

Summary of Data

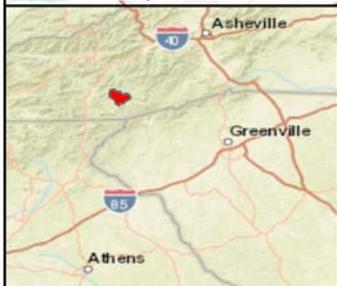
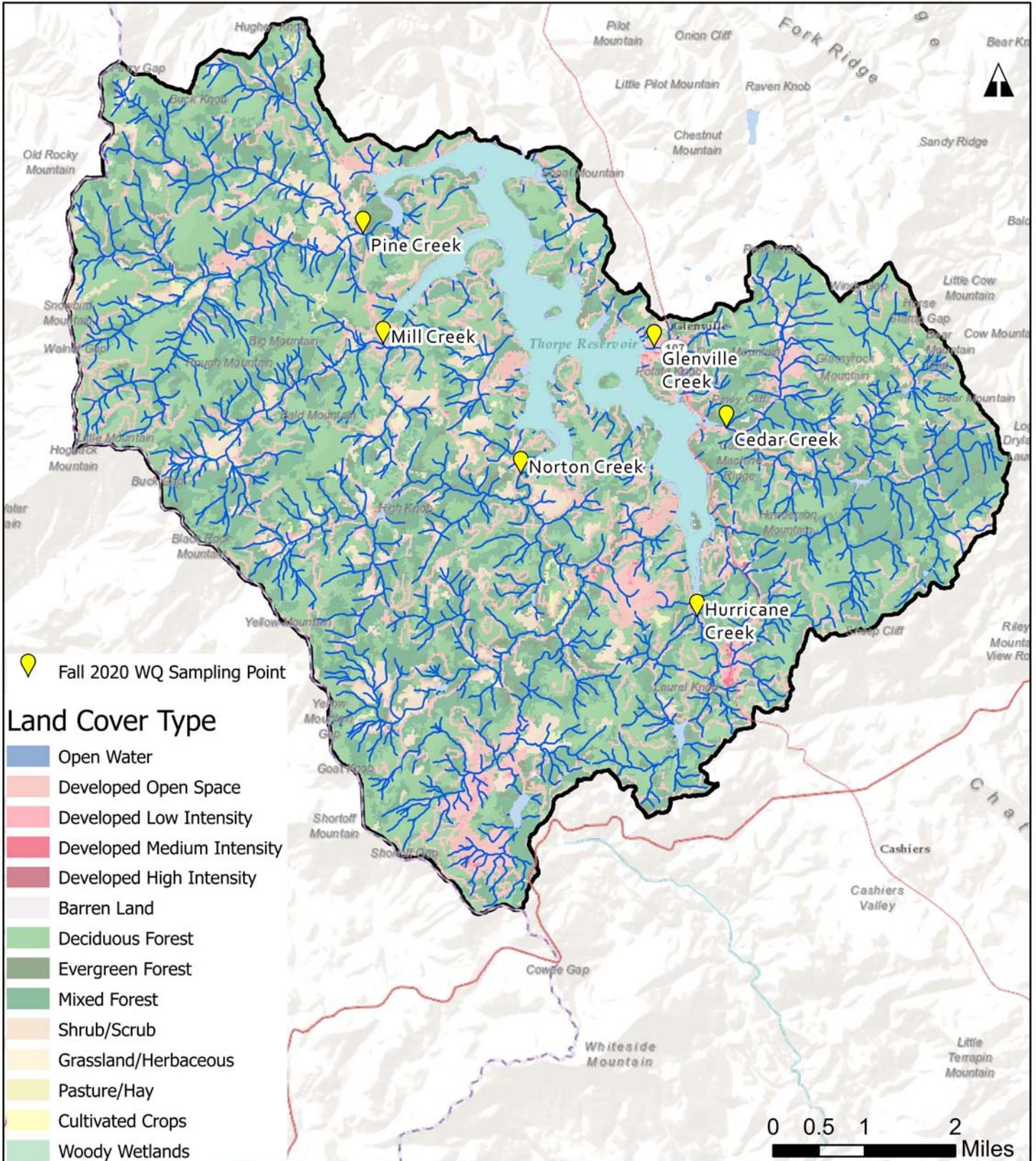
Water quality sampling occurred at six sites within the Lake Glenville watershed on 11/19/20. All sites were located as close as possible to sites sampled in previous monitoring years. This was a dry weather sampling with antecedent conditions of at least three days prior being dry, as well. The suite of parameters sampled included water temperature, dissolved oxygen, pH, alkalinity, specific conductivity, turbidity, ammonia, nitrate, phosphate, and fecal coliform. Overall, the water quality at the six tributaries to Lake Glenville as observed on 11/19/2020 was excellent.

Nutrient concentrations (ammonia, nitrate, and phosphate) at all sites were similar to or lower than mean concentrations reported for 2019 and were below the regional means established by the Volunteer Water Information Network (VWIN). Lower nutrient concentrations relative to annual means in previous years was expected given the cooler weather (50-60°F) and dry weather conditions. This sampling event serves as a good baseline for water quality. A warmer weather event sampling event, when fertilizing of lawns and golf courses is occurring, will likely yield higher nutrient concentrations.

Bacteria was sampled for in the form of fecal coliform. Previous sampling had been for *E. Coli* bacteria. This makes direct comparison to previous monitoring years somewhat difficult, however, given that the fecal coliform concentrations are low, and that *E. Coli* is a subset of fecal coliforms, it is logical that *E. Coli* concentrations for this sampling event would also be extremely low. One important detail to note is that fecal coliform is the current NC water quality standard for bacteria. Under state rules, fecal coliform in fresh waters “shall not exceed a geometric mean of 200 colony forming units (CFU)/100mL based upon at least five consecutive samples examined during any 30-day period, nor exceed 400/100ml in more than 20 percent of the samples examined during such period.”. As such, any single sample is difficult to compare to the state standard, but as a rule of thumb low numbers are good and numbers exceeding 200 CFU/100mL are bad.

Dissolved oxygen (DO) is a parameter that was not included in the Western Carolina University reporting. Dissolved oxygen is temperature dependent and is the amount of oxygen dissolved in water. Dissolved oxygen is important for ecological health as most aquatic organisms need oxygen to survive and grow. Some species, such as trout and stoneflies, require high DO levels (>6 mg/L) for survival and trout show improved reproductive health when DO levels are above 10mg/L. Dissolved oxygen concentrations for the sampling event ranged between 9.7 and 10.8 mg/L.

Turbidity during the sampling event was below detection levels for three of the six sites and <1 NTU for the other three sites. Even for dry weather sampling, turbidity this low is rare as the regional VWIN mean is 6.2 NTU.



Lake Glenville Watershed

This map depicts water quality sampling locations and land cover types for the Lake Glenville watershed.

2021

Prepared by:

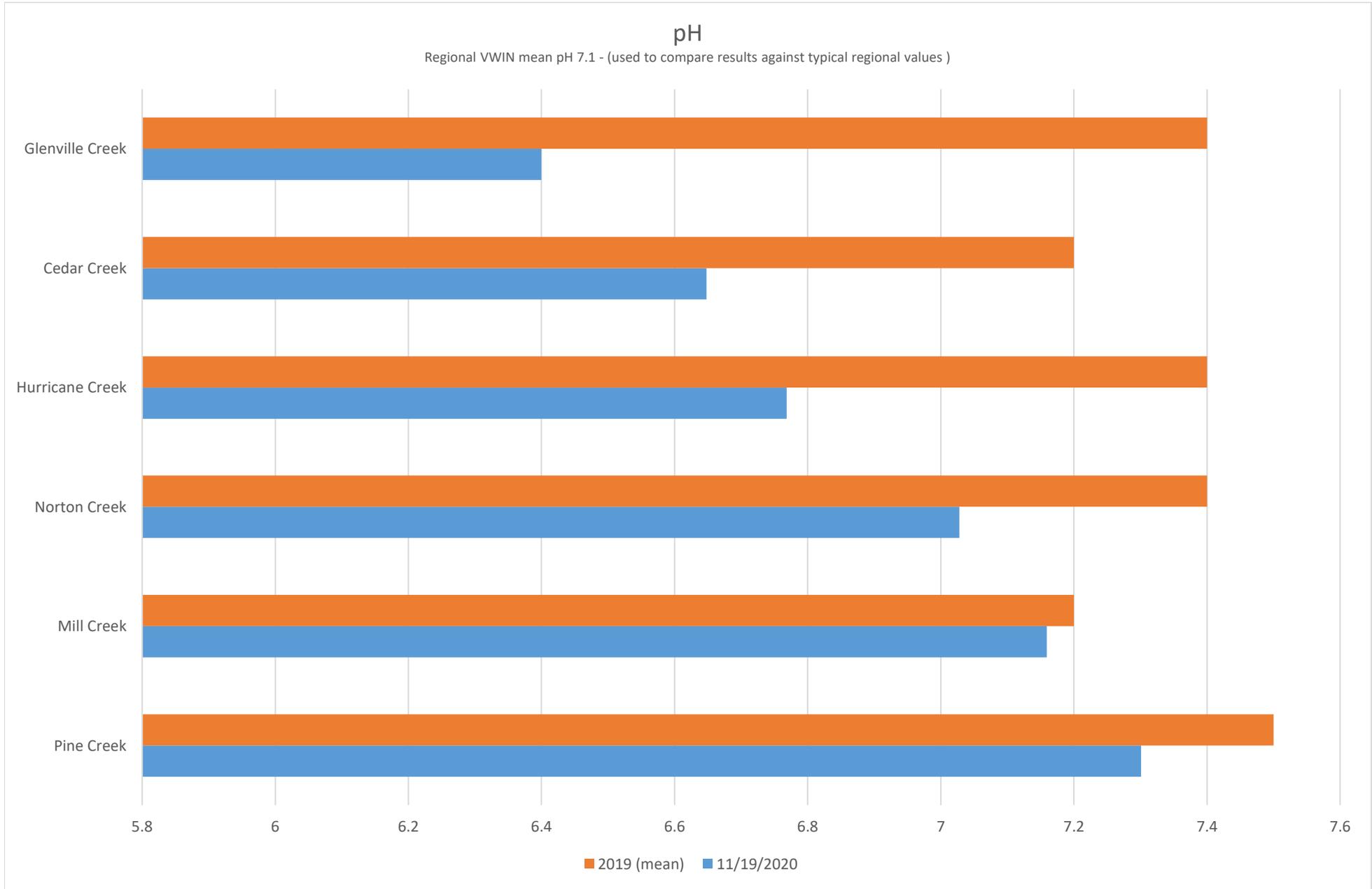


For:



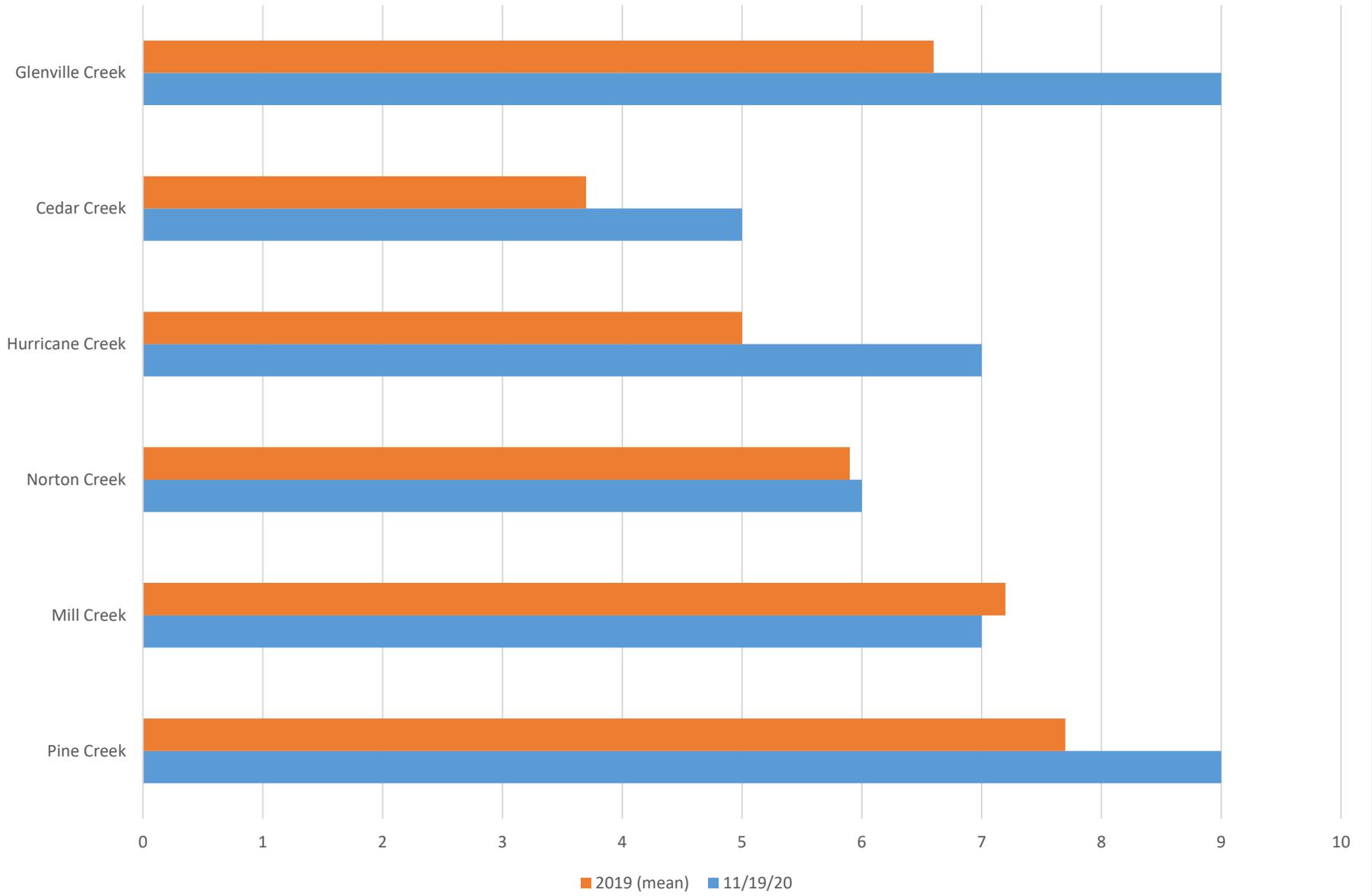
pH

Regional VWIN mean pH 7.1 - (used to compare results against typical regional values)



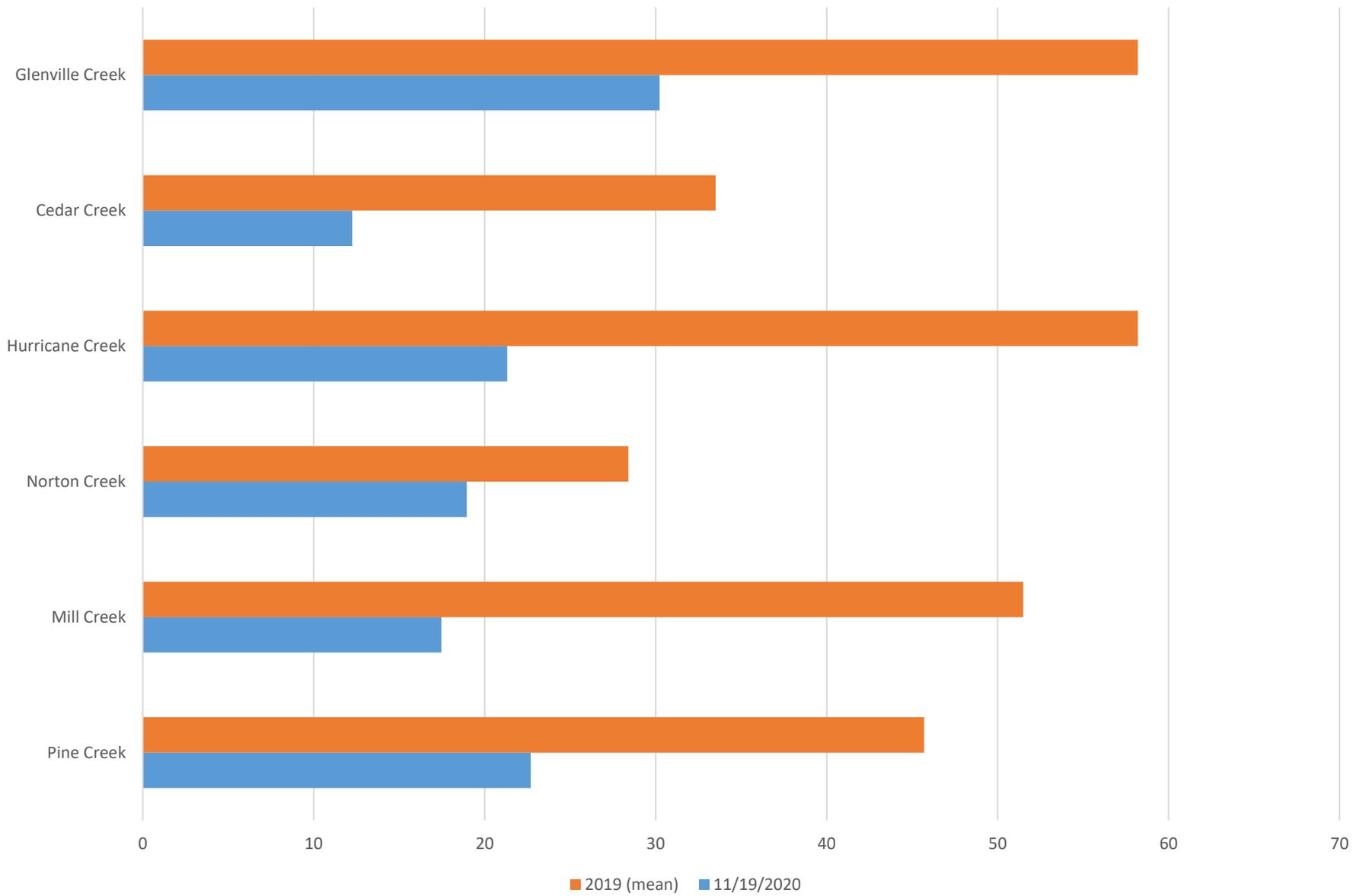
Alkalinity (mg/L as CaCO₃)

Regional VWIN mean 22.3 mg/L - (used to compare results against typical regional values)



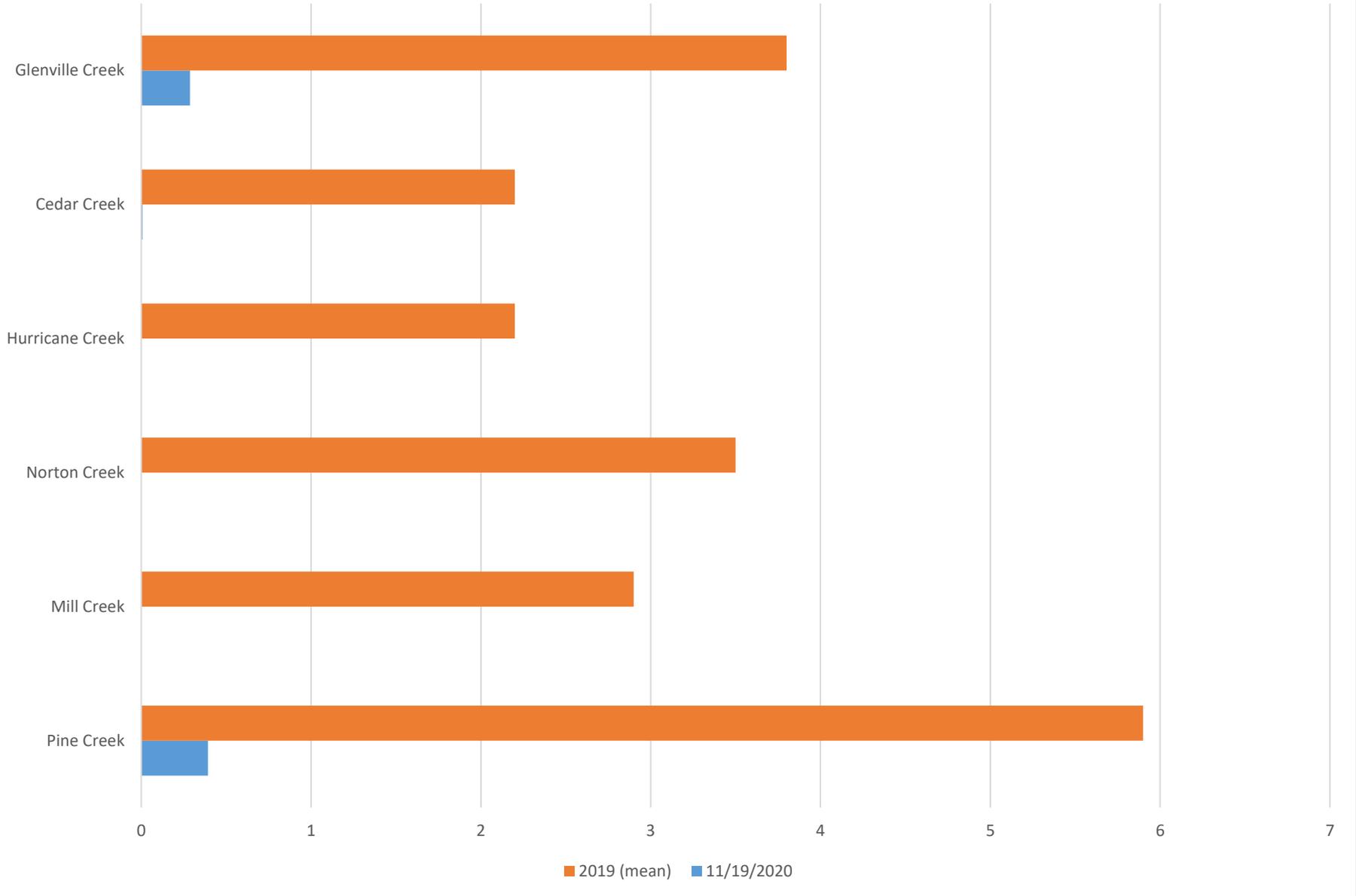
Specific Conductivity ($\mu\text{S}/\text{cm}$)

Regional VWIN mean 60 ($\mu\text{S}/\text{cm}$)- (used to compare results against typical regional values)



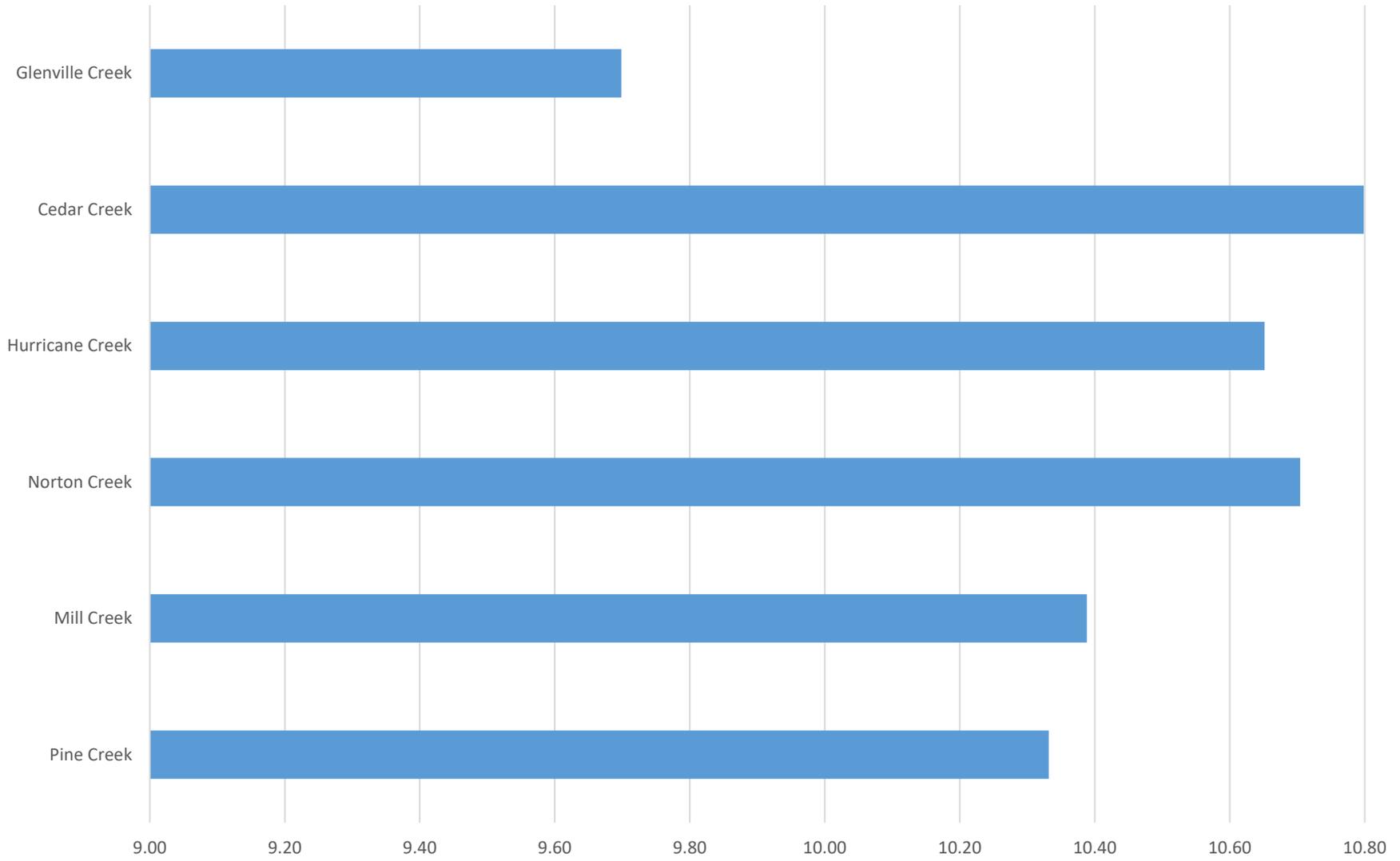
Turbidity (NTU)

Regional VWIN mean 6.2 NTU - (used to compare results against typical regional values)



Dissolved Oxygen (mg/L)

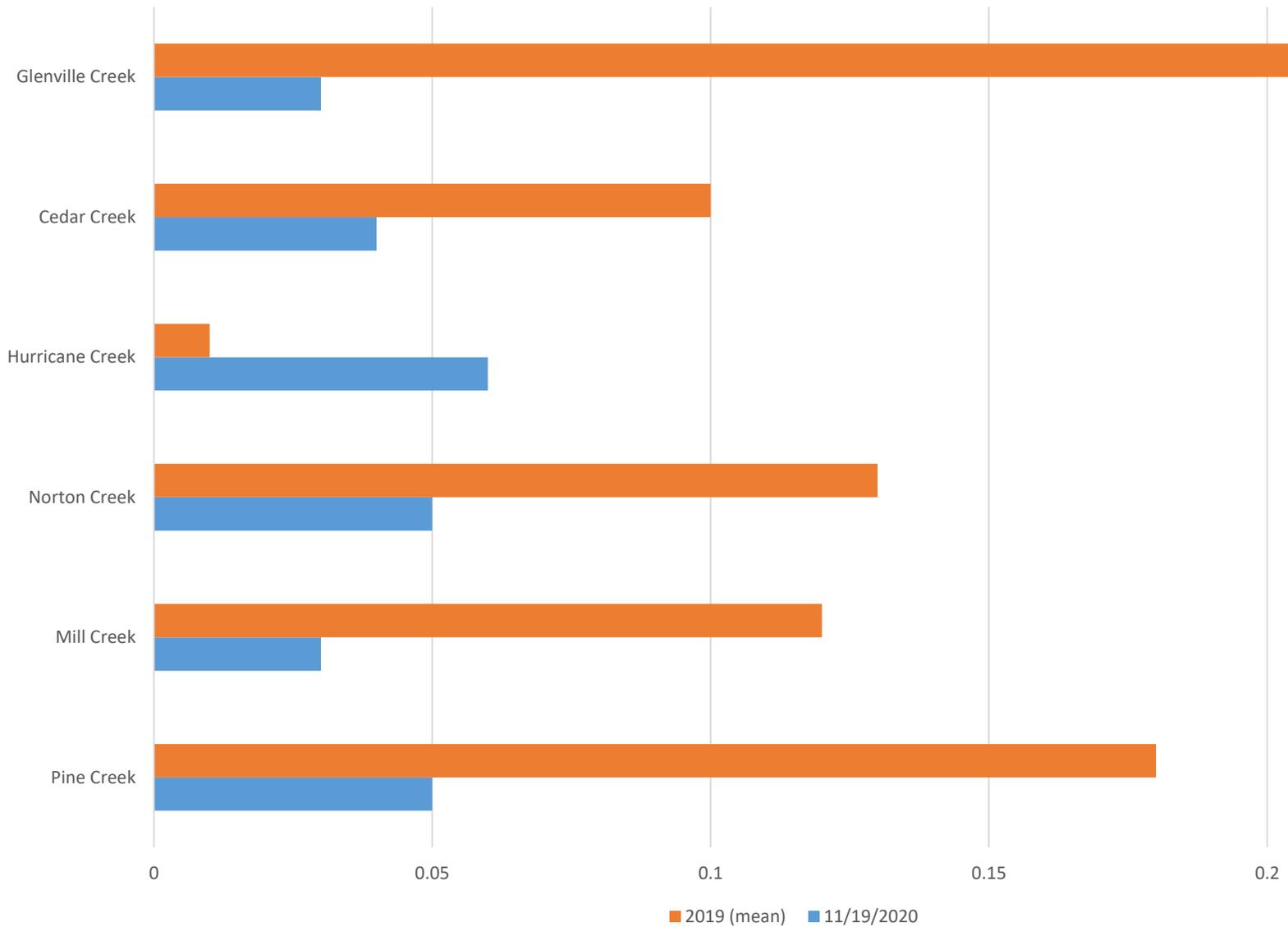
NC Trout Water designation standard ≥ 6 mg/L



■ 11/29/2020

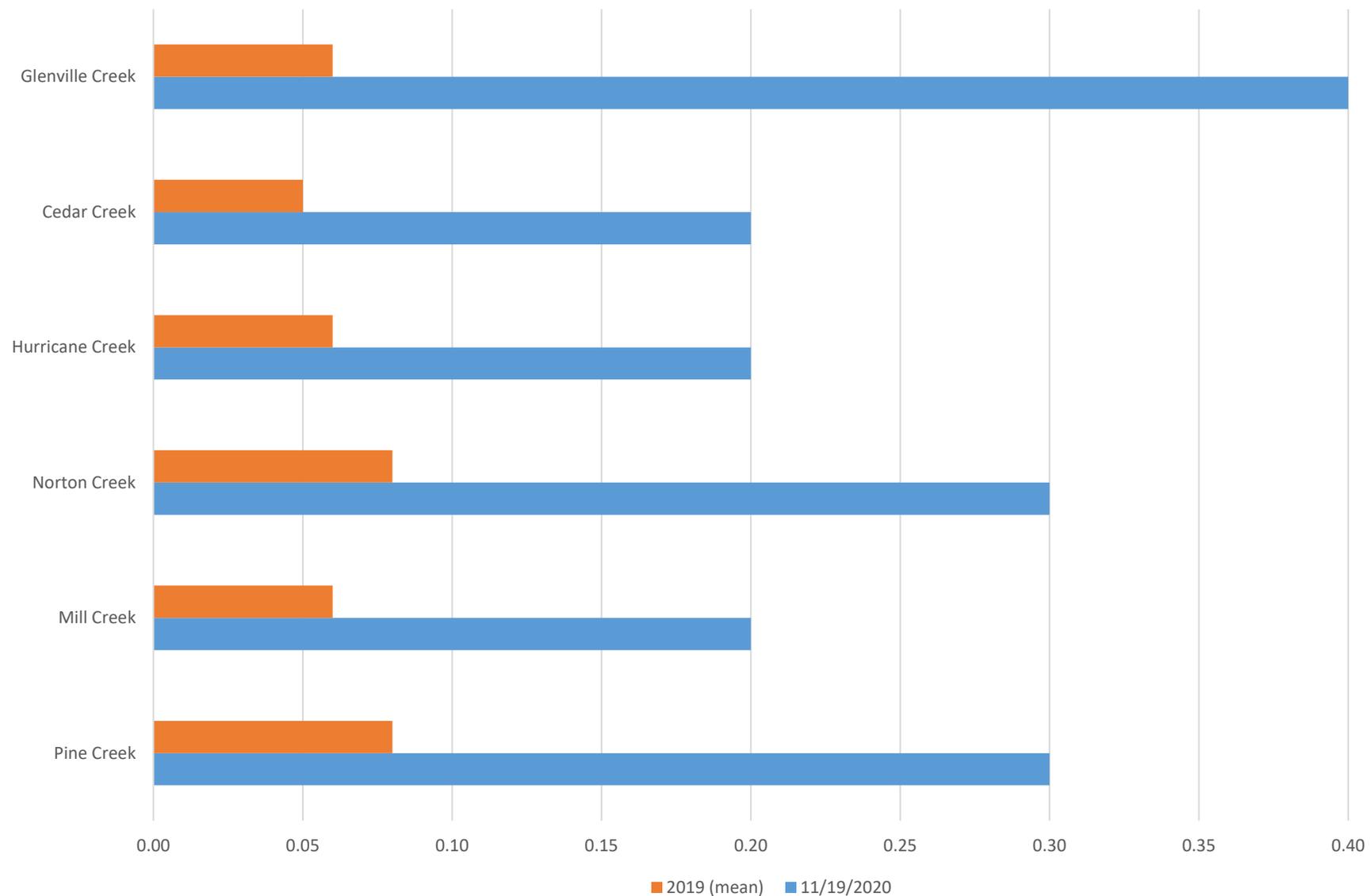
Ammonia (mg/L)

Regional VWIN mean 0.09 mg/L - (used to compare results against typical regional values)



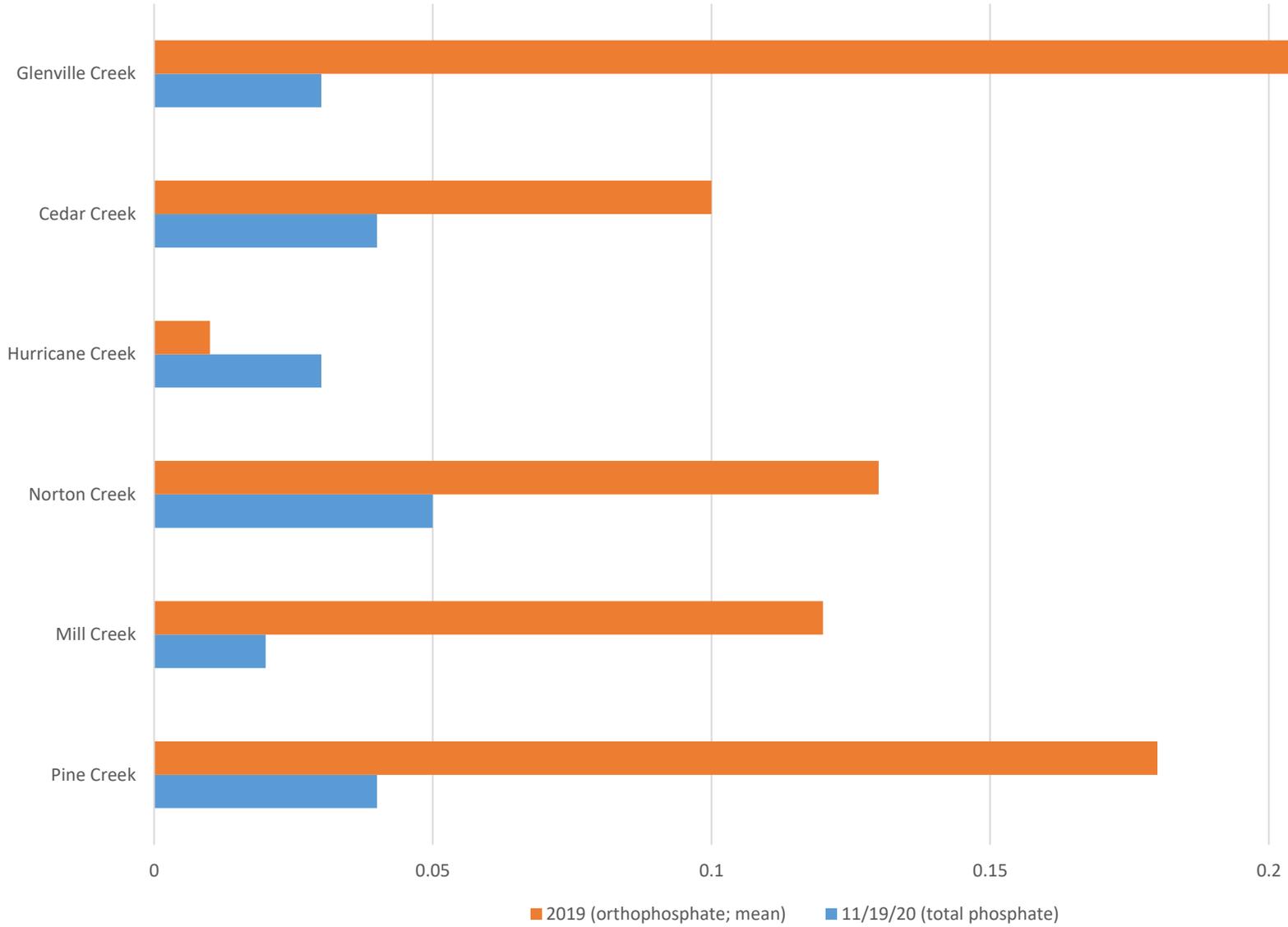
Nitrate (mg/L)

Regional VWIN mean 0.5 mg/L - (used to compare results against typical regional values)

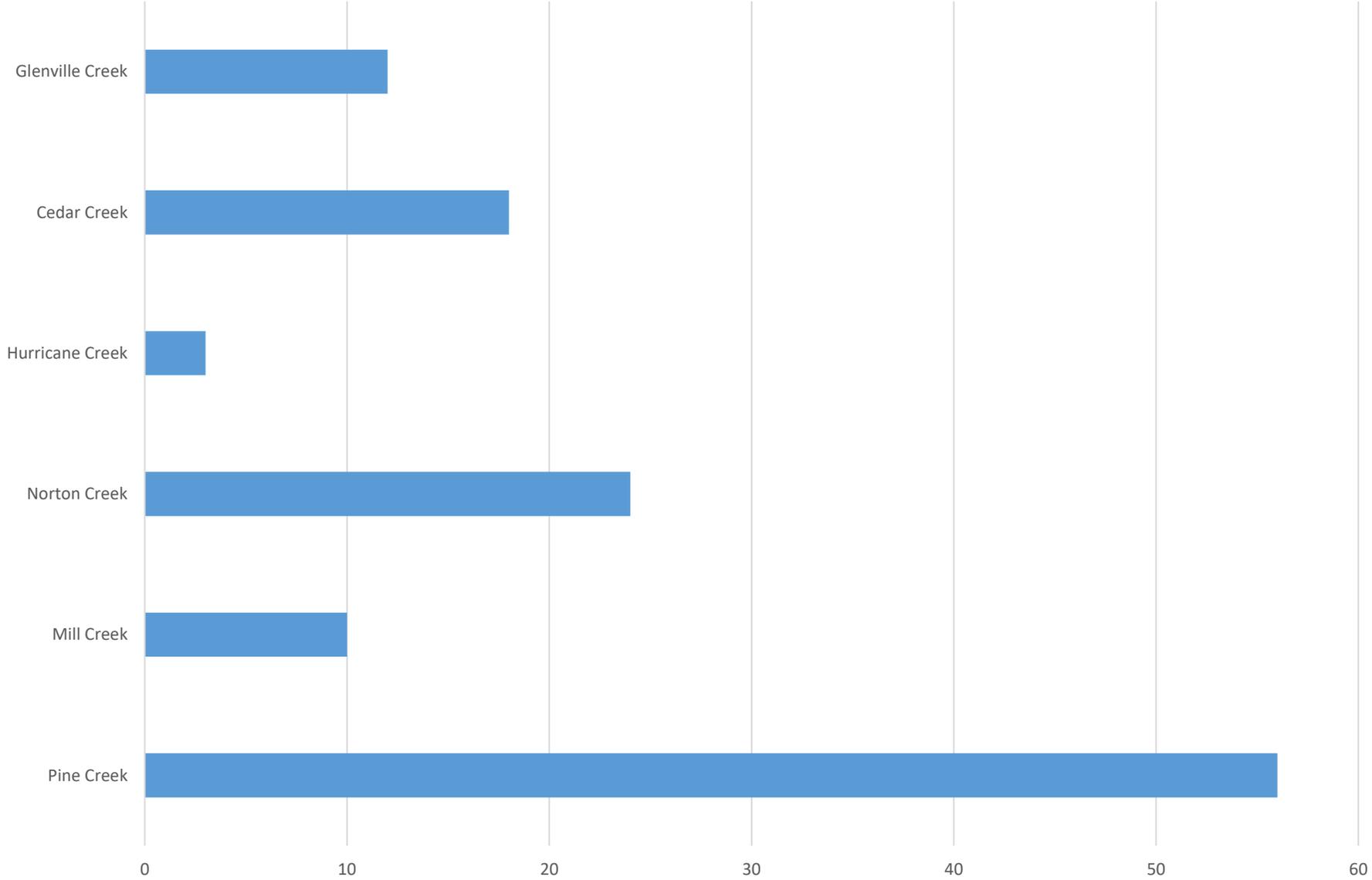


Phosphates (mg/L)

Regional VWIN mean 0.09mg/L - (used to compare results against typical regional values)



Fecal Coliform (CFU/100 ml)



■ 11/19/20