# PROJECT SUMMARY—
ENHANCING UNDERSTANDING OF MINNESOTA RIVER AQUATIC ECOSYSTEM

ACTIVITY 1: ACCELERATE COLLECTION OF BASELINE MINNESOTA RIVER LOWER TROPHIC DATA

This project improves understanding of the Minnesota River aquatic food web by studying the microscopic organisms including phytoplankton and zooplankton that inhabit the river.

Phytoplankton
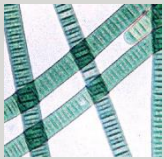
Phytoplankton or "algae" are microscopic photosynthetic organisms that are important food for larger organisms including zooplankton, mussels, and fish.
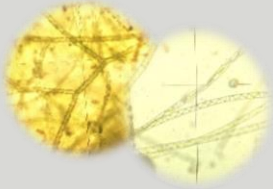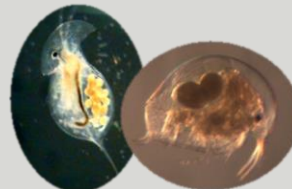
Zooplankton

Zooplankton are tiny crustaceans and rotifers that live in water, often eating algae or other zooplankton, and are very important food for most fish species.

Diverse plankton communities—

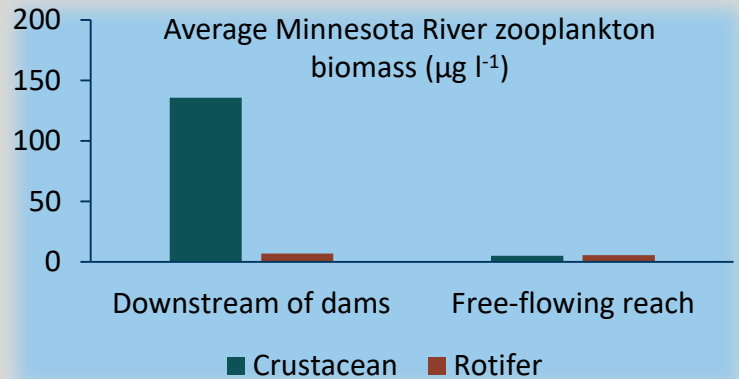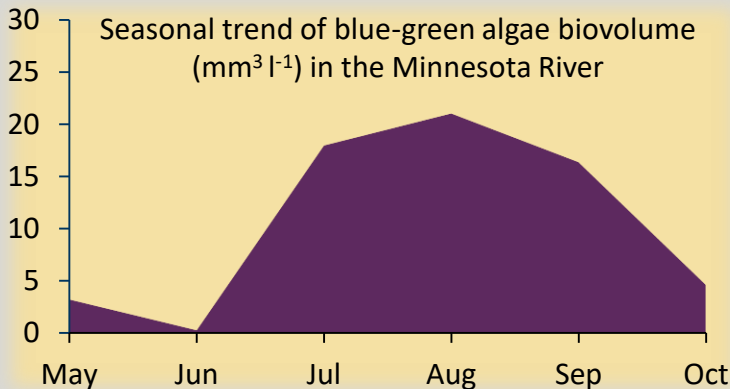We analyzed 112 samples collected from seven sites during 2016–2018 and identified…

…more than 73 genera of phytoplankton…

…and more than 46 genera of zooplankton.

Predictable trends among months and locations—

Seasonal trend of blue-green algae biovolume ($mm^3 \, l^{-1}$) in the Minnesota River

Average Minnesota River zooplankton biomass ($\mu g \, l^{-1}$)

Downstream of dams   Free-flowing reach

■ Crustacean   ■ Rotifer

Invasive species implications—

Spread of invasive carps and zebra mussels is a concern because they primarily eat plankton. In other systems, they've been shown to alter aquatic food webs and compete with native species for food.

invasive carp   *zebra mussels*

Important outcome—ability to better understand how the Minnesota River aquatic food web responds to future invasive species, shifts in climate, or other large-scale changes.

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND

DEPARTMENT OF NATURAL RESOURCES