Flathead's Changing Climate
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Despite its pristine beauty and crystal clear water, Flathead Lake is not immune to a changing climate. Across the globe, lakes are acting as sentinels, canaries in the climate change coal mine, demonstrating that climate change is not only the biggest environmental challenge that our children will face, but is, in fact, happening now.

In the middle of Flathead Lake, where she is at her deepest, Flathead Lake Biological Station (FLBS) researchers recorded the highest temperatures observed over the last 40 years. The surface reached 24° C (75° F) last summer, while even higher water temperatures of nearly 30° C (85° F) were recorded in sheltered bays.

The thermal structure of lakes worldwide has been changing fast over the past 30 years, with higher maximum temperatures, shorter durations of ice cover, and fewer days where stratification (warm shallow depths and cold deep
depths) occur. Increased water temperatures have been shown to increase primary production (the rate of algal growth) and favor cyanobacteria or blue-green algae, which are associated with harmful algal blooms.

Flathead Lake has been relatively resistant to change, and FLBS records show slight increases in surface water temperatures since the Station began keeping records in the 1970s. That does not mean that the lake is immune to change. In fact, we are using sophisticated models to understand how climate change could alter thermal properties of the lake. We used climate projections for the Flathead Valley to see if expected increases in air temperature and changes in wind speed and humidity will cause changes to Flathead Lake water temperatures. What we learned is that the overall mean temperature of Flathead Lake is expected to increase by only roughly 0.8° C, but the maximum surface temperatures during summer stratification could increase by as much as 8° C (15° F) by the end of this century. That means that the warm bath-like waters we experienced last summer will become downright hot in the next 80 years. The deep dark waters below 75 feet will remain roughly the same, COLD, but dramatic changes in surface temperatures are nearly certain.

Climate change is not something that we can easily fix. And it won’t be possible to fix by local actions alone. An interesting and dire fact I read recently: the last person to live a full life with atmospheric carbon dioxide levels below 500 ppm was born last week – regardless of anything humankind can do. The giant ship that is our climate takes far too long to turn and we are “full speed ahead,” so to speak.

Changes to the climate are happening at a global scale and will require a global effort. But there are still many essential efforts to be made at the local scale to help protect Flathead Lake. By insuring that the watershed remains healthy, by instituting the best management practices to keep pollutants out of the lake, by working hard to prevent the establishment of invasive species, we can insure that we do not compound the problems out of our direct control like climate change, with those problems that are under our control.

Climate change is affecting our lake, but there is still so much good we can do. Let’s continue to work hard together to keep Flathead Lake beautiful and blue.