Addressing Algae problems in Colorado's White River

Local communities, private citizens and land managers in the Western United States are being confronted more and more with nuisance algal blooms in river systems. These algal blooms are typically a benthic variety (attached to substrate) and can persist for months at a time. Although these algae blooms are generally not hazardous to human health, increased algal biomass can cause a variety of issues for recreation, water treatment facilities, irrigators, and river aesthetics. Benthic algae, a component of stream food webs, can reach uncharacteristic and nuisance levels on substrates when water chemistry and physical factors are out of balance with biological and physical removal mechanisms. Increases in nutrient concentration from new or existing sources can provide algae with more food resulting in more algal biomass. Other triggers may be related to physical factors such as drought where stream channels are not flushed of sediment, organics, and algae at a high enough rate to keep algal biomass controlled. Drought conditions can also affect water temperature where temperature may otherwise be limiting algal growth under colder conditions. Many other chemical and physical factors, such as macroinvertebrate populations, pesticide application, fire, and even aquaculture, can control algal growth. The U.S. Geological Survey, in collaboration with local stakeholders in the White River Basin, are currently investigating nuisance algal blooms that are affecting both recreation and water use in the region. Multiple chemical and physical properties of the White River system are being assessed to better understand the factors driving these blooms. The work coincides with many other scientific assessments across the West and the Nation as algae issues increase in frequency. Work for this effort is scheduled for completion in 2021.