

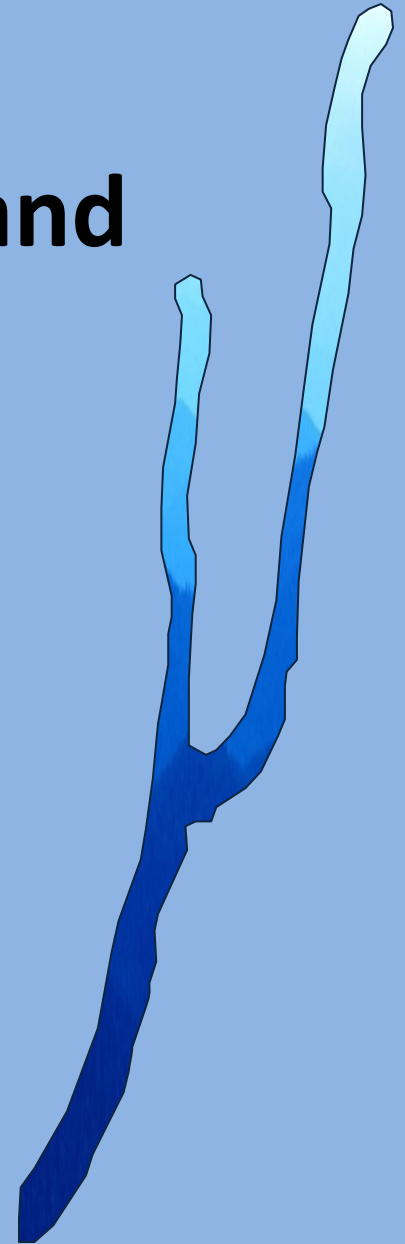
Keuka Lake Looking Back and Looking Ahead

State of the Lake **2017**

Tim Sellers, PhD



July 7, 2018



Tim Sellers, PhD

KLA Science/Water Quality Advisor

Training

Limnologist / Aquatic Biologist
Research lakes, rivers, oceans

Keuka College

Director, Center for Aquatic Research
Professor of Biology and Env. Sci.

Associate Provost for Academic Innovation

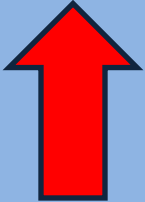


Talk Outline


- State of the lake 2017
 - Updates with long term history
- “Blue-green algae” of 2017
- HABs moving forward

2017 State of Keuka Lake

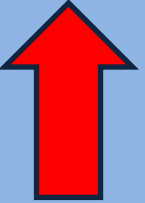
Nutrient levels (**Phosphorus**)

- 
- Averaged 7.0 ppb, **up** 1.8 ppb from 2016,
 - Still below long-term average of 7.3 ppb

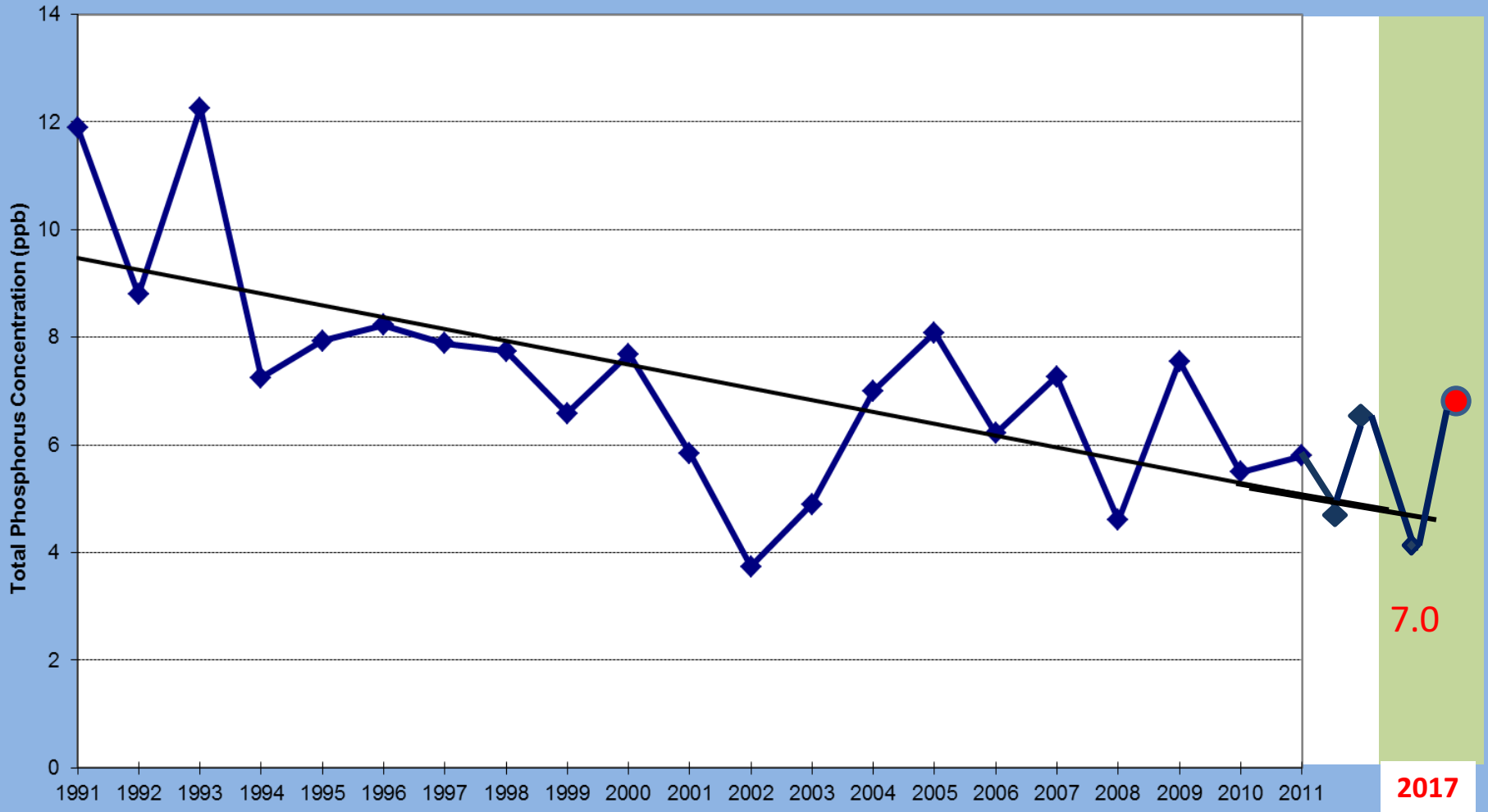
Water clarity

- 
- Averaged 9.1 m, higher than 2016 levels
 - Well above the long-term average of 6.1 meters

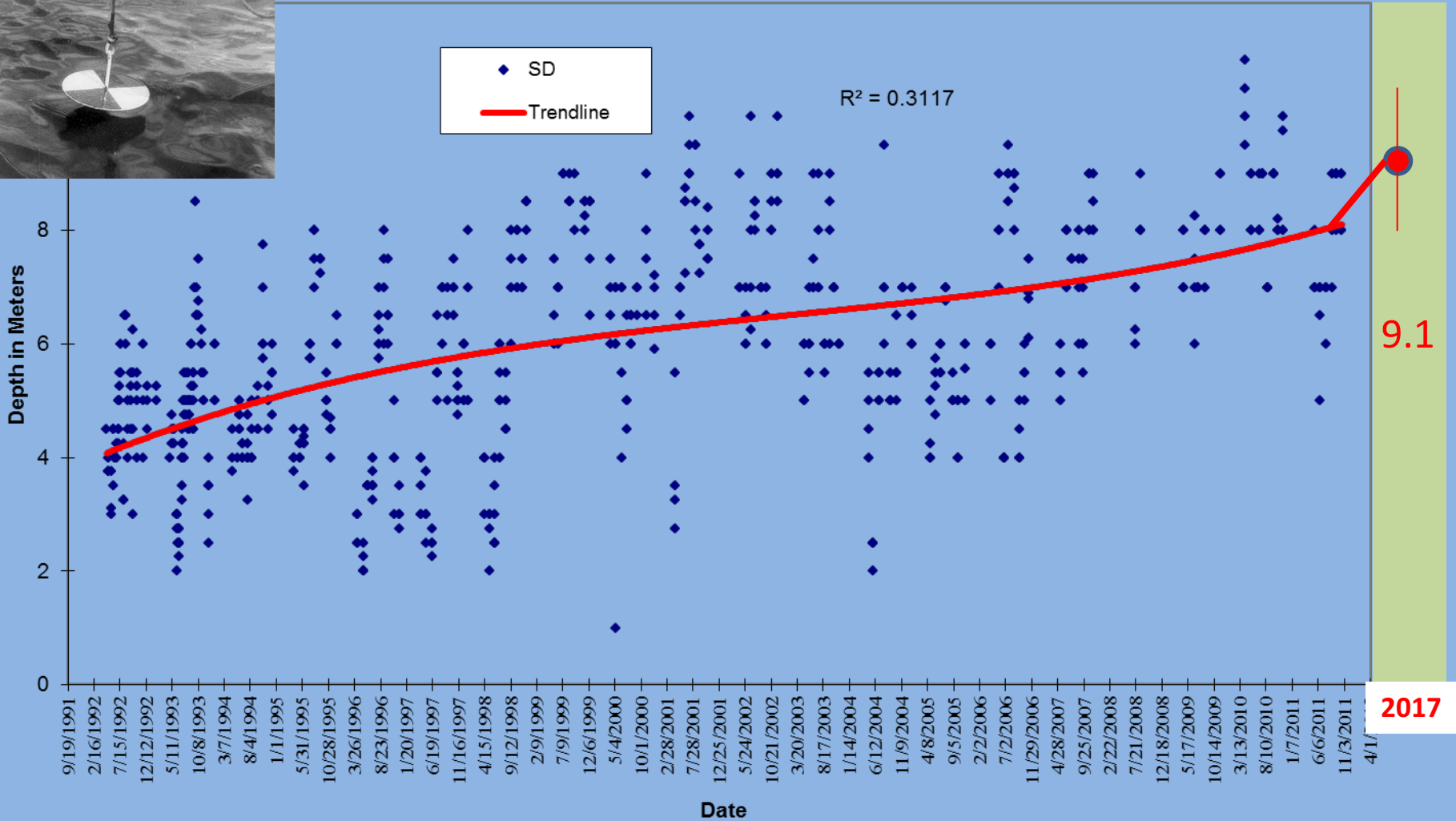
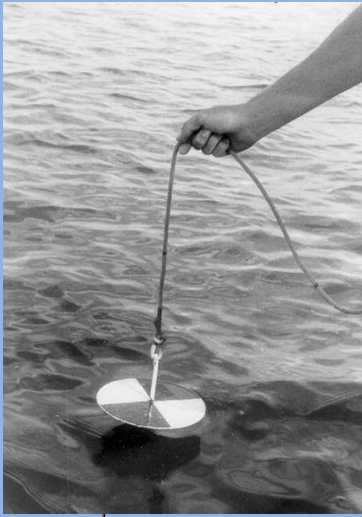
Algae levels (**Chl a**)

- 
- Averaged **2.2** ppb, **up** 0.8 from 2016
 - Still below the long-term average of 2.6 ppb

Keuka Lake Phosphorus Trends



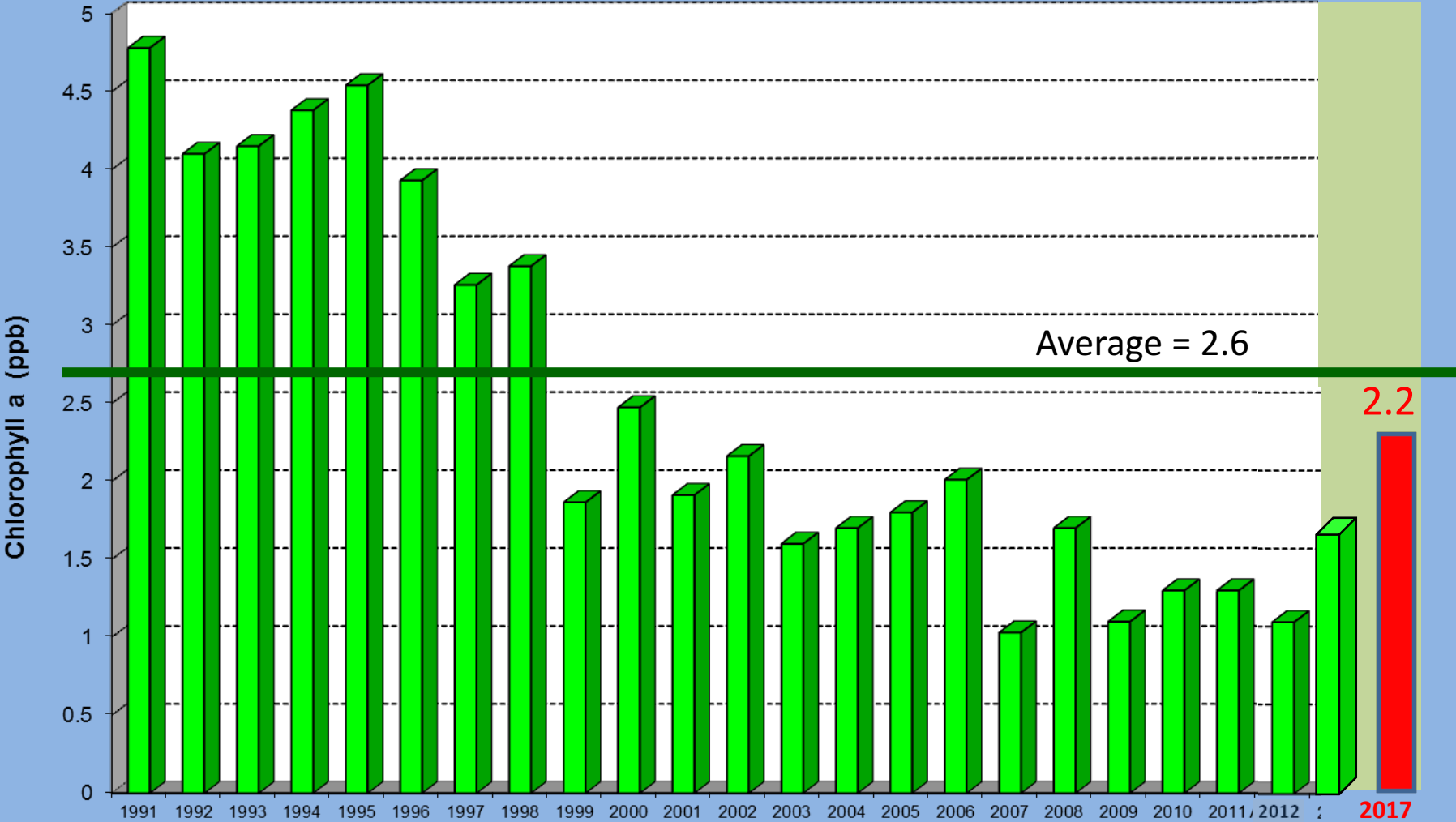
Keuka Lake Secchi Disk Data



9.1

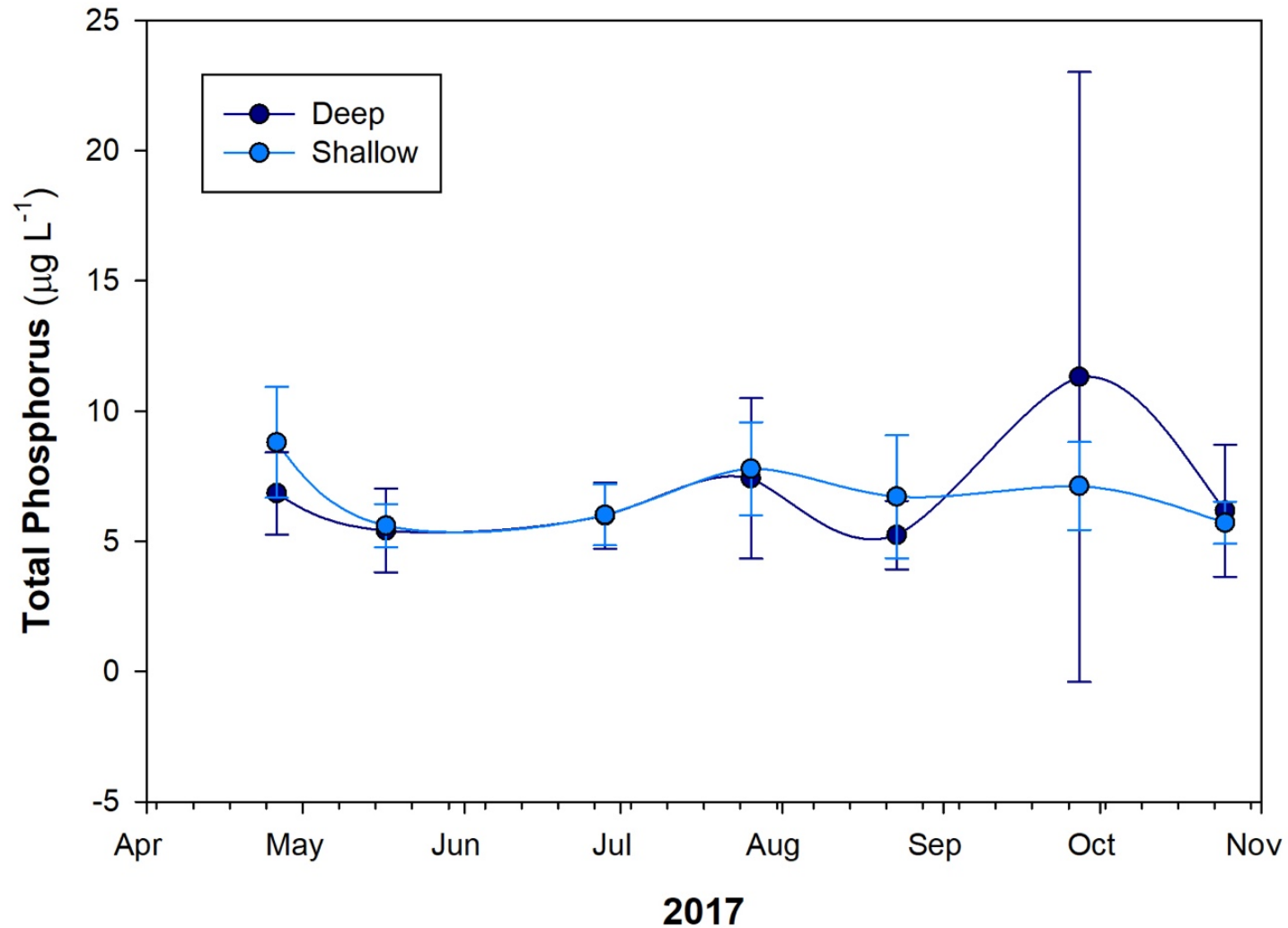
2017

Keuka Lake Chlorophyll a (= algae)



Total Phosphorus

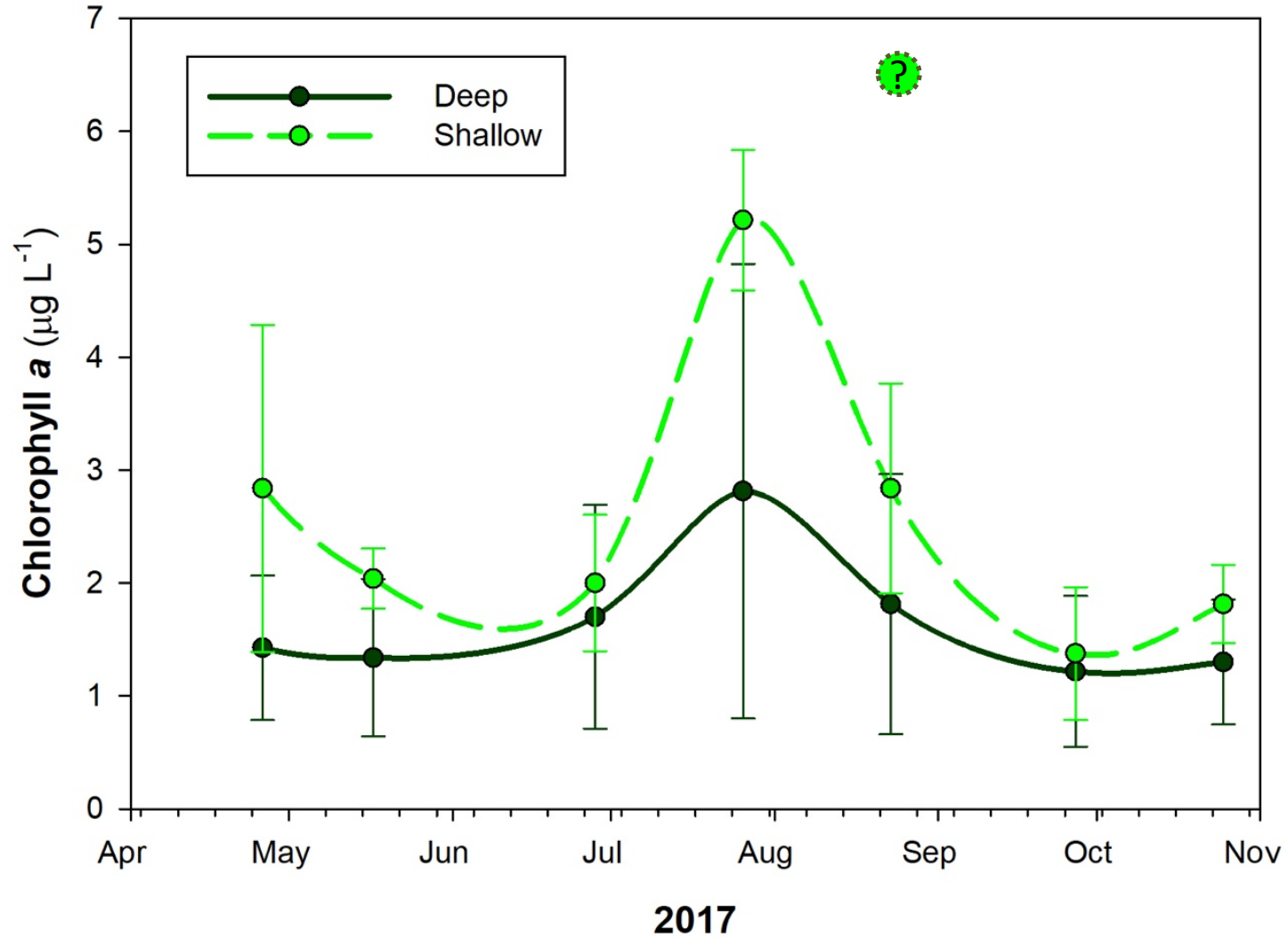
“Fertilizes” algae – good *and* bad



16 sites within lake

Chlorophyll *a*

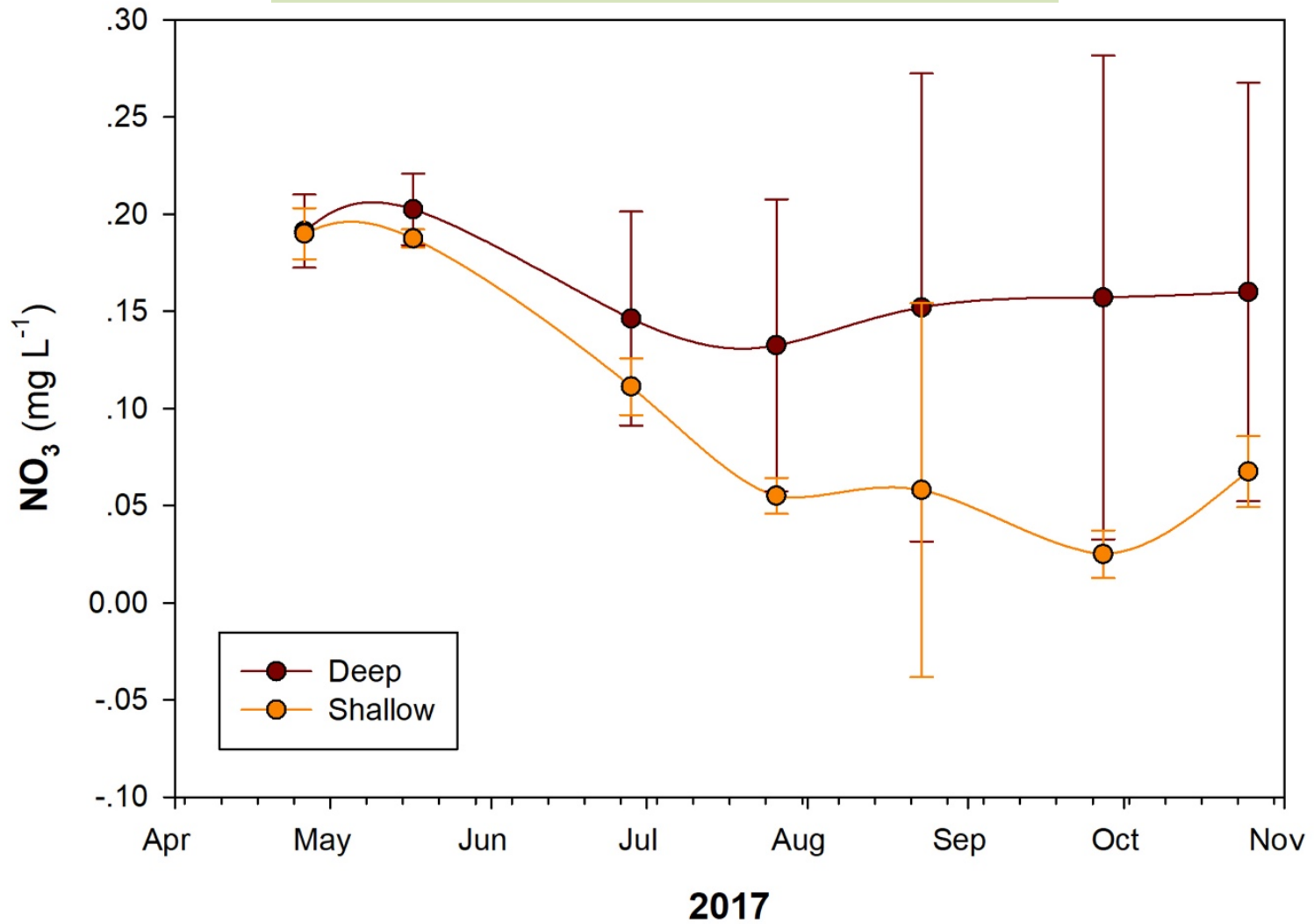
All algae – both good *and* bad



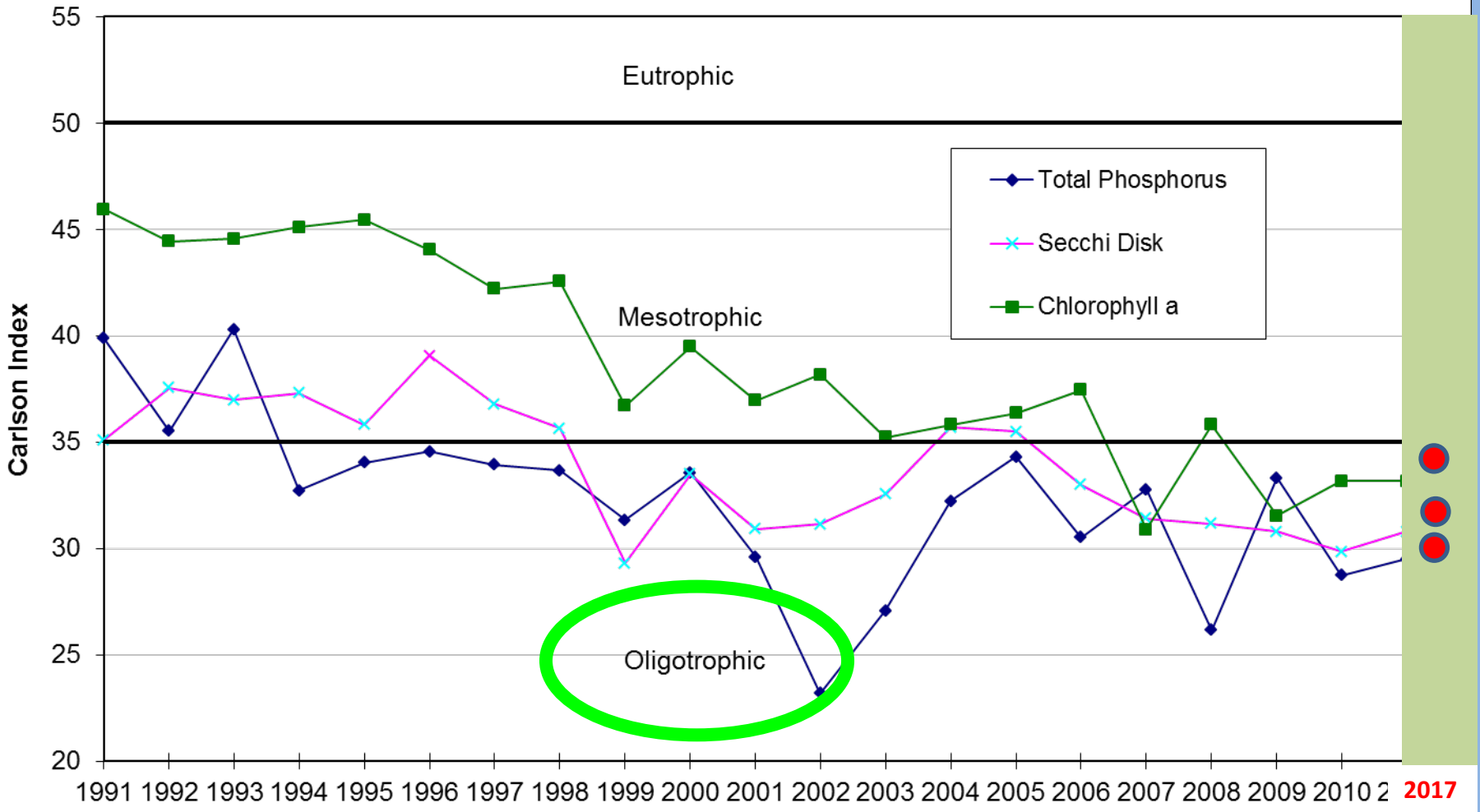
16 sites within lake

Nitrate

“Fertilizes” algae – good *and* bad

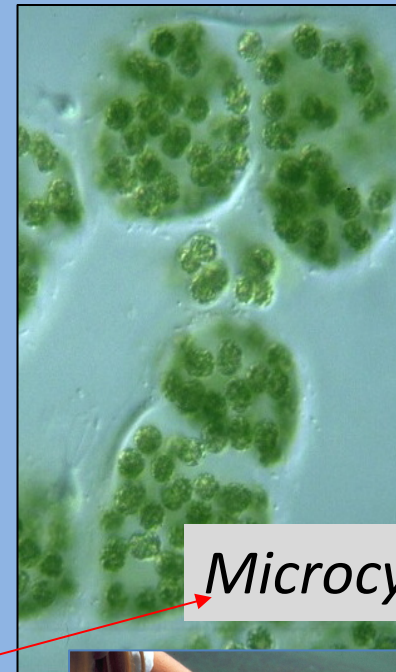


Keuka Lake Trophic Status



Cyanobacteria “Blue green algae”

- Types of phytoplankton / algae
- Generally **surface** (not deep)
Reduce **light** in lake
- Many species
Most **harmless**
Some produce **toxic chemicals**
→ **Harmful Algal Blooms (HABs)**



Microcystis

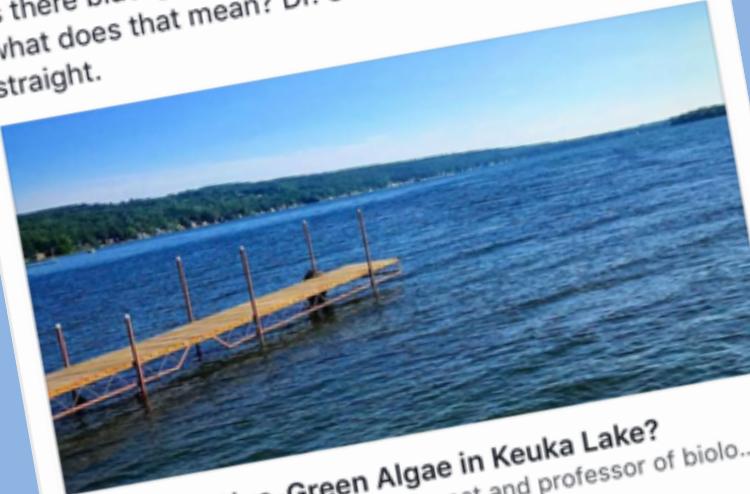


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Keuka College
1 hr · 🌐

Is there blue-green algae in the lake? And if there is, what does that mean? Dr. Sellers sets the record straight.



Is There Blue-Green Algae in Keuka Lake?
Dr. Tim Sellers, associate provost and professor of biolo...
keuka.edu

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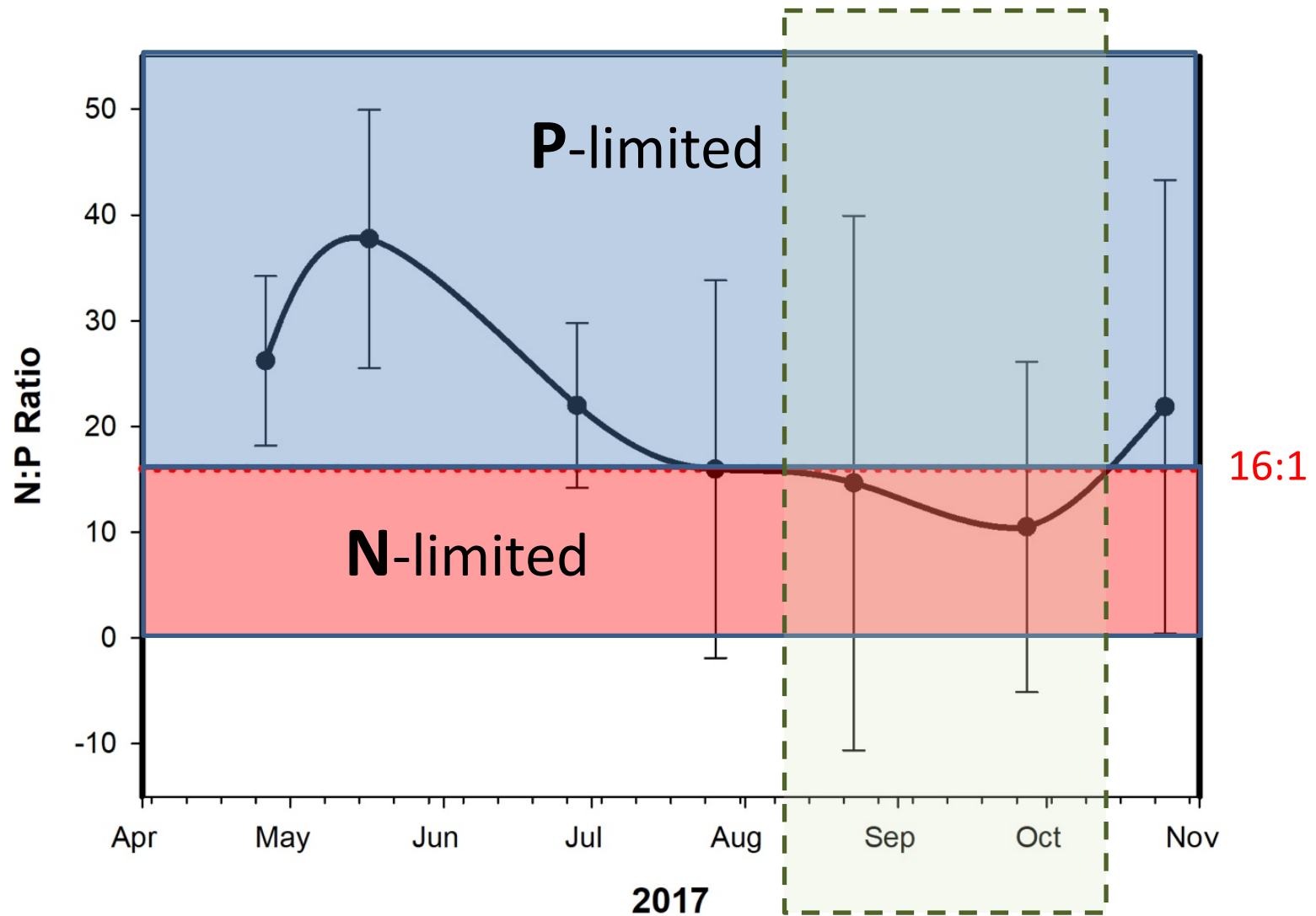
Update: Indian Pines and Red Jacket swimming areas reopen after algae concerns

By Gwen Chamberlain
The Chronicle-Express
Posted Aug 8, 2017 at 12:52 PM

UPDATE: The swimming areas at Red Jacket and Indian Pines Parks in Penn Yan are reopening today (Aug. 9) at 11 a.m. Officials at Keuka Lake State Park are still awaiting test results to determine when that area will reopen.



Nitrogen to Phosphorus Ratios



What We Know, What We Don't

- Keuka has always had **low** levels of “blue green algae” and low nutrients
- 2017: All **11 Finger Lakes** had confirmed **HABs**, most with confirmed **toxins**
 - Keuka, Skaneateles...
- KLA Data
 - Great dataset of what is already in the lake
 - No real data of what is coming in to the lake (streams)
 - Citizen scientists?

State of the Lake

- 2017 data show the lake is in generally **good health**
- **Trends** shaky in many important parameters (*phosphorus, water clarity, algae*)
- HABs showed their ugly face
 - *Why?* P. N:P. Zebra/Quagga mussels. ?
- Aquatic invasive species (AIS) concerns
- KLA is closing the knowledge gaps going forward..

Thank you for your dedication to protecting Keuka Lake

- Continue to the “Listen to the Lake”
- “If not now, *when?* If not us, *who?*”
- Contact me:
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(315) 279-5685