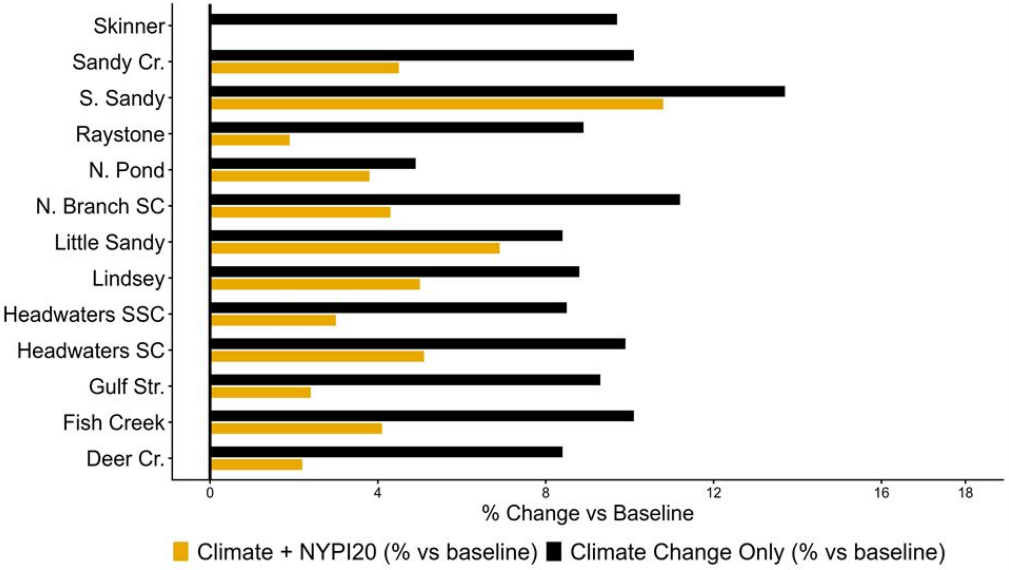
Septic System Mitigation

→ Mitigation all septic system failures in the four subwatersheds draining to Sandy Pond

Agricultural Management - NY-PI 2.0

Limiting manure application near streams (**conservative modeled scenario**)

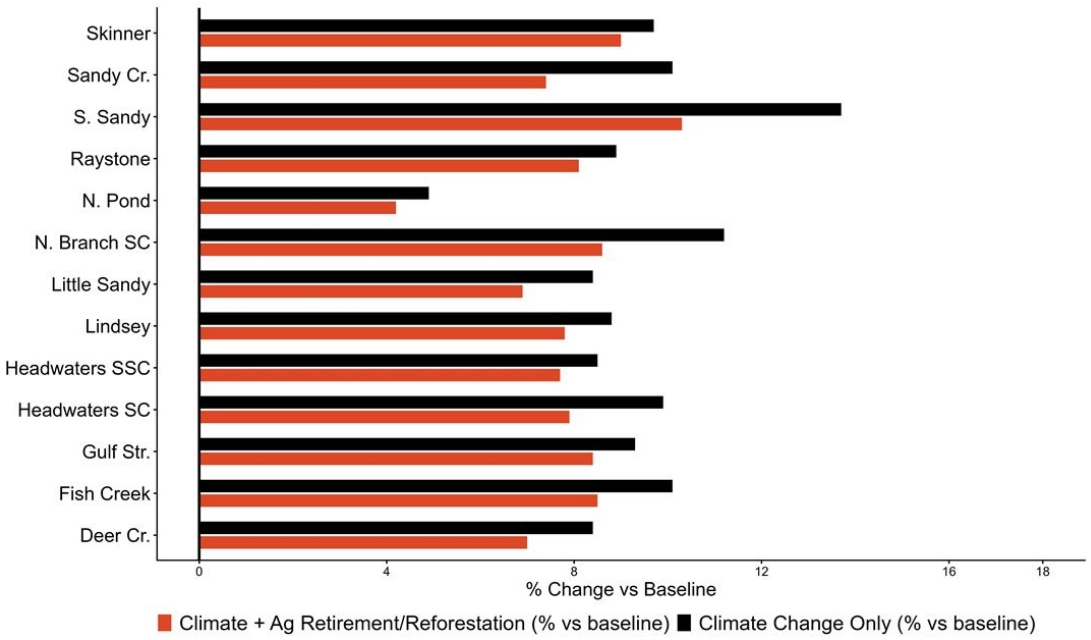
⚠️ The model assumed a blanket restriction on all manure application based on proximity to streams. Real-world application of NY-PI 2.0 does not limit manure application within 300-ft of streams if (a) testing indicates it can occur, or (b) BMPs are implemented.



Most subwatersheds showed a TP load reduction, **but not enough to overcome effects of climate change**

Ag Land Retirement & Reforestation

Retirement and reforestation of fallow agricultural land (10% per watershed)



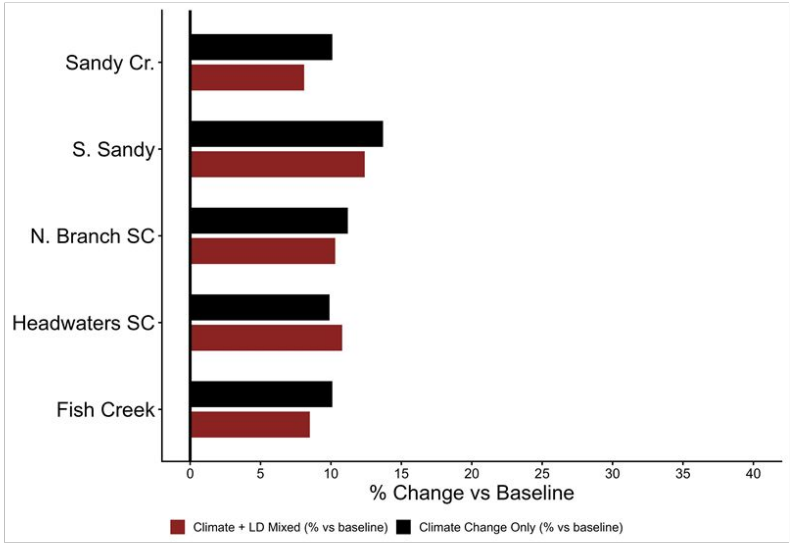
Modest decrease in TP loading relative to climate change

Potential as a component to multi-strategy approach

Land Use Change & Development

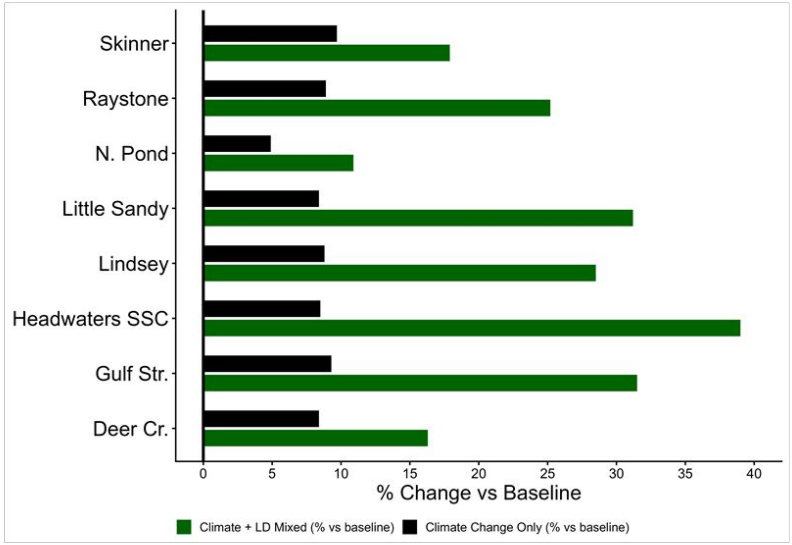
Potential impacts of increased low-density development

Agricultural subwatersheds



Marginal decreases/increases in modeled TP loading

Forested subwatersheds

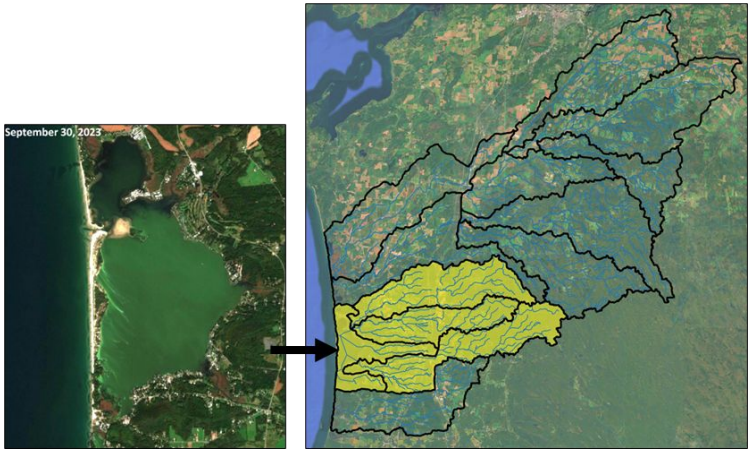


Relatively large increases in modeled TP loading

Septic System Mitigation

Evaluated for the four subwatersheds draining to Sandy Pond

→ **Addressing all septic failures in four subwatersheds draining to Sandy Pond**



Subwatershed	Septic Systems (estimate)	**Net TP Change** (repair/replace all + climate)
North Pond	1,061	−43% ✓
Little Sandy Creek	977	−12% ✓
Lindsey Creek	344	−1% ✓
Skinner Creek	483	+5%

✓ Modeled TP load overcomes impact from climate change

What's Already Working

Models suggest agricultural BMPs currently in place have measurably reduced phosphorus

Remove all existing agricultural BMPs from models …

Modeled TP loads would be

6 - 36% HIGHER

BMPs accounted for in the model:

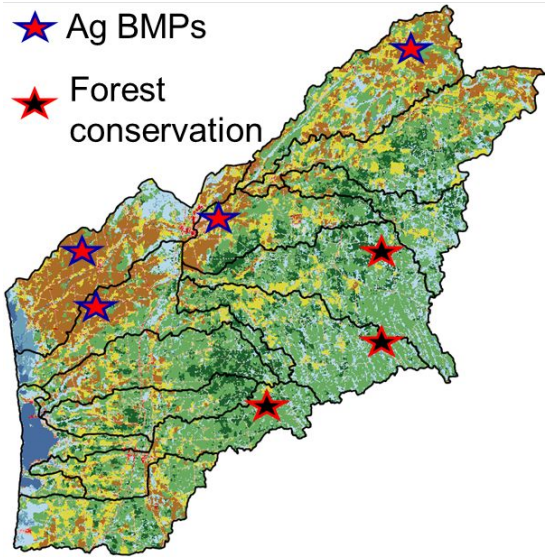
- Cover crops
- Conservation tillage
- Stripcropping/contour farming
- Conservation plans
- Nutrient management
- Grazing land management
- Agricultural land retirement

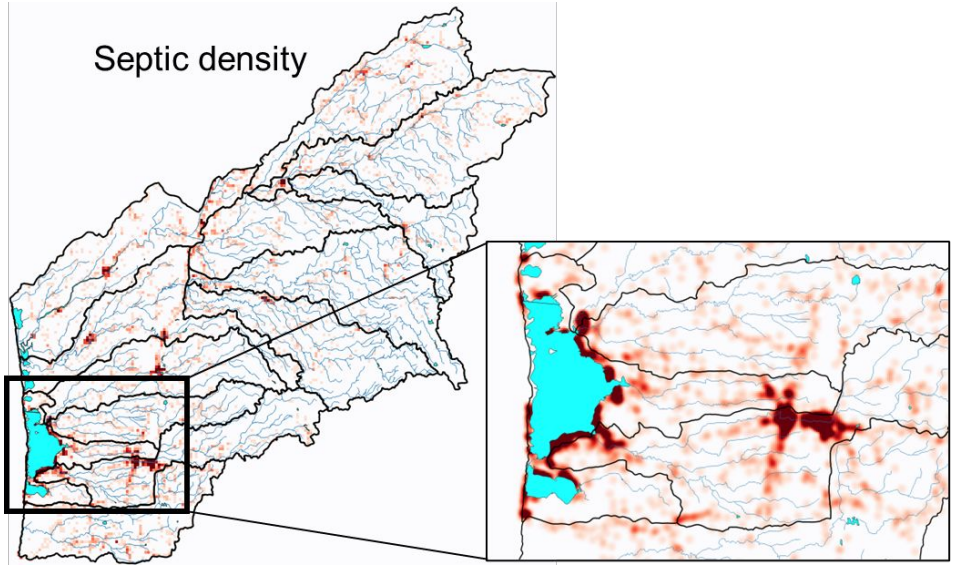
What the Models Tell Us

Key takeaways for the Sandy Creeks 9EP

No single approach is enough for entire project area

Continuing agricultural management, land protection, and septic improvements specific to each subwatershed





Draft 9E Plan Vision & Goals

Based on modeling results and feedback from public meetings and focus groups

7 Goals:

Draft 9E Goals….

We drafted these based on what we heard based on focus groups, want to make sure we captured your intentions and interests

Engagements to date what we've heard and what we've learned. Will have a chance to give feedback now and on survey

Do you agree or disagree with this goal , why or why not <- put in survey

Community Vision Statement

“The goal of the Sandy Creeks 9E is to maintain existing water quality and ecosystem functions in the tributaries while improving the near-shore water quality, ecosystem functions, and resiliency of Eastern Lake Ontario, including nearshore embayments (e.g. North and South Sandy Pond and Lakeview Wildlife Management Area), while preserving the values of local communities, including recreation and fishing.”

Goal #1: All waterbodies shall meet or exceed water quality conditions required to support their designated use for fishing and aquatic life.

Goal #2: Consider changes in rainfall patterns projected over the next several decades and follow best available guidance when selecting, designing, and implementing Best Management Practices (BMPs).

Goal #3: Focus BMP implementation in subwatersheds where they will have the greatest impact.

Goal #4:

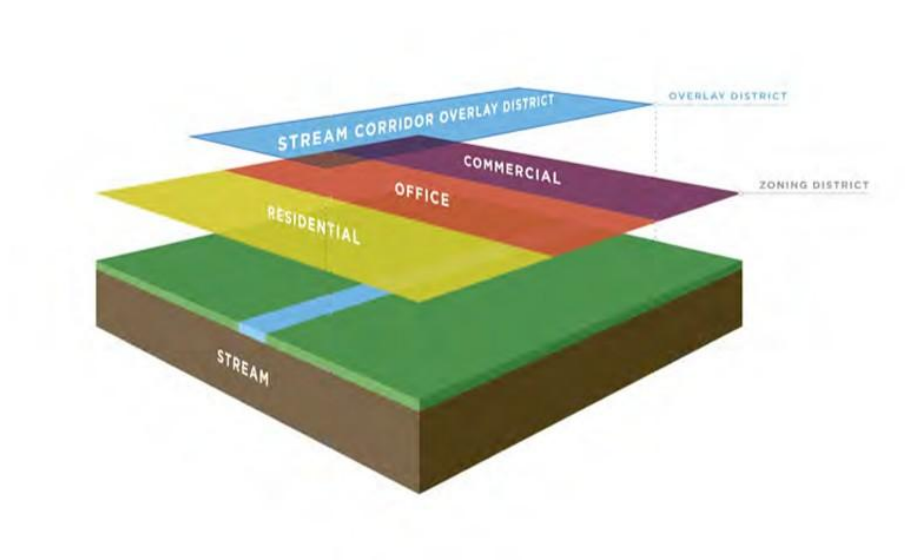
Coordinate and collaborate with all sectors of the watershed community to commit to reducing phosphorus transport to the waterways in accordance with goals outlined in the 9E Plan to avoid overburdening any one sector of the community.

Goal #5:

Protect, restore, and expand the mosaic of natural resources that improve water quality while simultaneously reducing the risk of harm (e.g. flooding, erosion, invasive species) to the built environment and local economy.

Goal #6:

Take a proactive role in protecting community values and character by promoting and developing overlay zoning near sensitive areas such as stream corridors and shorelines, floodplains, large swaths of contiguous forest, and groundwater recharge areas.



Overlay Zoning:

- Adds additional guidelines or restrictions to specific areas
- Doesn’t change underlying land-use rules
- Can address uses, design, density, setbacks, etc.

Goal #7:

Encourage siting developments in existing industrial and mixed-use zoned areas, to minimize impacts to natural resources.

Goal #8:

Meaningfully engage with the municipalities, the public, and K-12 students to promote BMP implementation and stewardship of natural resources.

01 All waterbodies shall meet or exceed water quality conditions required to support their designated use for fishing and aquatic life.

02 Consider changes in rainfall patterns projected over the next several decades and follow best available guidance when selecting, designing, and implementing BMPs

03 Focus BMP implementation in subwatersheds where they will have the greatest impact.

04 Coordinate and collaborate with all sectors of the watershed community to commit to reducing phosphorus transport to the waterways in accordance with goals outlined in the 9E Plan to avoid overburdening any one sector of the community.

05 Protect, restore, and expand the mosaic of natural resources that improve water quality while simultaneously reducing the risk of harm (e.g. flooding, erosion, invasive species) to the built environment and local economy.

06 Take a proactive role in protecting community values and character by promoting and developing overlay zoning near sensitive areas such as stream corridors and shorelines, floodplains, large swaths of contiguous forest, and groundwater recharge areas.

07 Encourage siting developments in existing industrial and mixed-use zoned areas, to minimize impacts to natural resources

08 Meaningfully engage with the municipalities, the public, and K-12 students to promote BMP implementation and stewardship of natural resources.

Vision Statement

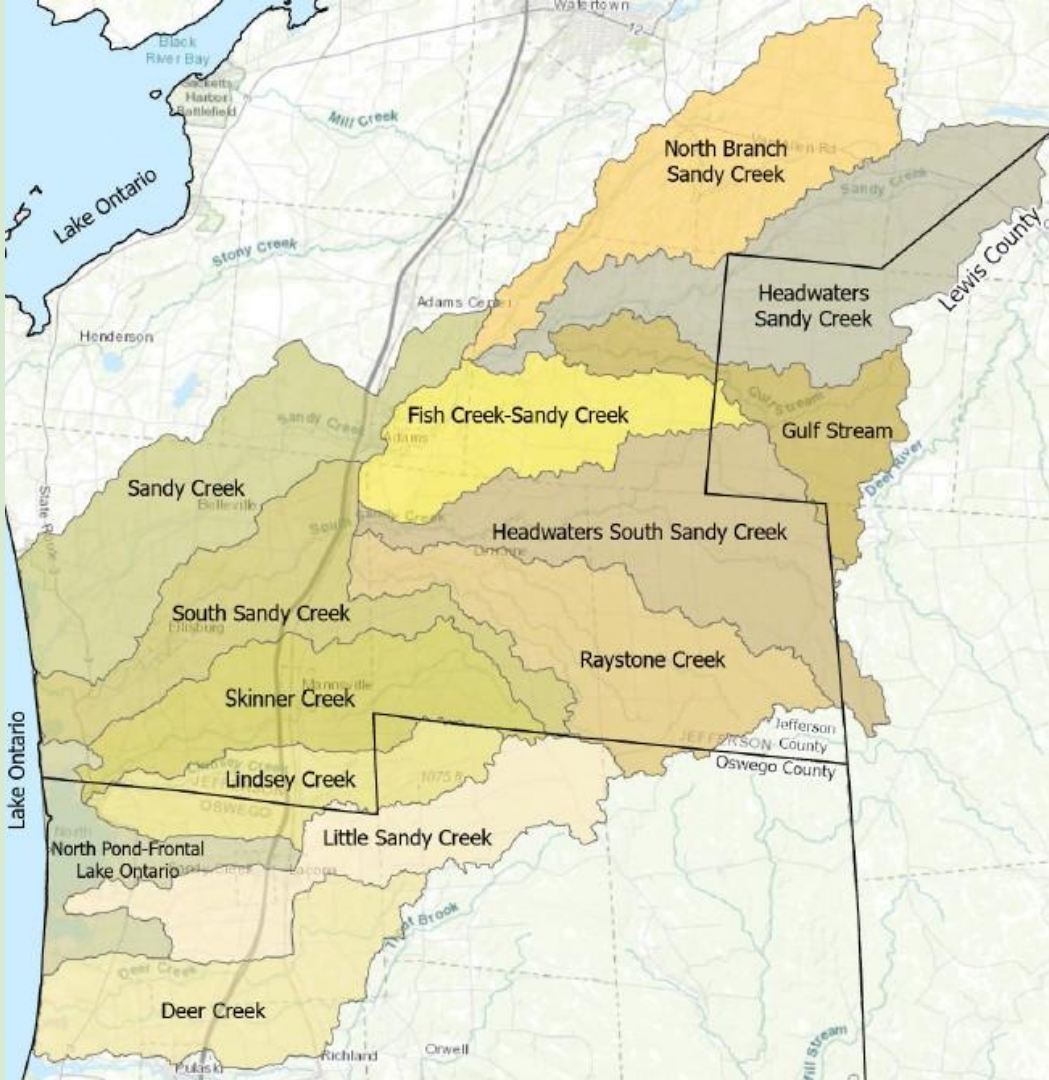
"... to **maintain existing water quality** and ecosystem functions in the tributaries while **improving the near-shore water quality, ecosystem functions, and resiliency of Eastern Lake Ontario,** including nearshore embayments (e.g. North and South Sandy Pond and Lakeview Wildlife Management Area), while **preserving the values of local communities**, including recreation and fishing."

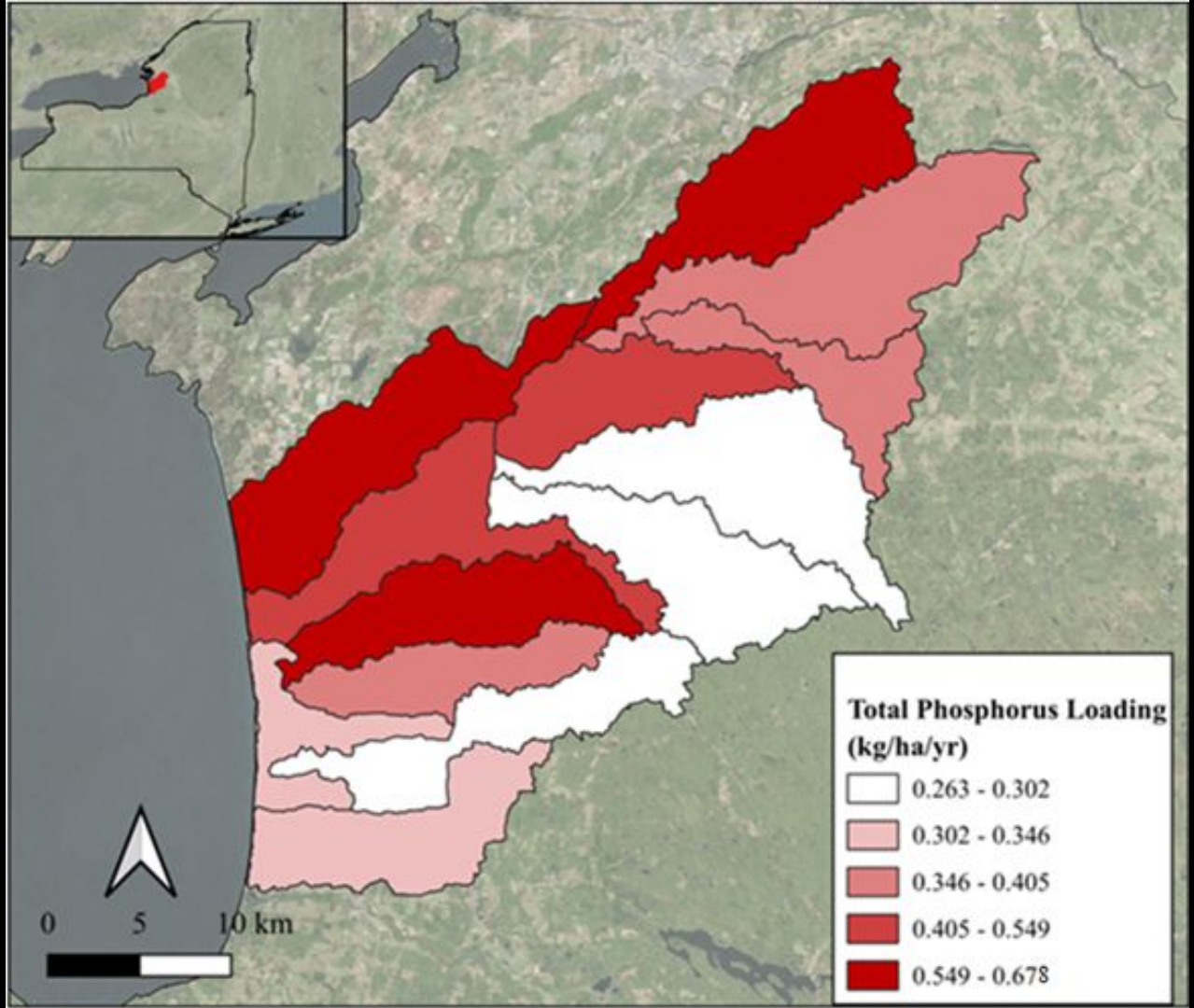
Numeric Target

- 9 Element Plans require a numeric goal to be set based on watershed model
- We propose this goal be set as a percent of annual total phosphorus load
  - E.g.) a 5% reduction in total phosphorus loading compared to current levels
- Could set this goal for the watershed as a whole or group similar subwatersheds
- Modeling showed climate change *increasing* phosphorus loading ~10%

1. How do we feel about <u>today's</u> water quality?

2. What should our goal be for the future?

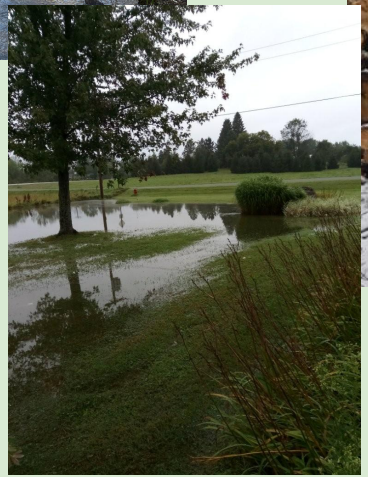



Total Phosphorus Loading
(kg/ha/yr)
0.263 - 0.302
0.302 - 0.346
0.346 - 0.405
0.405 - 0.549
0.549 - 0.678
0
5
10 km

Best Management Practices

Best Management Practices (BMPs)

- Agriculture
- Forestry
- Stormwater
- Municipal
- Property/Shoreline Owners



Agricultural BMPs

- Cover Crops
- Forested Buffers
- Vegetated Buffers

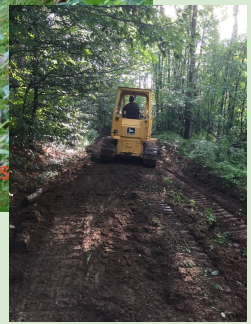
Agricultural BMPs

- Manure Management (i.e. storage, covered barnyards, bedded packs, etc.)

- Fencing/Livestock exclusion

Forestry BMPs

- Temporary Bridges, Timber Mats, Corduroy
- Culverts, Diversions, Gravel
- Grading/Seeding
- Waterbars and other BMPs



Stormwater

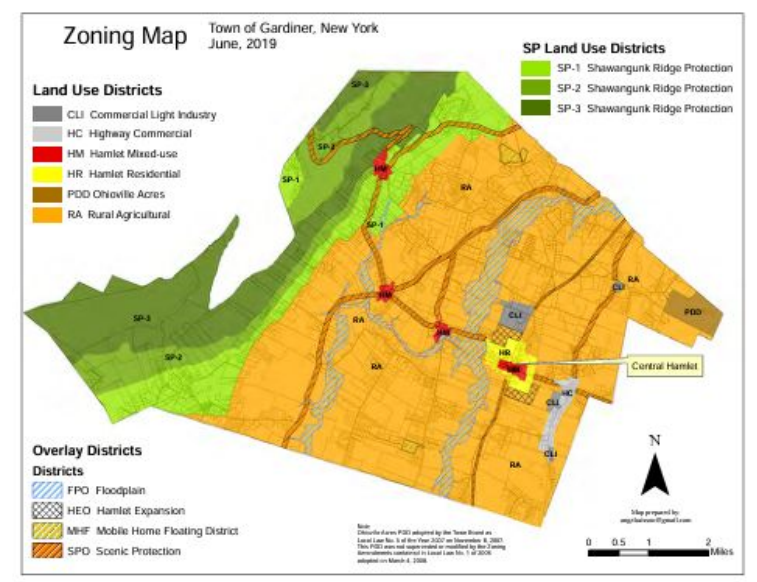
- Stormwater planning and implementation of appropriate practices
- Green Infrastructure

Culverts

- Properly size water control structures and stabilize banks
- Avoid erosion and failures

Stream Corridor and Floodplain Management

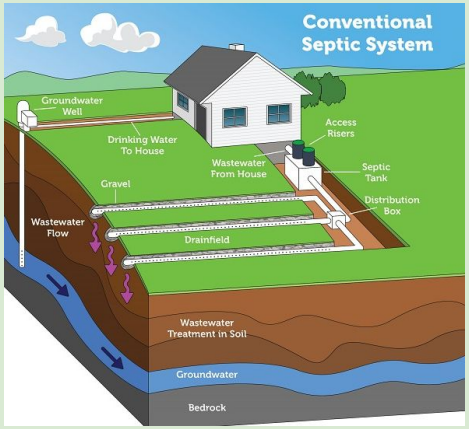
- Conservation Overlay Zoning:
  - Allows a municipality to place an additional layer of restrictions over existing zoning districts.
  - Used to protect sensitive areas by addressing uses, design, density, setbacks, and other issues without changing underlying land-use rules.



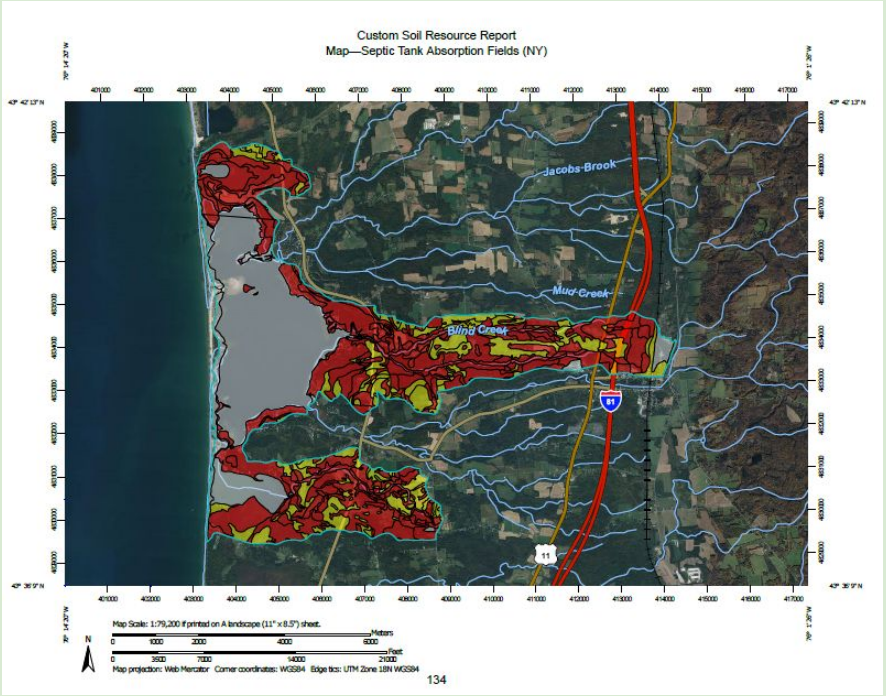
Creating Conservation Overlay Zoning- A guide for Communities in the Hudson River Estuary Watershed (NYS DEC, NYS, Cornell University, Hudson River Estuary Program).

Septic Systems

- Alternative Systems: Mounded, Recirculating Sand Filter Systems, etc.)
- Cluster/Community Systems
- County cost-share programs



https://www.epa.gov/septic/types-septic-systems



Your input is invaluable and greatly appreciated.
Please take the Sandy Creeks 9E Exit Survey!

Scan with your phone's camera to open the survey.

https://www.surveymonkey.com/r/3ZDS5KC

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https://www.surveymonkey.com/r/9MHZCP2