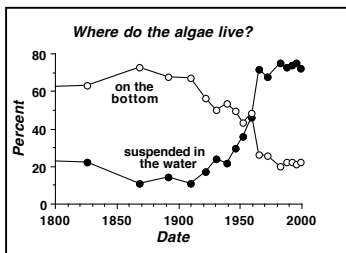
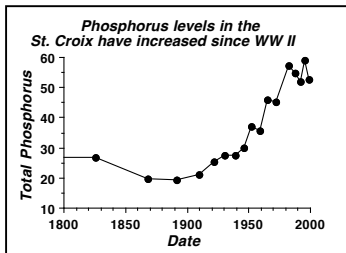
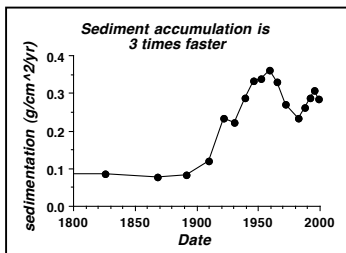


Nutrients and Sediments in the St. Croix River

Issue: The St. Croix River was significantly degraded before monitoring began

The St. Croix River

- ✓ The St. Croix River drains a watershed of nearly 8500 square miles in WI and MN
- ✓ Compared to many Midwest rivers, the St. Croix River is perceived to be a relatively pristine and healthy ecosystem
- ✓ 150 years of landuse changes, including logging, agriculture, and urbanization, have impacted the St. Croix River with increased nutrient and sediment loads. These changes began immediately with settlement and have been most dramatic in the last 50-60 years



Our research shows

- ✓ Sediments in the bottom of Lake St. Croix, at the end of the St. Croix River, are a historical record of ecosystem and landuse change in the St. Croix Valley
- ✓ At the St. Croix Watershed Research Station, analysis of fossil algae and geochemical signals in sediment cores from Lake St. Croix shows these historical changes in water quality:
- ✓ Sedimentation rates in Lake St. Croix have increased threefold since European settlement
- ✓ Using fossil algae to reconstruct water quality, we have shown modern phosphorus levels in Lake St. Croix increased abruptly following World War II and are three times higher than they were during the 1800s
- ✓ Dramatic changes have occurred in the aquatic food web. These are typical responses to nutrient additions and decreased water clarity from high sediment load and algae growth

Should we care?

- ✓ Excess nutrients, especially phosphorus and nitrogen, cause unsightly algae blooms and deplete oxygen levels. This creates poor conditions for fishing and boating
- ✓ Excess sediments decrease water clarity, lower recreational value, and hasten lake fill-in
- ✓ The transport and loading of excess nutrients and sediments to large rivers is a policy concern worldwide, and a current management priority for the St. Croix River
- ✓ Our research shows that the St. Croix River changed dramatically well before monitoring efforts began in the 1970s. Thus, upcoming nutrient and sediment policy revisions should use our findings to develop attainable water quality improvements in the St. Croix River

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