

# Copake Lake 2018



July 7, 2018



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*Northeast Aquatic  
Research*





# Overview of the health of Copake Lake

- ▶ Where do we start?
- ▶ First~! , “Health” has no meaning with lakes
  - ▶ Humans are healthy!
  - ▶ Lakes exist on a continuum from birth to death with each stage along the way presenting a new range of life.
  - ▶ Humans and all animals are ‘healthy’ only within a very narrow range of perfect parameters: blood pressure is 120/80, blood glucose <120.
  - ▶ We get too out of our range and we die.
  - ▶ Lakes just become something different.



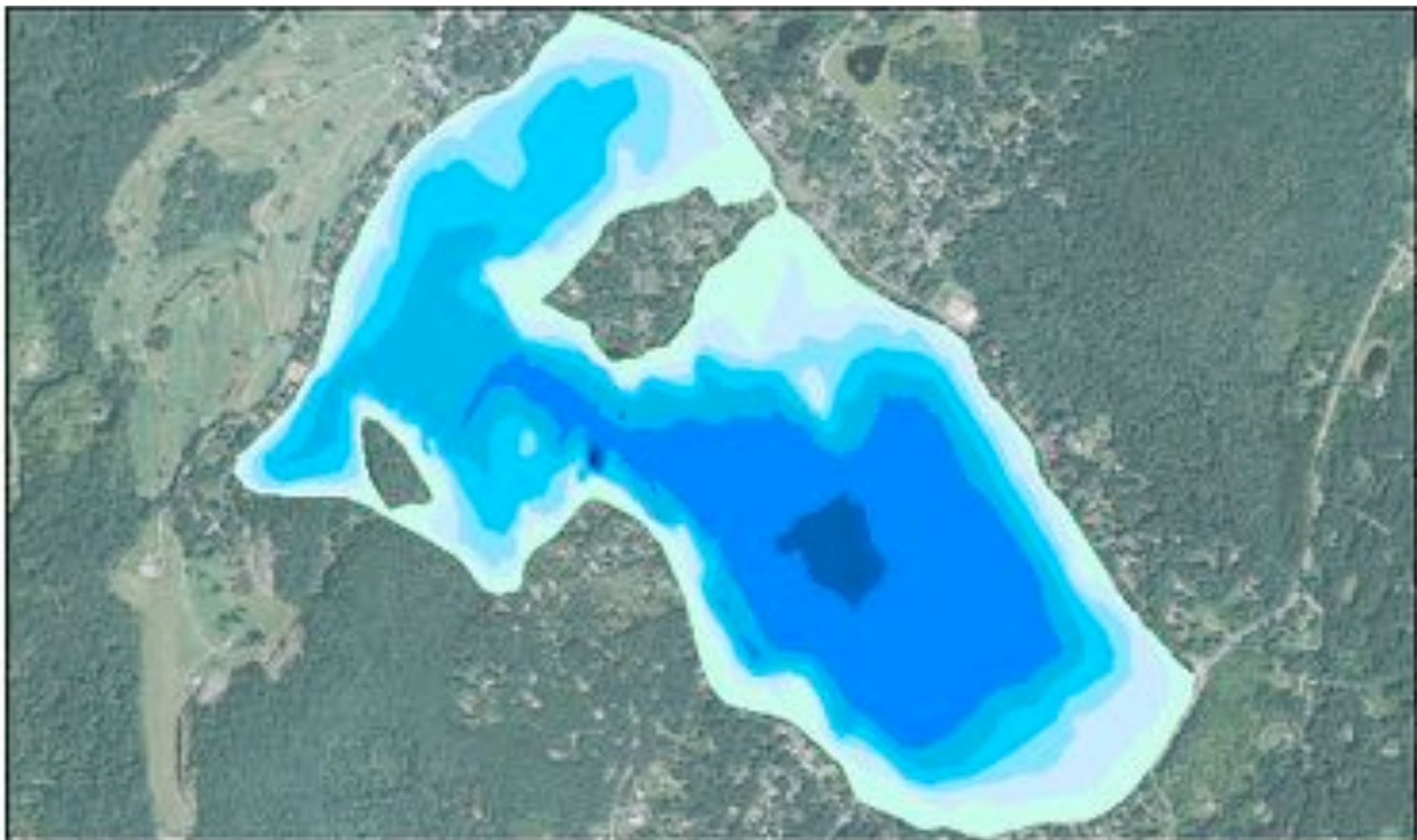
# How do we diagnose lake health

- ▶ We need a metric in which to assess the condition of a lake.
  - ▶ The metric should tell us if the lake is prone to cyanobacteria.
  - ▶ There is no metric for the invasion of none-native aquatic plants and animals.
- ▶ Lakes exist because the flow of water can be slowed for more than about a week.
- ▶ It takes about 2 years to flush out the lake





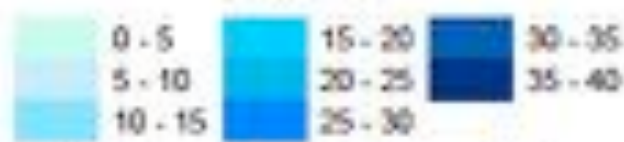
Lake area 412 acres  
Total Drainage area 1,380 acres  
Net Drainage area 964 acres



**COPAKE LAKE**  
Bathymetry

**Legend**

Depth (ft)

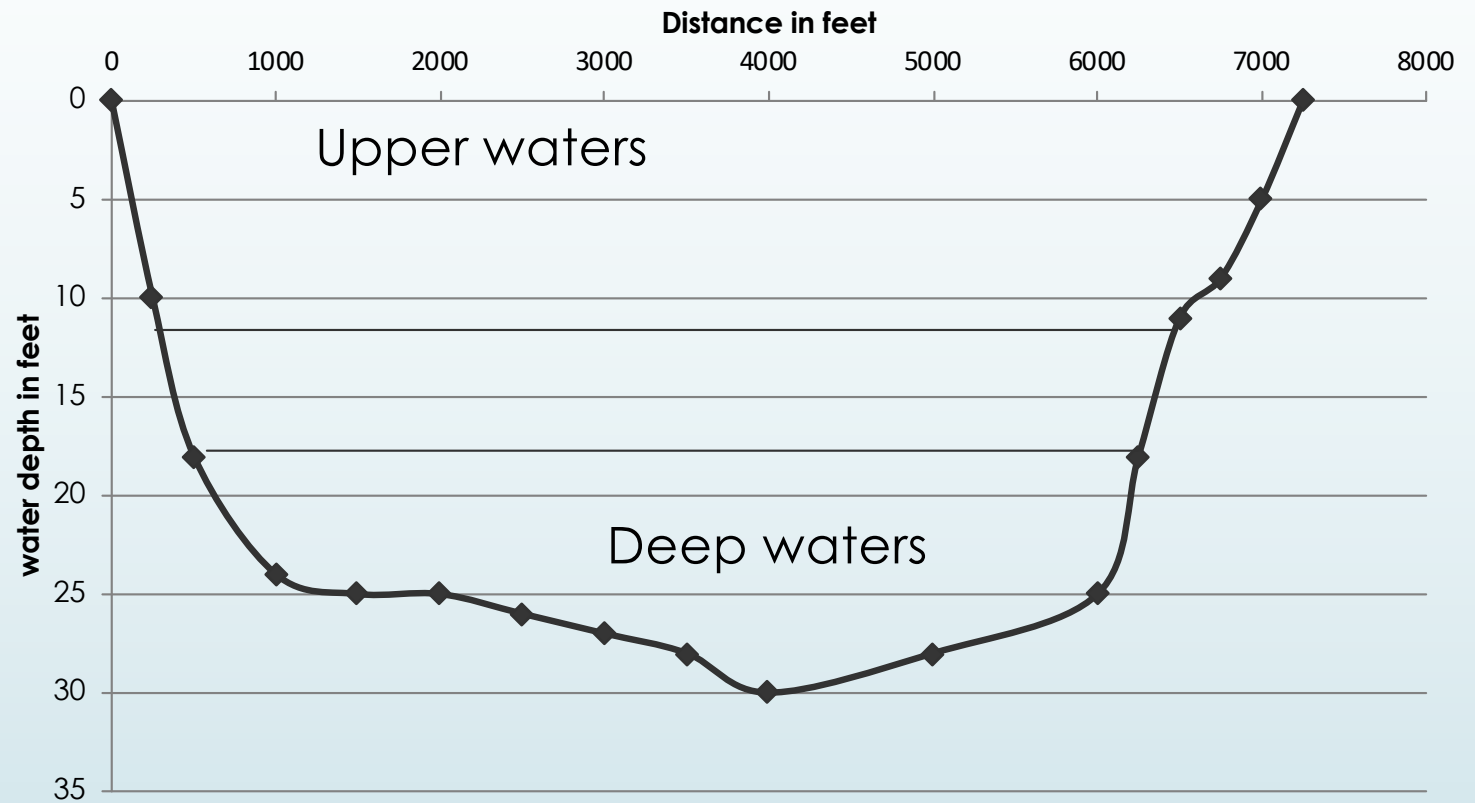


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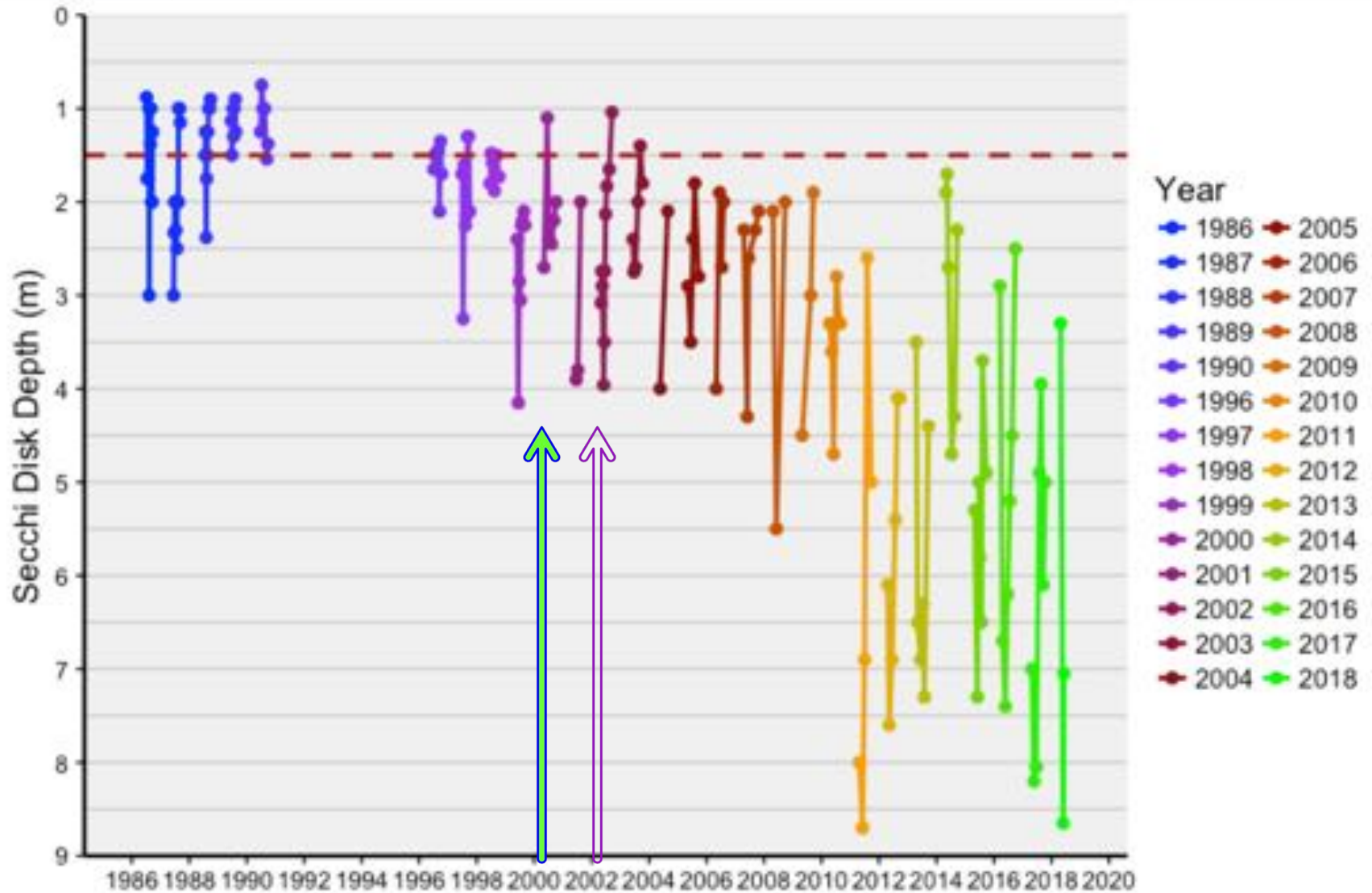


FIGURE	SURVEY DATE	REV. DATE
1	W/4 & 10/2011	11/10/11

# Cross-section of Copake Lake

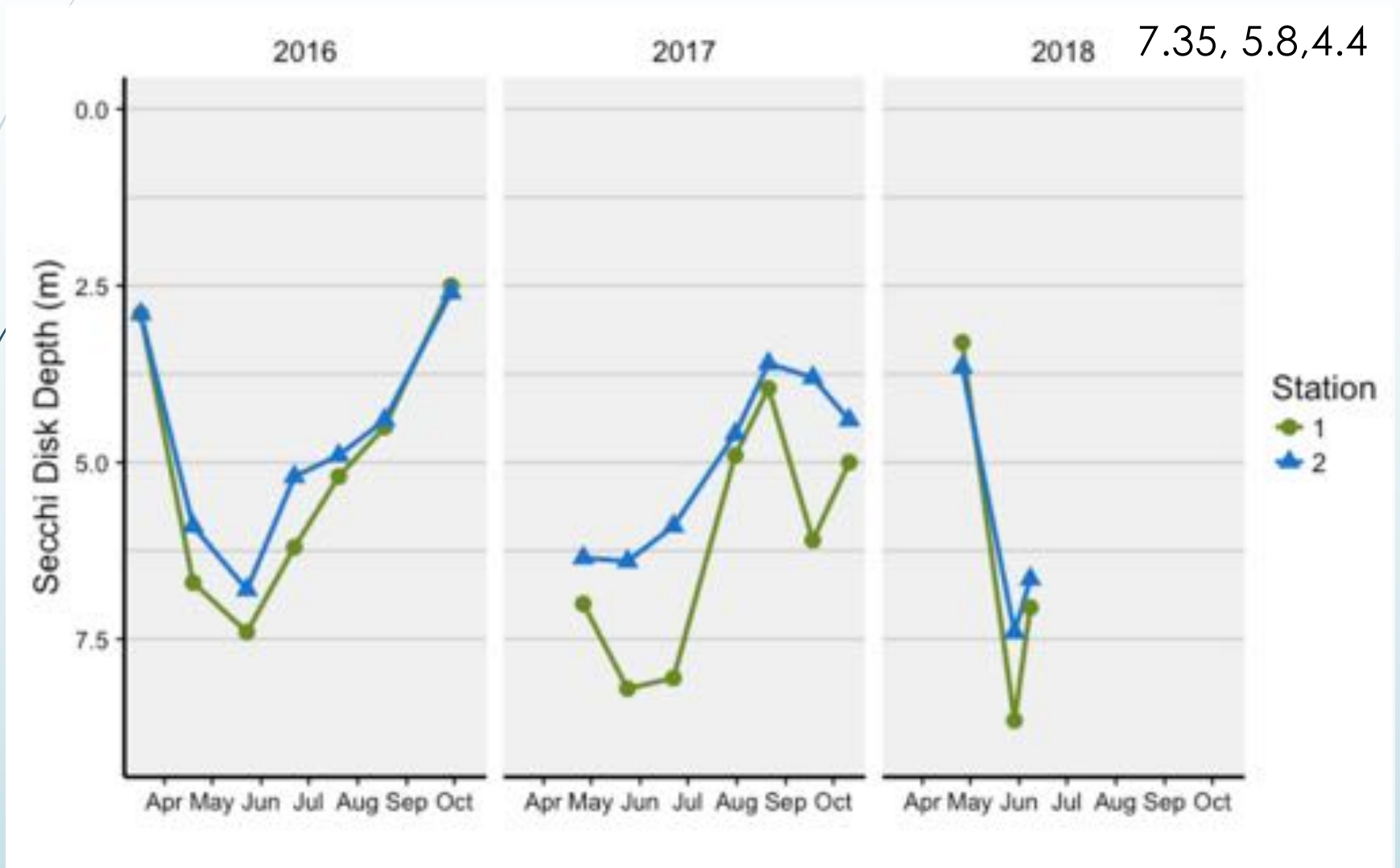


# Long-term water clarity trend

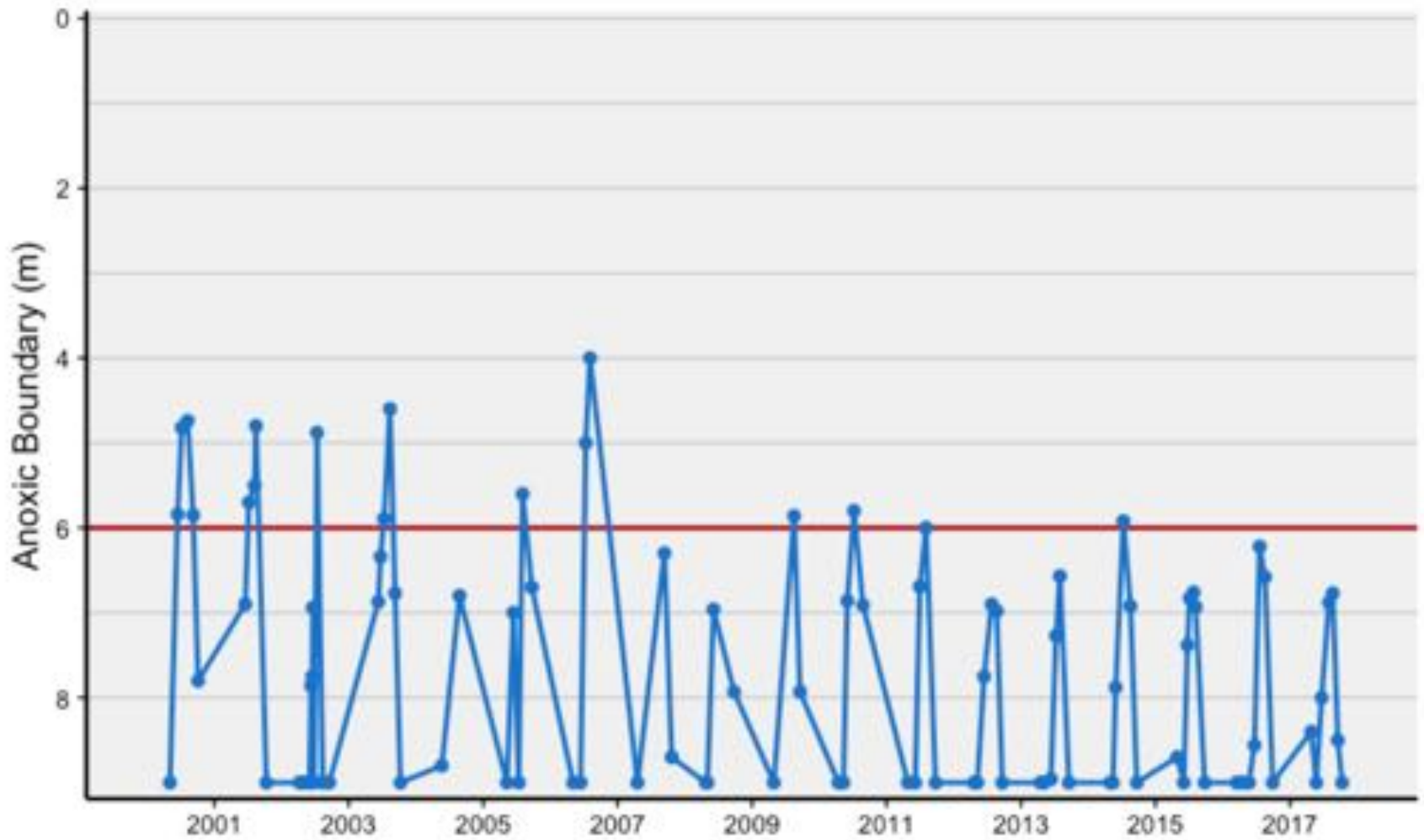




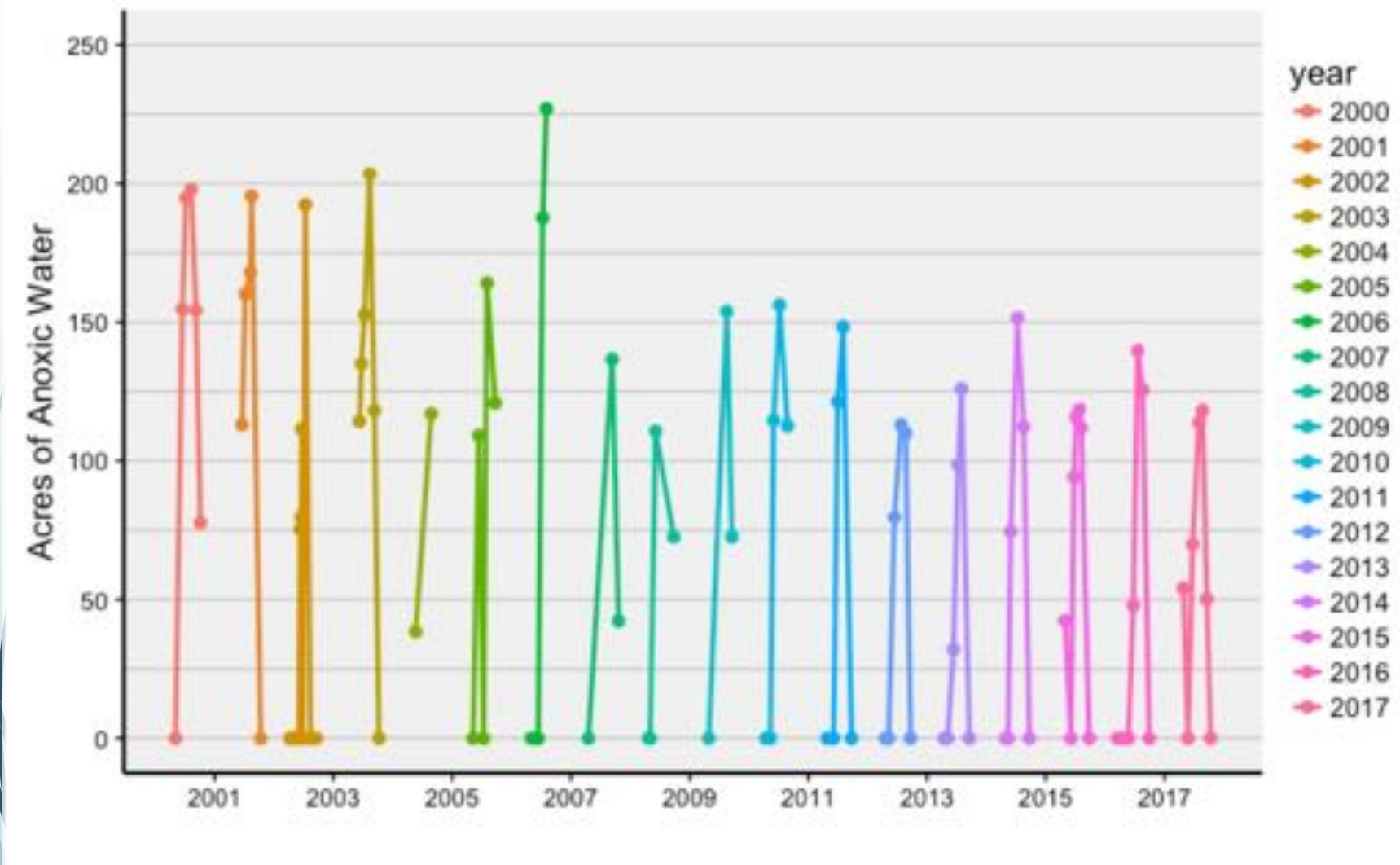
# Water clarity differences between north and south sides of the lake



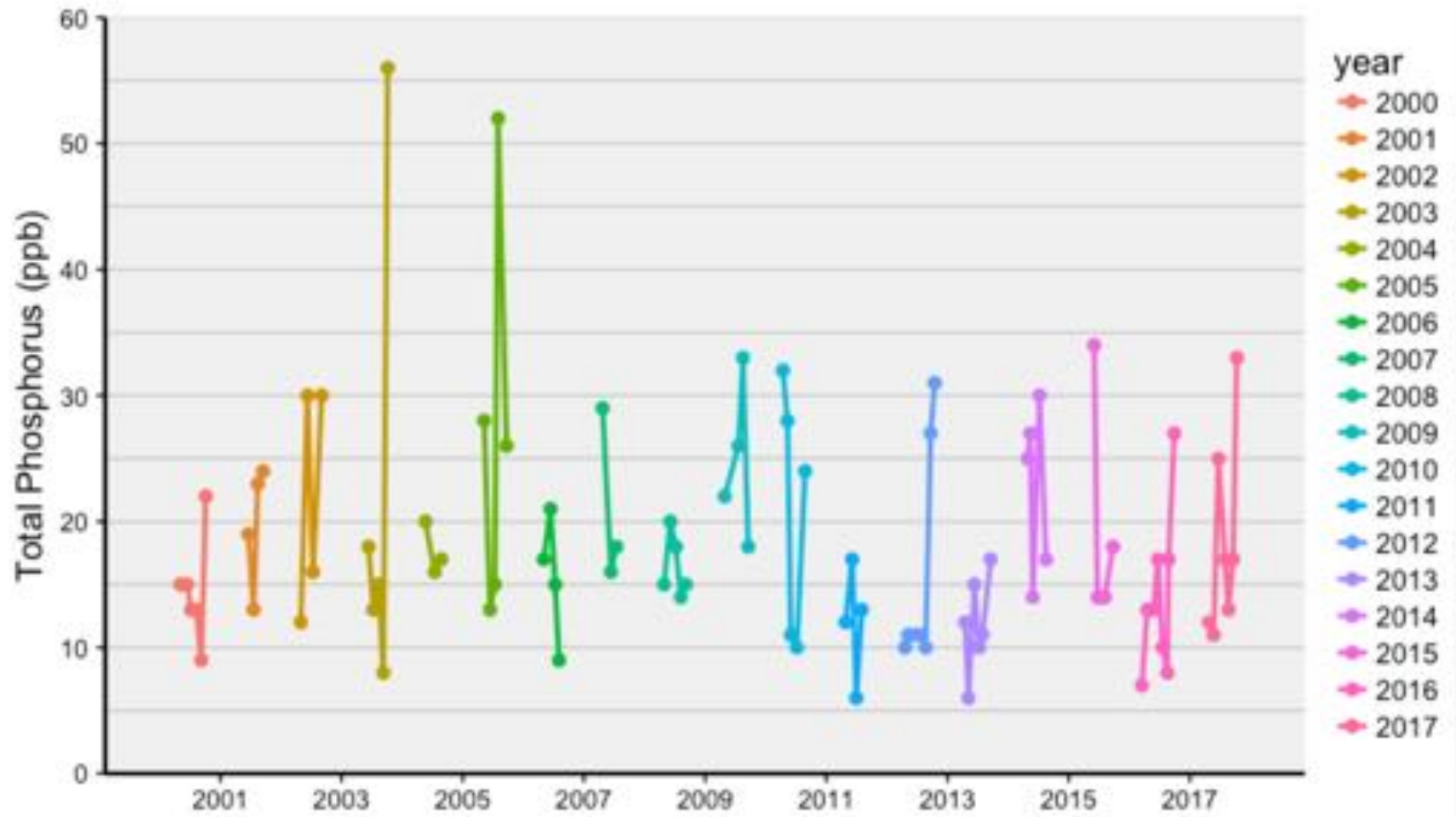
# Anoxic boundary



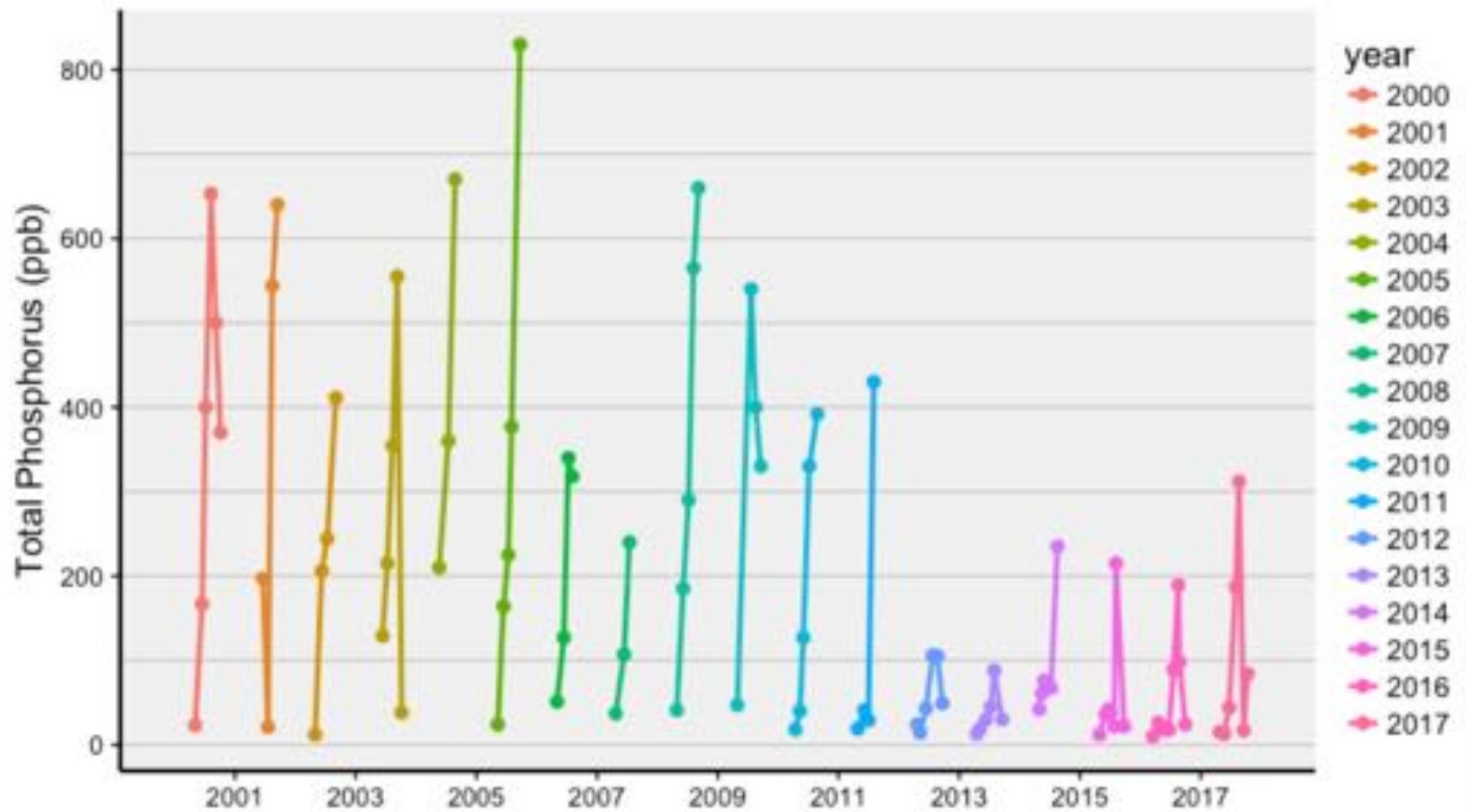
# Lake bottom area covered by anoxic water



# Total phosphorus in upper waters

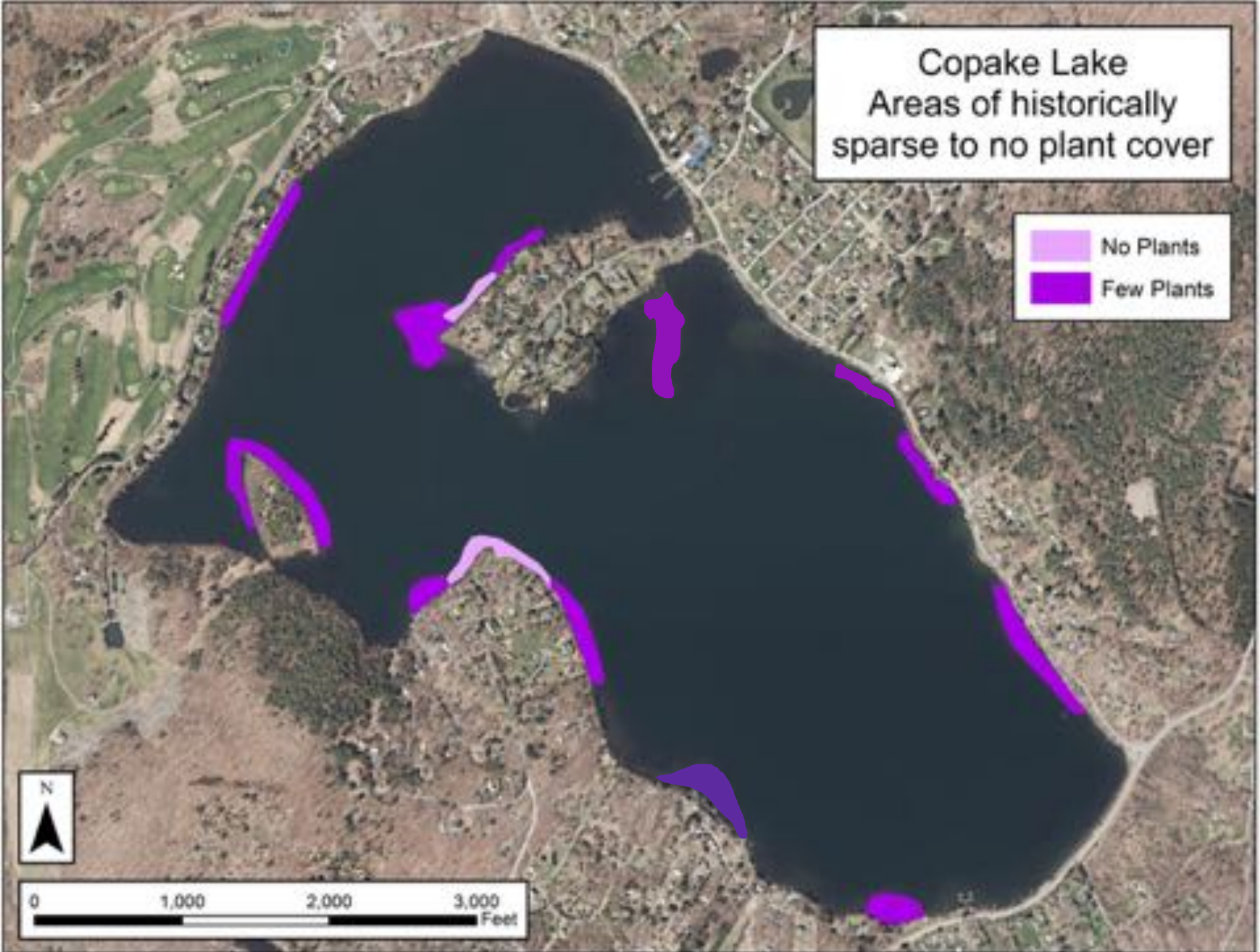
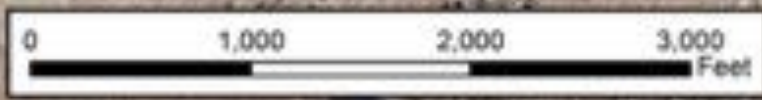


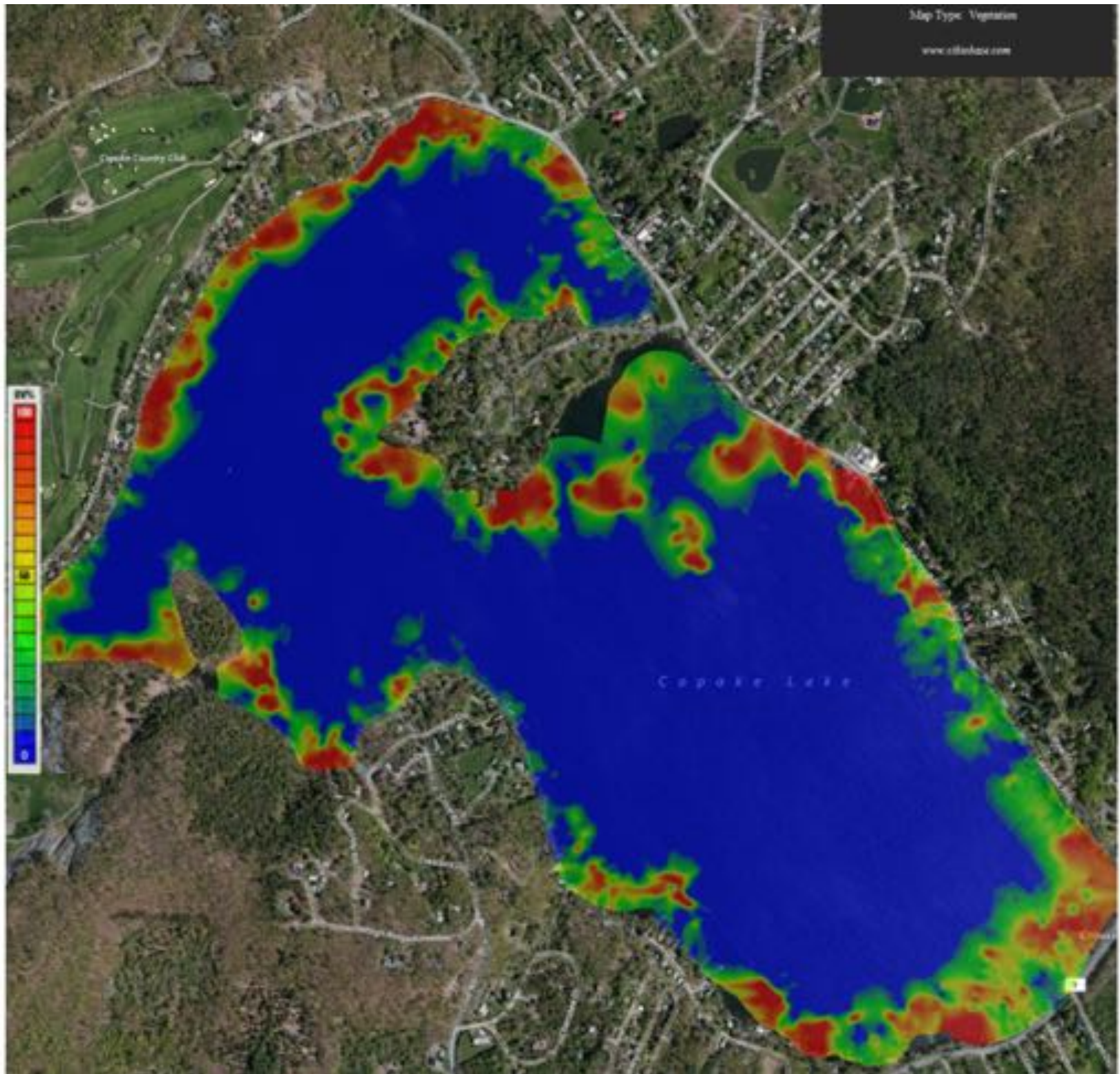
# Bottom Phosphorus levels



Copake Lake  
Areas of historically  
sparse to no plant cover

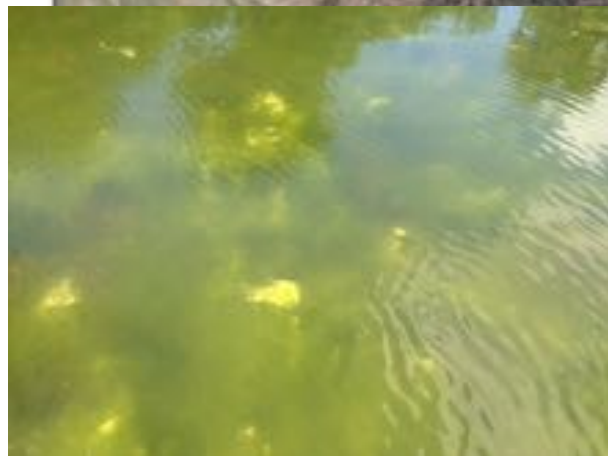
No Plants  
Few Plants





Copake Lake  
Filamentous Algae  
May 29th, 2018

- 80% - 100% Filamentous Algae
- 30% - 79% Filamentous Algae
- < 30% Filamentous Algae



3,000  
Feet