

Columbia River

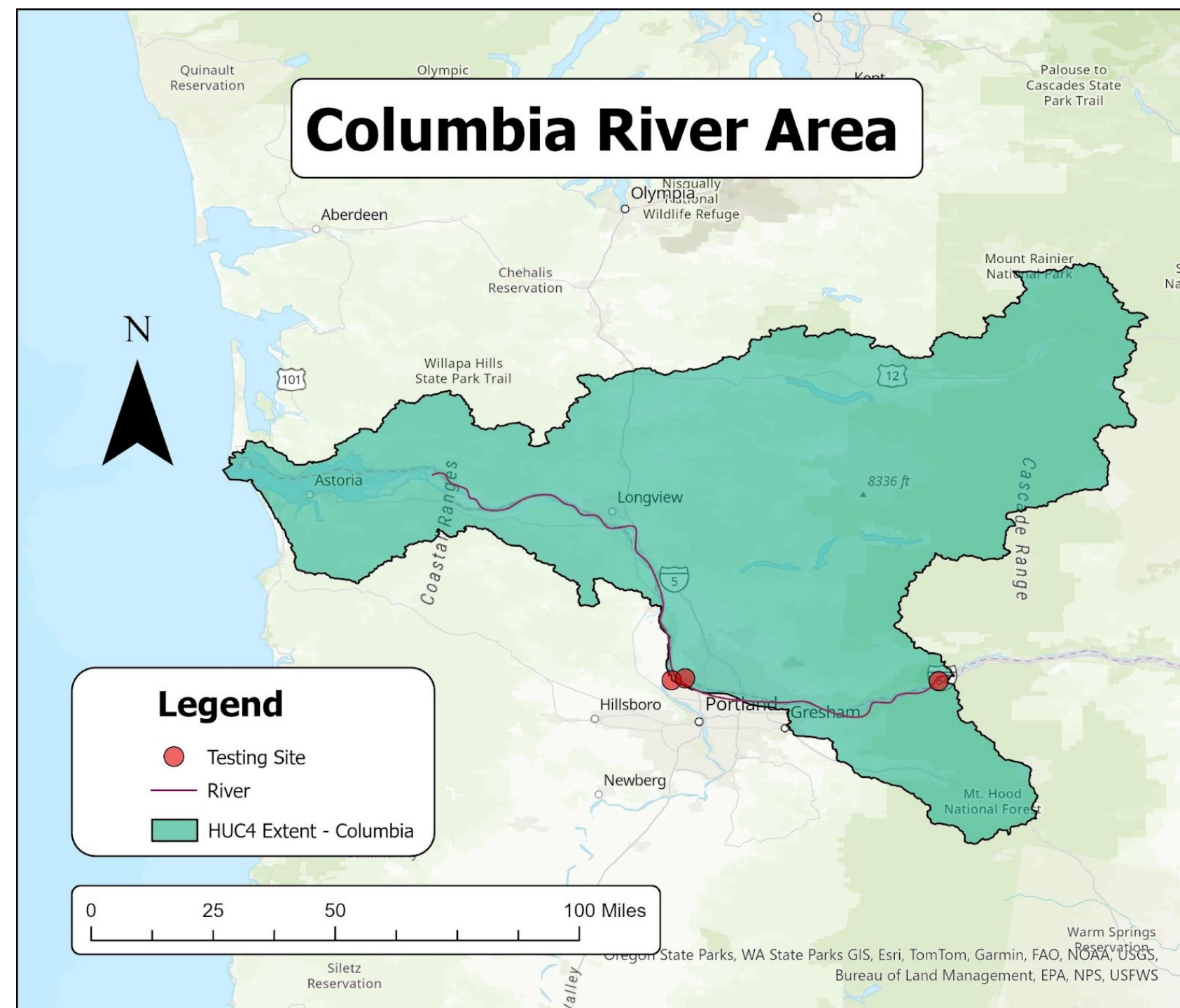


Figure 9: Columbia River HUC46 watershed extent.

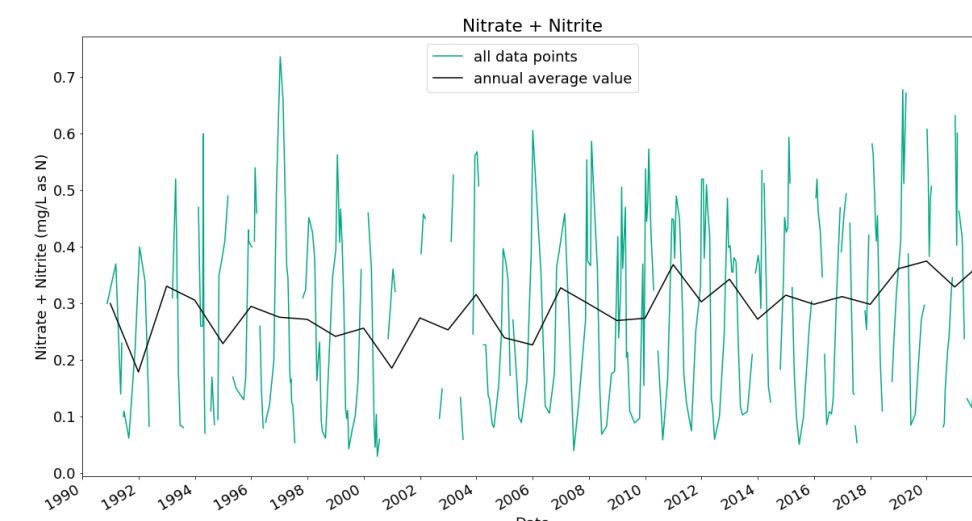


Figure 10: Timeseries of nitrate + nitrite concentrations.

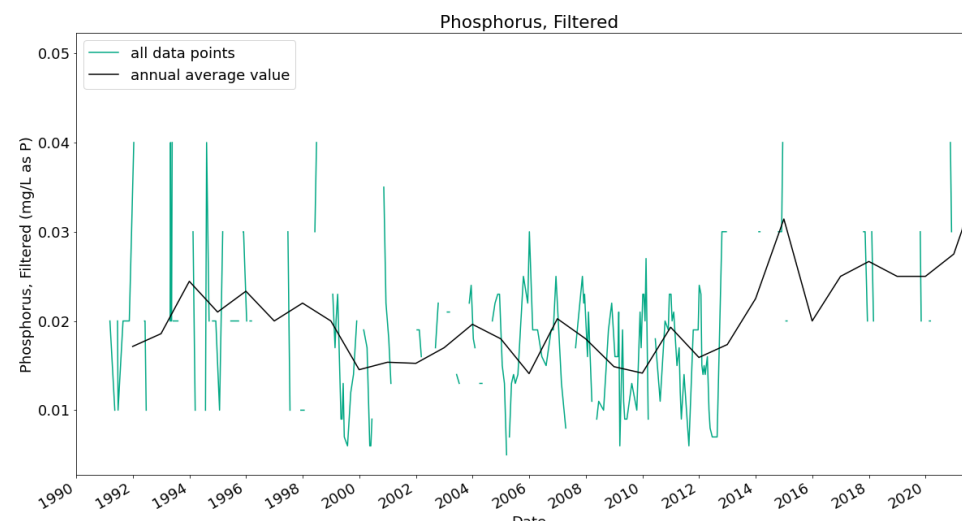


Figure 11: Timeseries of phosphorus concentration.

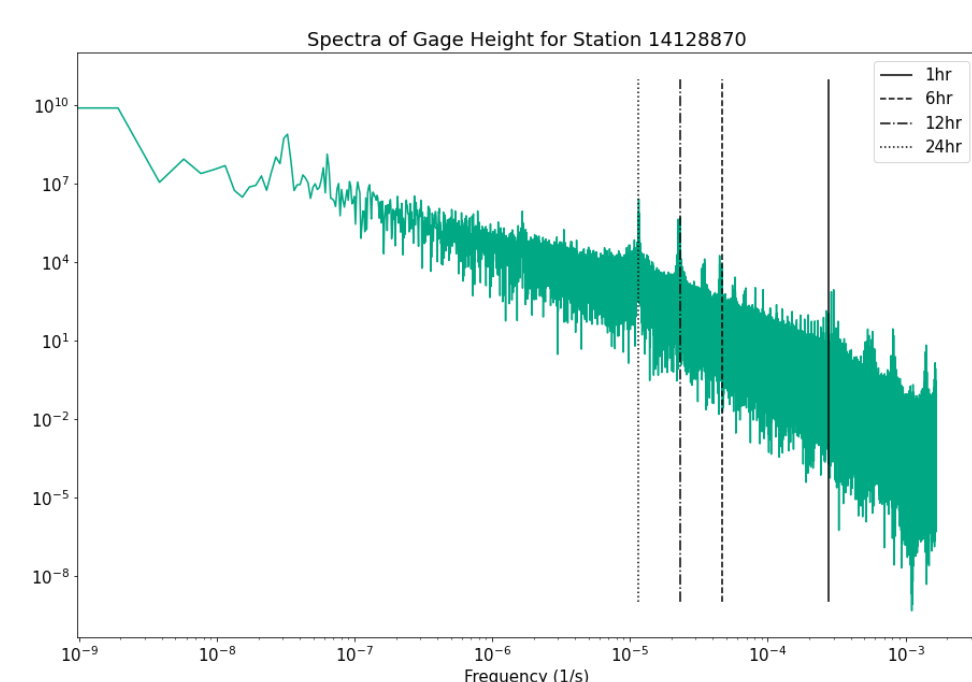
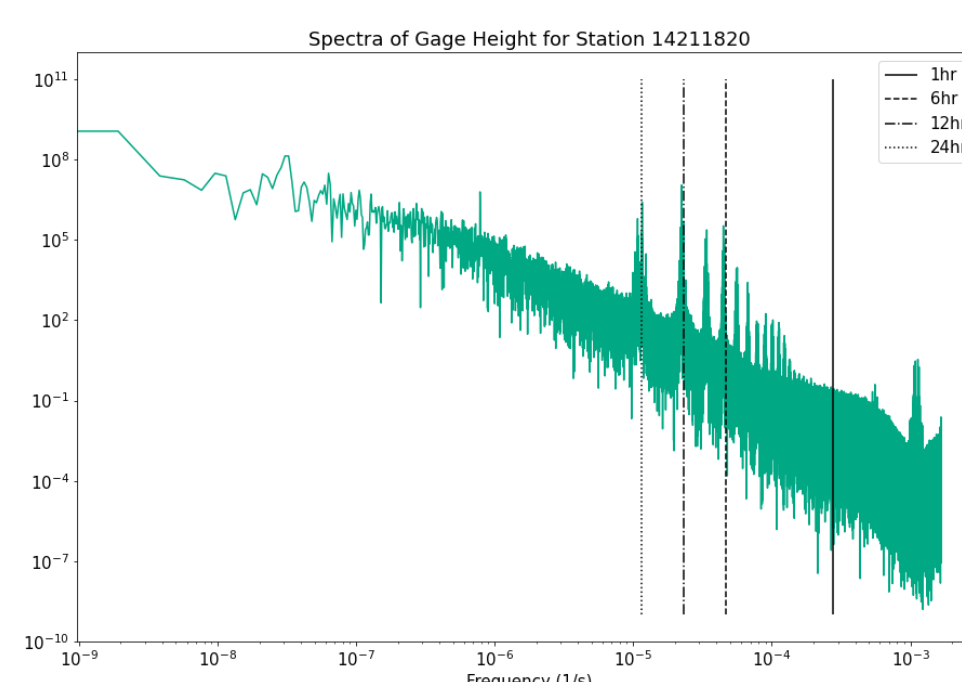


Figure 12: Columbia River spectra of gage height for stations below Bonneville Dam, OR (left) and Portland, OR (right). Several frequencies are noted as vertical lines for reference.



Trinity River

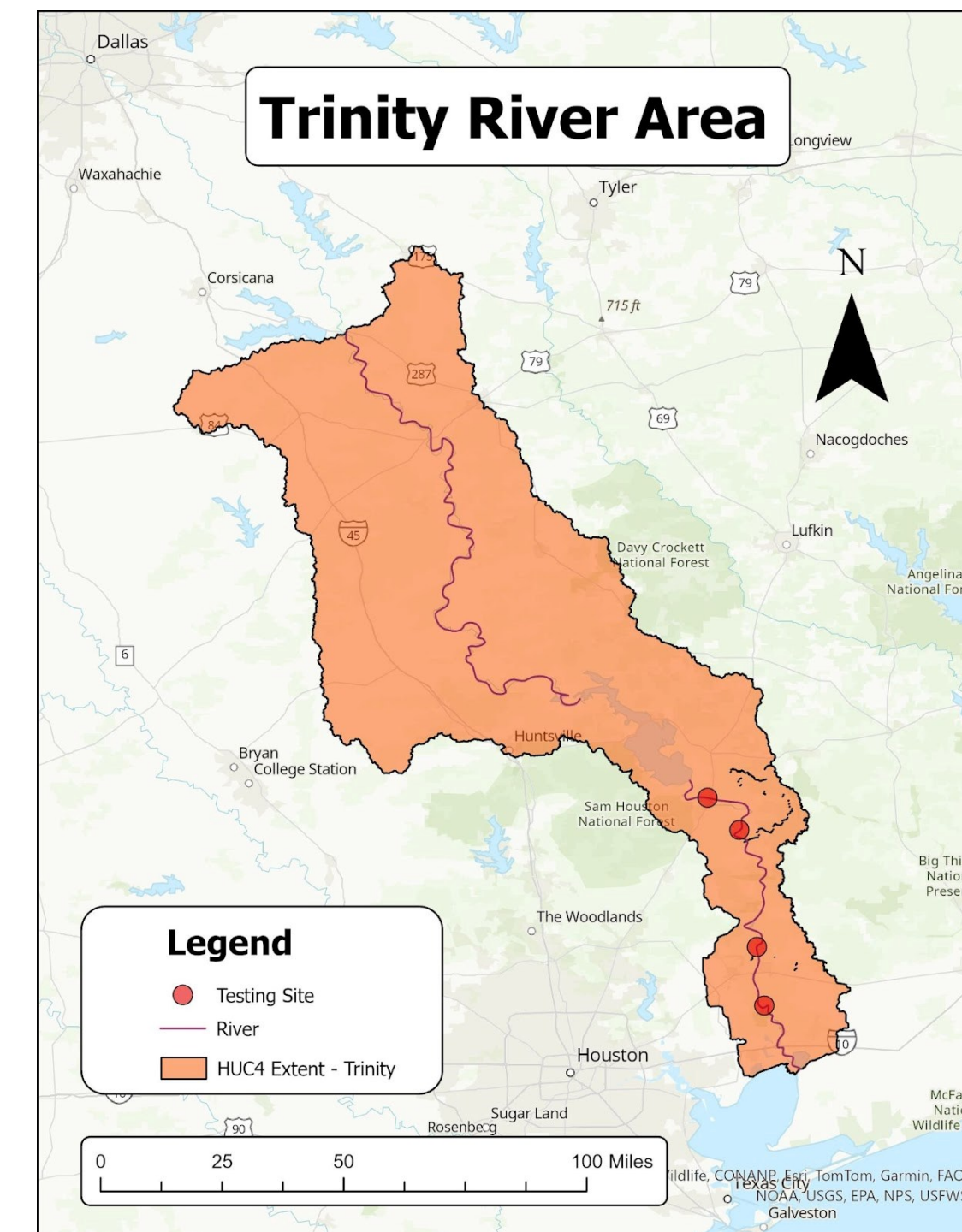


Figure 5: Trinity River HUC6 watershed extent.

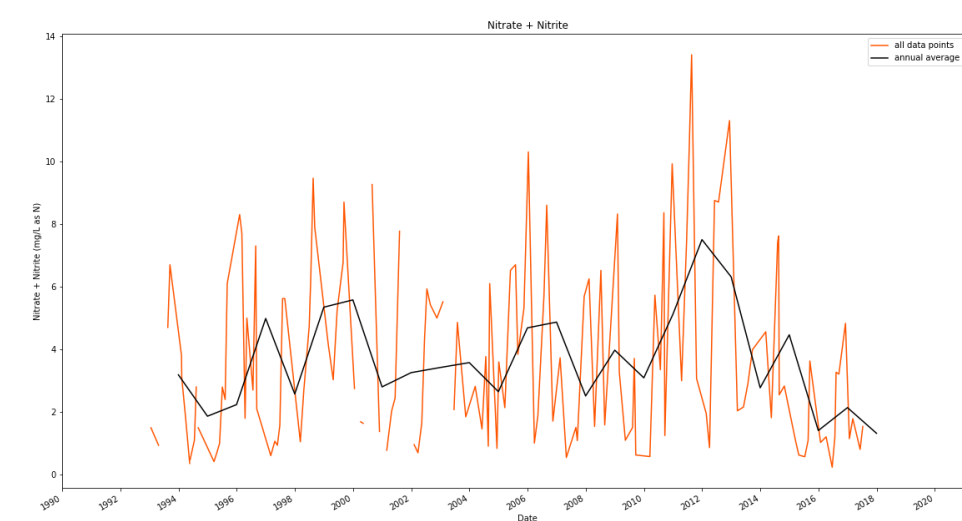


Figure 6: Timeseries of nitrate + nitrite concentrations.

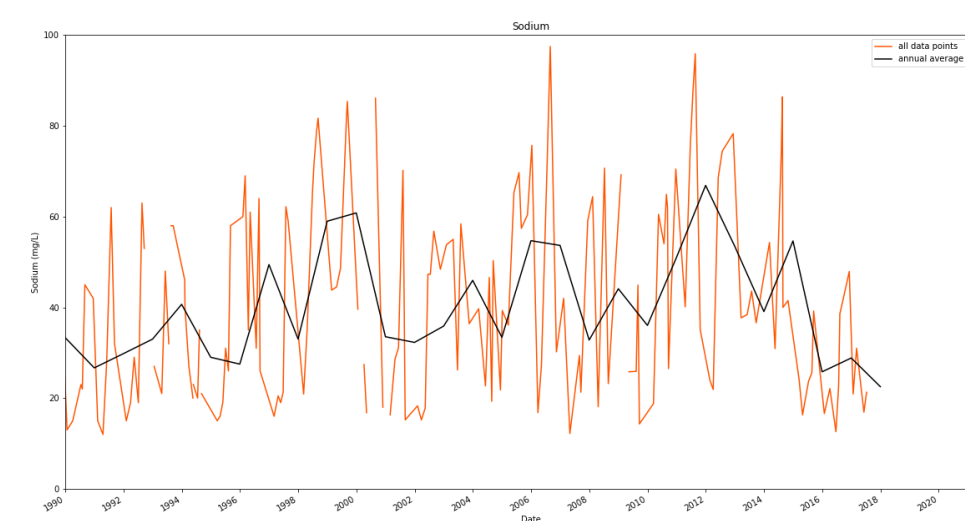


Figure 7: Timeseries of sodium concentration.

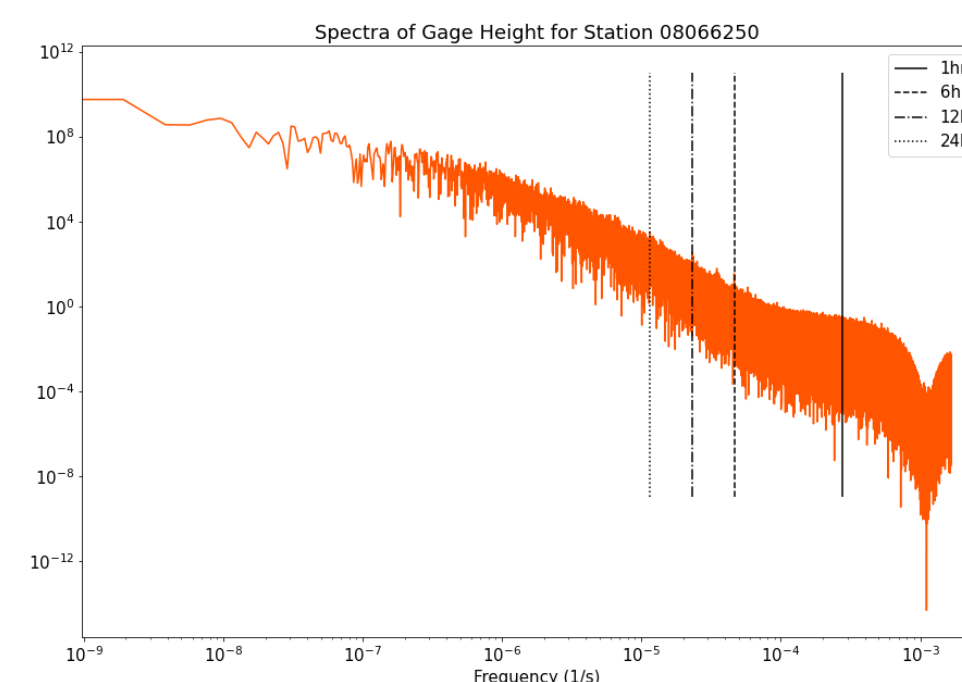
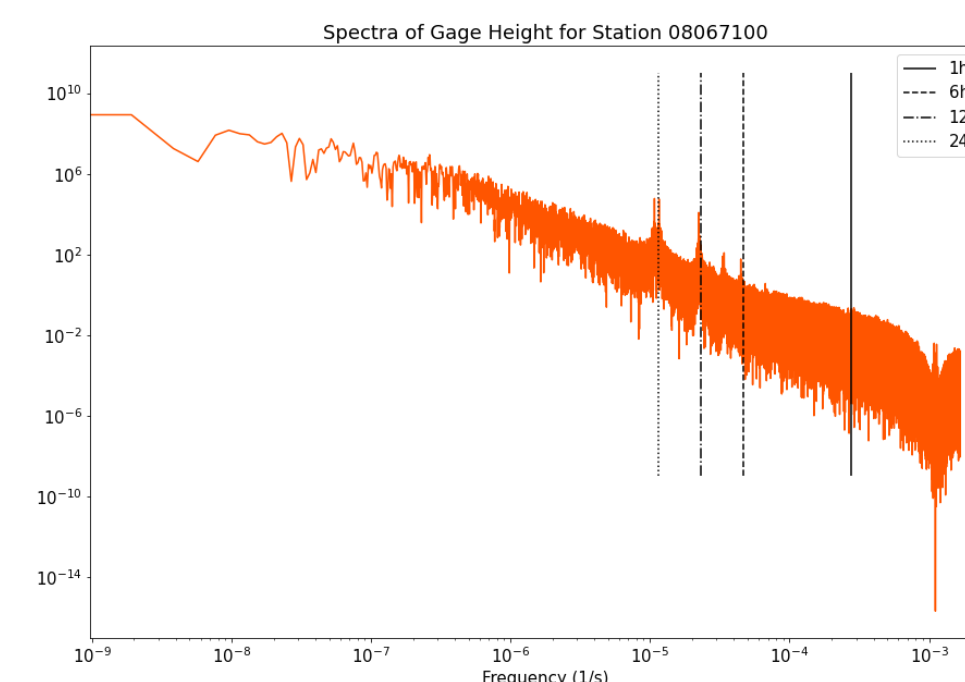


Figure 8: Trinity River spectra of gage height for stations in Goodrich, TX (left) and Moss Bluff, TX (right). Several frequencies are noted as vertical lines for reference.



Delaware River

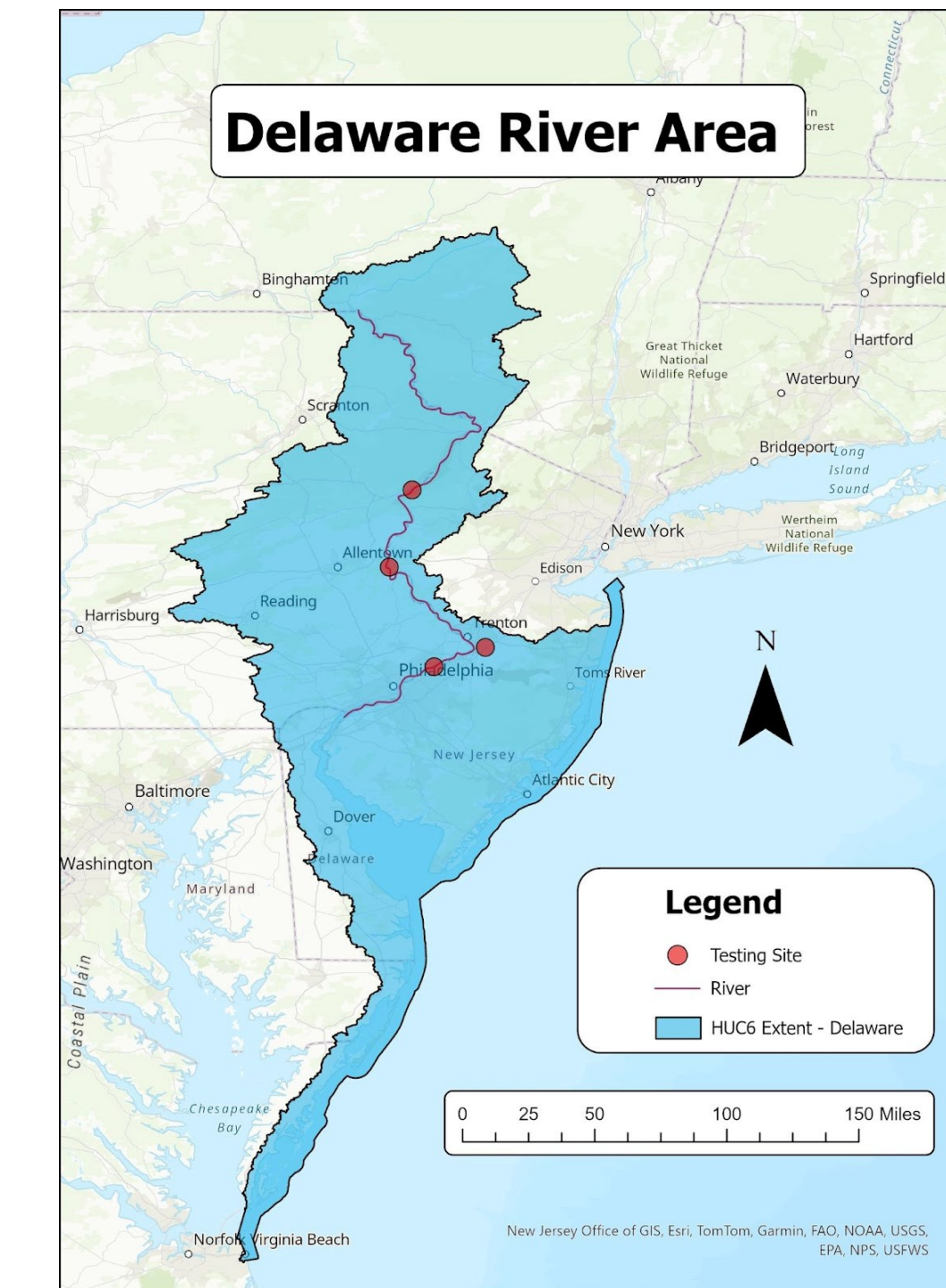


Figure 1: Delaware River HUC4 watershed extent.

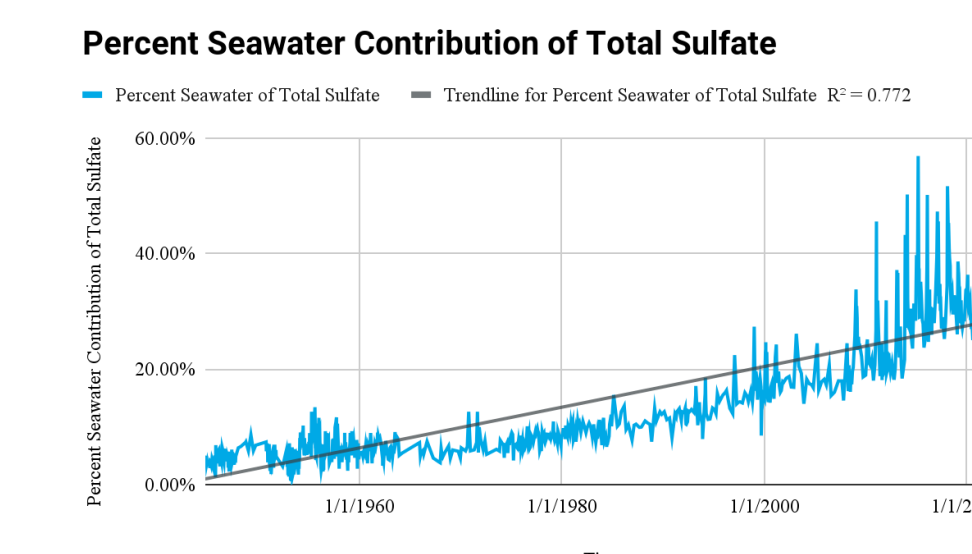


Figure 2: Timeseries of the % sulfate from seawater.

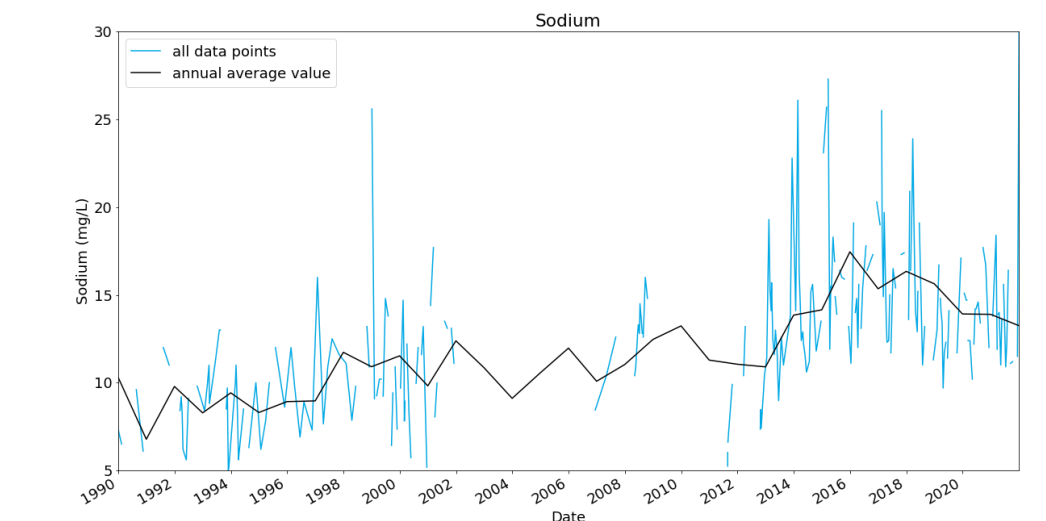


Figure 3: Timeseries of sodium concentration.

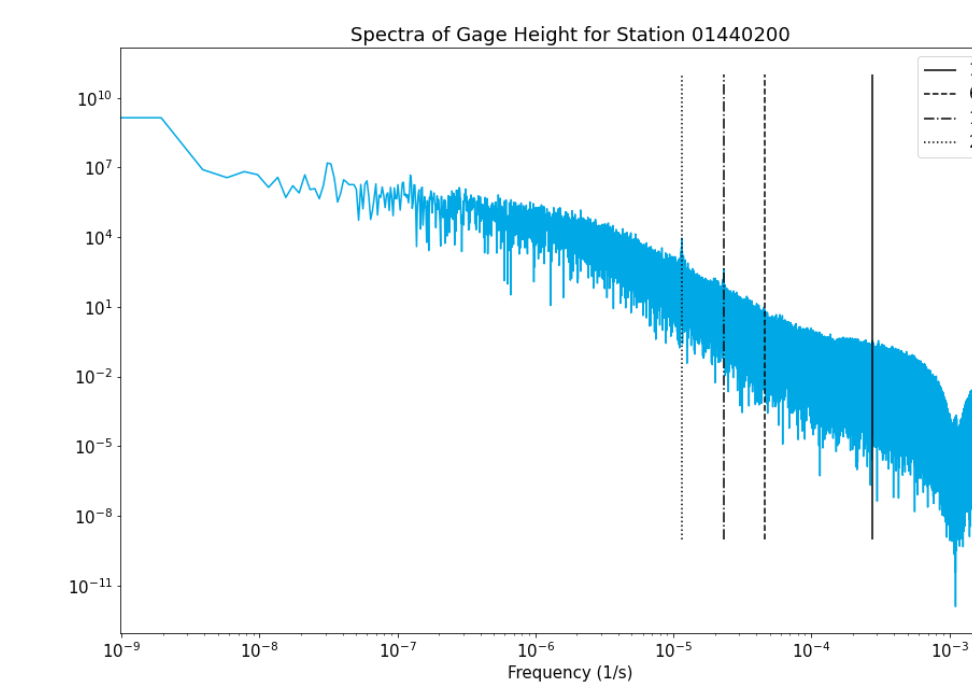
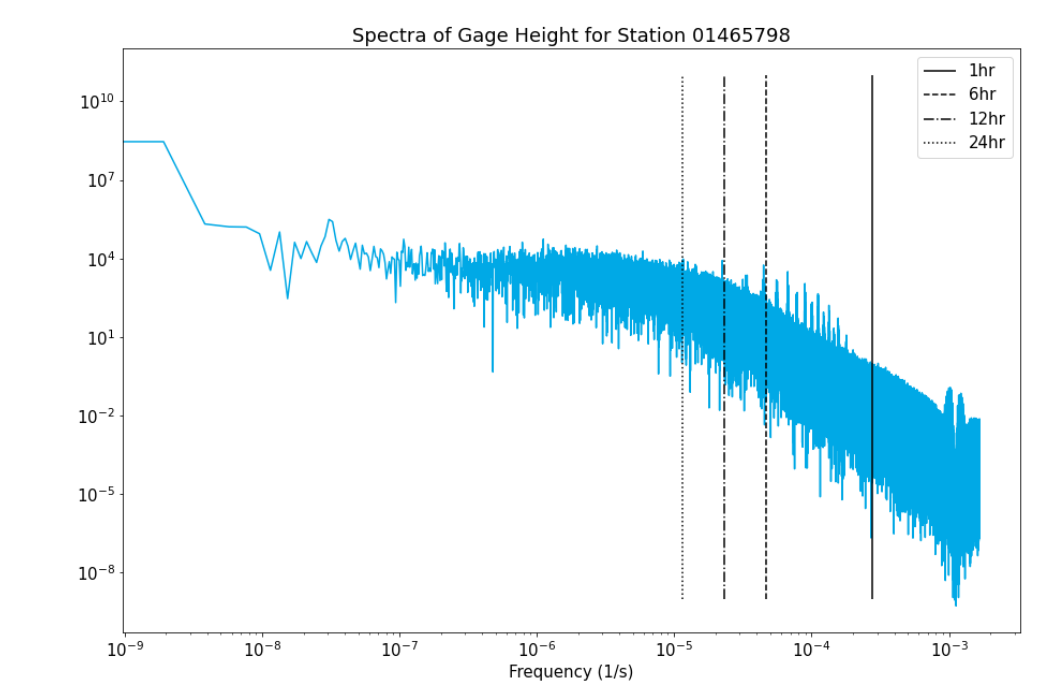


Figure 4: Delaware River spectra of gage height for stations in the Delaware Water Gap, PA (left) and Philadelphia, PA (right). Several frequencies are noted as vertical lines for reference.



Conclusions:

- Tidal extent** seems to be increasing in the Delaware basin (based on tidal frequencies and sulfate contribution), while the other two basins are less conclusive.
- Developed land** is increasing across all 3 basins, while **farmland** is only increasing on the Trinity and Columbia Rivers.

- Streamgaging coverage**, particularly of water quality stations, should be improved to monitor tidal basins in a changing climate.
- Additionally, improved gaging will better define agency **jurisdiction** and allow for more effective tidal river **regulations**.