Algae blooms in Grand Lake, OK

For those who grew up in Oklahoma, we know summer activities often involve trips to the lake to enjoy Oklahoma’s hot summer sun! Now, have you ever wondered why you can’t see your body under the water while swimming? I mean these are freshwater lakes, shouldn’t we be able to see through the water? Well, Dr. Noha Youssef, a microbiologist from Oklahoma State University, answers these questions for us.

In their recent study, Dr. Youssef and scientists out at Grand Lake, OK conducted a study that analyzed microbial communities in Grand Lake from March to September. During these months, freshwater lakes experience seasonal stratification events, which are caused by algae blooms as the temperature increases. If you have never seen algae blooms before, they’re like green slime floating on top of the water - “think of them like land plants, but on the water,” says Dr. Youssef, “when algae gets into lakes, especially when they bloom, they prevent light from going into the lake.” This is why you cannot see through the lake water. Although this clarifies why we cannot see below the lake’s surface, there are greater issues that lie just beneath. Not only are algae blooms blocking sunlight, they also block oxygen and nutrients from reaching the lower layers of the lake. Dr. Youssef mentions that the blocking of these resources can kill fish and other organisms in the bottom layers of the lake.

With a goal to be able to predict and prevent algae blooms in the future, Dr. Youssef and the scientist out at Grand Lake collected water samples from multiple locations in Grand Lake to identify microorganisms inhabiting the lake. Using DNA sequencing, they were able to put “name tags,” as Dr. Youssef references, on the microorganisms found in the samples. This identification process allowed them to understand the microbial communities present during stratification events. “When we looked at the bottom layers of the lake that did not have oxygen, we found organisms that are only found in environments absent of oxygen. All other organisms we found were organisms that were expected to be present with algae blooms,” says Dr. Youssef. However, this study is only the first step taken in order to reach their final goal.

Dr. Youssef mentions that future studies will involve samples being taken more frequently during the period of time leading up the stratification event of algae blooms. Here, they would be aiming to identify microbial communities that promote algae blooms. By identifying the microbial communities that influence algae blooms, they could potentially be able to predict when algae blooms will happen and hopefully implement a prevention plan. So, who knows, maybe with the help of Dr. Youssef’s research, clearer, summer lakes are in our future!

References

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