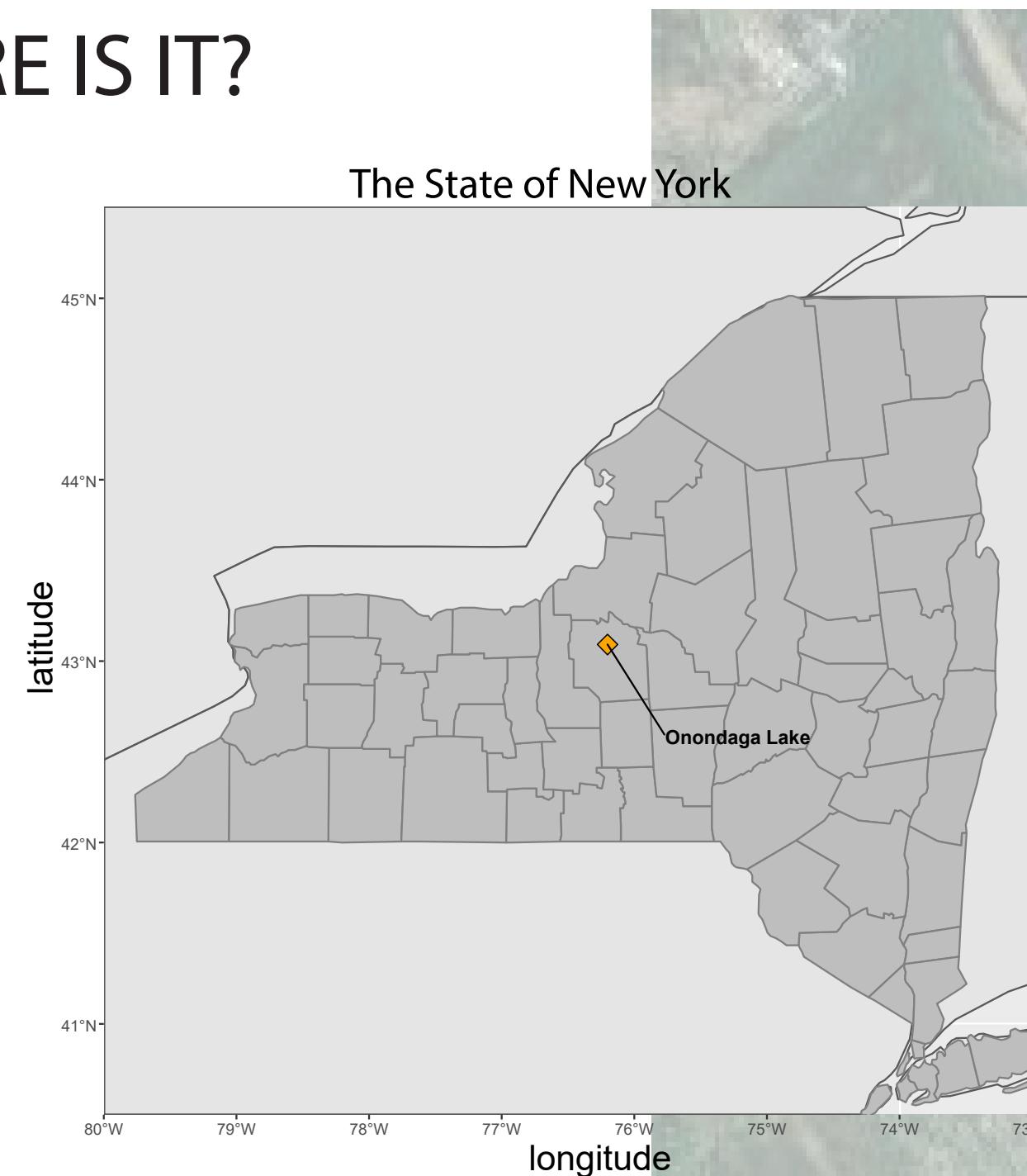


Data Explanation: The Cleanliness of Lake Onondaga

Graham Latsa

WHERE IS IT?

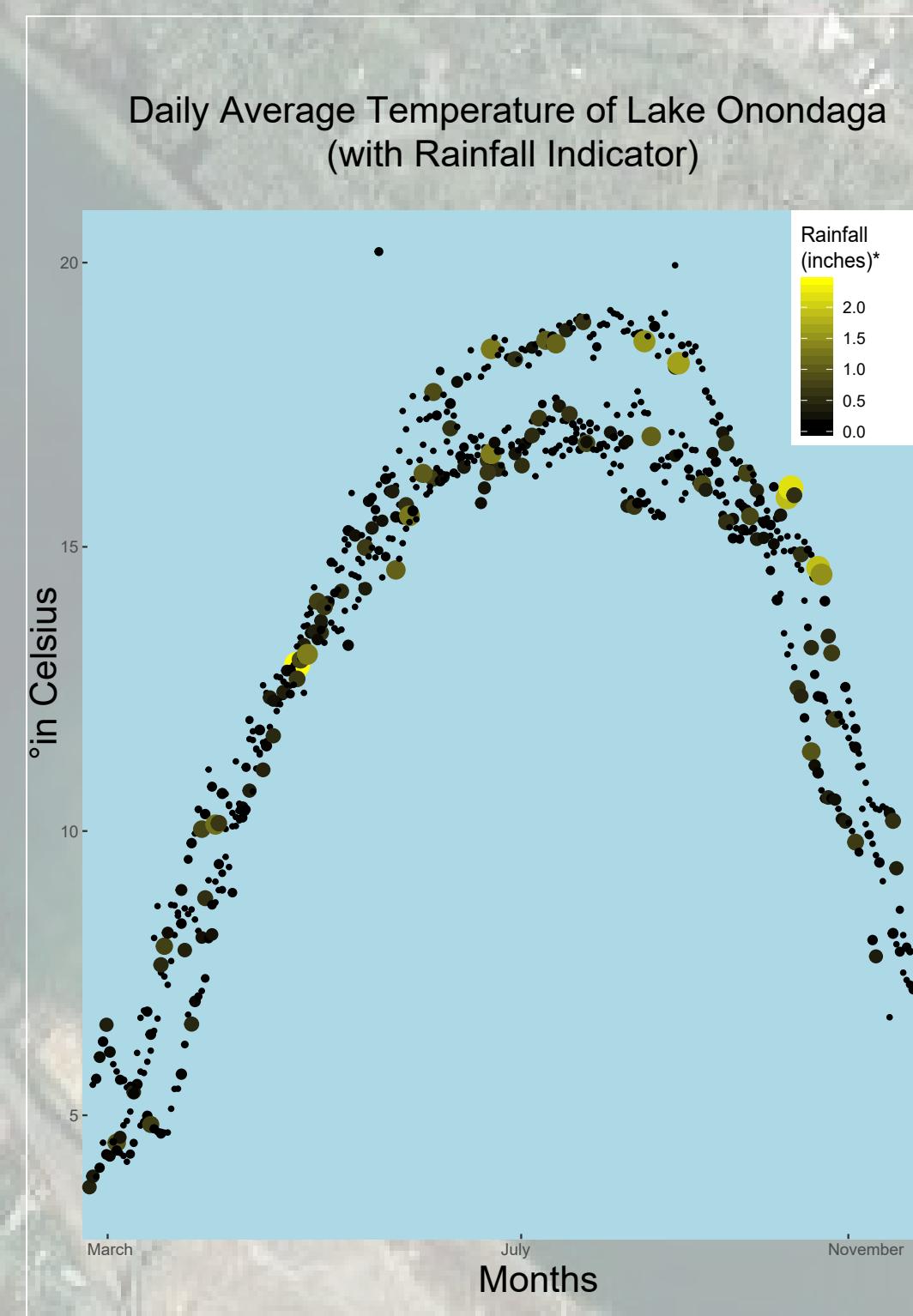


QUESTIONS TO ASK?

- Is this a Dirty Lake?
- What factors influence each other?
- How Does the Weather Influence the Lake?

LETS LOOK AT THE WEATHER

We can see seasonality in the temperature of Lake Onondaga, and that it doesn't get very rainy



WHY IS IT IMPORTANT?

Unofficially called:
"One of the most Polluted Lake in America"

In 1994, Onondaga Lake was placed on the USEPA National Priorities List as a Superfund site for significant chemical pollution.¹

However, in 2015 it was said that Onondaga Lake is cleaner than expected after dredging.²

GLANCE AT THE DATA

The dataset used contains daily measurements from Lake Onondaga and local weather stations.

The Lake Data sets has Data about³:

- Temperature (celsius)
- ionic content ("saltiness") ($\mu\text{S}/\text{cm}$)
- pH (0-14)
- Dissolved oxygen (mg/ltr)
- Turbidity ("cloudiness")
- Chlorophyll-a ($\mu\text{g}/\text{litr}$)

The Weather Data Set has data about:

- Rainfall (in)
- Wind Speeds (mph)
- Direction of 5 sec. Max Wind Speed ($^{\circ}$ from North)
- 5 sec. Max Wind Speed (mph)

¹ <https://oei2.org/our-watershed/onondaga-lake/>

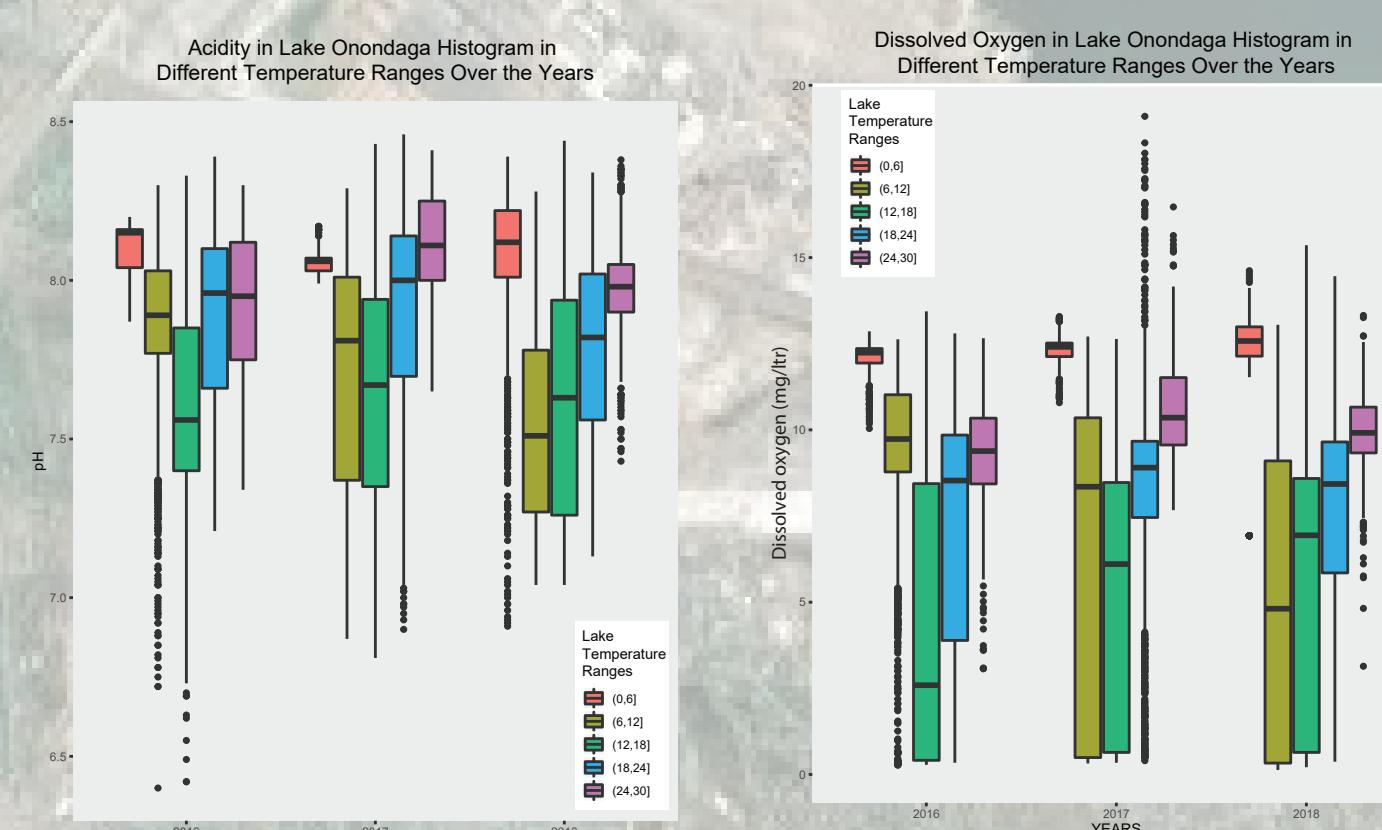
² https://www.syracuse.com/news/2015/10/epa_honeywell_onondaga_lake_cleanup_dredging.html

Source: Onondaga County Department of Water Environment Protection and Upstate Freshwater Institute

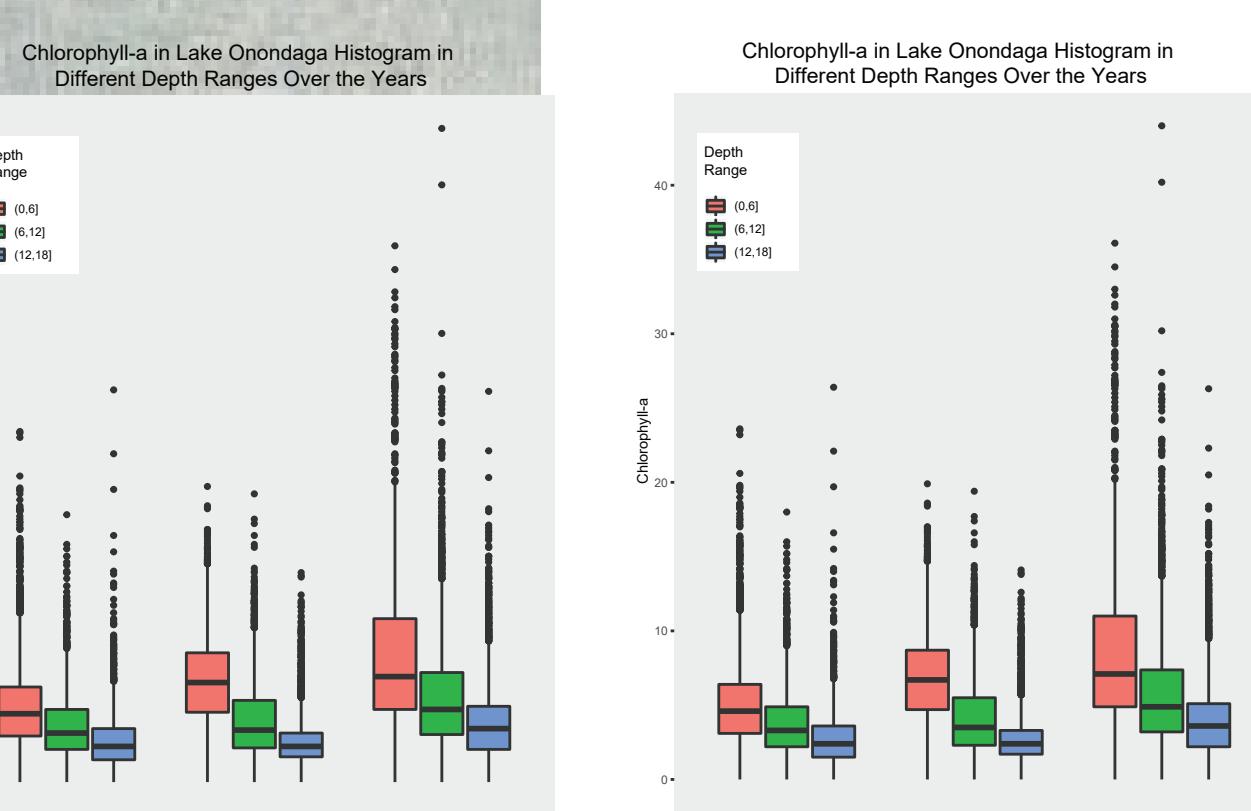
<https://www.ncdc.noaa.gov/cdo-web/datasets#GHCND>

*All measurements are at a specific depth in the lake

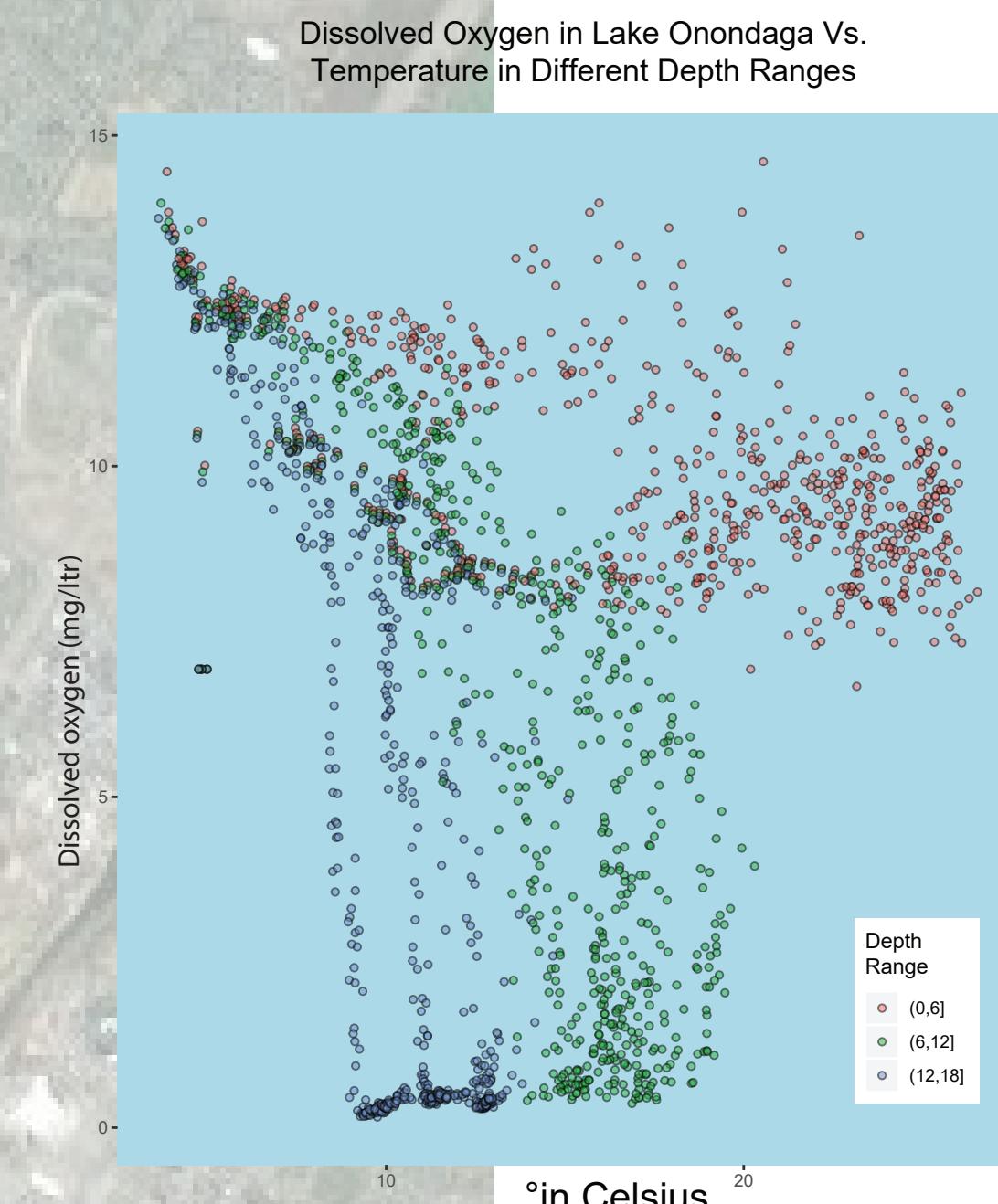
DO ARE ANY FACTORS INFLUENCED BY THE TEMPERATURE



OTHER INFLUENTIAL FACTORS



LOOKING AT CORRELATION



IN CONCLUSION

We can see that there are a few correlations,

- That Temperature really affects pH and Dissolved Oxygen
- That the Depth affects the Chlorophyll-a and Cloudiness
- That we couldn't see any correlation with Saltiness

What I can see is that the Temperature and depth are what affect Lake Onondaga the most and that next steps would be to compare this to national info to see if it is out of range