Graph 1:

A graph with a line and dots

Description automatically generated

1:

Surface temperature in relation to the year.

Takeaway:

Based off the graph, we can see that there is a positive correlation that occurs such that the temperature of lake has been increasing as time goes on. This goes hand in hand with what we already know, which is that climate change has been impacting our planet.

Graph 2:

A graph with a line and black dots

Description automatically generated

Dissolved oxygen concentration in relation to the year.

Takeaway:

Based off this graph, we can see that the oxygen concentration has been decreasing over the years, for the most part, as time goes on. This graph shows a negative correaltion. The most drastic decrease in the graph happens after 2000, showing that climate change is very prominent. This goes well with what we already know about climate change and pairs well with the previous graph. Taking in both dissolved oxygen concentration and surface temperature, it demonstrates the effect both happen to have on the planet.

Write a concise summary (1 paragraph)

This research was initiated due to an existing knowledge gap concerning dissolved oxygen concentrations in lakes, with a recognized link between falling oxygen levels and rising water temperatures. Researchers analyzed a comprehensive database of lake temperatures and oxygen levels spanning 393 lakes over fifteen years. The results showed a decline in dissolved oxygen in both surface and deep waters. To determine the impact on aquatic organisms, especially those with aerobic metabolism and certain fish species, the team looked at whether these species could survive under the altered conditions. They defined "summer" based on rising surface-water temperatures and decreasing winds, collecting data from southern hemisphere lakes in January and February, and northern hemisphere ones in July and August. A suite of R packages, including pracma, rLakeAnalyzer, openair, lctools, leaps, gamm4, ResourceSelection, and randomForest, were employed for various analysis tasks, ranging from data interpolation to predicting future oxygen saturation trends. One key question for the authors would be: "Based on your findings, how do you propose we address the diminishing dissolved oxygen levels in these aquatic environments?"