

Comparison of Water Quality in Proctor Creek and the Chattahoochee River

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Introduction

Does the water quality at Proctor Creek deviate significantly from that of the upstream Chattahoochee River?

3 Features of interest: E.coli, Conductance, and Turbidity

Approaches:

3D Clustering Models (K-Means)

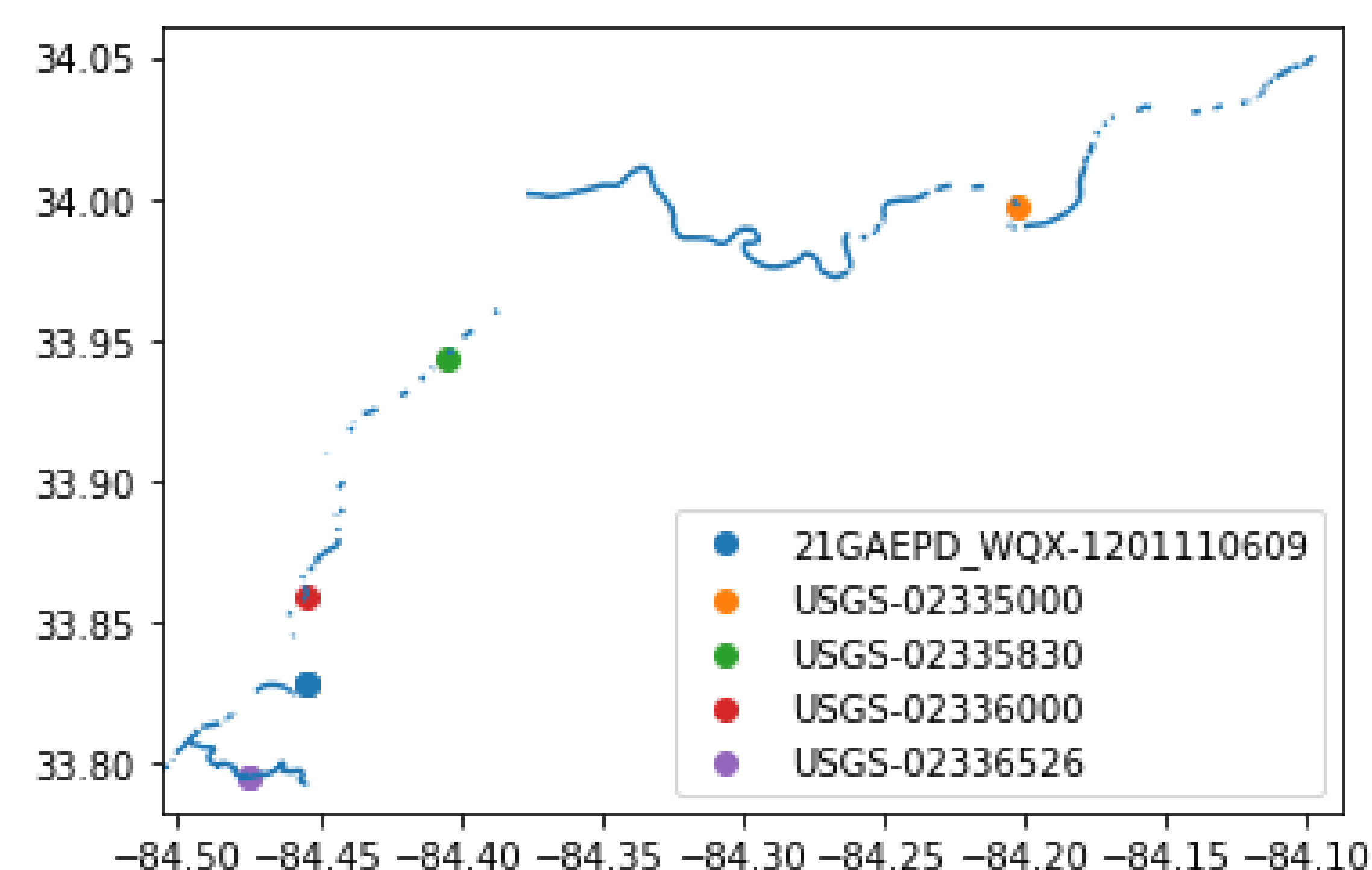
2D Classification Validation (Gaussian Mixture Model)

Data Querying

Geospatial data filtered for monitoring sites with 200+ activity count

Standardized metric units

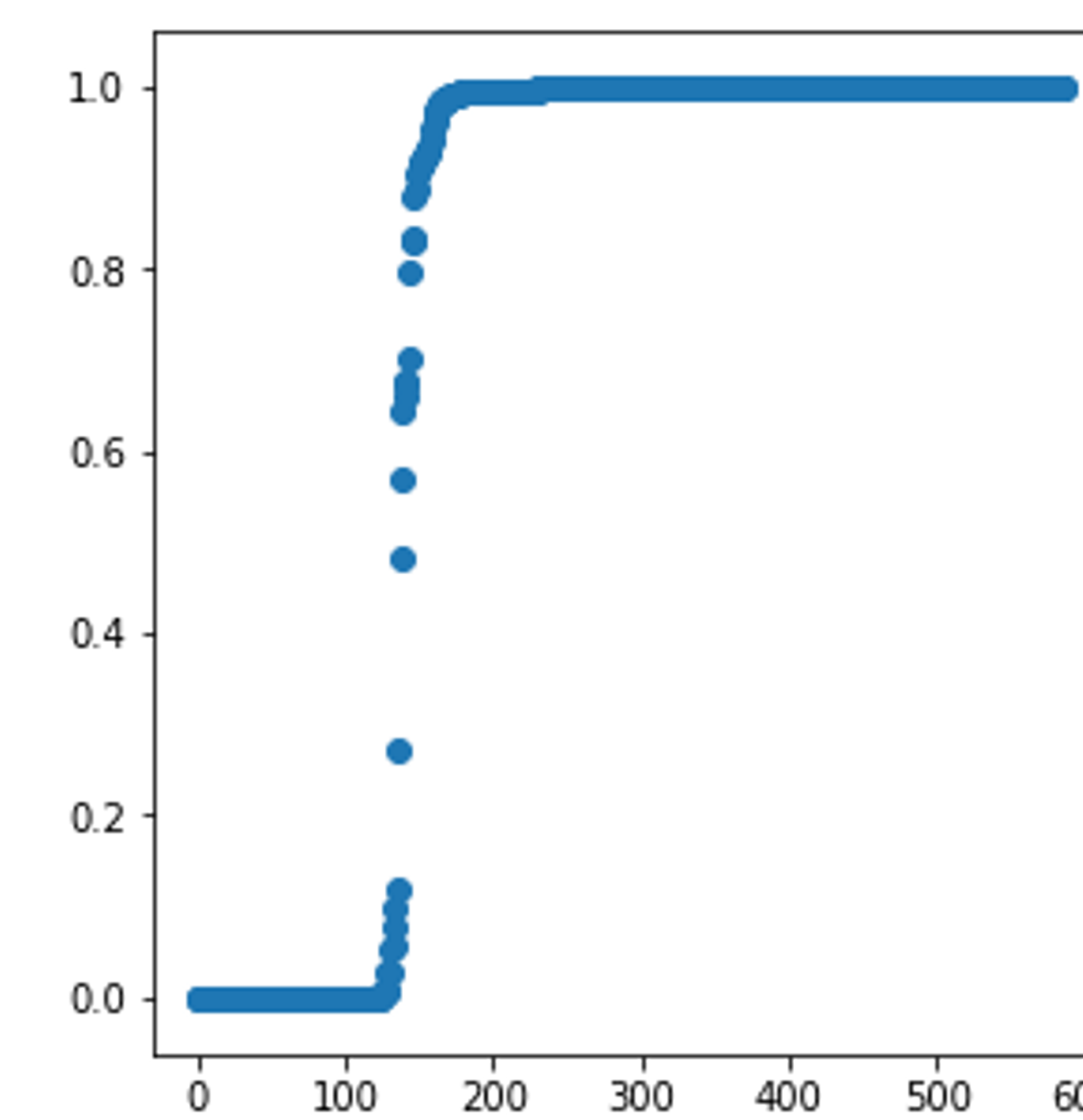
Dataset split into test and train sets



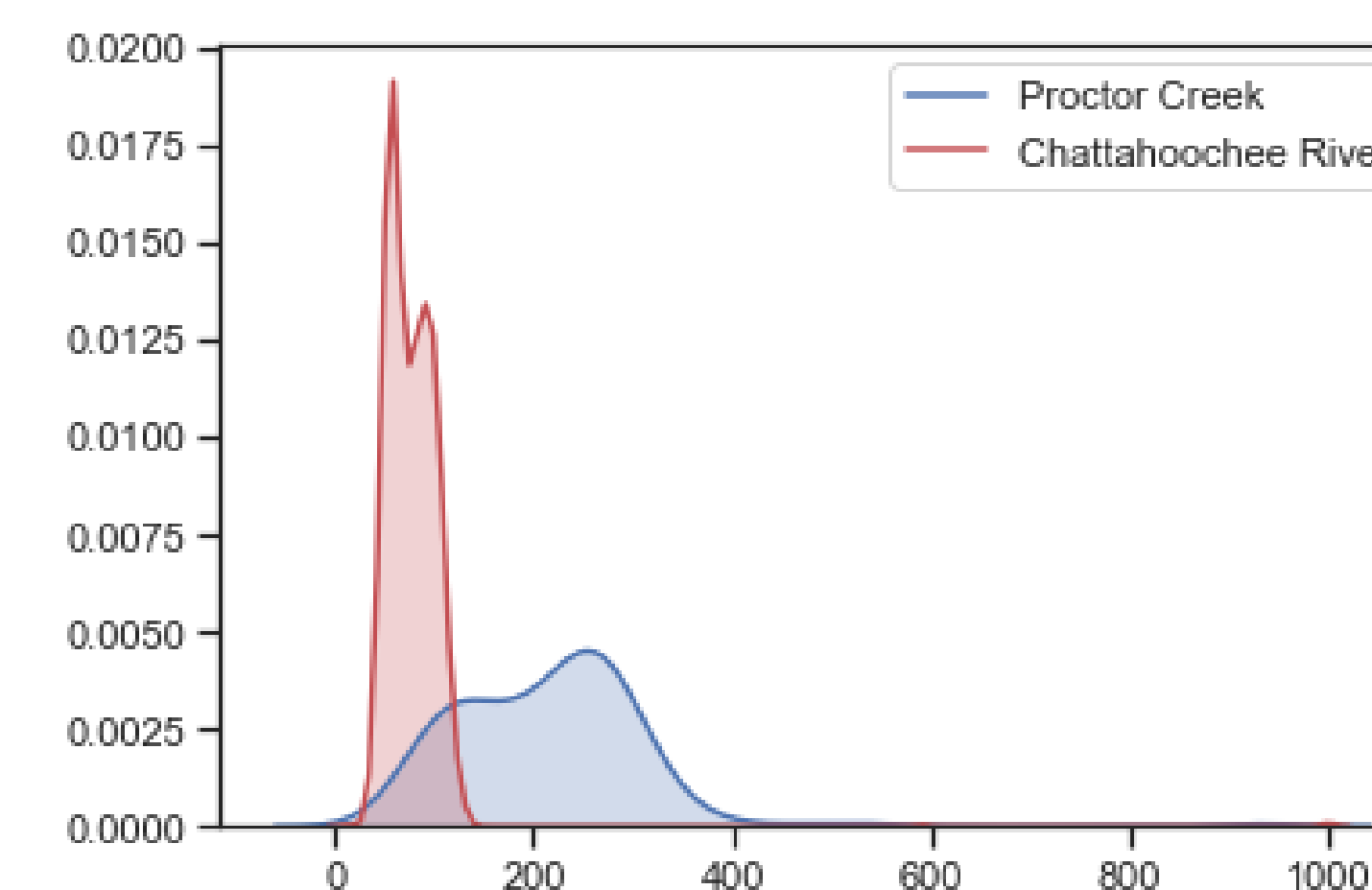
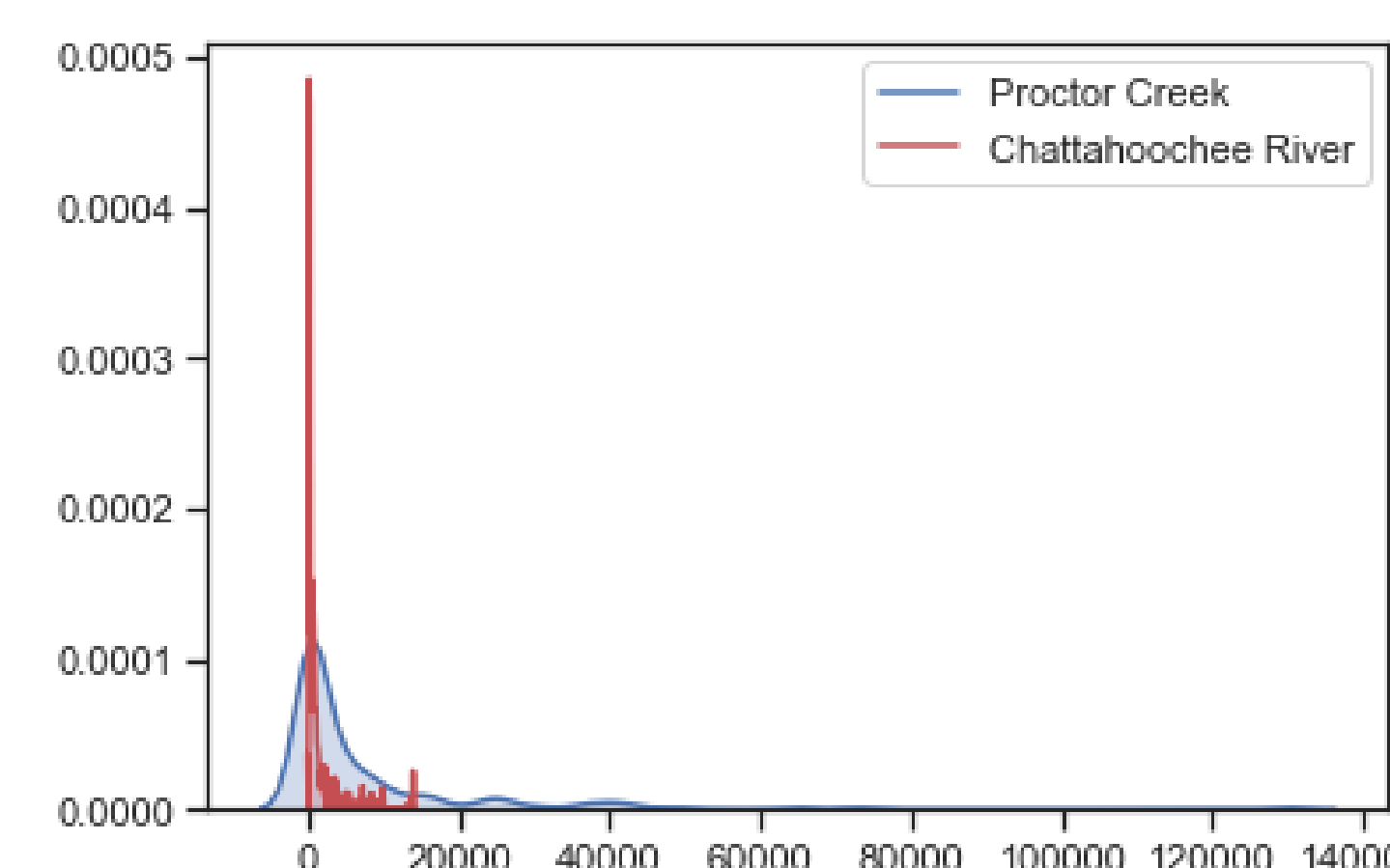
Gaussian Mixture Model

Based on E. coli data, Proctor Creek points are outliers to the Chattahoochee dataset.

- On average, Proctor Creek water quality is worse than Chattahoochee

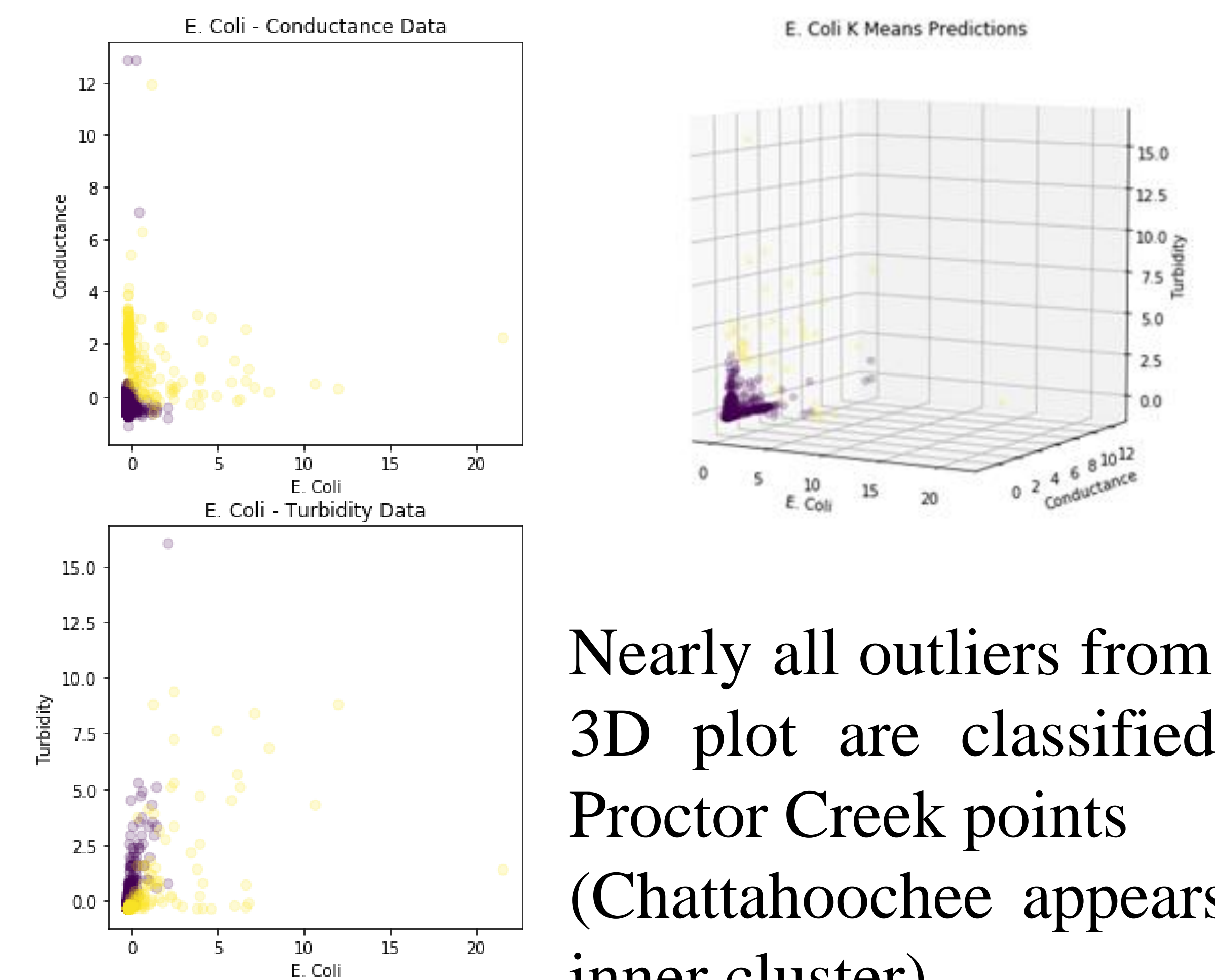


Comparison



Proctor Creek has much more variability in both e. coli content (top) and conductance (bottom). The two watersheds show similar distribution for turbidity.

k-Means Model



Nearly all outliers from the 3D plot are classified as Proctor Creek points (Chattahoochee appears as inner cluster)

Conclusions

Based on collated data across different sites, the distribution of water quality at Proctor Creek differs significantly from that of the Chattahoochee River.

The following action items are recommended:

- Rely on Proctor Creek data, not Chattahoochee data, to determine effective ways to improve water quality
- Publish consistent Chattahoochee Riverkeepers data during same time scale as other USGS sites

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