
Tributaries

Grab samples were collected by a resident volunteer after rainfall events on the north and south ditches which divert water to Long Lake. These samples were analyzed at the State Lab of Hygiene for two types of phosphorus (total phosphorus and soluble reactive phosphorus) and three types of nitrogen (nitrate/nitrite, ammonium, and total Kjeldahl nitrogen).



The phosphorus data collected is specific to date and location and can be used to theoretically determine how much phosphorus is entering the lake. Values for phosphorus influxes are established by multiplying the phosphorus concentration at a specific location by the volume of water that moves through a specific location, or the discharge in cubic feet per second. To determine the average instantaneous load of phosphorus (in mg/s), the average phosphorus concentration is multiplied by the average season discharge. Units are then converted and expressed as lb/yr.

In this study it was impossible to measure the volume of water that moved through each ditch because flow was not constant and only occurred during and after significant rainfall events. As a result, a series of models were used to determine the volume of runoff moving through each ditch. WinTR-55 was used to determine the peak flow rate, or amount of runoff that is expected from the north ditch subwatershed and south ditch subwatershed. Peak flow rates were then translated into P8 to determine an annual volume and quantity of runoff.

On an annual basis the north ditch is contributing 83 pounds of phosphorus to Long Lake and the south ditch is contributing 22 pounds of phosphorus to Long Lake.
