

# Cayuga Lake Modeling Project in Support of a Phosphorus TMDL

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# Cayuga Lake Modeling Project

## in Support of a Phosphorus TMDL

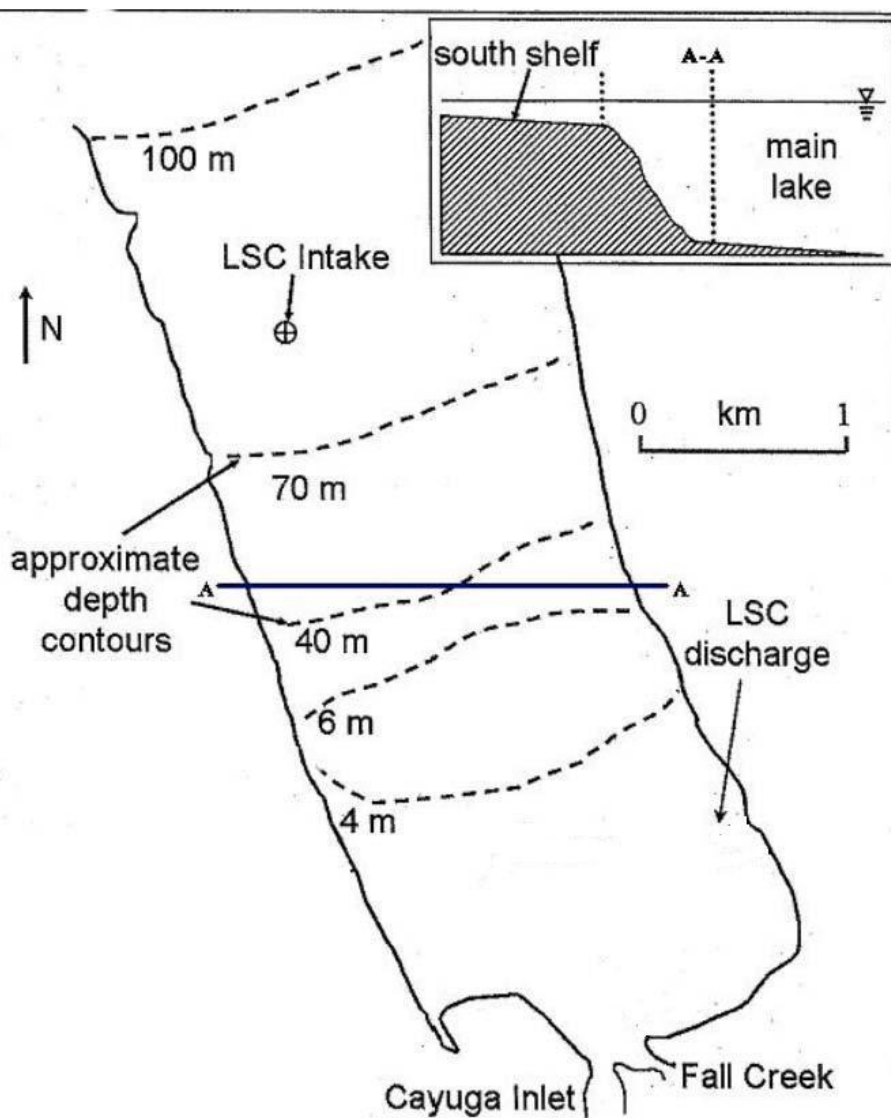
- Background on TMDL
- Why a TMDL Approach for Cayuga Lake?
- Goal of the Modeling Project
- Connection to the Cornell LSC Permit
- Brief Recap of Permit Public Comment
- Status of Project
- Schedule and Outreach



# Total Maximum Daily Load

- TMDLs are Load Allocation Plans used to set discharge limits for a specific pollutant into a specific waterbody.
- TMDLs are typical for more complex and multiple discharger situations.





# Complexities

- One Lake, Multiple Segs
- Multiple Discharges
  - Ithaca Area WWTP
  - Cayuga Hgts WWTP
  - Cornell LSC
- Tributary Loads
- In-Lake Recycling
- Lake Dynamics
- Changing Lake WQ
- Narrative Phos Standard
- Other ?
  - Invasives
  - Climate Change



# Section 303(d) Listing for Cayuga Lake South End

- Phosphorus
- Silt/Sediment
- Pathogens

The Focus of the TMDL is on  
Impairment due to Phosphorus



# Goal of Cayuga Lake Water Quality Modeling Project

## The Goal:

A model to provide better understanding of Cayuga Lake water quality under varying conditions in order to develop an effective TMDL Plan.

## The Reality:

Project should answer some of the questions...  
but not expecting to answer them all.



# Connection to the Cornell Lake Source Cooling Permit

...which includes a requirement outlining Cornell's commitment to fund a study of Cayuga Lake to assist NYSDEC with the development of the TMDL for the South End of the Lake.



# Reason for DEC's Approach to the Draft Permit

DEC remains uncertain  
that focusing solely on  
the Cornell LSC discharge  
will resolve the water quality problems  
in Cayuga Lake.

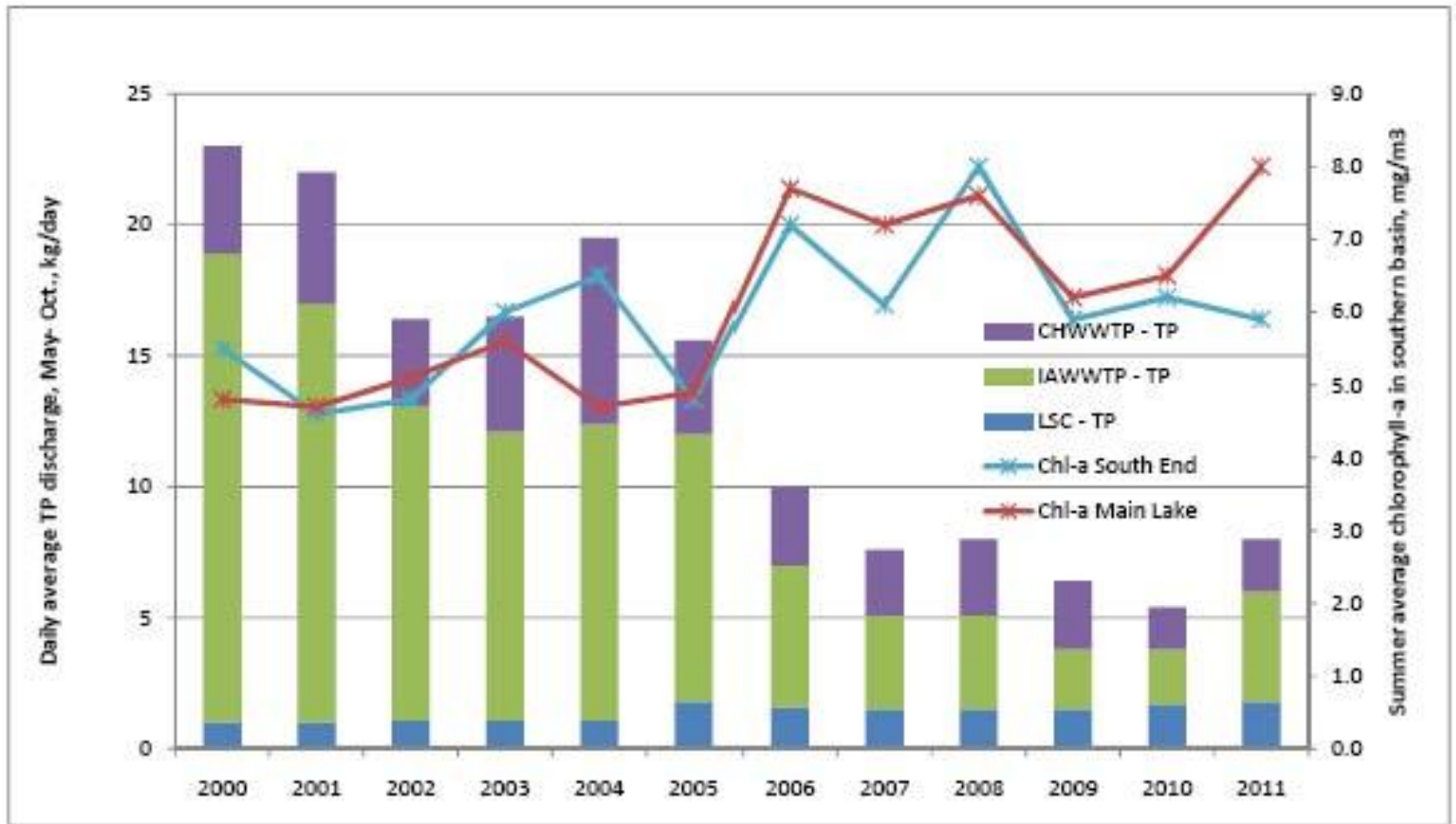




# Reasons for Uncertainty

- Water quality impacts in the Lake predate the Cornell LSC discharge
- Cornell LSC Phosphorus increase is affected by increasing lake concentrations
- Significant reductions of phosphorus from WWTPs to date have not resulted in improved water quality





# Reasons for Uncertainty

- Relative contributions of Soluble Reactive Phosphorus (as opposed to Total Phosphorus) from LSC facility and other sources
- Need for greater focus on most critical summer months
- What is fate of SRP in deep lake absent the LSC intake/discharge



# Summary of Public Comment

## On Cornell LSC Permit and Modeling/TMDL Study

Comments In Support of the Permit cited:

- Environmental benefits of LSC
- Need for more intensive study of the South End of Lake and support of TMDL
- Benefits of a focus on the whole lake and watershed to better address water quality declines in other parts of the lake



# Summary of Public Comment

## On Cornell LSC Permit and Modeling/TMDL Study

### Comments Opposing the Permit cited:

- Decline in lake water quality and timing that suggests LSC discharge is cause
- Adequate study to date indicates LSC discharge should be reduced/eliminated
- Interim discharge limits are too high



# Overview/Status of Monitoring Efforts



# Modeling Study/TMDL Schedule of Activities

2013 – Monitoring/Data Collection

2014 – Model Development

2015 – Model Evaluation

2016 – TMDL Development



# Project Outreach

- Occasional Public Meetings  
Scheduled around Key Project Milestones
- Tompkins Co WRC/Monitoring Partnership  
Regular (Monthly) Communication, Technical
- Technical Advisory Committee (TAC)  
Track/Comment on Monitoring/Model Progress





# Project Outreach

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Also:

## Webpages and List Serves

- DEC [Cayuga Lake Watershed Page](#)
- Cornell Cayuga Lake Modeling Project
- Tompkins County Water Resources Council
  
- NYSDEC *“Making Waves”*



# Questions?

