MISSISSIPPI MAKEOVER

A Plan for Restoration, Just Around the Bend

Indicator: Invertebrates

Adult Mayfly

Invertebrates are the bugs and clams (mussels) found in the river. There are many types of invertebrates, and their presence and numbers depend upon substrate, vegetation, flow, nutrients, dissolved oxygen, and other factors. Invertebrates are good indicators of ecosystem health. Some populations (like mayflies) react quickly to changes in water quality and physical conditions, while others (like mussels) are affected by longer term changes. Much attention has been placed on mussel populations in recent years, and good data are available to monitor the status of their populations. Much less information is available regarding other invertebrates in the reach of river upstream of Lake Pepin. Common measurements to track invertebrates include ***catch per unit effort*** and ***species richness.***

Catch per unit effort for mussels is often measured as the number of mussels collected per minute from standardized dive surveys. It can be reported as the percent of sites with various abundances of mussels (i.e. % of sites with $\leq$ 1 mussel/minute; % of sites with > 10 mussels/minute, etc.). This gives a relative idea of the abundance of mussels in a given area. In the reach surveyed upstream of Lake Pepin, there were 33 out of 165 sites with $\leq$ 1 mussel per minute, and 10 sites with > 10 mussels per minute.

Catch per unit effort for other invertebrates can be measured as number per square meter. This sampling method was used in Pool 4 from 1992-2002, but was discontinued due to funding constraints. Mayflies are one of the more commonly recognized species, gaining notoriety from the sometimes incredible hatches on mid-summer nights that have forced snowplows to clear bridge crossings thick with dead mayflies. From 1992-2002 there were an average of 132 mayflies/sampled per square meter in Lake Pepin.

Species richness is the number of different species collected. Historically, 41 species of mussels were found in the Upper Mississippi River, the most diverse array of species in North America. Currently, 28 species are found in the reach upstream of Lake Pepin. Some species, like the Mucket mussel, were historically abundant but have not been collected above Lake Pepin for many years. Data on species richness for other invertebrates is limited.

Mucket Mussel