

# Phosphorus Concentration in Flathead Lake



Scientists at the Flathead Lake Biological Station study what types of chemical nutrients are found in the lake to understand what is available for organisms such as phytoplankton to use when they grow. One of these important nutrients is phosphorus (P) which is needed for plants and animals (and people) to grow. It is found in our water, our food and our bodies. While phosphorus is naturally occurring at low levels in water, the levels of phosphorus can change if extra phosphorus ends up in the waterway. Extra phosphorus can come from runoff of fertilizers from agricultural fields, from industrial waste or wastewater such as household sewage. When extra phosphorus shows up in a lake it can lead to algal blooms which can make the water look green and can kill fish through reducing oxygen levels as the algae dies. Flathead Lake normally has very low levels of phosphorus which is one reason why it is such a clear lake.

This data set is for “Total Phosphorus” which includes all different types of phosphorus found in the water column. It is commonly used to indicate a lake’s trophic state (see link below). Total Phosphorus data is from the photic zone (where photosynthesis takes place) of Flathead Lake from 1978 to 2015. Also included are annual averages and summer (May through September) averages. Data was not collected as consistently in the early years, so there are gaps in the data set.

What does this data tell you about Phosphorus levels in the lake? Are we doing a good job of keeping pollutants out of the lake? What would happen if there were a large spill from a sewage treatment plant? Are there any laws or regulations that help keep phosphorus out of Flathead Lake?

For more information about nutrients in lakes and trophic status:

<http://mtlakebook.org/nutrients-green-machines/>

For more information about total phosphorus:

<https://www.rmbel.info/primer/total-phosphorus/>



Photo credit: H. Paerl

Lake with a lot of algal growth



Photo credit: J. Elser

Lake with very little algal growth