

# Policy loopholes as opportunities for action in NYS lake protection

*Unregulated wetlands, roadside ditches,  
and ag tile drainage*



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# A Global Strike for Climate Change: 1.4 Million Students Walk Out of Class Demanding Action

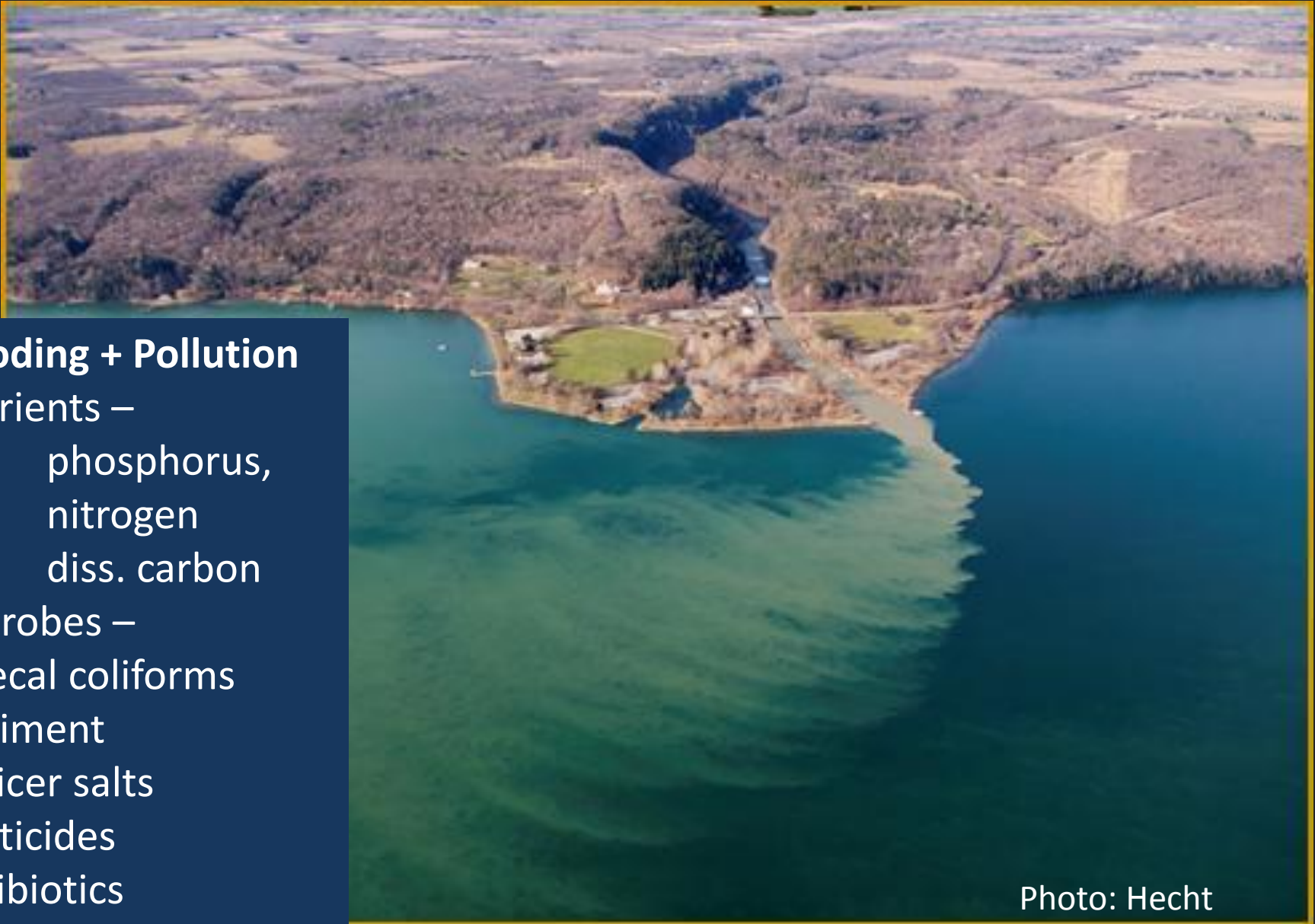


# Watershed Runoff Concerns

## Flooding + Pollution

- nutrients –  
phosphorus,  
nitrogen  
diss. carbon
- microbes –  
fecal coliforms
- sediment
- de-icer salts
- pesticides
- antibiotics

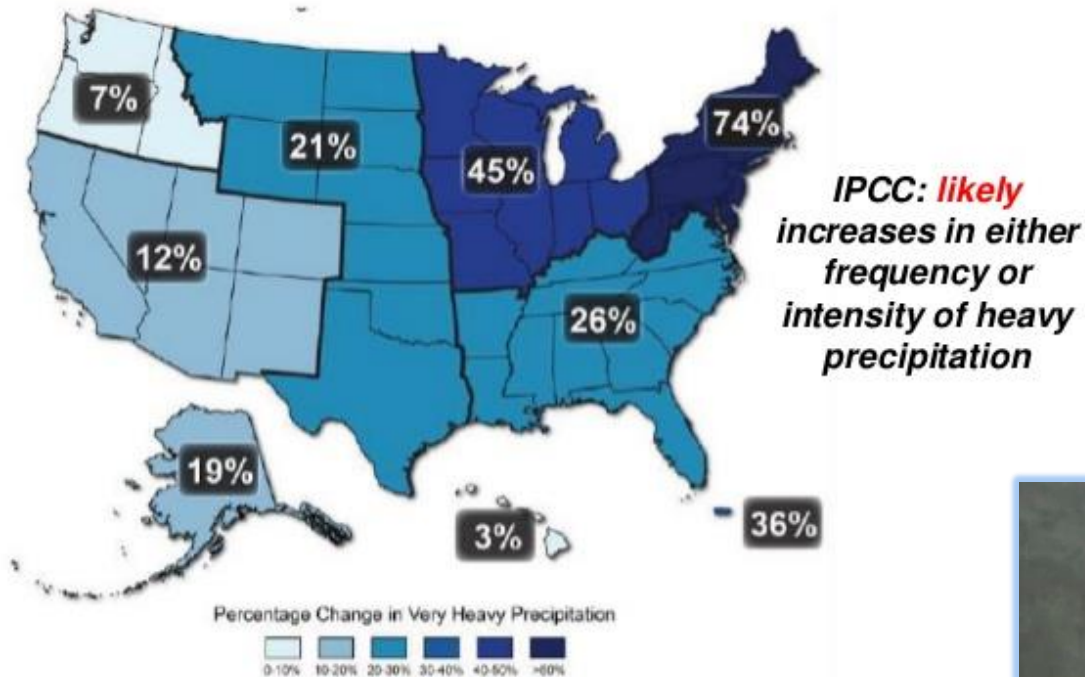
Photo: Hecht





# Exacerbated by climate extremes - More, heavier downpours

## Change since 1950 in Top 1% Heaviest Rainfall Events



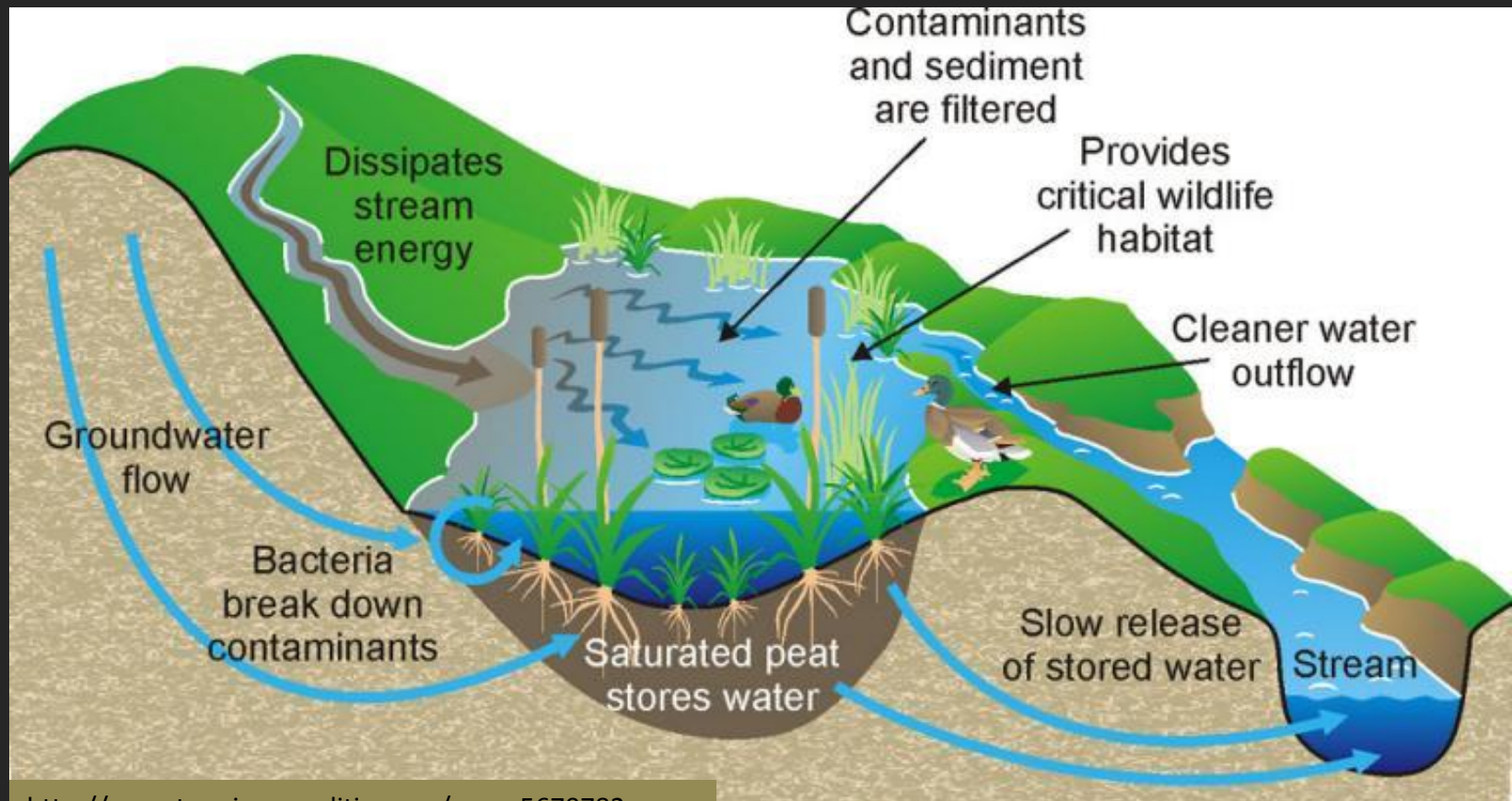
August, 2014 Islip, Long Island, NY  
13" rainfall in 12 hrs



# Loophole #1 Unprotected wetlands

Play critical roles -

- filter out contaminants
- reduce flooding downstream
- dissipate stream energy



# Current Regulations:

## Federal:

- regulated under Clean Water Act (> 1 acre size)
- many former wetlands omitted if not connected to navigable waterways (WOTUS)
- doesn't include most headwater streamside habitats
- non-regulatory National Wetland Inventory maps

## NY State

- only regulates mapped wetlands that are 12.4 acres in size or larger or of “special local significance”
  - legally delineated – with wetland vegetation
- 
- No development within the wetland
  - requires 100 ft buffer of no development



# Loop-hole #1 Unprotected, vulnerable wetlands



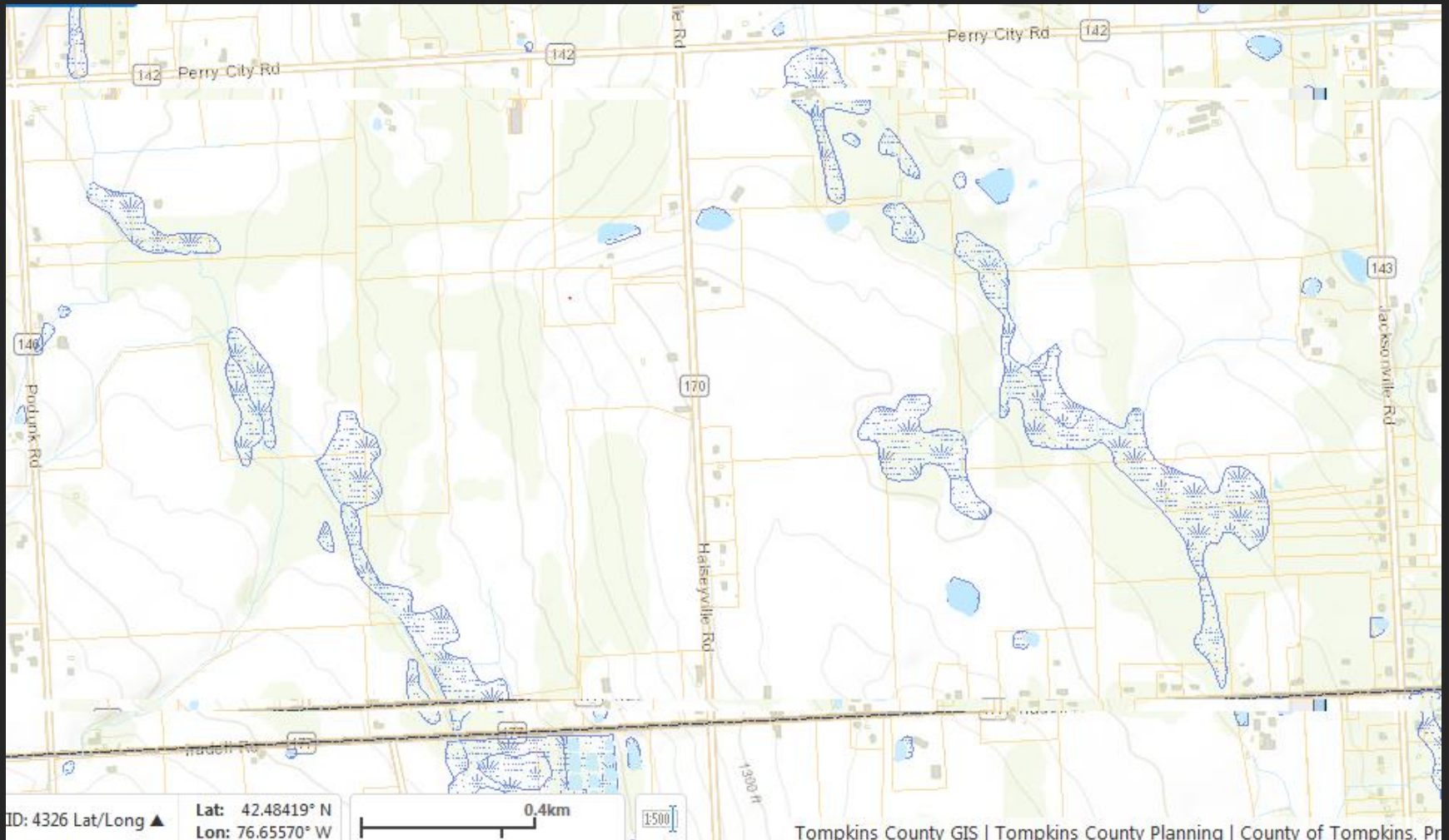


# Case Study: Non-regulated Wetlands in Town of Ulysses, Tompkins Co.



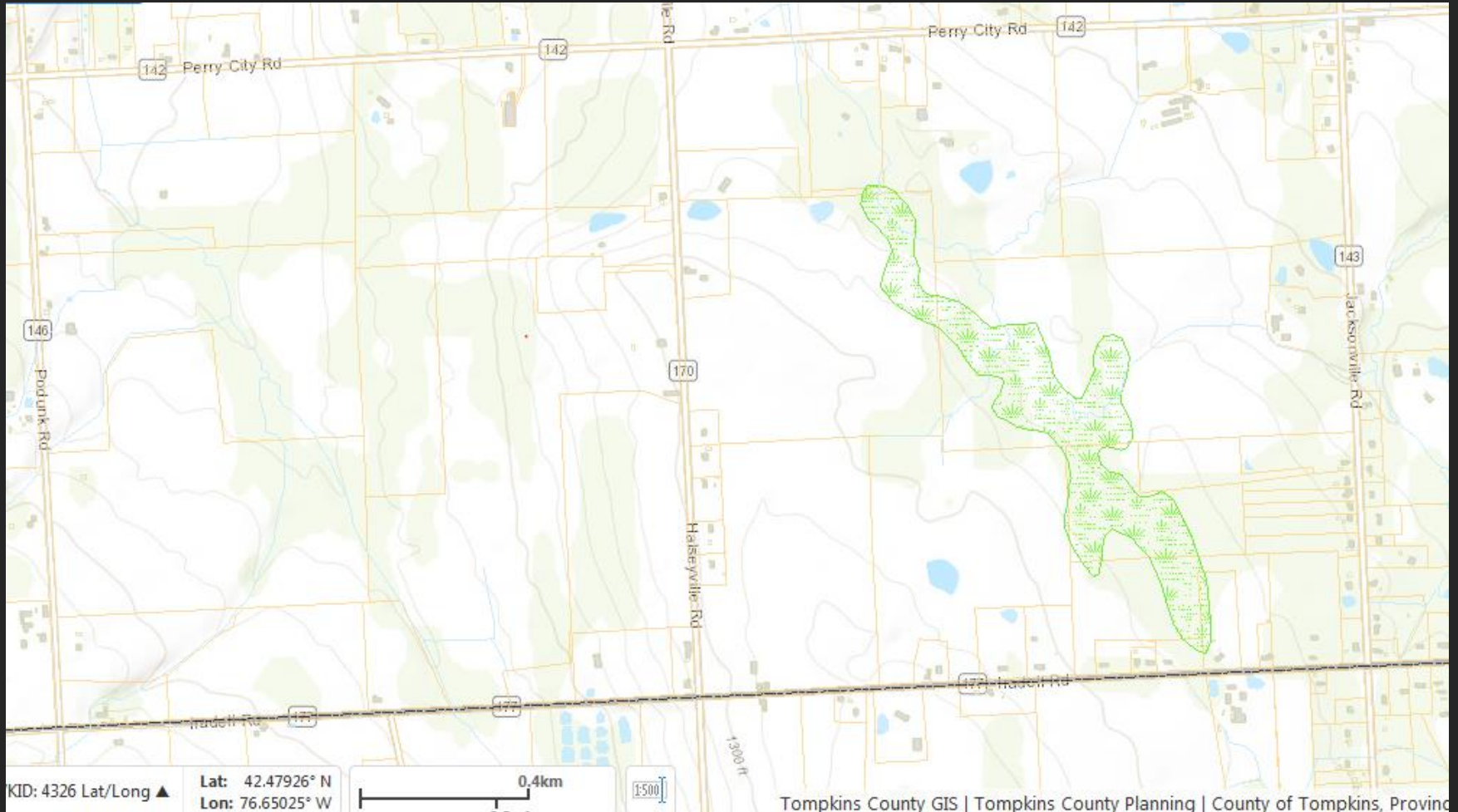
# Wetlands identified on USFW National Wetland Inventory Maps

Tompkins Co. Geoportal – Interactive - Natural Resources

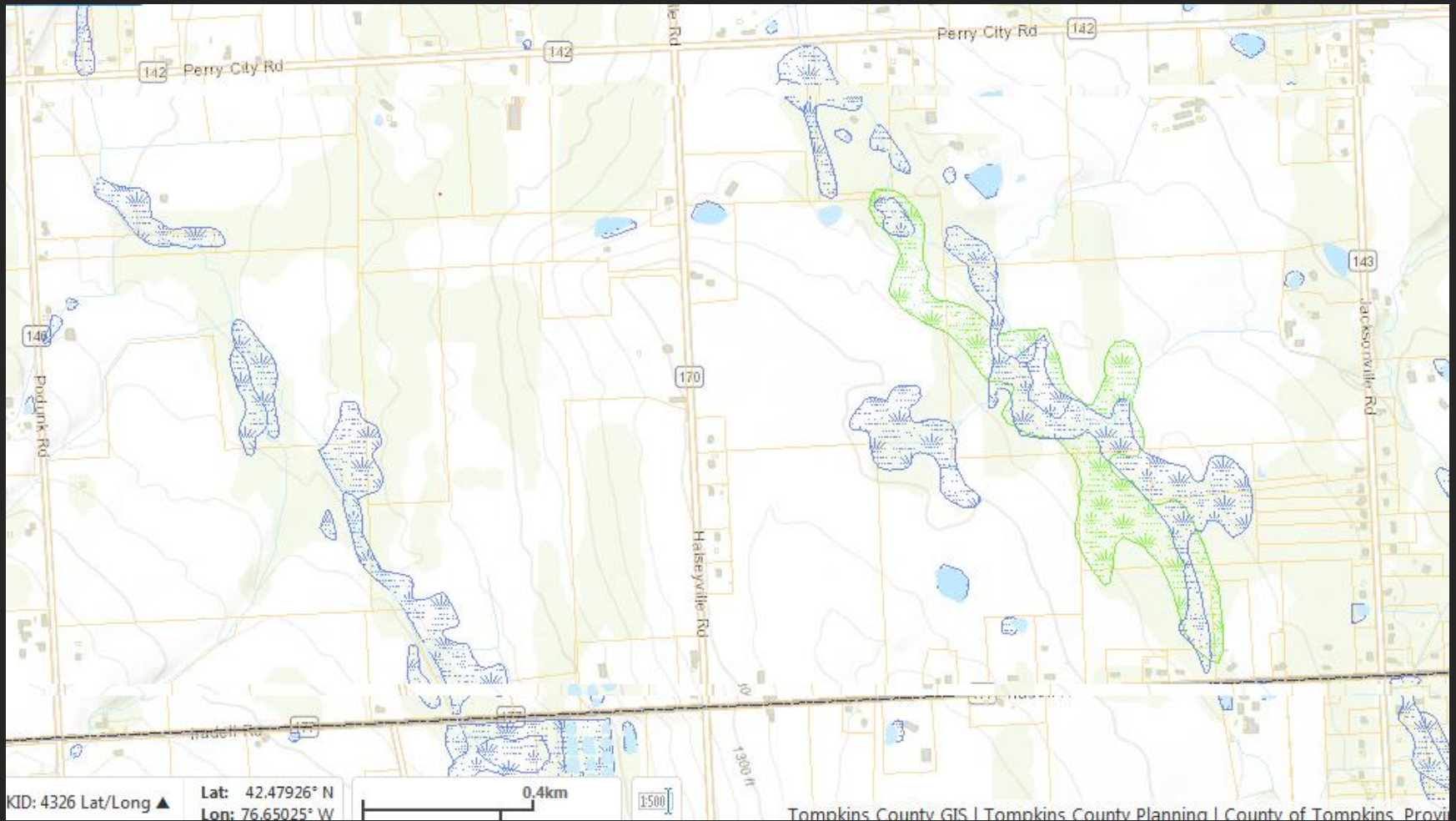




# Wetlands identified on New York State Dept. Environ. Conser. maps



# Gaps in protection





# A role for engagement – create local ordinances

□ § 212-124 Standards for vegetated buffer areas.

## Town of Ulysses Zoning: 212-124

### B. Stream protection setback.

- (1) Healthy stream sides that are vegetated with native woody trees and shrub plants provide flood reduction, erosion control, groundwater filtration, surface water quality improvement, and wildlife habitat. Therefore, commercial parcels and properties and all properties in environmental overlay districts that are being considered for new development or building upgrades and that encompass or adjoin a stream or creek are required to maintain and protect the existing vegetated streamside habitat (i.e., setbacks) during and after construction, or restore the vegetation through plantings in those habitats where such vegetation has been removed.
- (2) U.S. Geological Survey topographical maps will be used to classify impermanent and permanent streams. Impermanent, also known as "seasonal," streams require a minimum of 25 feet of setback on each side of the stream, extending from the stream bank toward the uplands. Permanent streams are required to have a minimum 50 feet of buffer on each side of the stream, extending from the stream bank toward the upland.
- (3) Vegetation in stream protection setbacks will consist of native tree and shrub species, tolerant of the conditions of flooding and soil saturation which are typical of such habitats, and generally designated as Obligate Wetland, Facultative, Facultative Wetland, or Facultative Upland Species in the U.S. Fish and Wildlife Service's 1996 National List of Vascular Plant Species that Occur in Wetlands ([www.nwi.fws.gov/bha/list96.html](http://www.nwi.fws.gov/bha/list96.html)). This design includes approximately 20 feet of undisturbed mature forest directly adjacent to the bank, a middle zone 15 feet wide of actively growing forest with periodic thinning, and a third zone approximately 15 feet wide planted in warm-season grasses. Larger setbacks with wider zones are encouraged to provide greater stream protection.



# Lewisboro New York



## **WETLAND; FRESHWATER WETLAND**

All areas that comprise hydric soils and/or are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation. Refer to

### ☐ § 220-21 **Wetlands and steep slopes.**

[Amended 11-1-2004 by L.L. No. 3-2004]

#### **A.** Alteration of wetlands and watercourses.

- (1) Pursuant to the policy and findings set forth in the Town of Lewisboro Wetlands and Watercourses Law,<sup>[1]</sup> in any district, there shall be no alteration, whether by excavation, filling, grading, clearing, draining or otherwise, and whether or not incidental to activities otherwise permitted, of wetlands or watercourses, or any area within 150 feet adjacent to said wetlands or watercourses, as defined by the Town of Lewisboro Wetlands and Watercourses Law, without compliance with the Town of Lewisboro Wetlands and Watercourses Law.

## **FRESHWATER WETLANDS MAP**

The accumulated delineation of wetlands and watercourses within areas of the Town of Lewisboro as accepted by the Planning Board in the course of the application of this chapter, including but not limited to wetlands and watercourses as shown on the final Freshwater Wetlands Maps for Westchester County promulgated by the Commissioner of the New York State Department of Environmental Conservation pursuant to § 24-0301, Subdivision 5, of the Environmental Conservation Law (the New York State Freshwater Wetlands Act), or such maps as have been amended or adjusted, and on which are indicated the approximate location of the actual boundaries of wetlands regulated pursuant to Article 24 of the Environmental Conservation Law; and as shown on National Wetlands Inventory Map as promulgated by the United States Department of the Interior, Fish and Wildlife Service.



# Educate, advocate - support statewide efforts

## STATE OF NEW YORK

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1749

2017-2018 Regular Sessions

### IN SENATE

January 10, 2017

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Introduced by Sen. LATIMER -- read twice and ordered printed, and when printed to be committed to the Committee on Environmental Conservation

AN ACT to amend the environmental conservation law, in relation to freshwater wetlands and repealing section 24-1305 of such law relating thereto

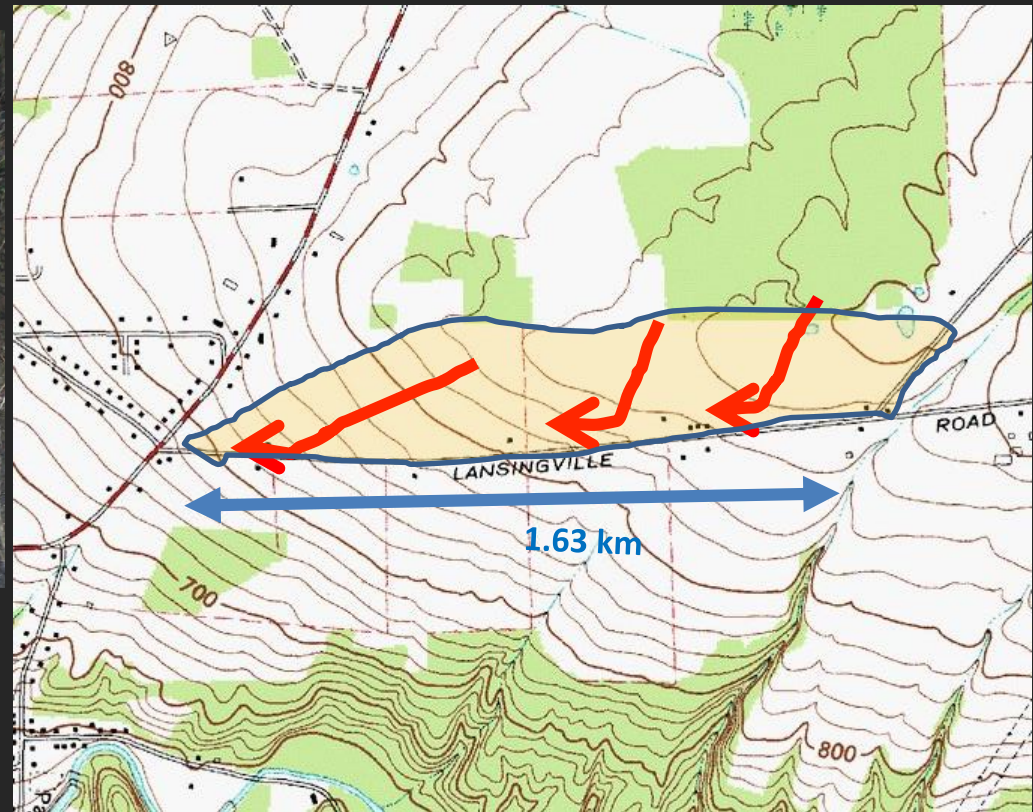
2. The opening paragraph of subdivision 1 and subdivision 2 of  
14 section 24-0107 of the environmental conservation law, as amended by  
15 chapter 654 of the laws of 1977, are amended to read as follows:  
16 "Freshwater wetlands" means lands and waters of the state [**as shown on**  
17 **the freshwater wetlands map which**] **that are one acre or more in size or,**  
18 **adjacent to a water body, including an intermittent water body or, in**  
19 **the discretion of the commissioner, of significant local importance for**  
20 **one or more of the specific benefits set forth in subdivision seven of**  
21 **section 24-0105 of this title.**

# Loophole #2

## Roadside Ditch Drainage Networks



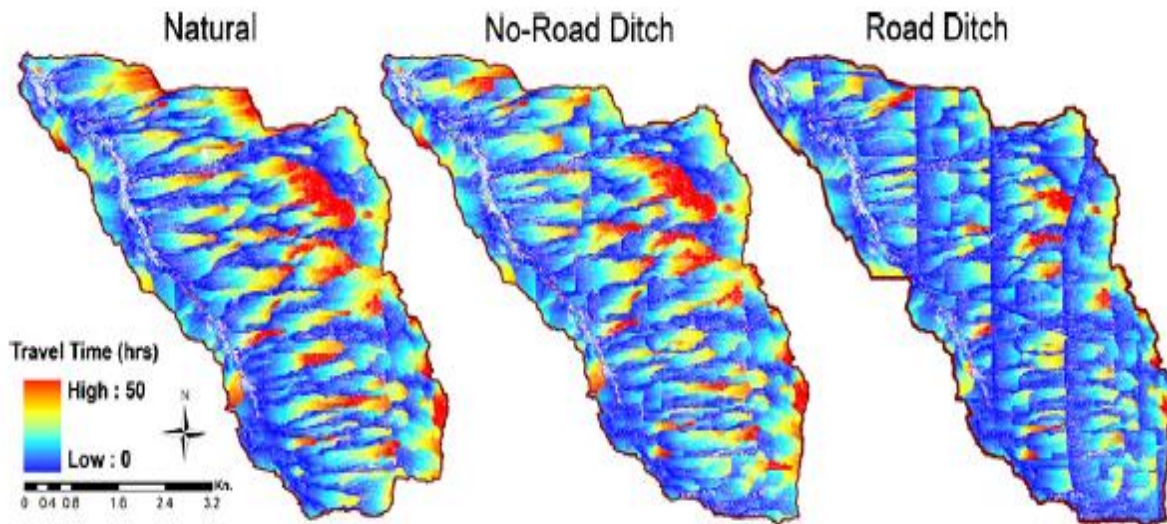
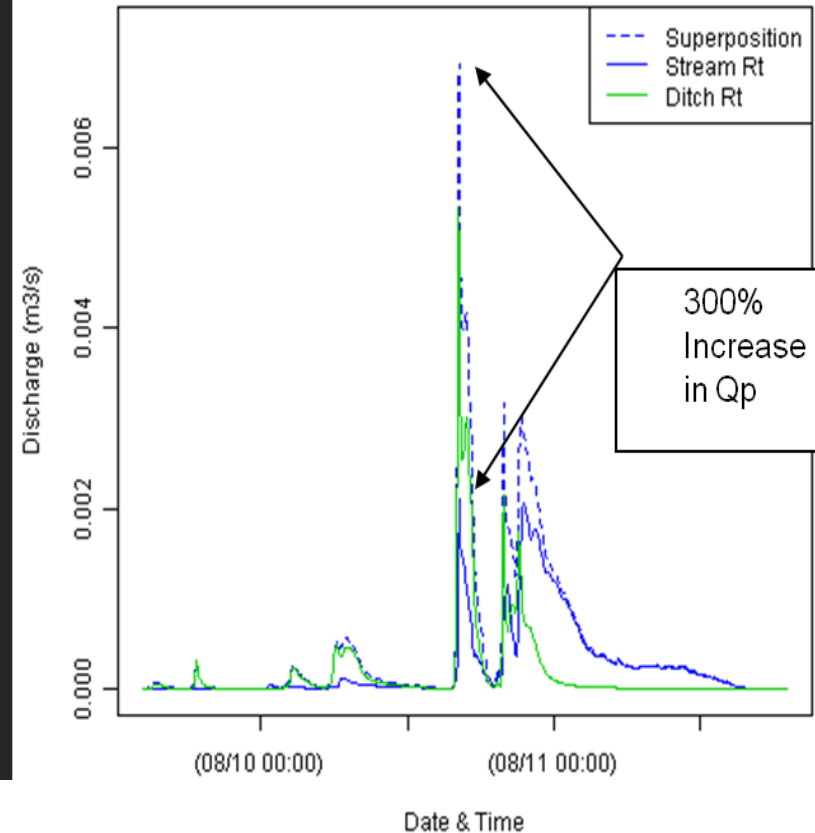
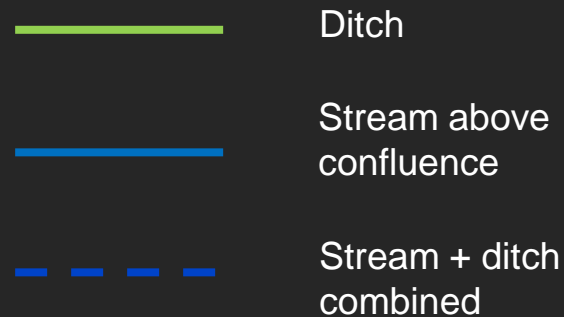




- Road surfaces cover 1% of watershed surface area.
- Ditch drainage basins intercept ~22 % of the surface runoff and shallow groundwater from each watershed.



# Ditches rapidly shunt water, contributing to flooding



Ditches  
transports  
contaminants  
from adjacent  
land uses, and are  
sources when  
scraped and left  
exposed

(sediment,  
phosphorus,  
de-icer salts)





# A role for engagement -

Work with town highway staff for better management.

Highway superintendents are elected officials,  
landowners can influence the R.O.W.

## BMPs: Strategies to Reduce Flooding

*Disconnect ditches from streams.  
Use infiltration basins,  
constructed wetlands, or  
detention ponds that allow for  
groundwater recharge.*





# A role for engagement

- work with town highway staff

BMPs: Strategies to reduce or filter out contaminants



*Mow ditches,  
instead of scraping.*



*Hydroseed  
immediately  
after ditching.*



*Use check dams to slow  
down erosive ditch flow.*

Encourage ditch inventory and mapping as part of your town's asset inventory.

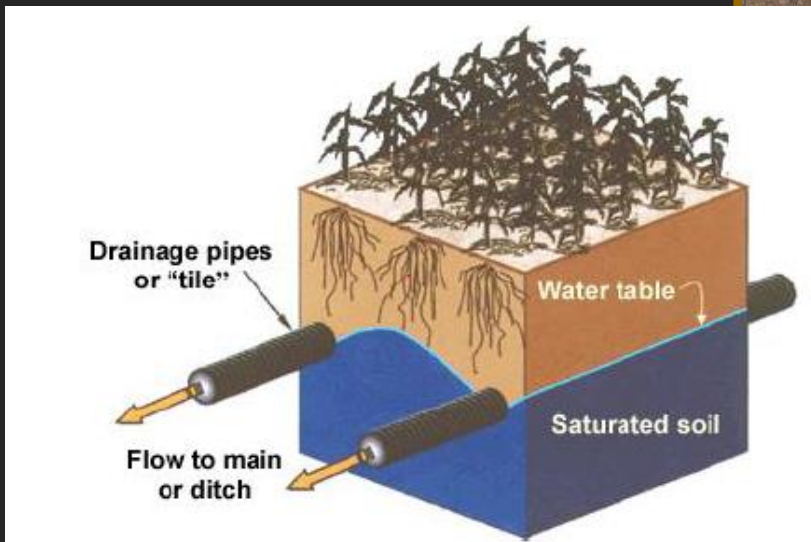
Work collaboratively with Soil and Water Conservation Staff to provide leadership and technical support.

Help educate landowners about their R.O.W.s

# Loophole #3 Agricultural tile drains

Extensive lengths of perforated pipe or tubing placed underground

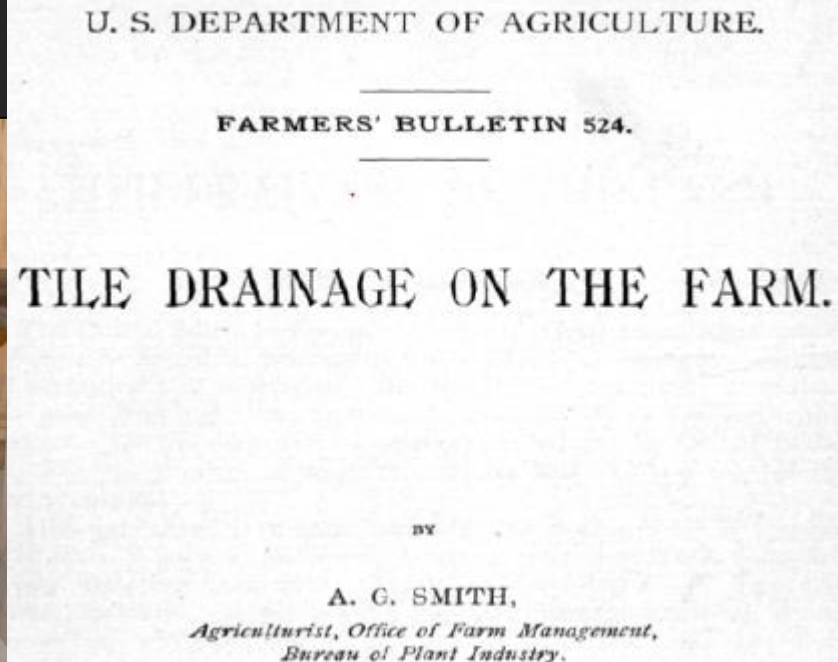
To provide an open pathway for water to drain out of the field





# Benefits of subsurface farm tile drainage

- Reduce duration of saturated soil conditions
- Increase crop productivity – up to 25%
- More timely planting
- Increased traffic-ability
- Reduce overland runoff and erosion



# Mid-West Tiling

- 39 million tile drained acres in 8 Midwest states
- 3% ( Missouri) - 48% (Illinois) of cropland acres



Subsurface “tile” drainage is concentrated in the Midwest.



Source: World Resource Institute



Recent increase in use across NYS in response to extreme precipitation, commercial promotion





# Farm tile drains discharge to roadside ditch networks



# Tile drains - water

“ The use of tile drains increases total water output from a field as much as two times, and can be the primary source of stream flow in smaller watershed drainages.”





# Law Bulletin

**THE OHIO STATE UNIVERSITY**COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES*Law you need to know from OSU Extension's Farm Office**August 2018*

## Surface Water Drainage Rights

*Peggy Kirk Hall, Associate Professor & Field Specialist  
OSU Extension Agricultural & Resource Law Program*

Surface water drainage is undoubtedly important to agricultural landowners. Long ago, Ohio law prohibited landowners from interfering with the natural flow of surface water from property. Over time, our courts recognized that some alterations of surface water drainage were necessary to develop land. But how much change in drainage is too much? In this bulletin,

installed, causing a significant increase in the amount of surface water flowing onto surrounding properties. Flooding of nearby homes occurred, as well as property damage caused by vegetation, rocks and other debris carried off the property. The Supreme Court decided that fairness required Ohio to adopt the law already in place in many other states—the doctrine of reasonable use.

The Supreme Court explained the reasonable use doctrine as follows:

# Tile drains - nutrients from manure, fertilizers





# Tile drains - dissolved Nitrates

## Ditches: Concentrations of Dissolved NO<sub>x</sub>

### Water carrying Dissolved Nitrate (+ nitrite)

< 5 mg/l  
TSS throughout

#### Water collection dates:

Ag-1 2014: 19 dates    2015: 26 dates    2016: ~15 dates sp/fall    2017: 10 dates wint/fall  
 Ag-2                    2015: 26 dates    2016: ~15 dates sp/fall    2017: 12 dates wint/fall  
 W-1                    2015: 26 dates    2016: ~ 8 dates sp/fall    2017: 9 dates wint/fall

### Ditch Nitrate-N (mg/L)

	2014 n=19	2015 n=26	2016 n=8 to 15	2017 n=9 to 12
mean ± 1 SD				
AG-1	28	33.6 ± 7.0	13.5 ± 3.7	18.8 ± 5.0
AG-2	-	21.0 ± 11.5	12.4 ± 5.3	6.1 ± 3.5
W-3	-	~ 0.1	~ 0.1	~ 0.1

\*2016 drought July-October – no data

6.5 ha, heavy manure



AG-1

21.0 ha upslope pasture

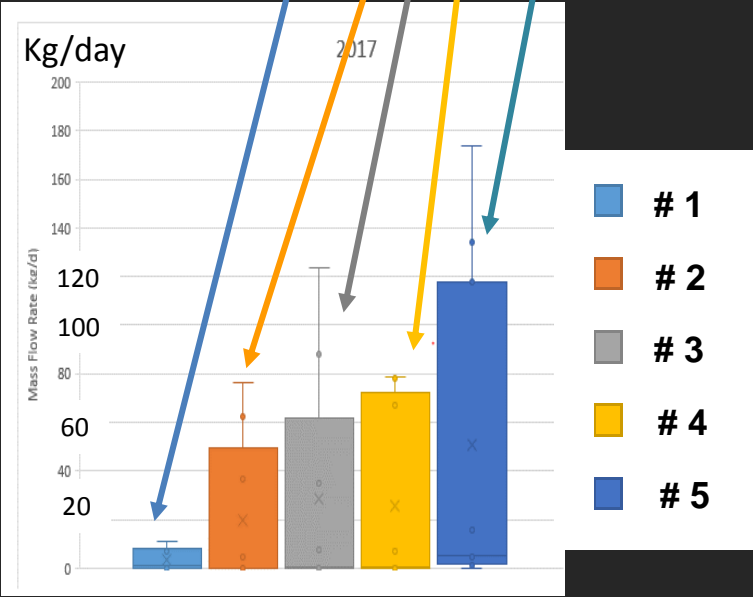
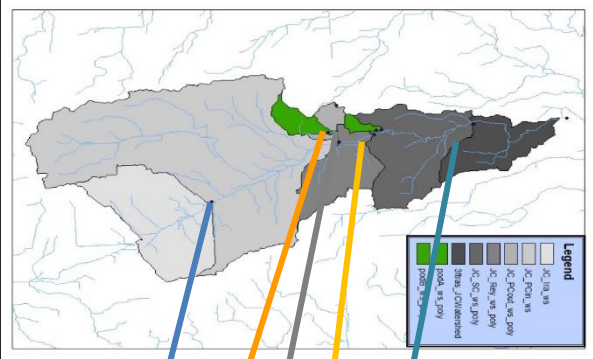


AG-2

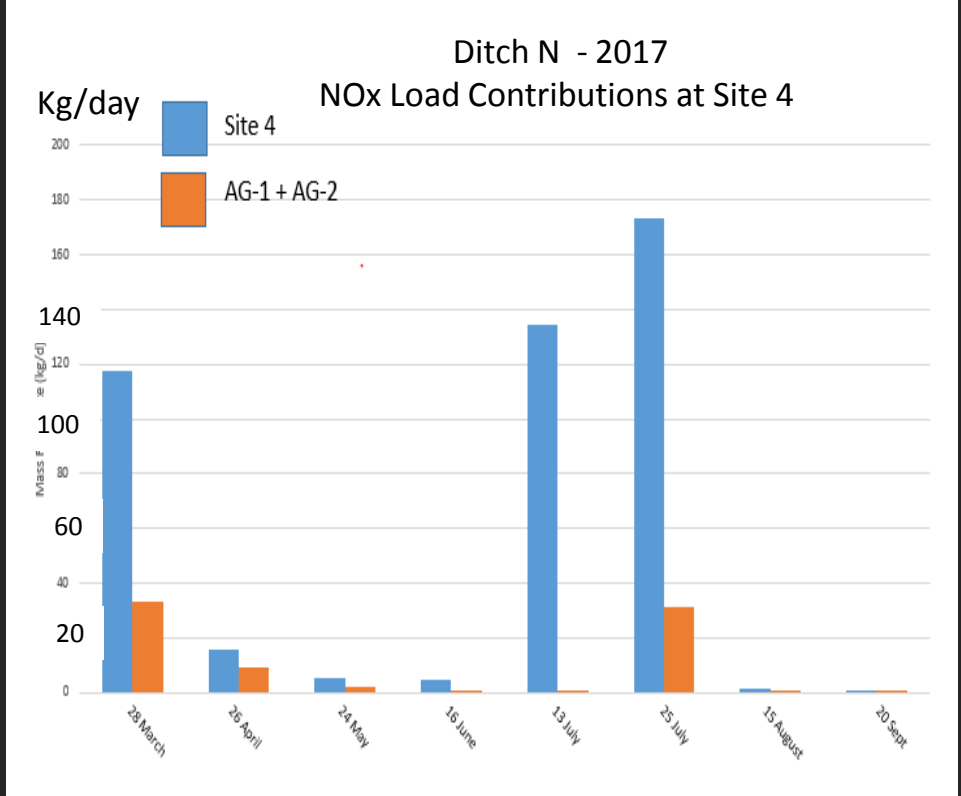
2.4 ha woodlot



W-3



## 2017 Stream Loads of Dissolved Nitrate





# Tile drains - dissolved Phosphorus

A summary of 400 national studies reported ranges from 0.5-3.0 kg/ha/year of total P loads from tile drains.

... flow from outlets can account for 17-41% of total phosphorus and 16-72% of dissolved reactive phosphorus of peak flow”

Recent monitoring in northern New York found total phosphorus concentrations averaging 0.098 mg/L, a value two orders of magnitude lower than surface runoff.

Phosphorus concentrations as high as 1.17 mg/L have been reported in fields receiving manure in New York

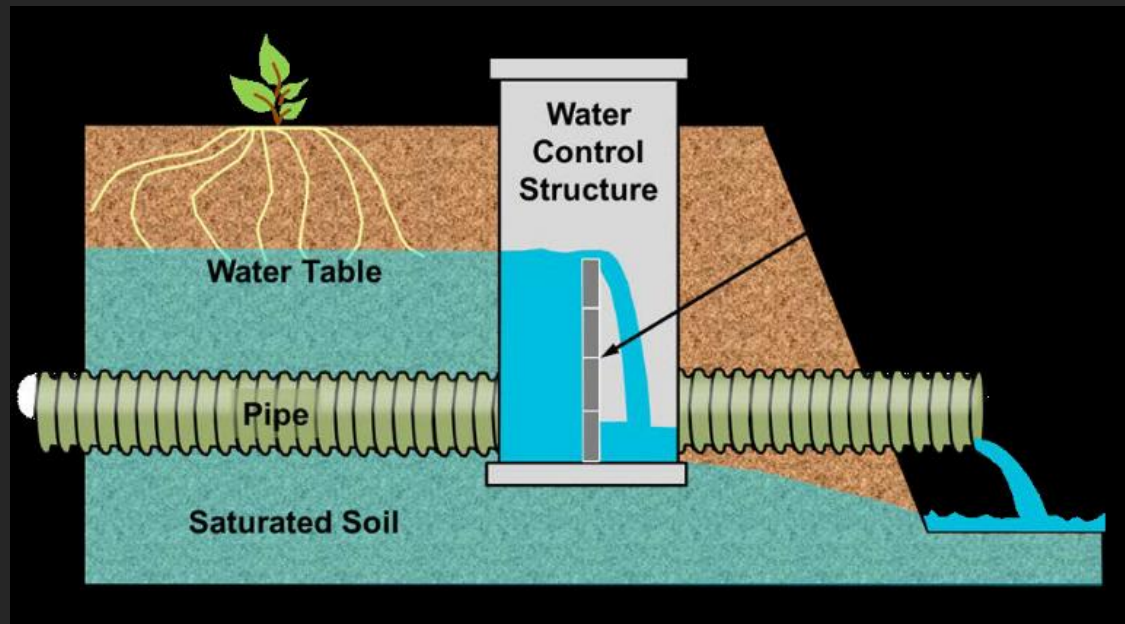
## What's our role?

- window of opportunity
- engage with farmers, installers, SWCD
- help with monitoring ditch water quality
- support research – impacts to groundwater from not daylighting, manure injection?



# Alternative Best Management Practices

1. Redirect tiling away from roadside ditch, and into on-farm basin (work with SWCD staff)
2. Install water control structures to reduce flooding during storms
3. Limit manure spreading over tiling



# Vermont Subsurface Agricultural Tile Drainage Report

## Vermont Subsurface Agricultural Tile Drainage Report

Submitted by the Vermont Agency of Agriculture, Food and Markets  
and  
the Vermont Agency of Natural Resources

January 31, 2017

Prepared for the Vermont General Assembly in Accordance with  
2015 Act 64, Section 5



Report available electronically at:  
[agriculture.vermont.gov/tile-drainage](http://agriculture.vermont.gov/tile-drainage)



Agency of Agriculture, Food & Markets  
Agency of Natural Resources



# Vermont – Evaluation of Options

- Status quo
- Inventory and mapping
- Nutrient management plans with additional considerations for tile drainage
- Treatment technologies
- Permitting of new installations
- Licensing of installers
- Education re field mgmt. options
- Moratoriums
- Complete ban

# Questions?



## Checklist of Best Management Practices

### *Manure application*

Instructions: Place a "✓" in each box indicating which conservation practices have been implemented or if the practice is not needed. If the practice will be implemented indicate the date of implementation.

Practice	Implemented	Date to be Implement	Not needed
<i>Manure application</i>	✓		✓
Incorporate manure as soon as possible after application to minimize volatilization losses, reduce odor, and prevent runoff	<input type="checkbox"/>		<input type="checkbox"/>
Apply manure uniformly with properly calibrated and operated equipment	<input type="checkbox"/>		<input type="checkbox"/>
Time liquid manure applications to match crop nutrient uptake patterns to reduce the potential for nitrate leaching	<input type="checkbox"/>		<input type="checkbox"/>
Limit solid manure applications on frozen or saturated ground to fields that are at low risk for runoff	<input type="checkbox"/>		<input type="checkbox"/>
Create a buffer area away from surface water, irrigation return flow ditches, and well sources where no manure is applied to prevent the possibility of water contamination	<input type="checkbox"/>		<input type="checkbox"/>
Apply manure on a rotational basis to fields that will be planted to high nitrogen use crops such as forages	<input type="checkbox"/>		<input type="checkbox"/>