



April 8, 2021

Department of Environmental Quality



Rocky River Water Quality Study Plan

Overview



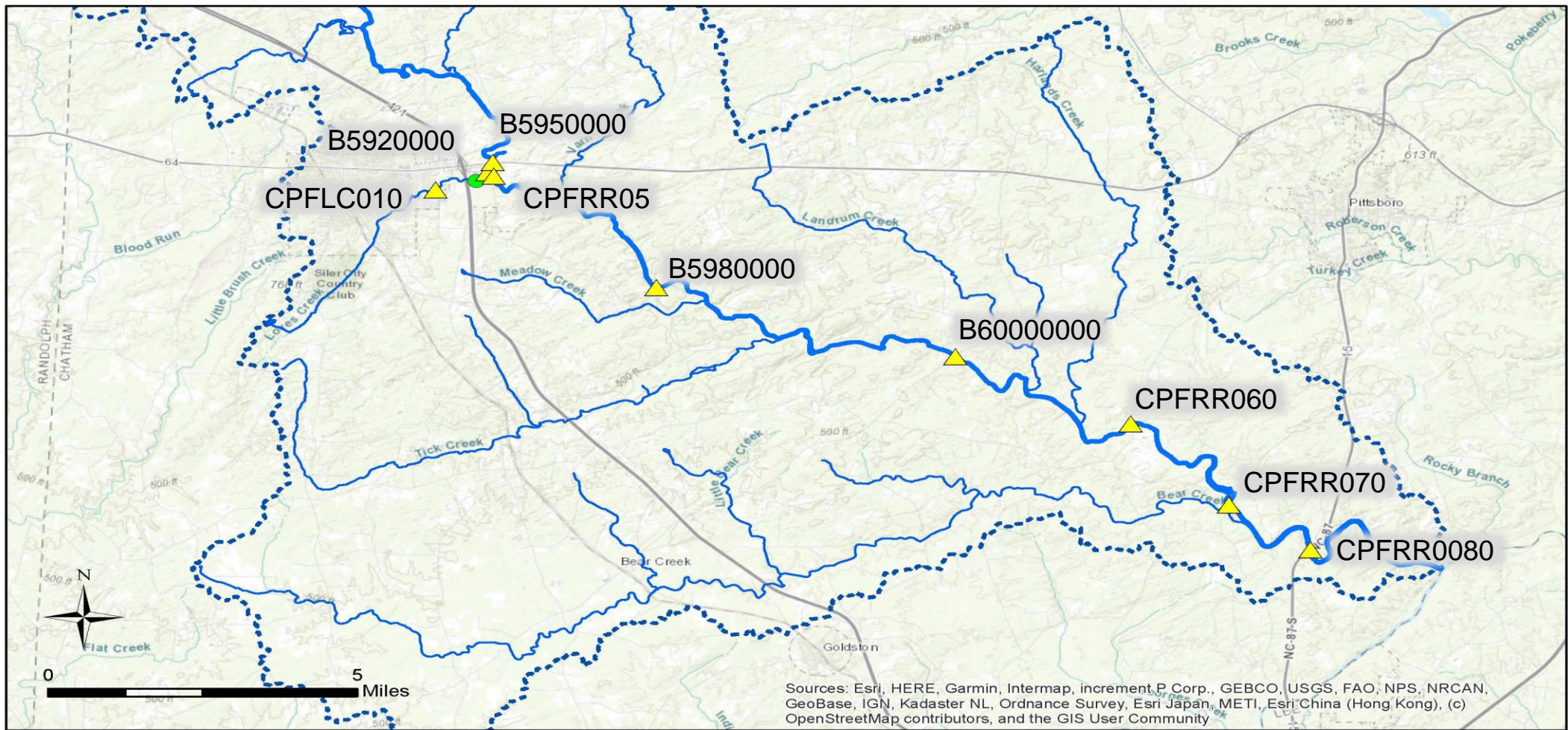
- Background
 - Basin Planning (DWR)
 - July 2020
 - Mussel mortality
 - Elevated ammonia
 - Intensive Survey Branch (DWR)
 - Study plan
 - Chemical & physical parameters

Rocky River Water Quality Study Plan

Overview

Physical Parameters	Chemical Parameters
Temperature (°C)	Turbidity (NTU)
pH (s.u.)	Total Residue (mg/L)
Dissolved Oxygen (mg/L)	Suspended Residue (mg/L)
Dissolved Oxygen (% sat)	Nitrate + Nitrite (mg/L)
Conductivity (µS/cm)	Total Kjeldahl Nitrogen (mg/L)
Ammonia (mg/L)	Ammonia as N (mg/L)
	Biochemical Oxygen Demand, 5-day (mg/L)
	Chlorophyll α (mg/L)

- Water Quality Measurements
 - Primary focus
 - Nutrients
 - DO
 - pH
 - Frequency
 - Monthly
 - Deployable meters
 - Broad focus
 - In situ cages



Legend

- Siler City WWTP
- ▲ Sampling Location
- River Basin Boundary

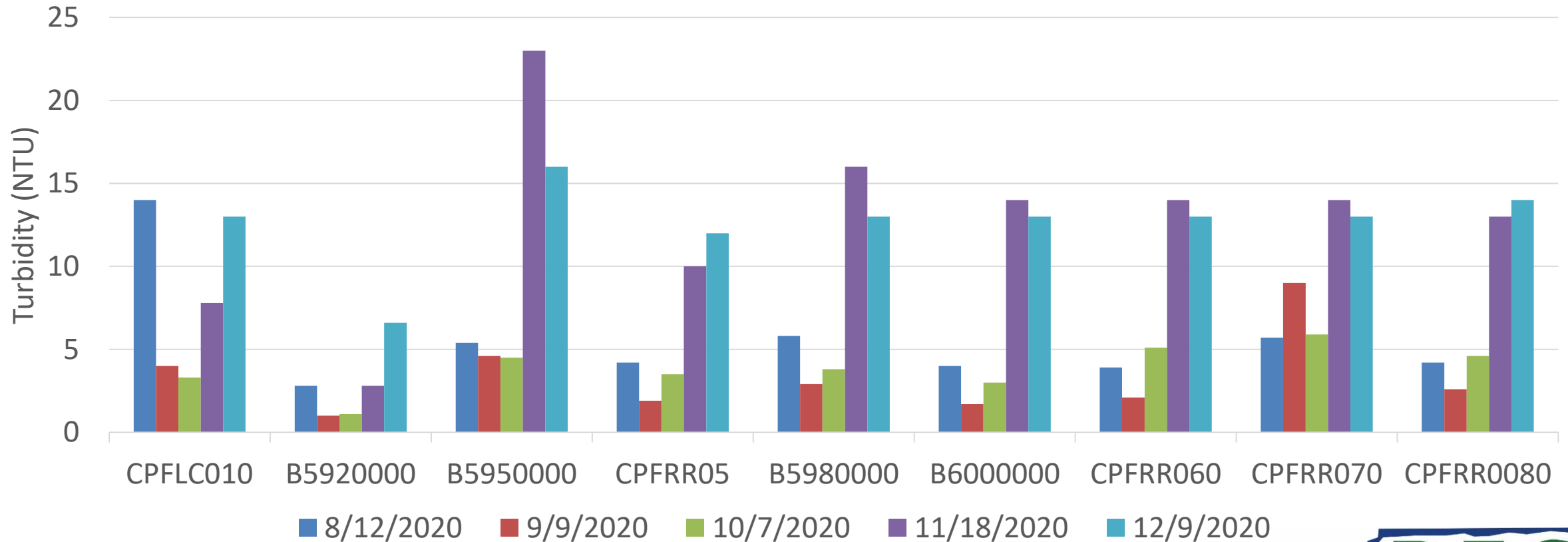


2020 Lower Rocky River Ammonia Source Investigation Cape Fear River Basin



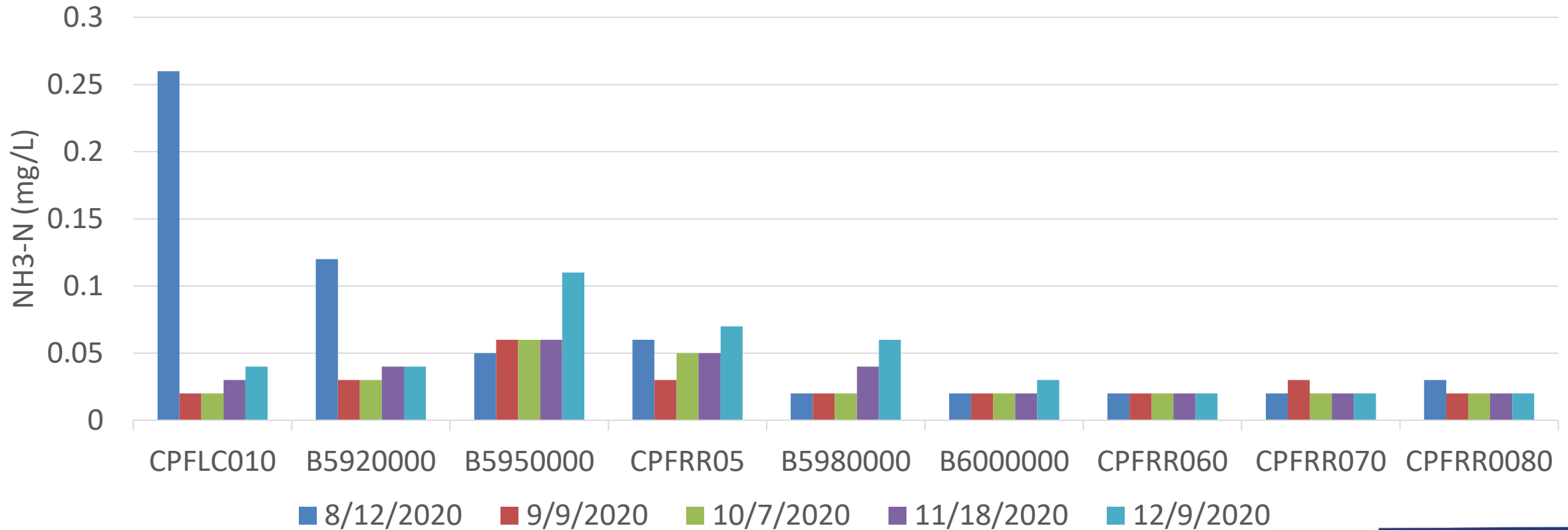
Rocky River Water Quality

Rocky River – Turbidity



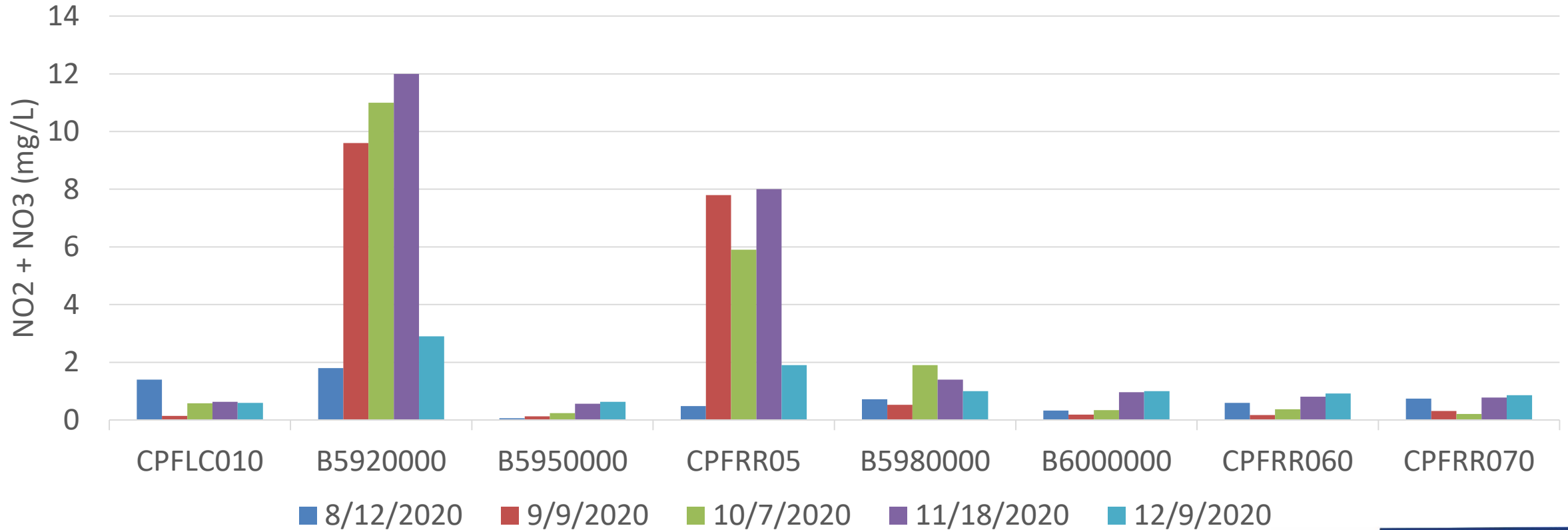
Rocky River Water Quality

Rocky River – Ammonia



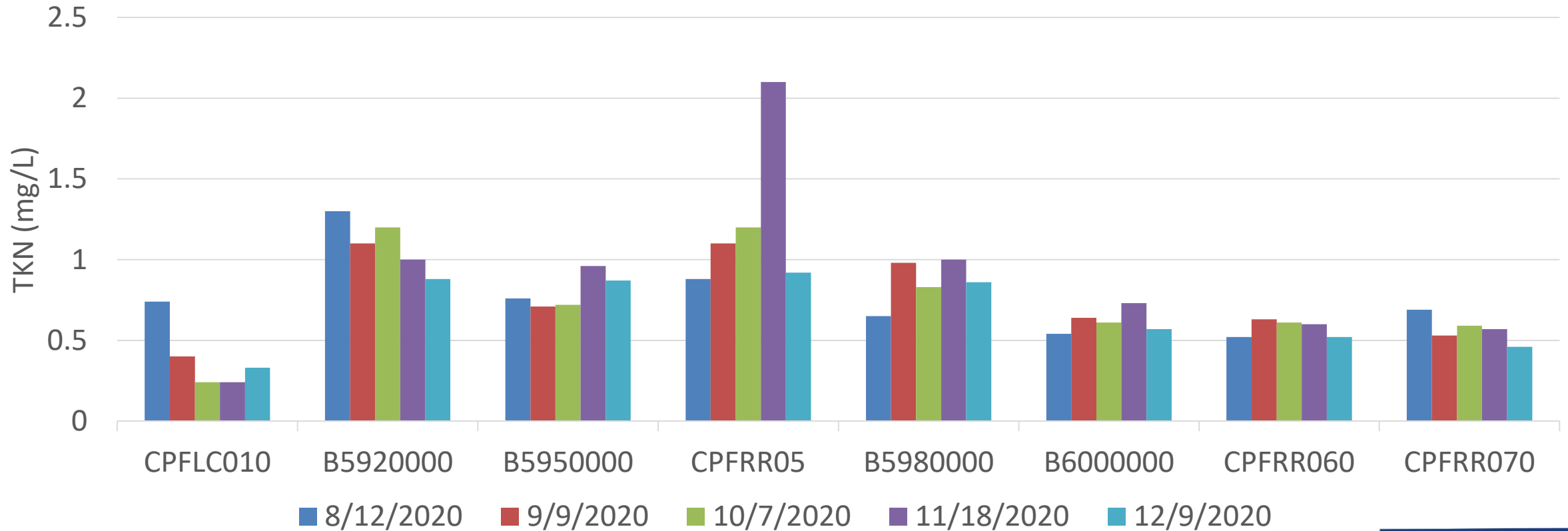
Rocky River Water Quality

Rocky River – Nitrite + Nitrate



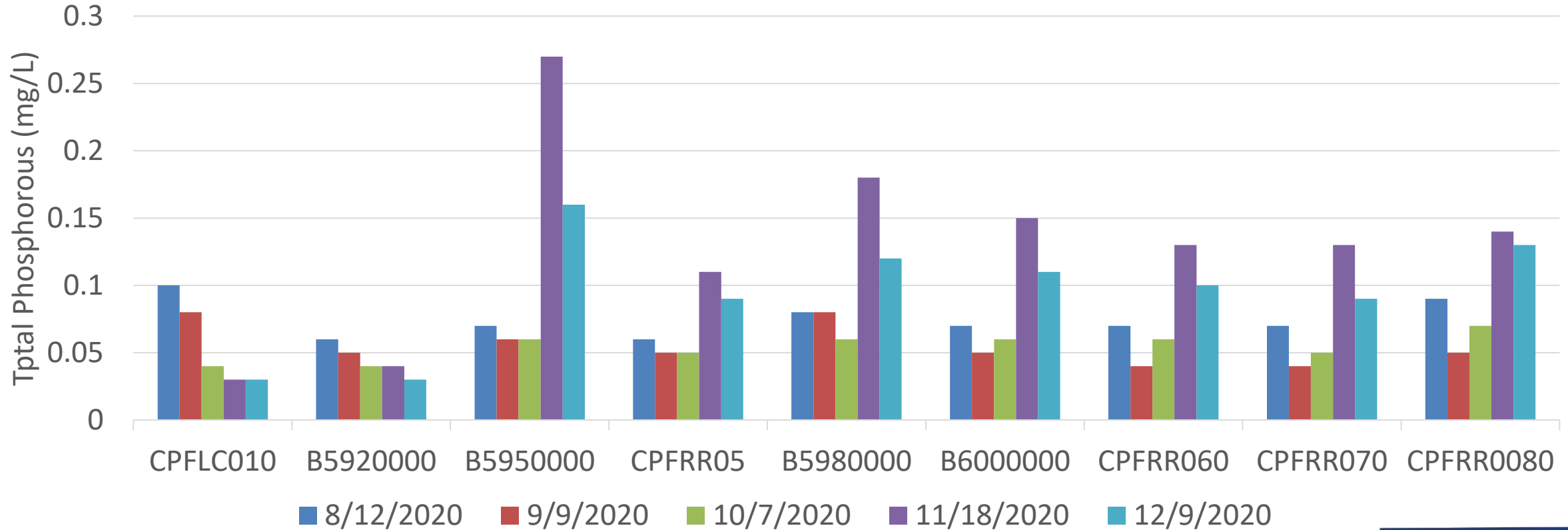
Rocky River Water Quality

Rocky River – Total Kjeldahl Nitrogen



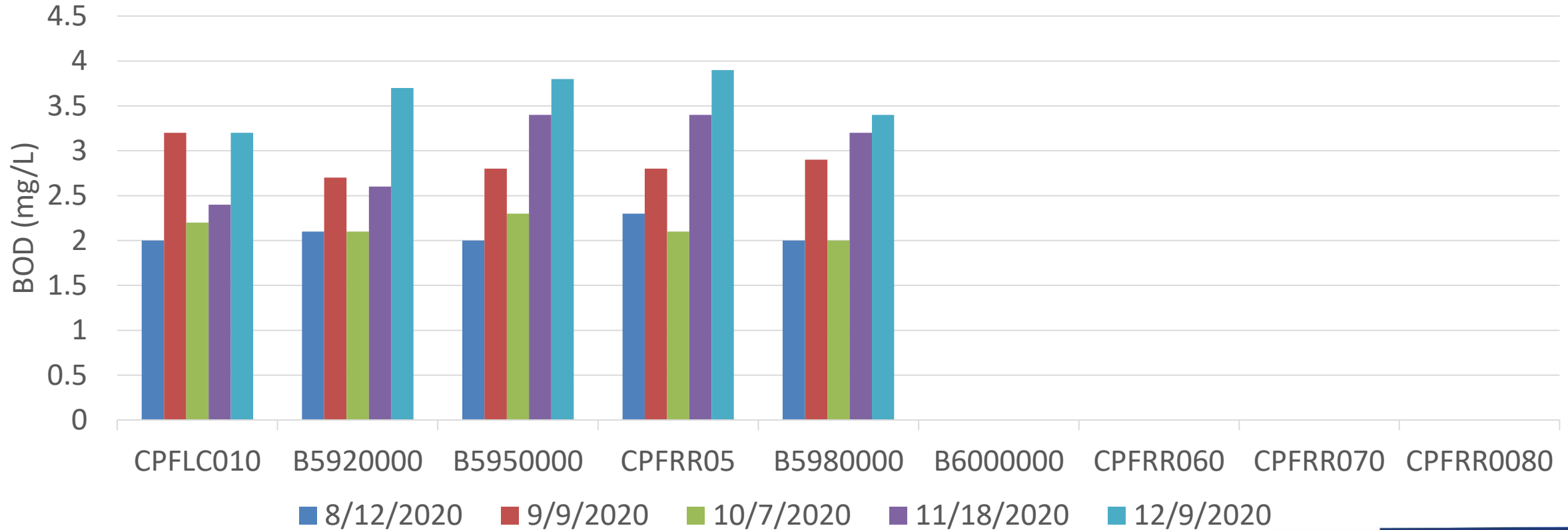
Rocky River Water Quality

Rocky River – Phosphorous



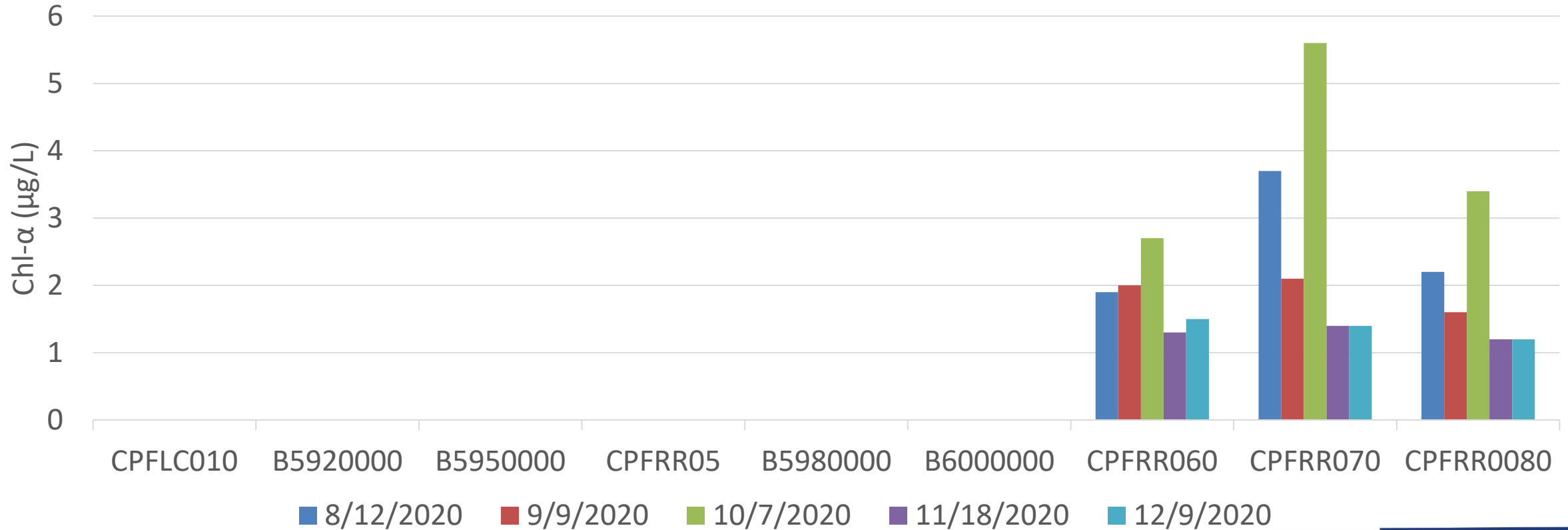
Rocky River Water Quality

Rocky River – Biochemical Oxygen Demand (5-day)



Rocky River Water Quality

Rocky River – Chlorophyll- α



Rocky River Water Quality Study Plan

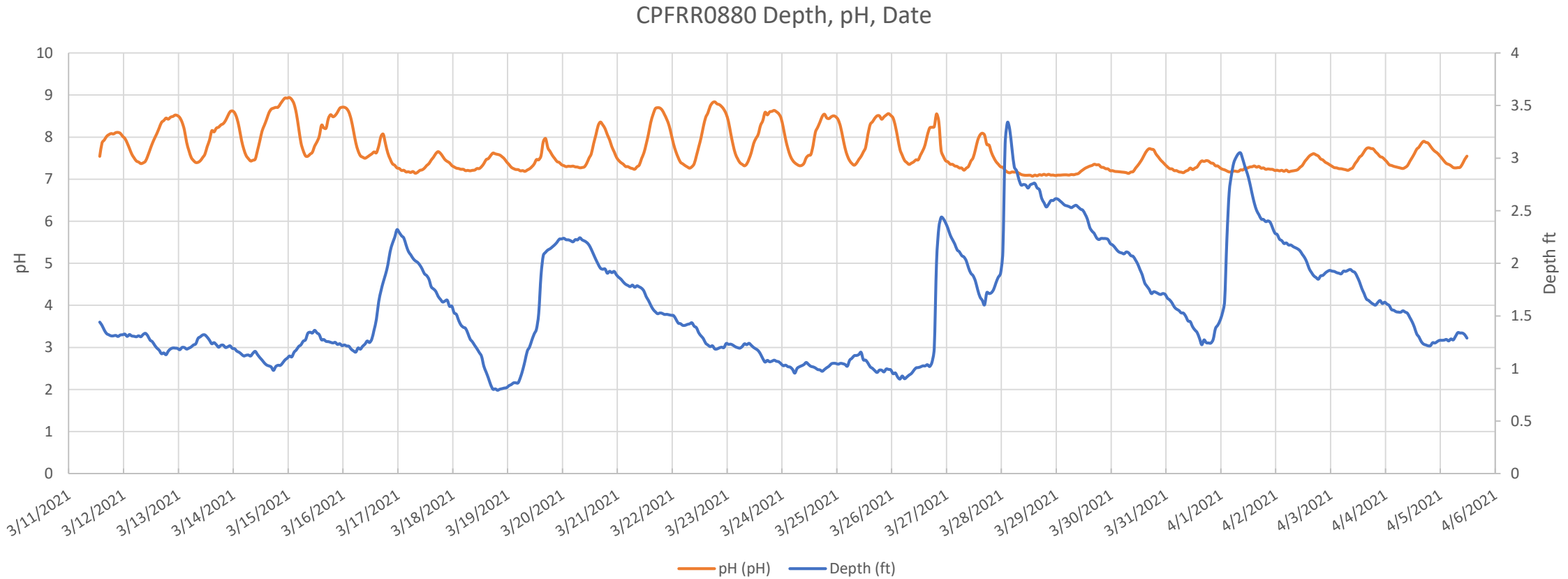
Summary



- Water Quality Measurements
 - Ammonia
 - Relatively stable (decreasing downstream)
 - Nitrite + Nitrate
 - Highly influenced by WWTP
 - TKN and TP
 - Decreased
 - BOD
 - Uniform
 - Chl- α
 - Elevated at Woody's Dam (Aug & OCT)

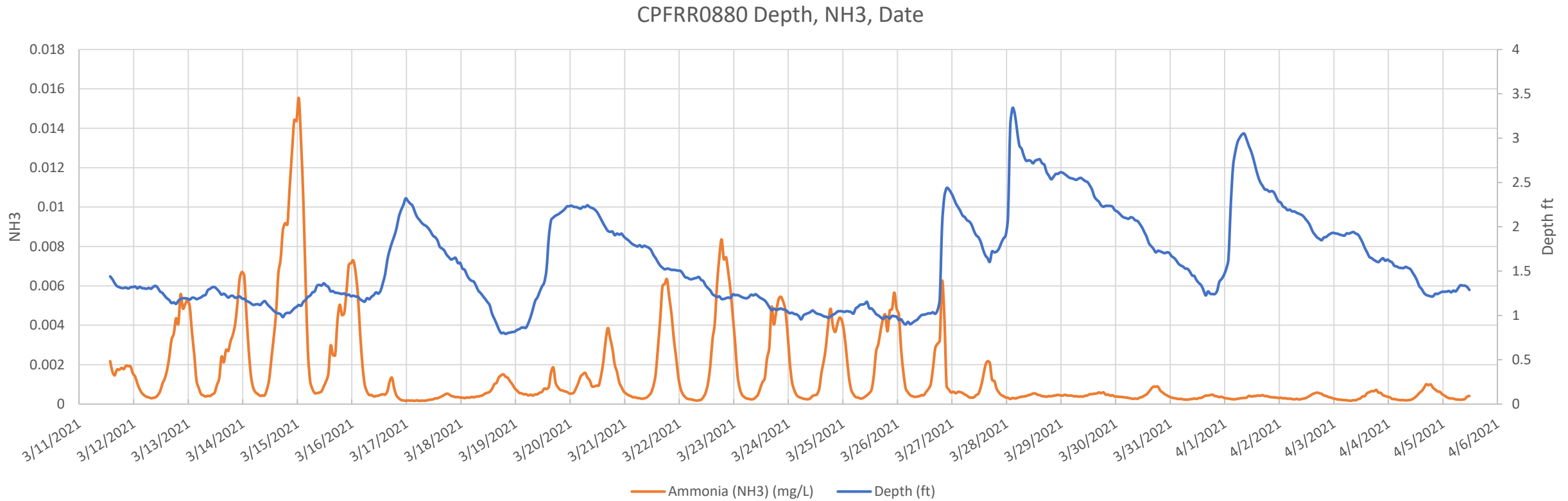
Rocky River Water Quality

Rocky River – pH



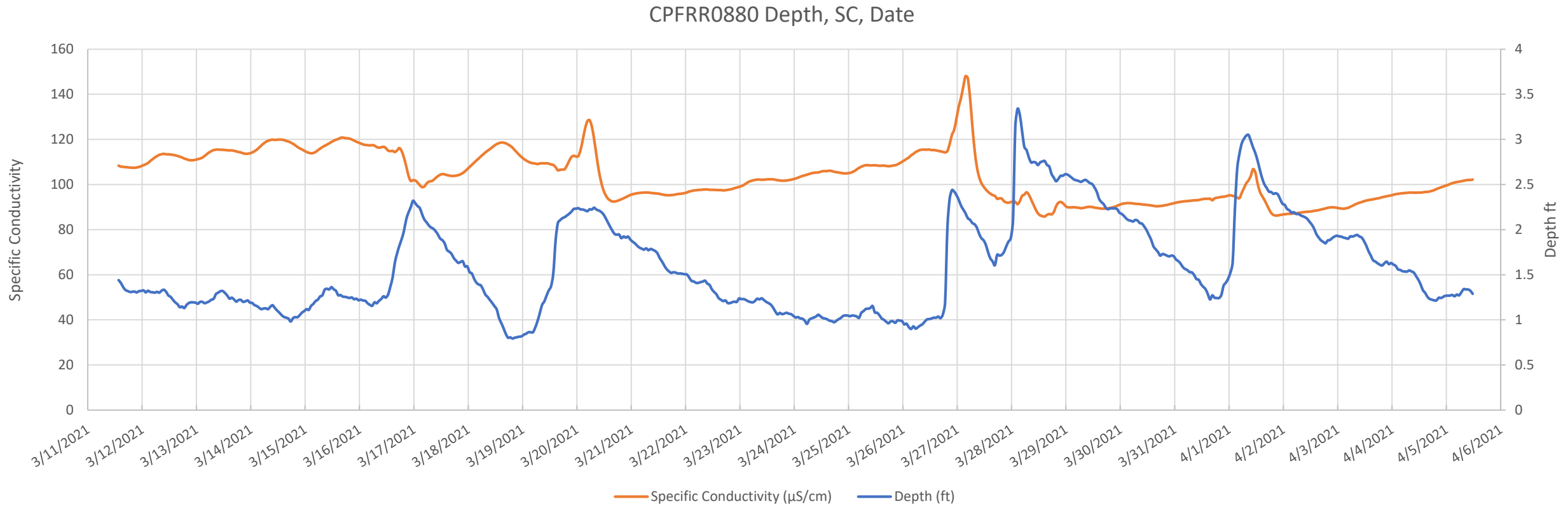
Rocky River Water Quality

Rocky River – NH3



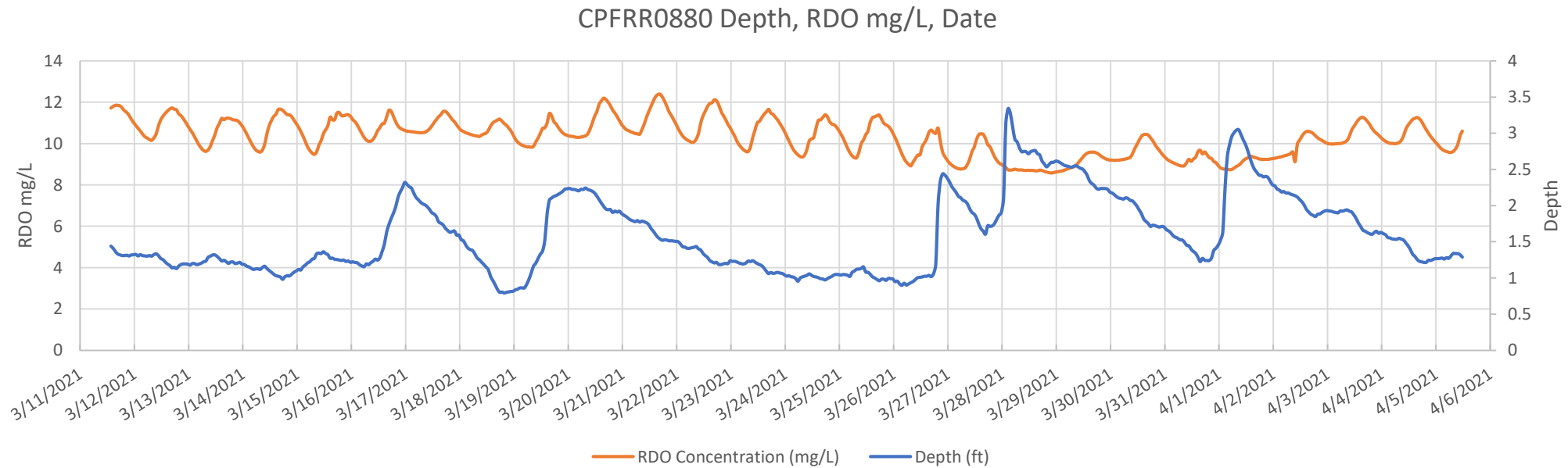
Rocky River Water Quality

Rocky River – Specific Conductivity



Rocky River Water Quality

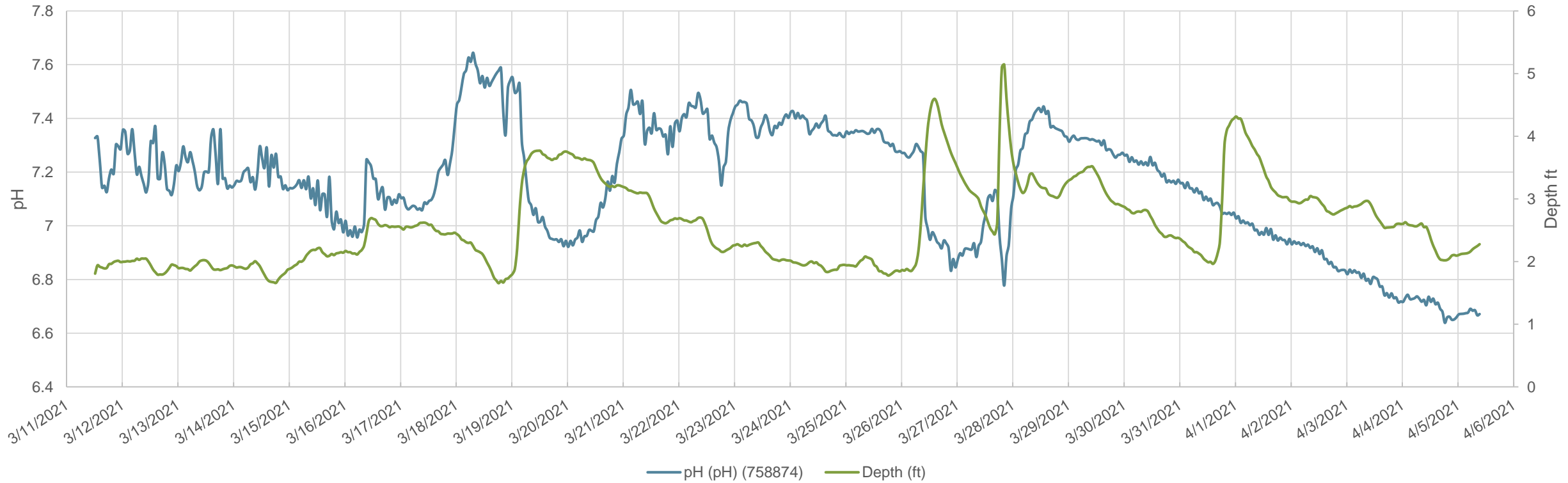
Rocky River – RDO mg/L



Rocky River Water Quality

Rocky River – pH

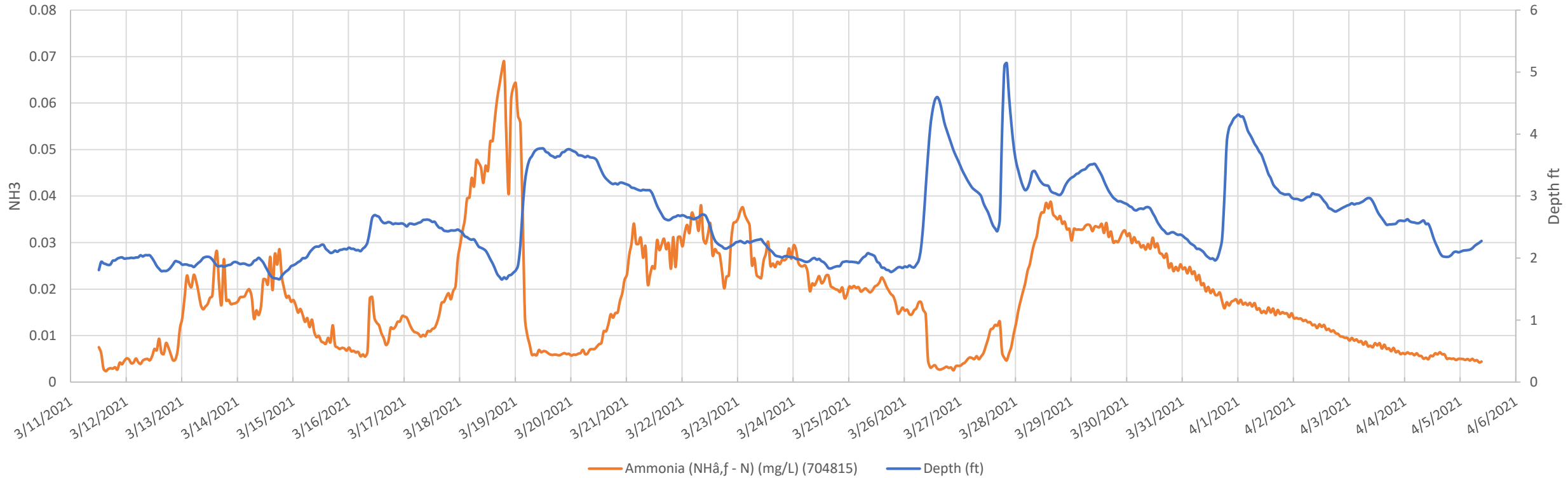
CPFRR05 Depth, pH, Date



Rocky River Water Quality

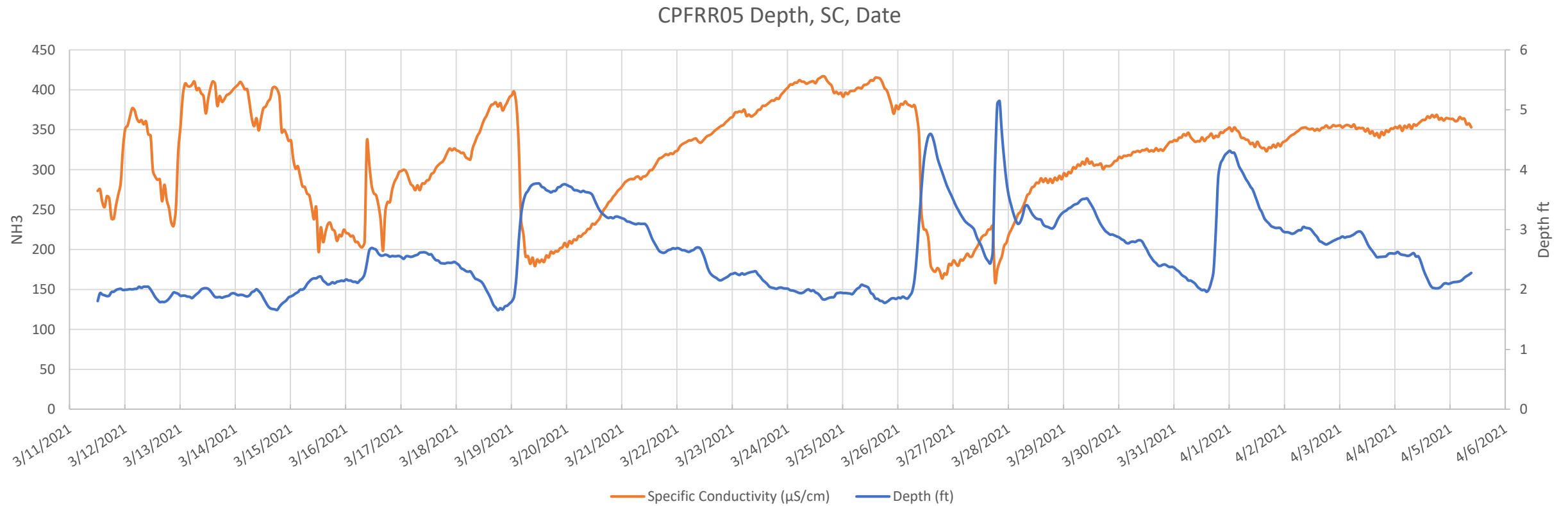
Rocky River – NH3

CRPRR05 Depth, NH3, Date



Rocky River Water Quality Study Plan

Summary

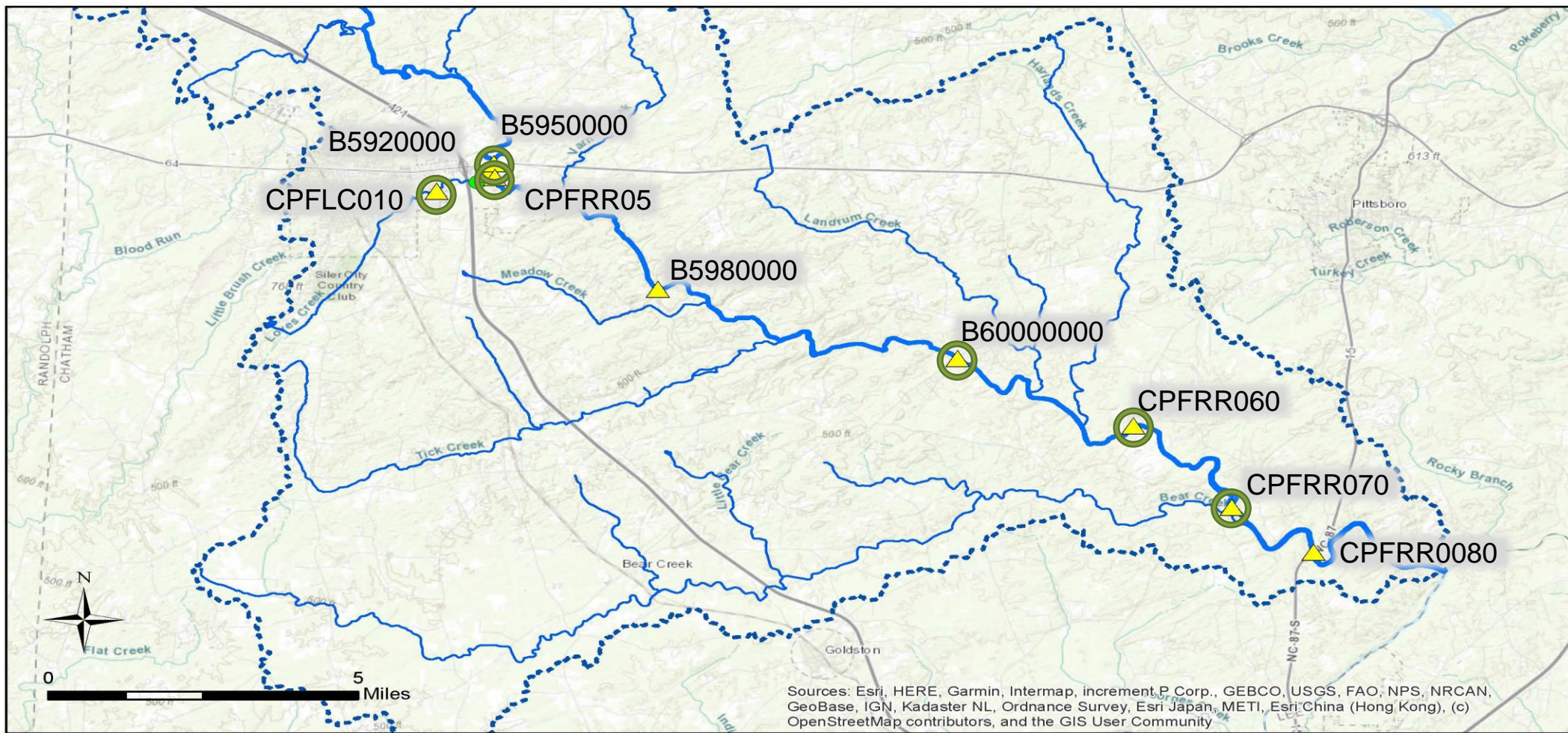


Rocky River Water Quality Study Plan

In Situ Freshwater Mussel Cages



- Bioindicator
 - Eastern Elliptio (*Elliptio complanata*)
 - n=48 (8 mussels/cage)
 - Collected from RR near Liberty, NC
 - Monitoring
 - Temperature
 - Mortality
 - Condition
 - Potential for tissue analysis



Legend

- Siler City WWTP
- ▲ Sampling Location
- River Basin Boundary



2020 Lower Rocky River Ammonia Source Investigation Cape Fear River Basin



Questions?

