Excessive Sediment

Excessive amounts of sediment degrade the ecological health and aesthetics of the Minnesota River and its tributaries. Turbidity refers to water clarity. The greater the amount of total suspended solids in the water, the muddier it appears and the higher the measured turbidity. This results in reduced light penetration that harms beneficial aquatic species and favors undesirable algae. An overabundance of algae further increases turbidity and compounds the problem. Fine-grained sediments that settle on stream beds cover desirable rock and gravel that form essential habitats for invertebrates and fish. During periods of high turbidity, streams take on a murky appearance, greatly reducing their appeal to people who enjoy boating, fishing, or swimming.

Philosphosphorous

Phosphorus-enriched streams are commonplace in the Minnesota River Basin. Elevated phosphorus levels stimulate algal growth and often lead to undesirable conditions. An overabundance of algae and sediment contributes to increased turbidity and reduced light penetration. Water clarity is greatly reduced under these conditions. When the algal cells die, their decomposition consumes large amounts of dissolved oxygen. Lower dissolved oxygen can impair the stream’s ability to support aquatic life. Some outbreaks of highly elevated algal growth, termed algal blooms, release toxins into the water. Instances of this have occurred within the Minnesota River Basin and resulted in the death of animals (including pets) that ingested these toxins.

Phosphorus concentrations show substantial variation across the Basin. During 2000 to 2008, the average phosphorus concentration in the Minnesota River mainstem reach from Jusdon to Fort Snelling was 0.31 mg/L. Studies indicate that a reduction in undesirable algal growth cannot be expected unless mainstream phosphorus concentrations are brought below a threshold value of 0.26 mg/L. Several Minnesota River tributaries have phosphorus concentrations substantially greater than the threshold value (see map). These highly-enriched tributary streams deliver phosphorus loads that enrich the mainstem and slow the recovery of the Minnesota River.

Phosphorus arises from both point (e.g. municipal and industrial discharges) and non-point sources (e.g. runoff from agricultural lands and urban areas).