



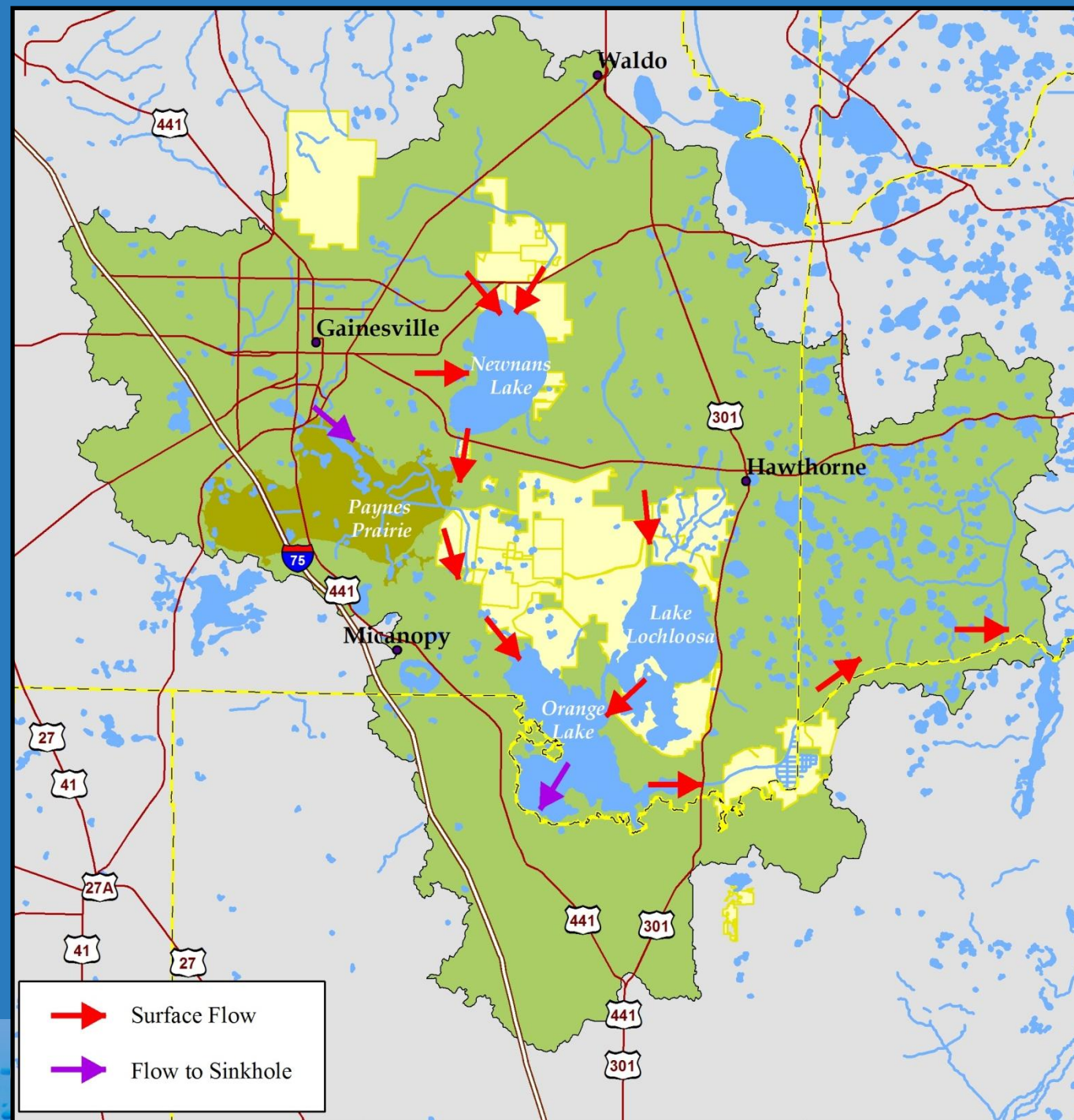
Water Quality Status and Trends for OCB Large Lakes and Major Tributaries

Jian Di

Environmental Scientist IV

OCB Lakes

- Newnans
- Lochloosa
- Orange

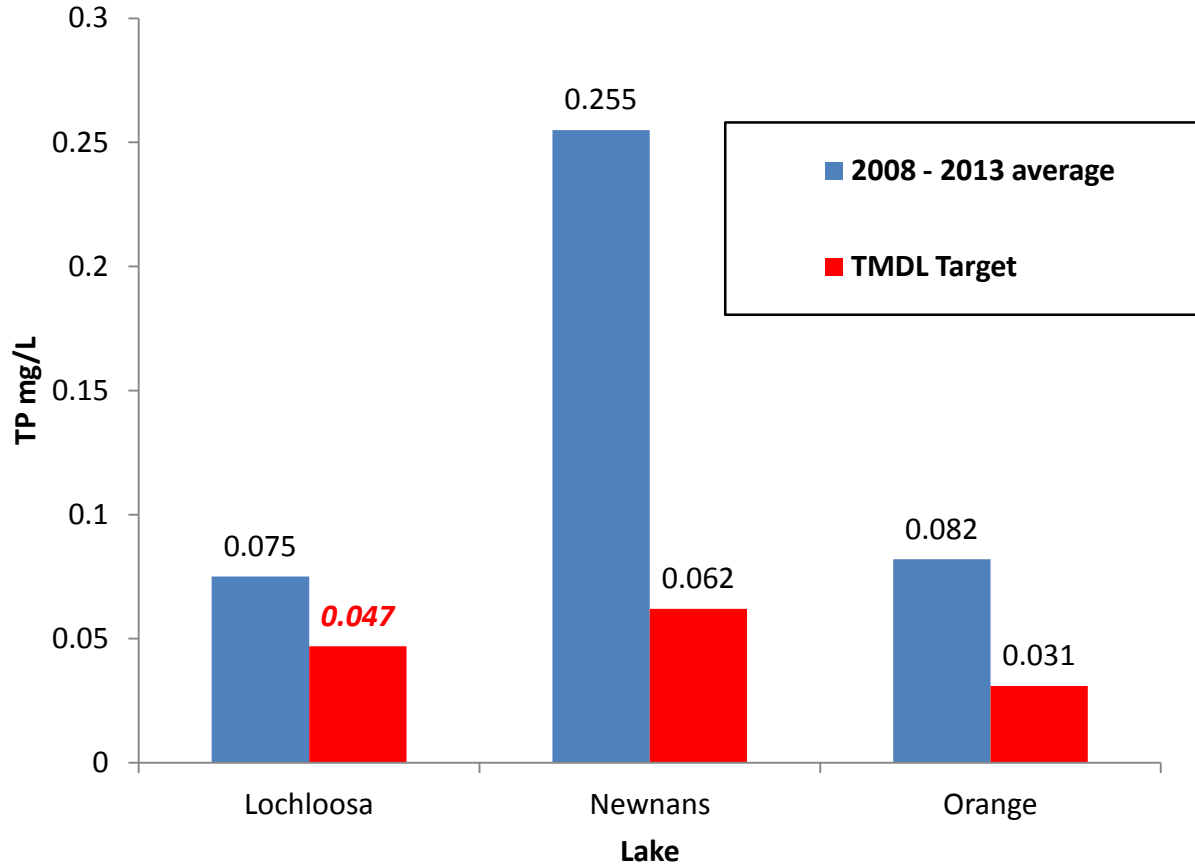


Water Quality Status of the Three Orange Creek Basin Lakes

- 1. Compare the recent 5-year average TN and TP concentrations to the TMDL targets**
- 2. Compare the water quality in these 3 lakes to other lakes in SJRWMD**
- 3. Compare the water quality in the period of 1994 – 1998 to the recent 5-year (2008 – 2013) averages**



Average TP concentration in the recent 5 years and TMDL targets



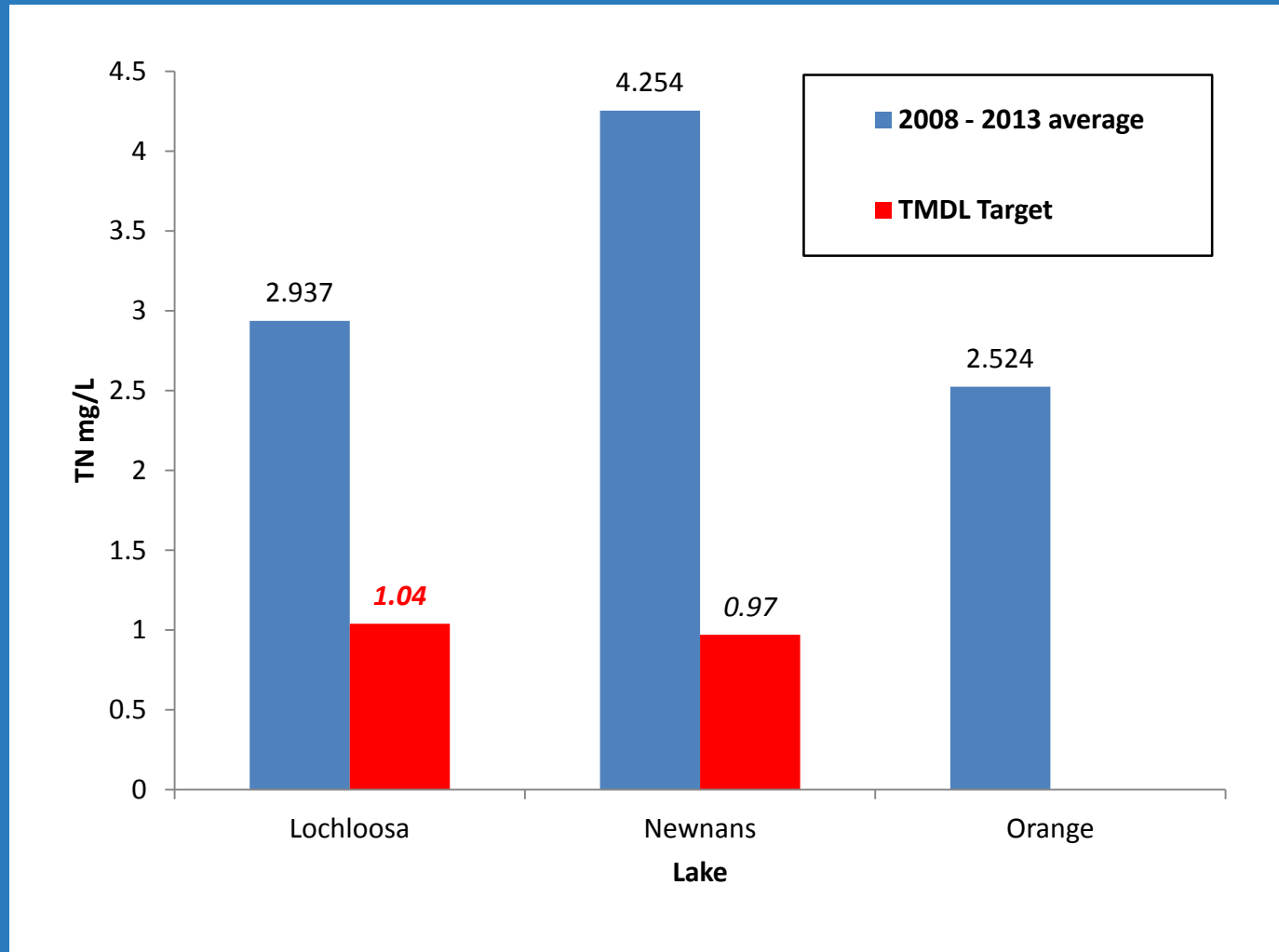
Recent TP concentration in Newnans Lake is about 4 times higher than TMDL target

In Orange lake, P concentration is about 1.6 times higher than the TMDL target

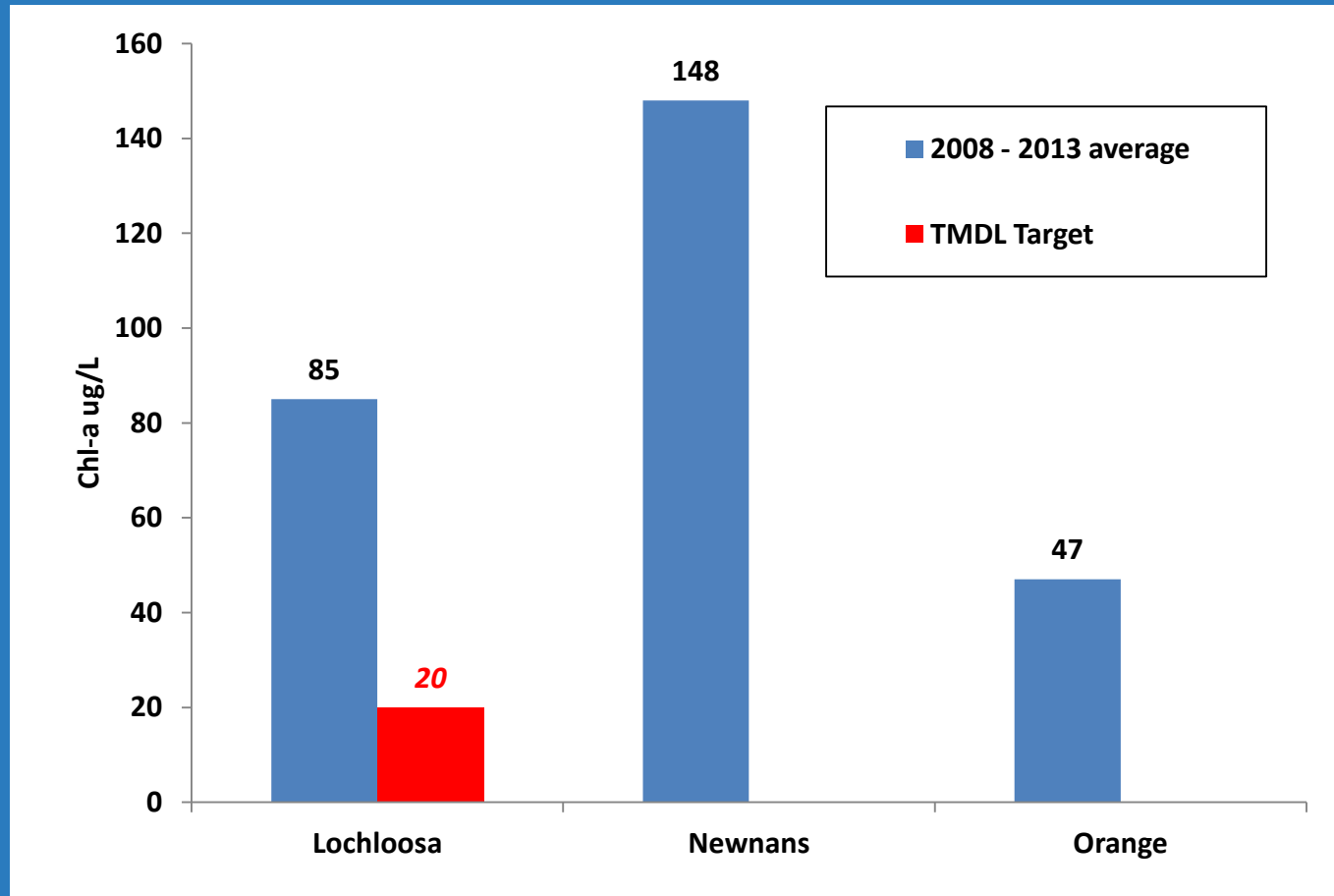
TMDL has not been developed for Lochloosa lake yet, the TP target is a preliminary value.



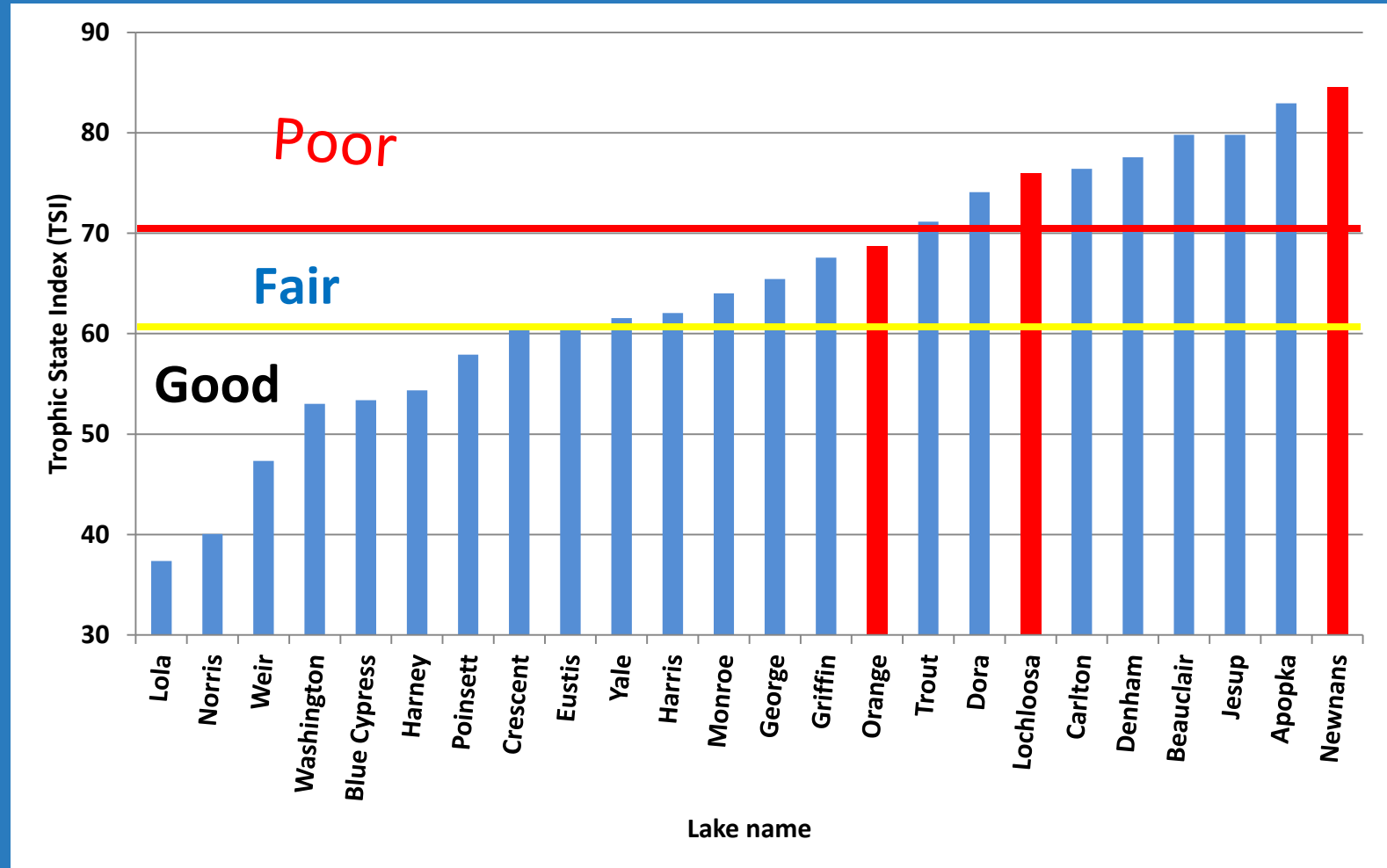
Average TN concentration in the recent 5 years and TMDL targets



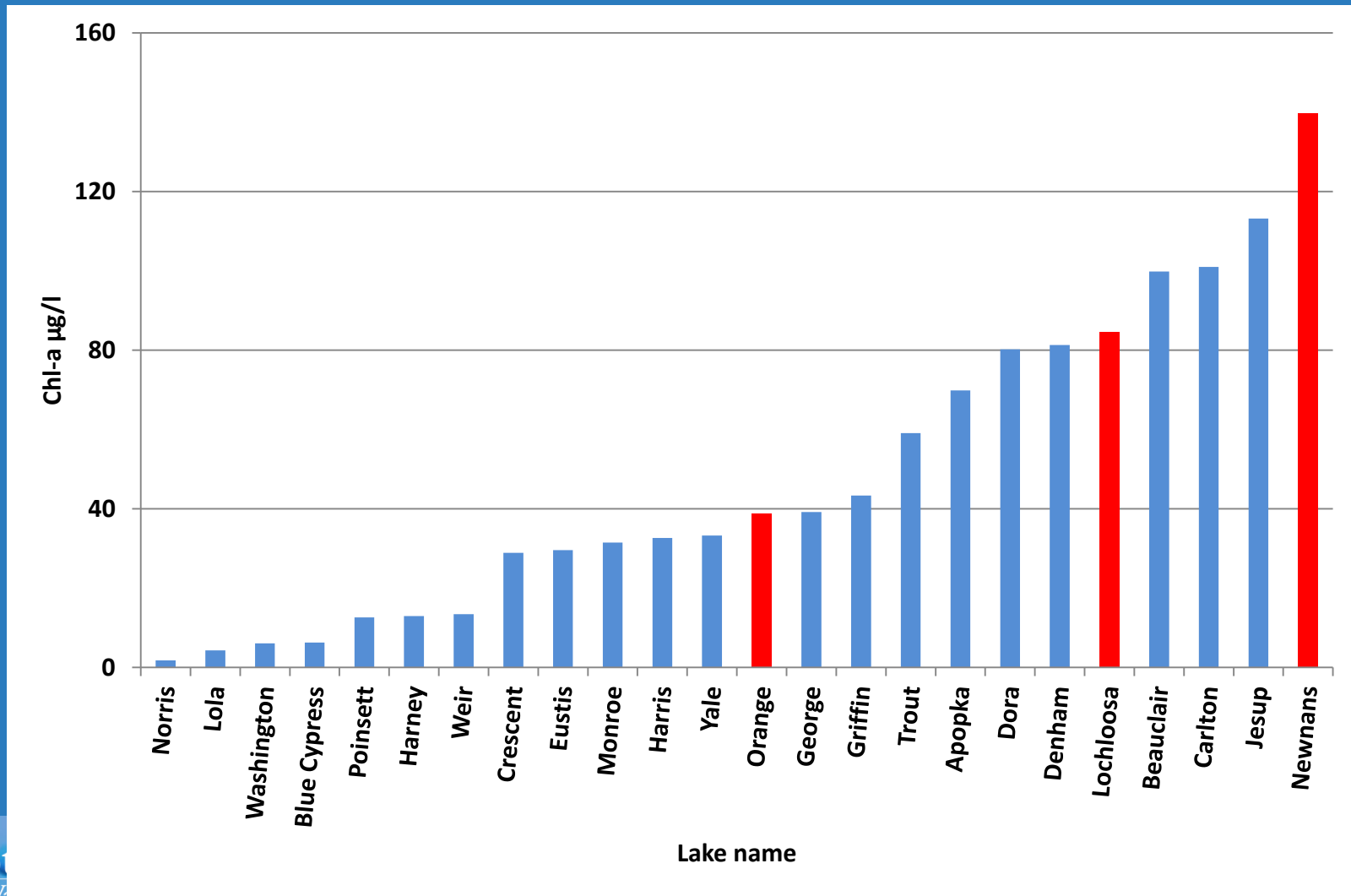
Average Chl-a concentration of the 3 lakes in the recent 5 years period (2008 – 2013)



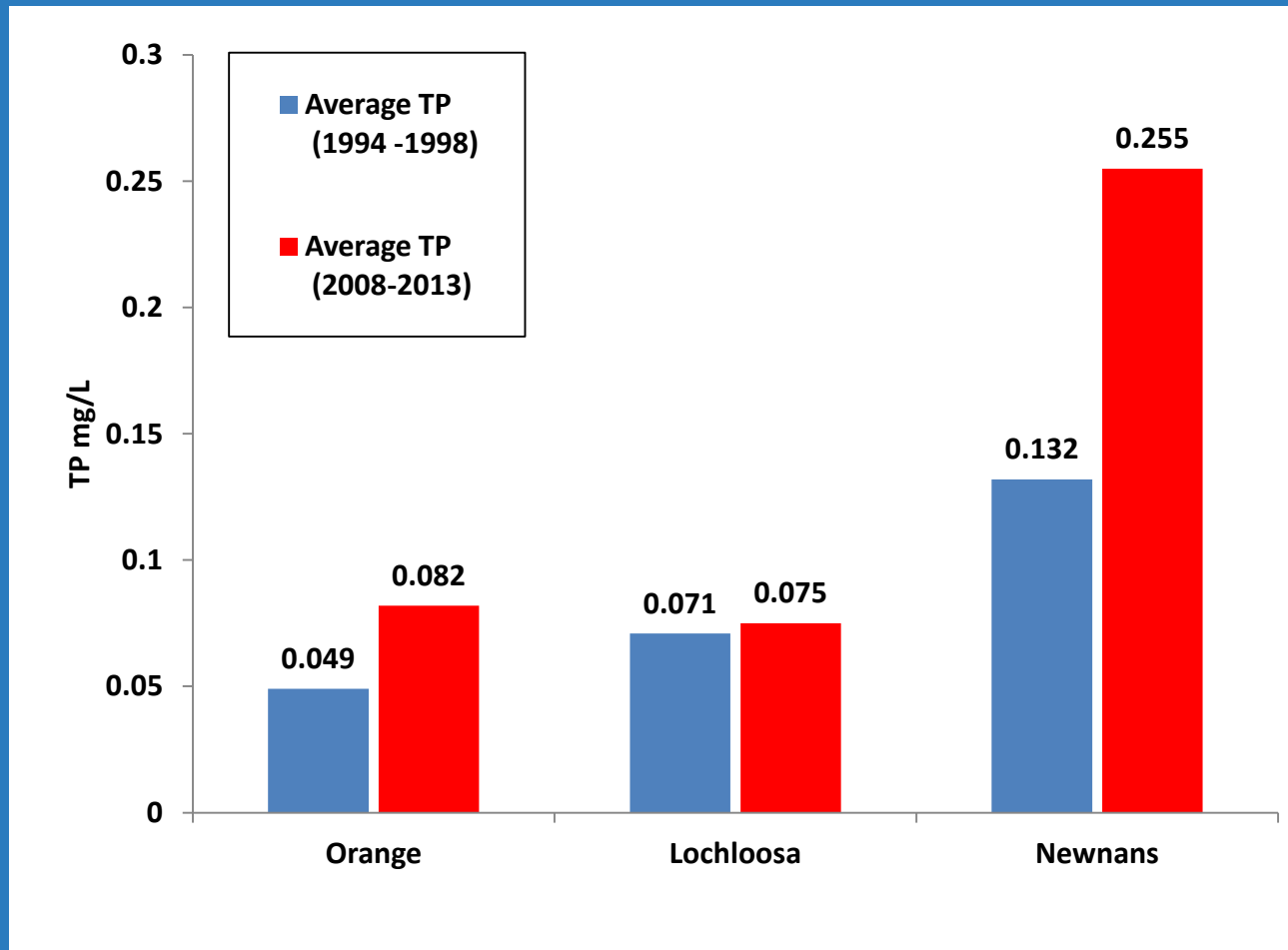
Average TSI during the period of 2008 – 2013 for 24 lakes within the SJRWMD



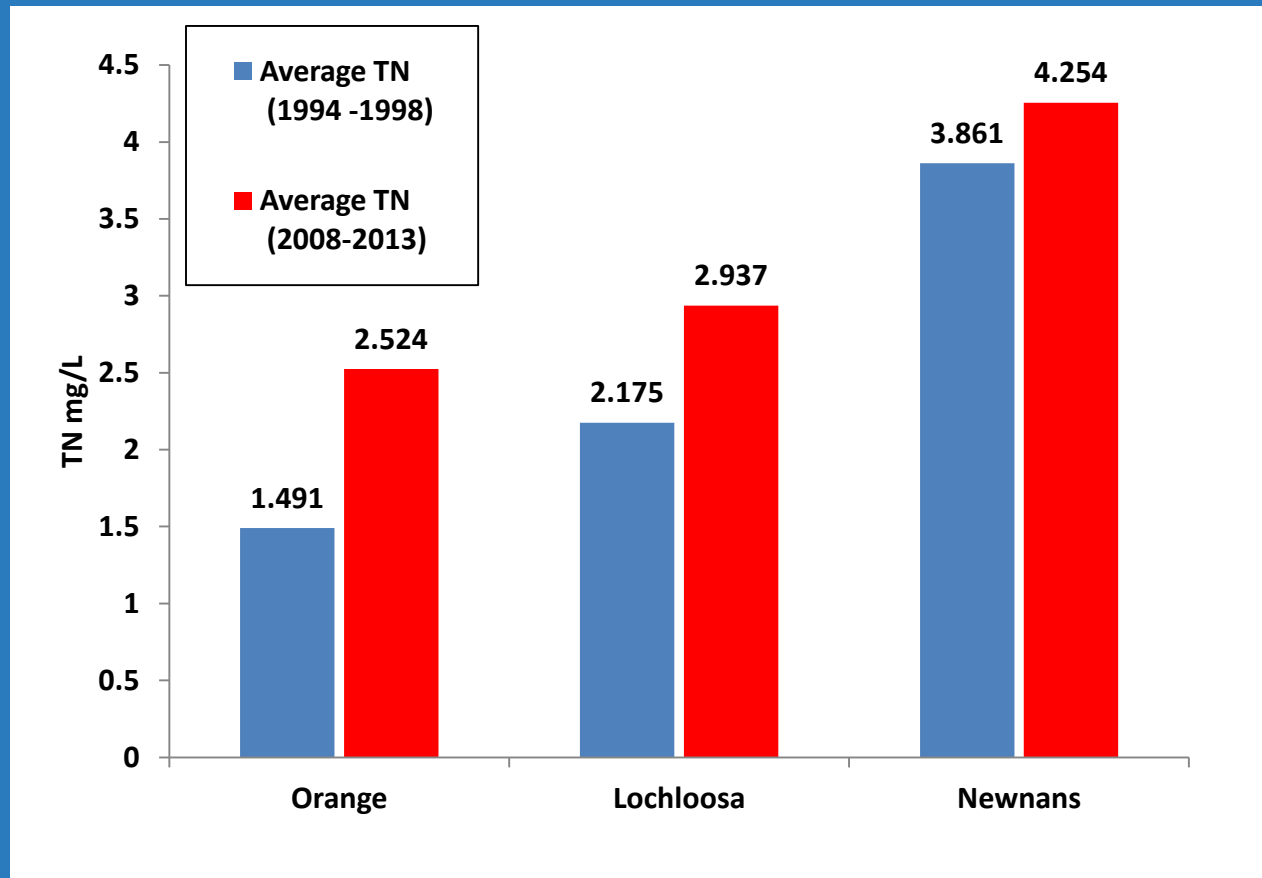
Average Chl-a concentration during the period of 2008 – 2013 for 24 lakes within the SJRWMD



(1994 – 1998) vs. (2008 -2013) **TP**

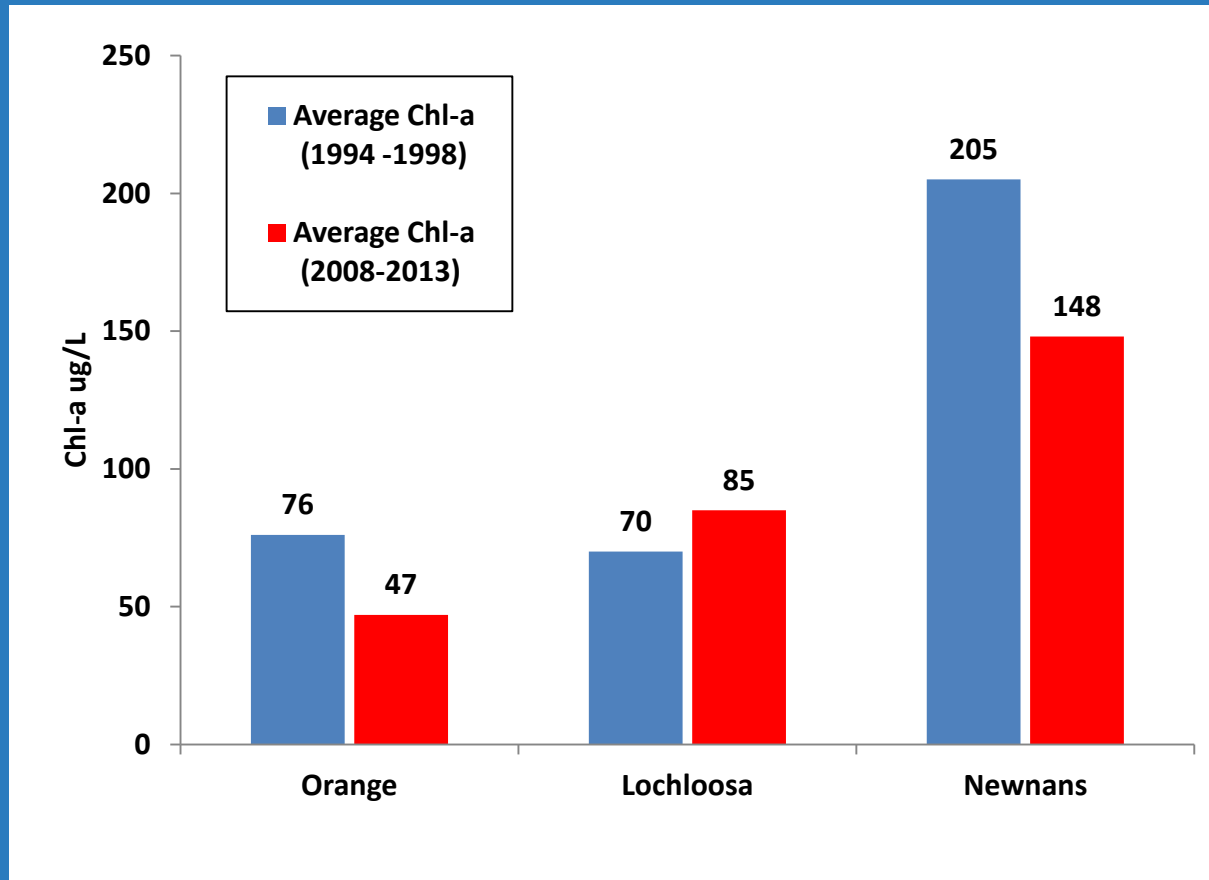


(1994 – 1998) vs. (2008 -2013) TN



(1994 – 1998) vs. (2008 -2013)

Chl-a

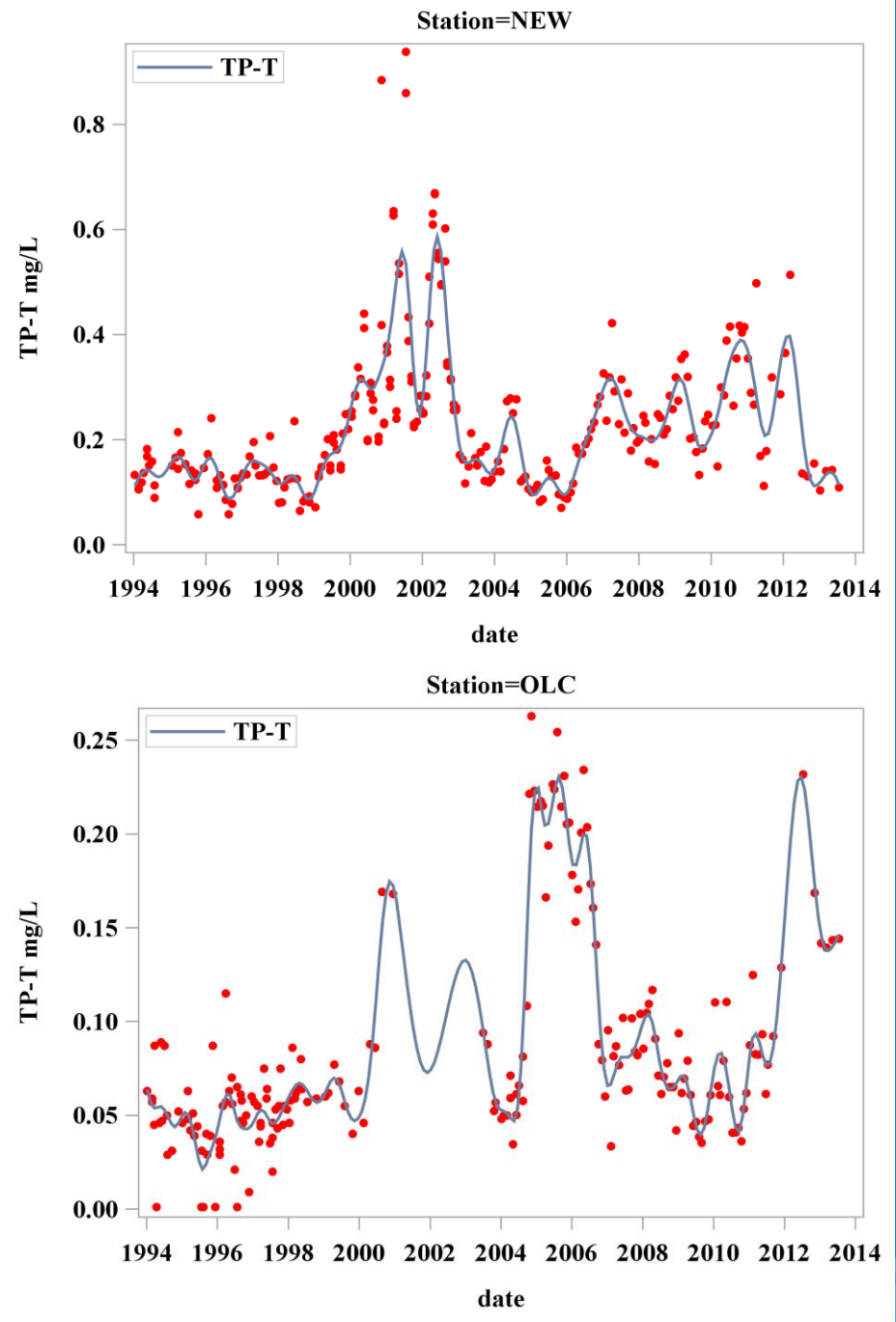


Water Quality Trends in the Three Orange Creek Basin Lakes and Their Tributary Inflows

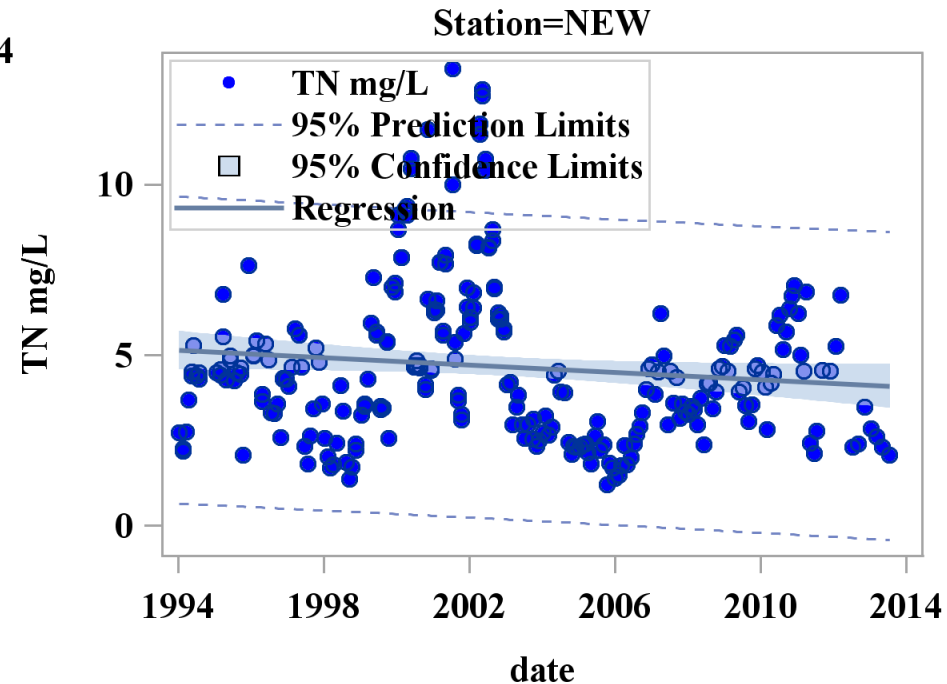
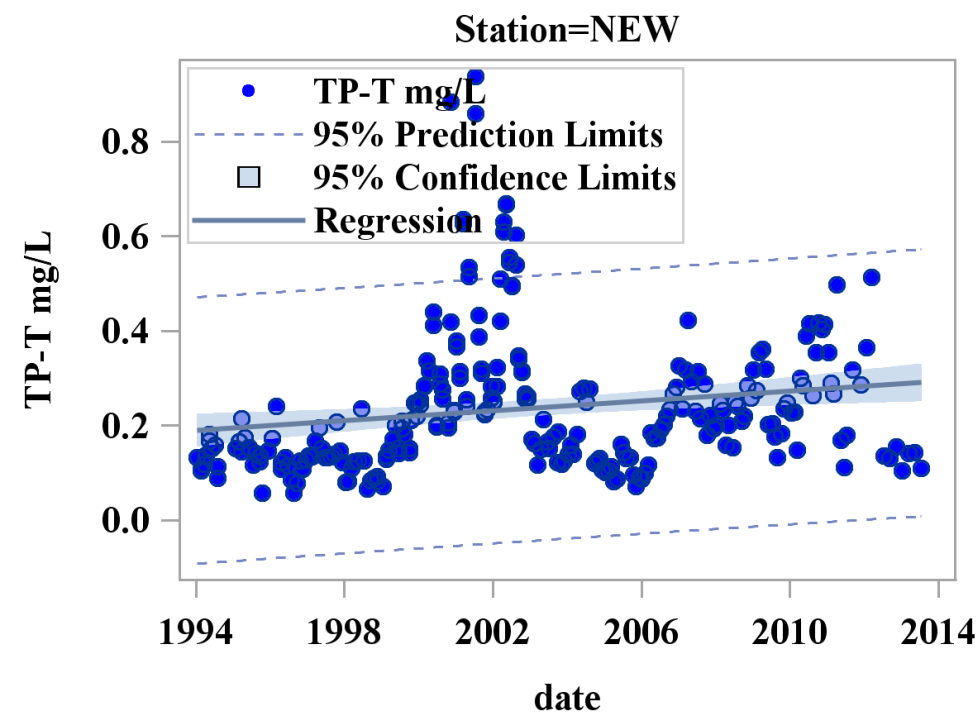
- **Examine the TN, TP, Chl-a, and TSI trends in the past 20 years for the 3 lakes**
- **Examine the TP trend in the main tributaries to the 3 lakes**



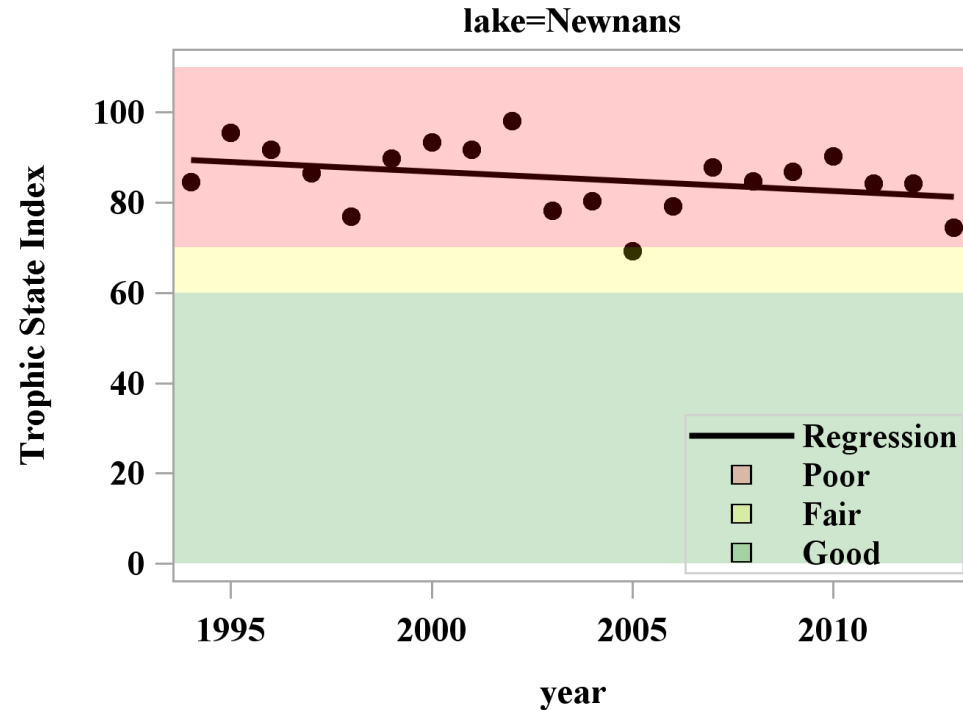
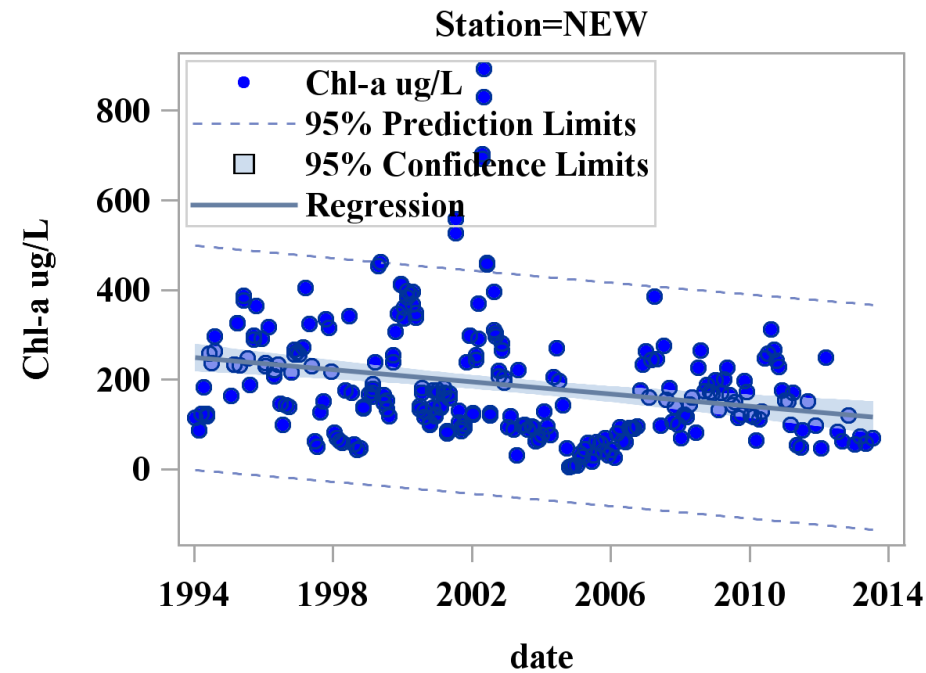
***TP concentration in
Newnans Lake (top
plot) and in Orange
Lake (bottom plot)
from 1994 to 2013***



Water trend in Newnans Lake

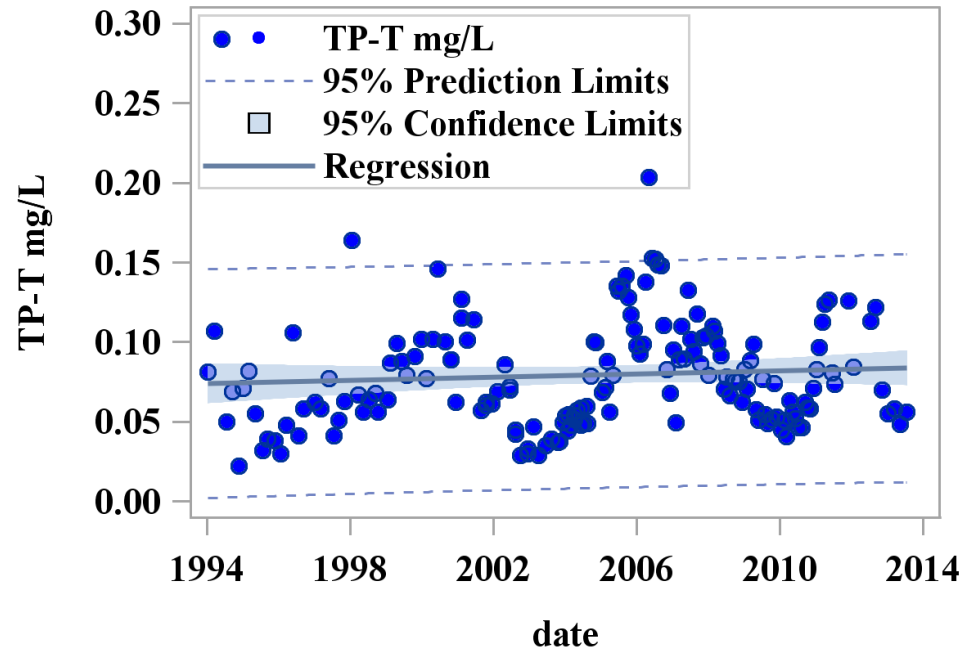


Water trend in Newnans Lake

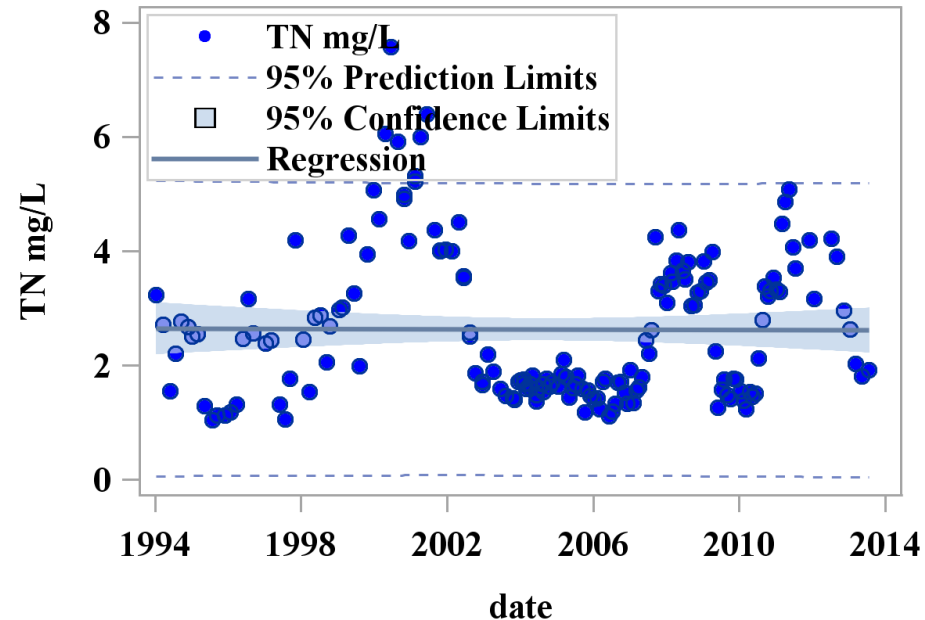


Water Trend in Lochloosa Lake

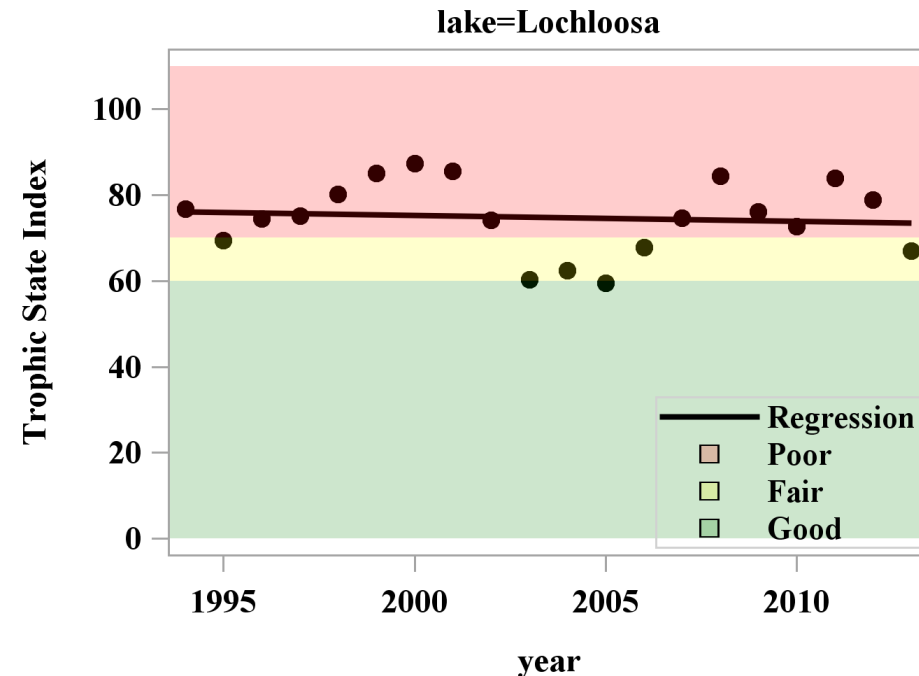
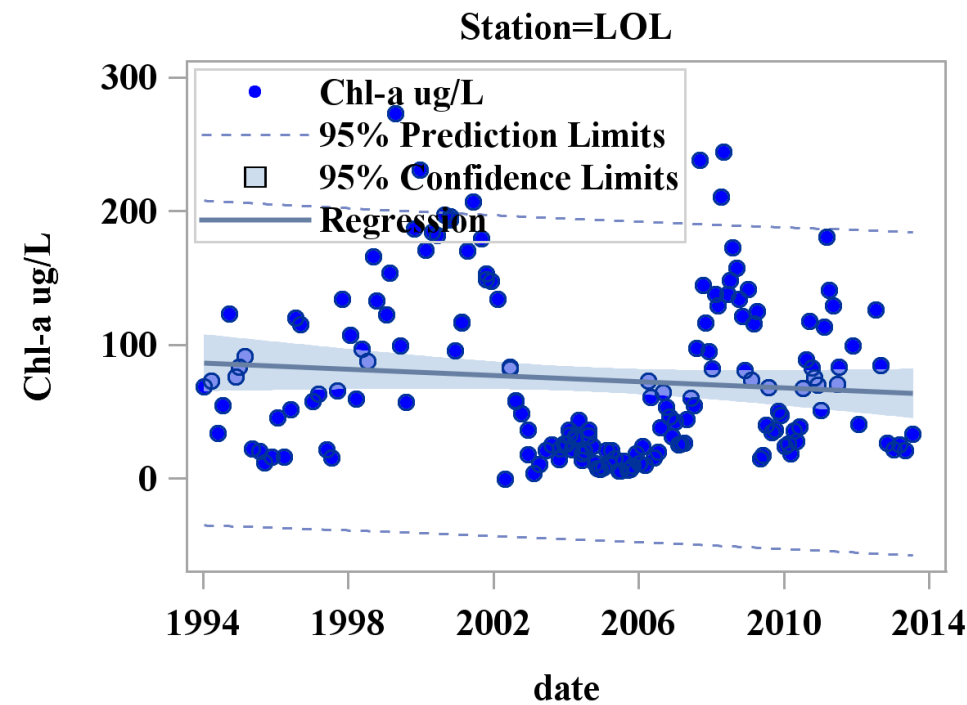
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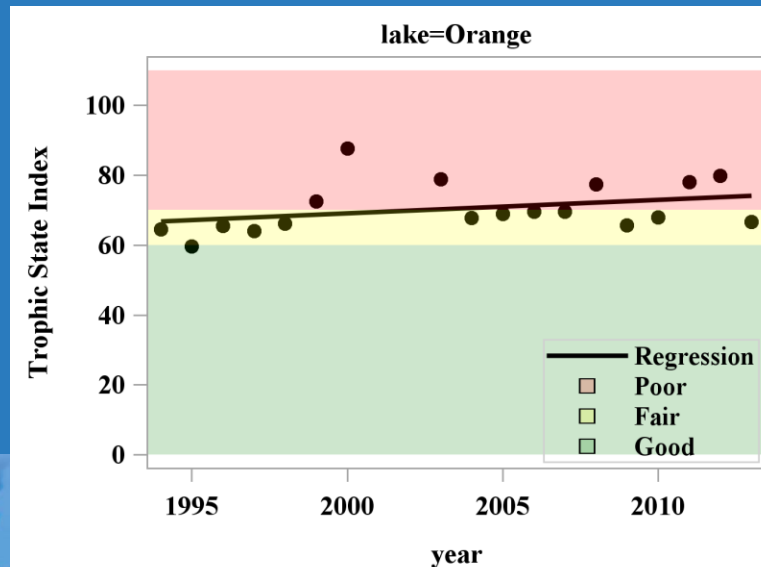
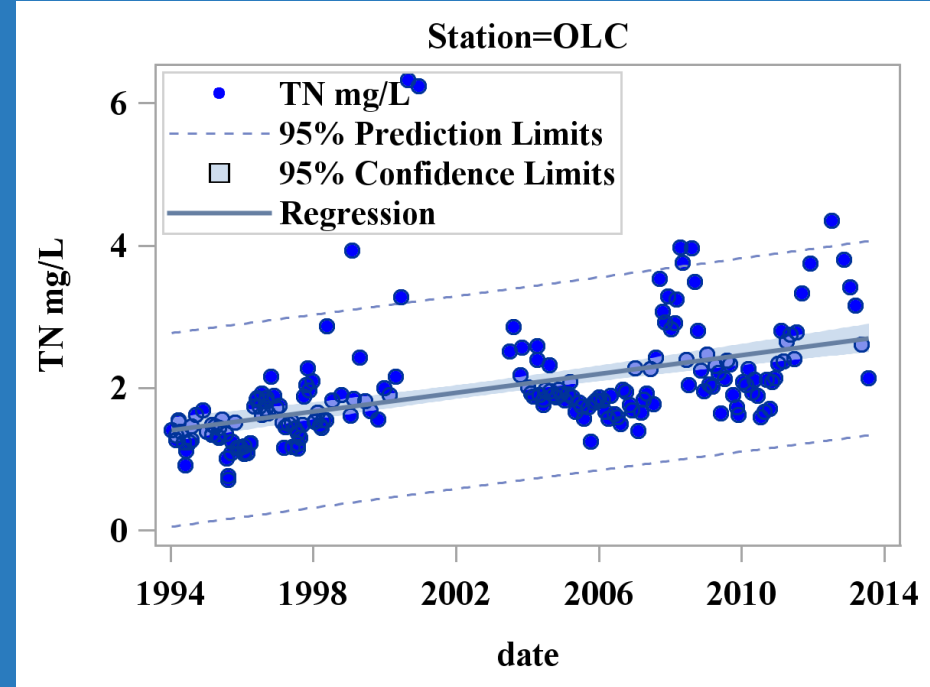
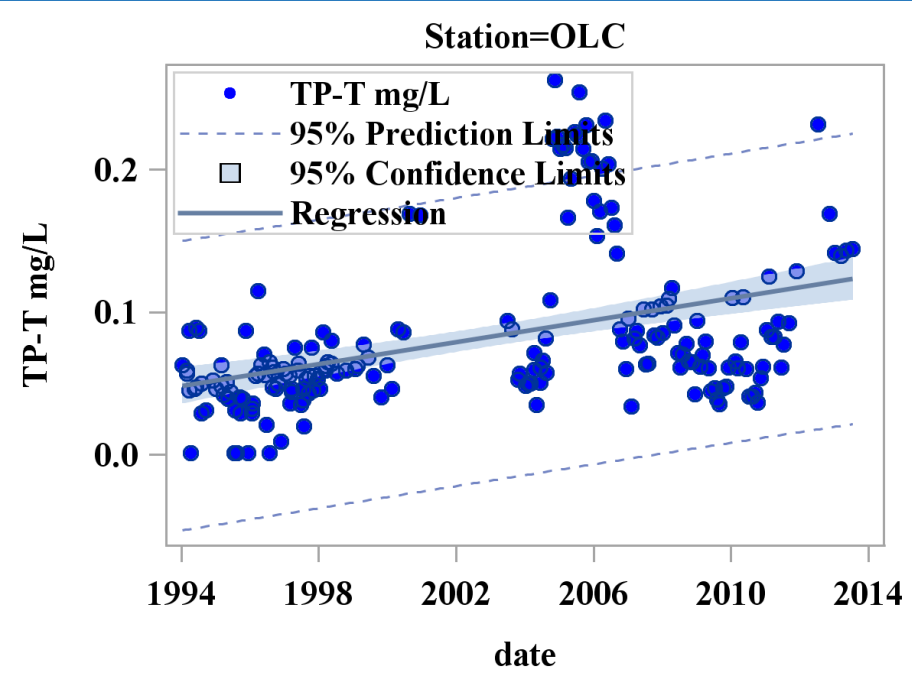
Station=LOL



Water Trend in Lochloosa Lake

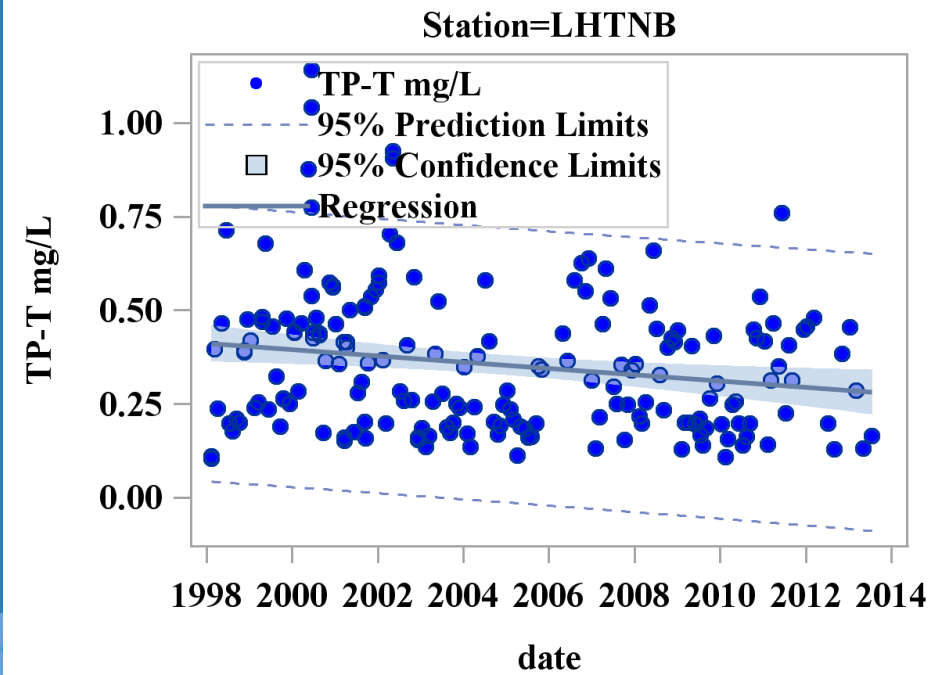
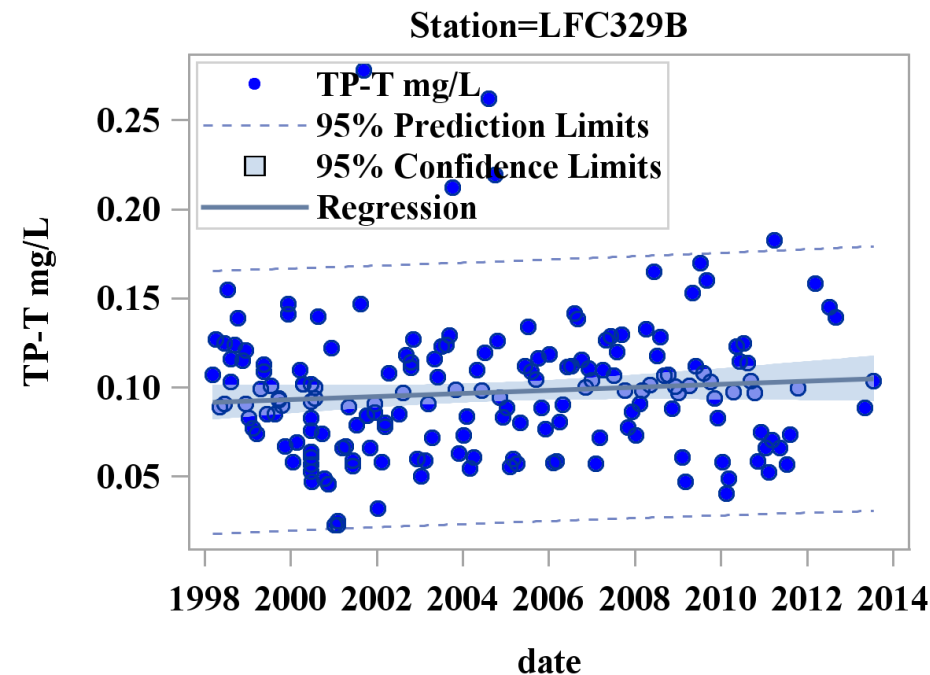
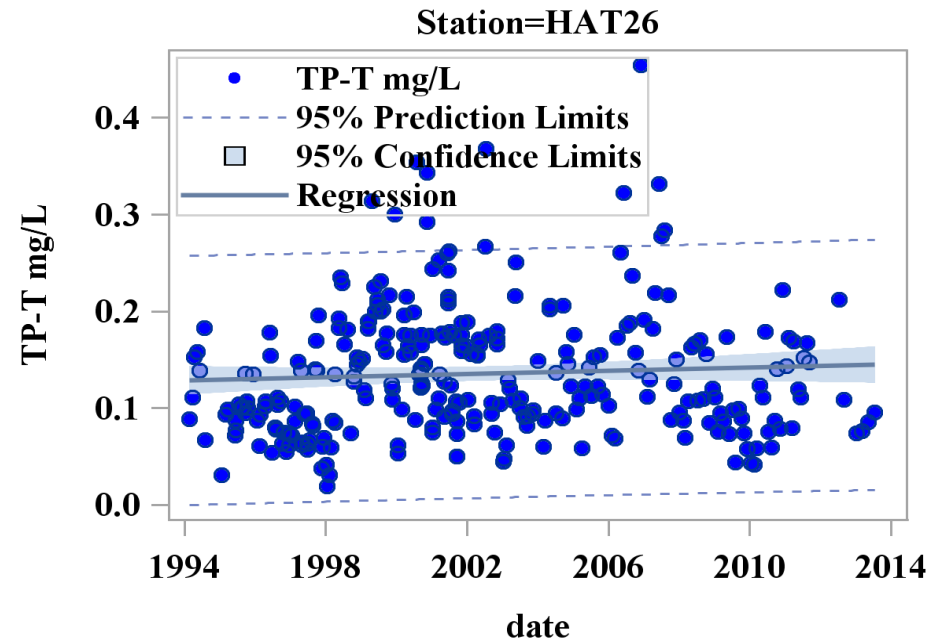


Water Trend in Orange Lake

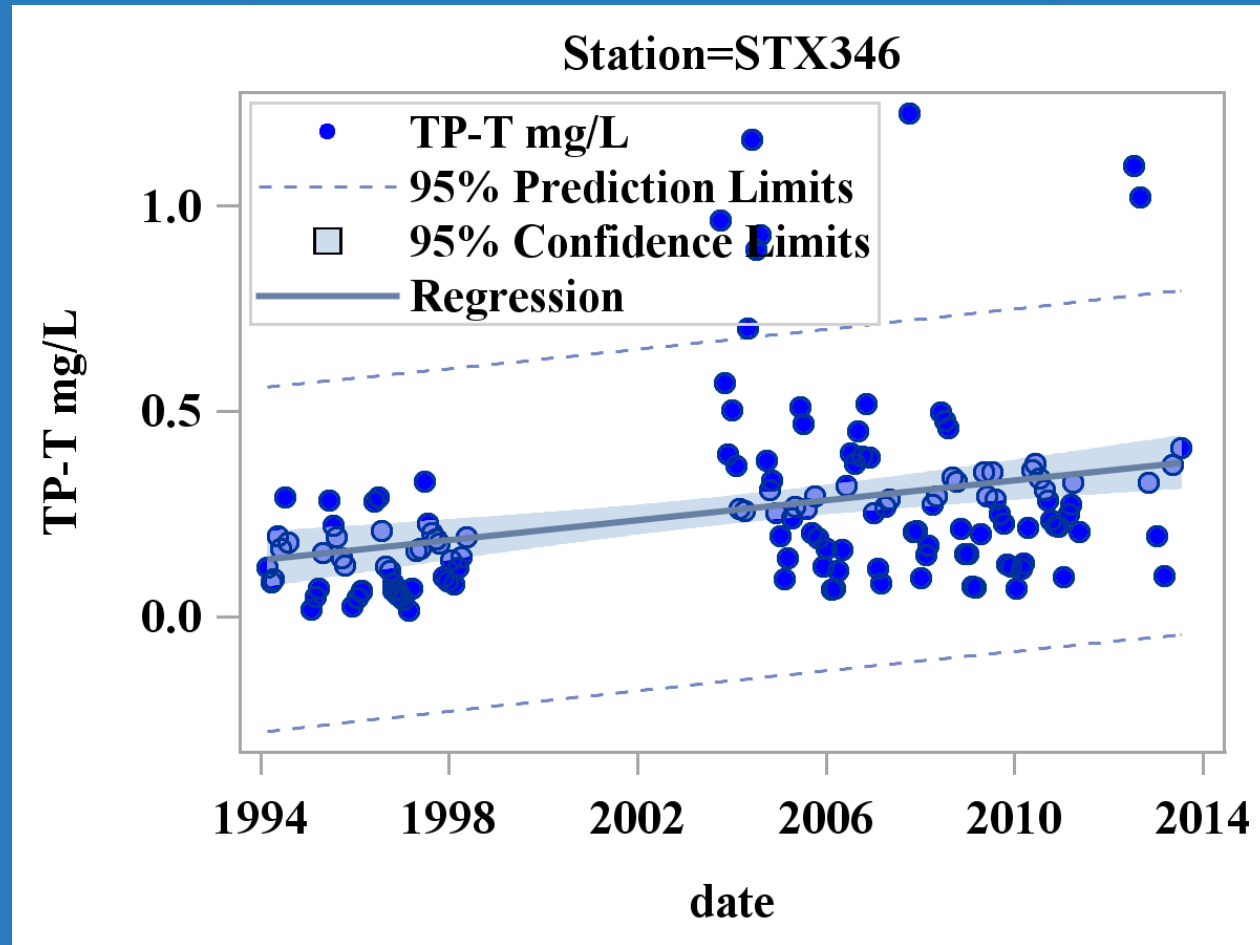


TP trend in major tributaries to Newnans Lake

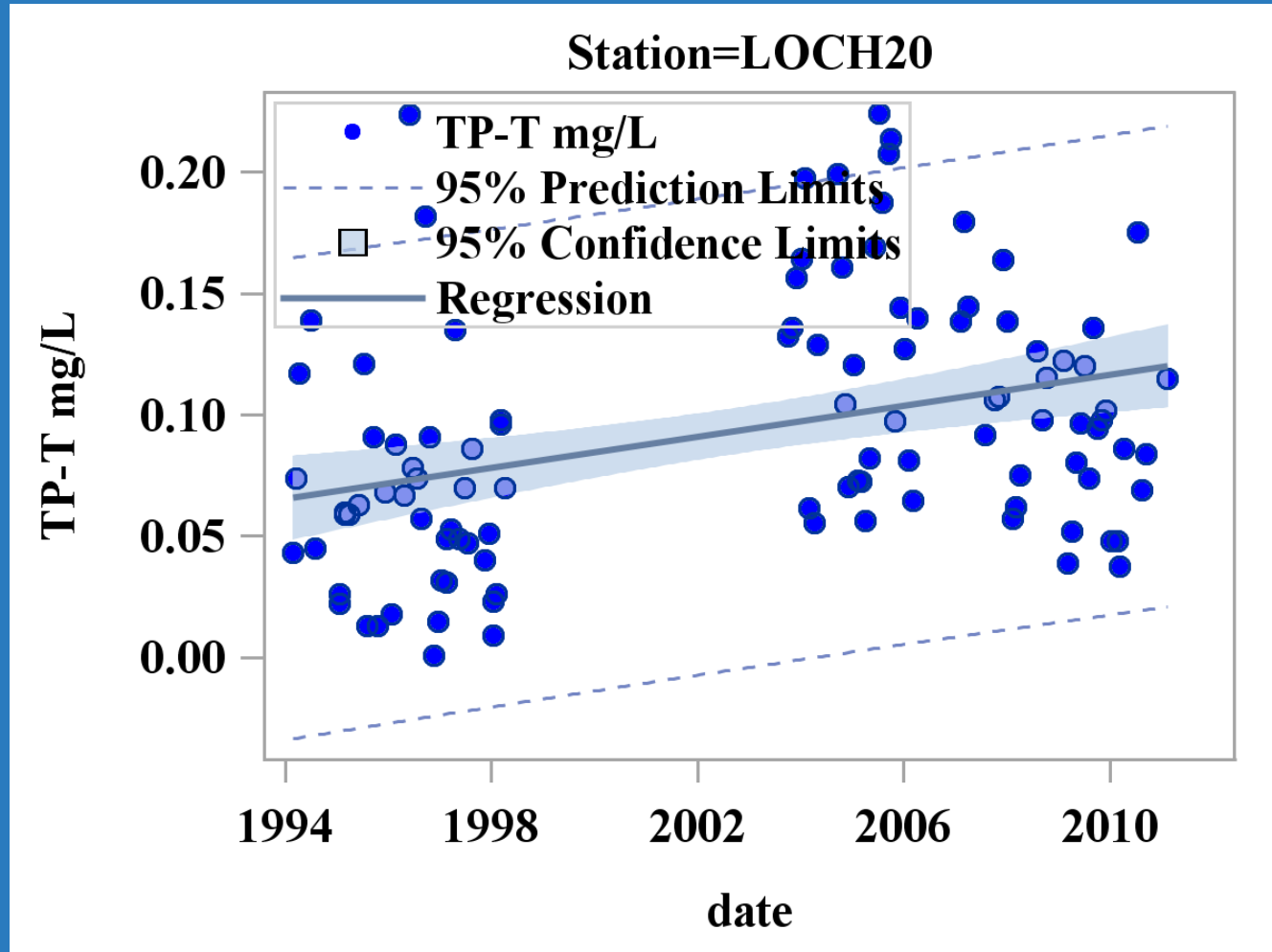
- HAT26 – Hatchet
- LFC329B – Lake Forest
- LHTNB – Little Hatchet



TP trend in River Styx - the main tributary flows to Orange Lake



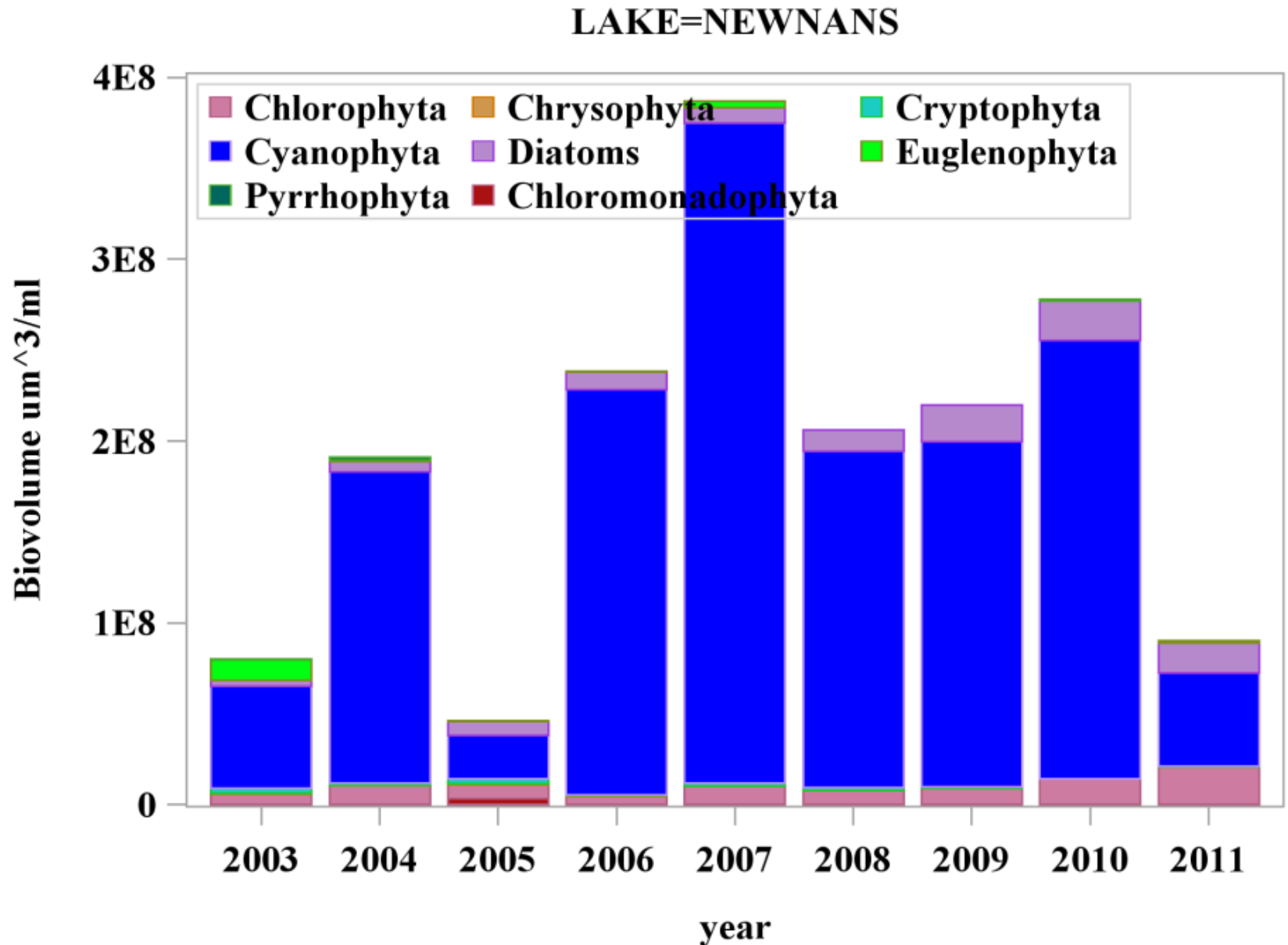
TP trend in Lochloosa Creek - the main tributary flows to Lochloosa Lake



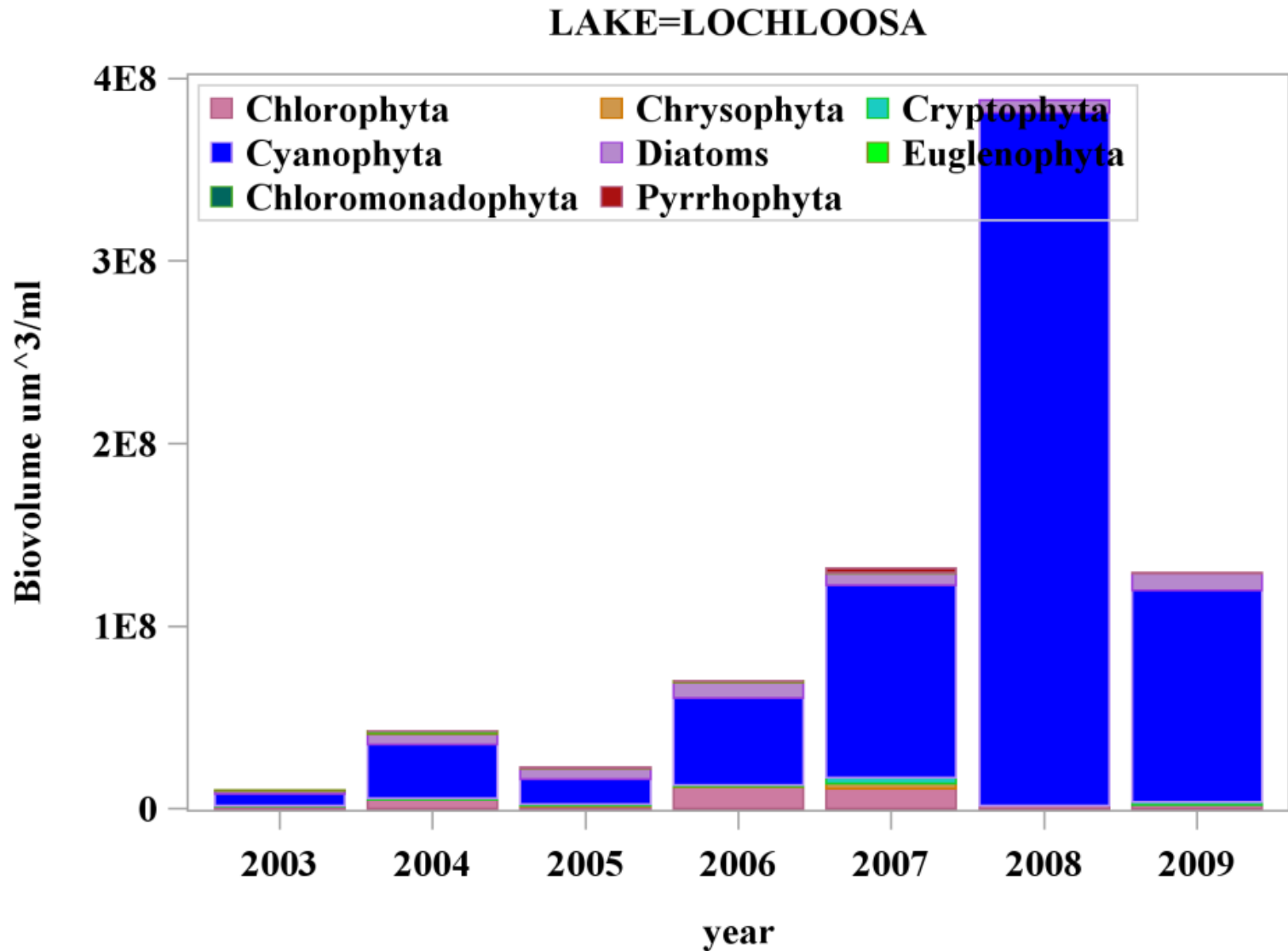
Phytoplankton Community composition in the Three Orange Creek Basin Lakes



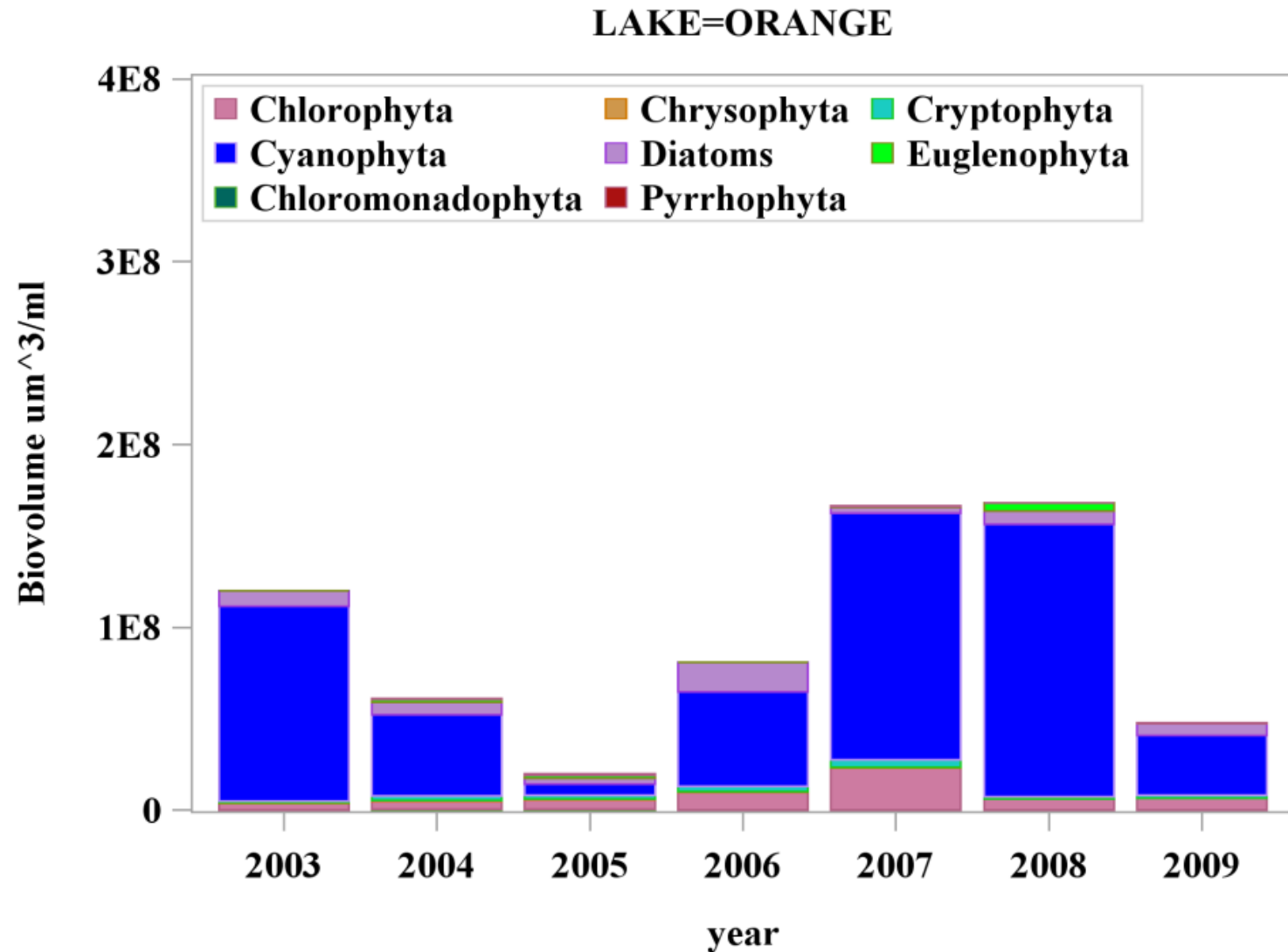
Phytoplankton Annual Biovolume by Division



Phytoplankton Annual Biovolume by Division



Phytoplankton Annual Biovolume by Division



Summary

- 1. Water quality is poor for Newnans Lake and Lochloosa Lake, and there is no sign of improvement for in water quality in these two lakes.**
- 2. Orange Lake has a fair water quality status (TSI = 69), but it has a declining trend in water quality over the last 20 years.**
- 3. Average TP concentrations in the recent 5 year period are much higher than the TMDL targets set for each of the three lakes.**



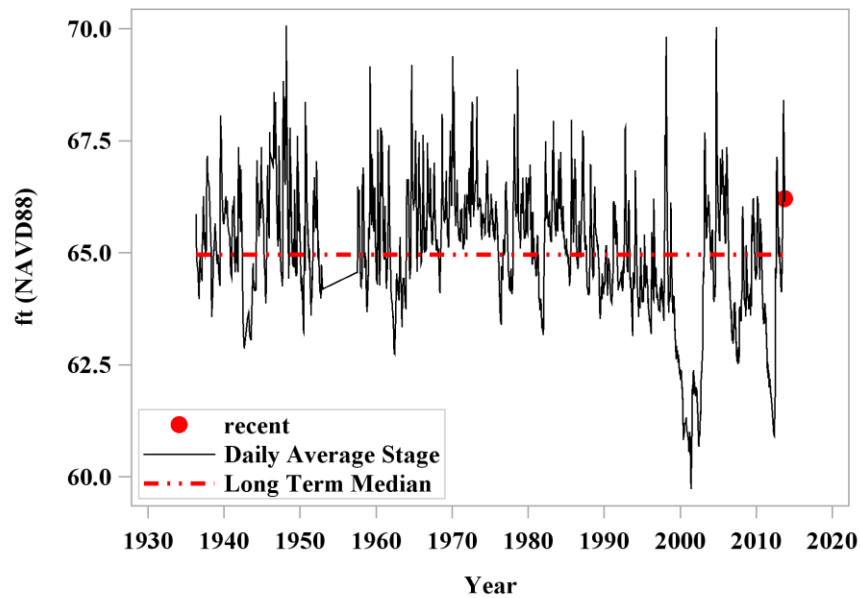
Summary

4. Newnans Lake is the most impaired lake in the SJRWMD by the TSI standard.
5. Blue-green algae (Cyanophyta) dominates the phytoplankton community in all three lakes.

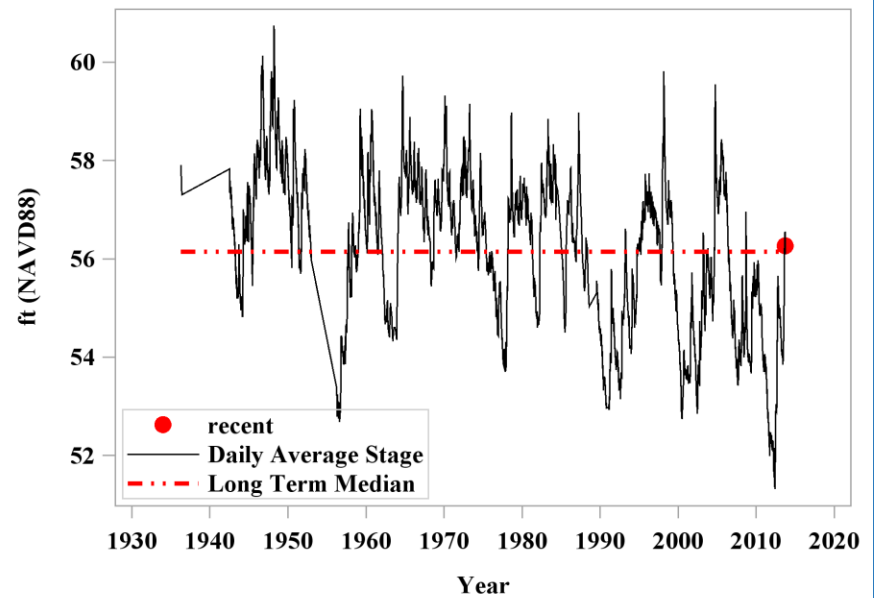


Questions?

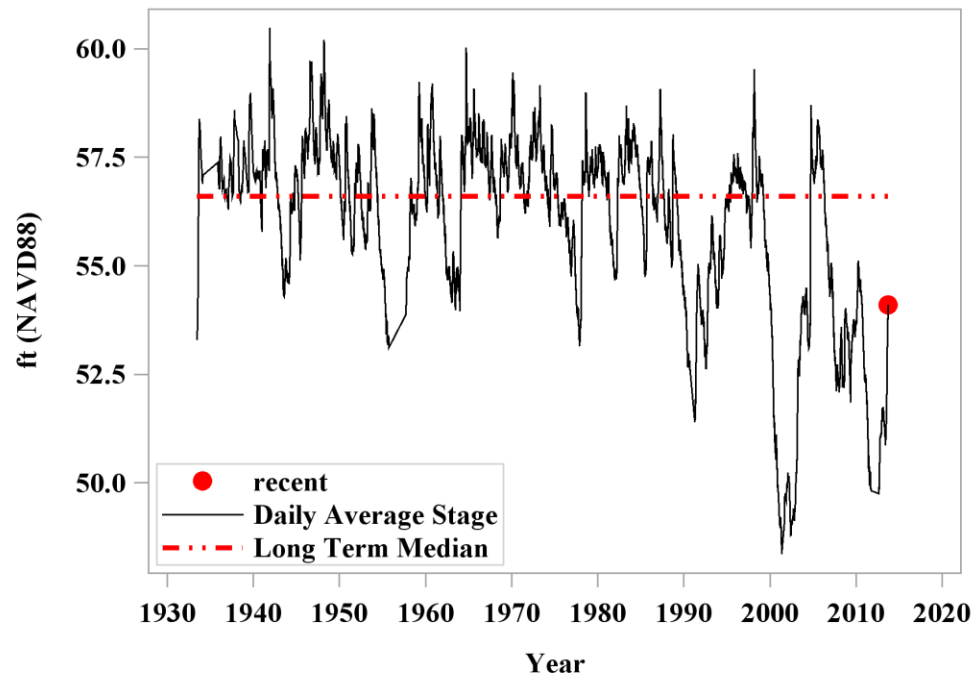
lake=Newnans



lake=Lochloosa



lake=Orange



Biovolume Percentage Distribution by Division

