



“Lakespert” – Using eDNA as a Field Work Companion

Guest Author: Ashley Bruhn

The use of Environmental DNA data continues to grow in popularity as an efficient way to conduct biomonitoring within aquatic systems, but can it be a companion to or even a replacement for physical surveys? In 2025 our team out of Denver, Colorado, conducted eDNA sampling in concurrence with our electrofishing surveys. The goal was not only exploring the accuracy and feasibility of this method but also to see if it could be used as a tool to help improve our physical survey method as well as allow for more monitoring when physical surveys were not possible.

We set out to collect from eight different sites throughout our survey area. We wanted as few variables between the eDNA and electrofishing results as possible, so samples were collected just after the completion of an electrofishing session. This way we could match the water quality parameters as well as the real time data collected from the field.

We quickly learned that there was one factor that would challenge both the physical survey and the eDNA collection and that was turbidity. We try to avoid electrofishing after any major storm events but clarity can be an issue even in the best conditions. For eDNA samples, the more water volume you can filter the better, but in most of the samples we were limited to about 300mls, and it took some arm strength to complete filtration.

When the results came in, so came time to interpret them. A

large Excel file full of ESV numbers and species names to sort through, names both familiar as well as unexpected (I’m looking at you, Atlantic salmon). Immediately we recognized that common sense would need to be used when interpreting the results. For example, we could safely assume that the *Notropis sp.* detected was not the Topeka Shiner native to the Mississippi basin as reported but rather the Sand Shiner that we had collected over 2,500 of electrofishing. The results also gave us a glimpse of what we could be missing during the physical

surveys. Our eDNA samples showed the elusive Channel Catfish, which we know is present in our waterway, but which are rarely collected during surveys due to their nocturnal habits.

Overall, the outcome of this study was very promising. We saw a remarkably close match between the eDNA and what we had captured in the field as well as learned additional information about our waterway. While I am not ready to say that eDNA should replace physical surveys all together, I can say that it has been a useful companion and one we will continue to use in the future.



The team conducting an electrofishing survey.

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She began her career in aquaculture and toxicity testing before joining Metro in 2018. Since then, she has worked in both laboratory and research settings, focusing on nutrient and metals analysis, treatment process optimization, and pilot-scale studies. Today, her work centers on macroinvertebrate, fish, and algae monitoring throughout the South Platte River Basin. Outside of work, Ashley enjoys exploring Colorado’s trails with her Golden Retriever, Griffin, and spending time kayaking and paddleboarding. 🌿