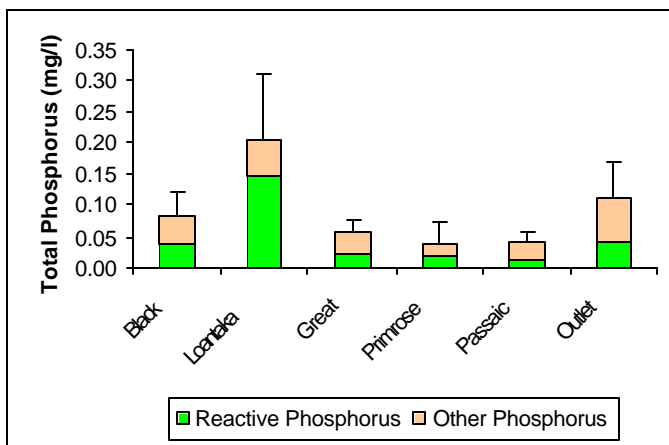


Great Swamp Water Quality Sampling 1999-2005

Water samples are collected by **Stream Team Volunteers** from each of the five primary streams entering Great Swamp Wildlife Refuge and from the outlet of Great Swamp at Millington Gorge. Samples are collected both during dry base flow conditions and following storm events.

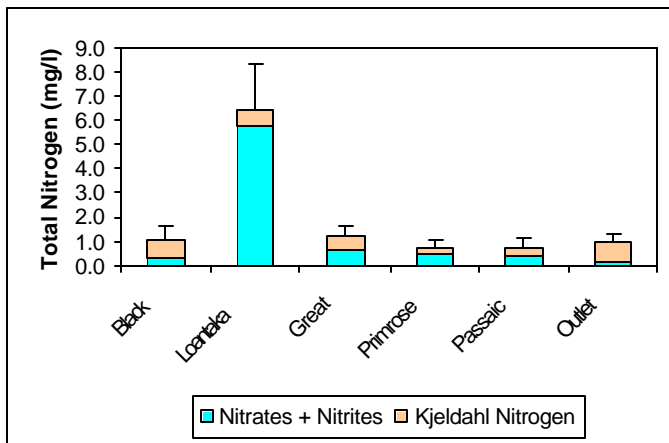
The samples are analyzed for Dissolved Reactive Phosphorus, Total Phosphorus, Nitrates+Nitrites, Kjeldahl Nitrogen, and Suspended Solids. The graphs below show the mean base flow concentrations (mg/l) of each substance based on 26 base flow samples collected over seven years.

Phosphorus is typically the limiting factor for algal and plant growth in lakes while nitrogen may be the limiting factor in streams. It is possible that sometimes one or the other nutrient is the limiting factor in swamps. Over-enrichment can lead to excess growth of algae and aquatic plants, altered composition and diversity of the aquatic community, and potential human health problems.



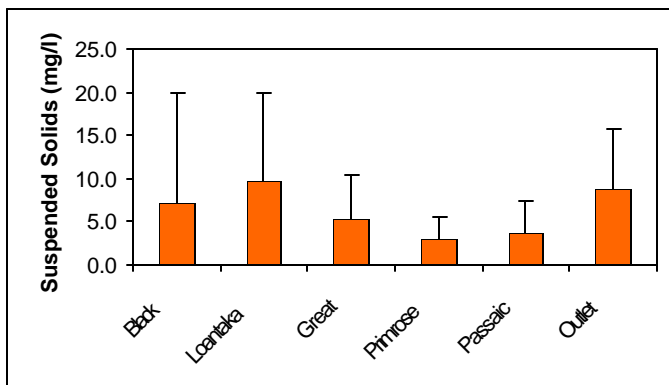
Phosphorus can enter a water body from several watershed sources such as soil erosion, fertilizers and wastewater treatment facilities. Phosphorus quickly binds to soil particles and plant roots but then can be released from bottom sediments during anoxic conditions or from decaying plants. The concentration of dissolved reactive phosphorus provides an estimate of the amount of phosphorus in a form readily usable by plants and algae.

Black, Loantaka and Great Brooks as well as the Millington Gorge outlet contain particularly high levels of phosphorus.



Nitrogen can enter a water body from several watershed sources such as acid rain, fertilizers, animal waste, and wastewater treatment facilities. Nitrogen moves easily through soil into the groundwater. Some algae and plants convert gaseous nitrogen to usable forms (nitrogen fixation) while some bacteria convert usable forms into gaseous nitrogen (denitrification). Although the concentration of nitrates + nitrites provides one estimate of the amount of nitrogen readily available for use by plants and algae, rapid changes in form make all of the nitrogen easily available for use.

Loantaka Brook contains particularly high levels of nitrogen.



Surface erosion and stream channel erosion increase sediments in surface water. Increased sediment causes turbidity which can have a detrimental effect on aquatic life. Sediment is also important as it transports phosphorus and other compounds, including toxic substances.

Black, Loantaka and Great Brooks as well as the Millington Gorge outlet contain particularly high levels of suspended solids.