Mountain Studies Institute
SAN JUAN MOUNTAINS, CO

News Release

For IMMEDIATE RELEASE
Saturday, August 9, 2015

Contact: Marcie Bidwell
Location: Durango, CO
Phone: 970-426-8863

Early signs good for Animas River biology: Macro-invertebrates hanging on 100-hours after spill

Durango, Colorado- August 12, 2015

One hundred hours after exposure to a plume of acid mine drainage the small insects that inhabit the Animas River—macro invertebrates—are still hanging on. Mountain Studies Institute (MSI) staff stepped up to study the water quality and aquatic life in the Animas River as the one million gallons of wastewater from the Gold King mine was heading towards Durango, Colorado.

Macroinvertebrates are excellent indicators of water quality and stream health. They have a wide range of eating habits, life spans, and tolerances to pollution. Due to their small size and habits, they have limited mobility. Unlike fish, they cannot swim away when disaster strikes or seek refuge in other streams. More than just indicators, macro invertebrates are the base for the food chain that supports all other aquatic life in the Animas River.

MSI's preliminary results indicate that dominant benthic macroinvertebrate taxa in the Durango stretch of the Animas River survived the first 100 hours of exposure to the slug of water containing sediment and heavy metals from the Gold King mine.

MSI staff raced to collect data from multiple sites in the Durango area before polluted water arrived in the city limits. They established monitoring points at 32nd Street Bridge and near 15th Street collecting macro invertebrates before the plume arrived and at 20, 60, and 100 hours afterwards. MSI staff have historic data at the 32nd Street Bridge site that will enable them to compare this event with the long-term status and trends of the river.

MSI has been measuring the pH of the river water, with the help of Steve Monroe. The pH is a basic measure for the level of acidity in the water. Pure, distilled water has a neutral pH of 7.0. Acidic values of pH are lower than 7.0 and basic values of pH are higher than 7.0.

Mountain Studies Institute
SAN JUAN MOUNTAINS, CO

MSI monitored at Rotary Park from 10 AM until 1 AM Friday morning, and started again at 10 AM Friday. MSI began monitoring on Thursday at 10 AM and documented the plume arriving at Rotary Park around 10 PM. The pH of the water started at 7.8 and started to drop around 6:00 PM, prior to the arrival of discolored water. Monitoring continued until 1 AM on Friday morning. The lowest pH that was observed was 6.8 at 12:30 PM. By 10:00 AM, the pH had returned to 7.0 and by 4:30 PM Friday, the pH had returned to 7.8, the same as the pre-event value. MSI continues to monitor the pH of the Animas River, and the values have stayed in normal range.

As the observed pH values in the river dropped, it indicated that metals were suspended in the river water. Low pH is especially harmful to fish and insects. As the observed values returned to normal, it indicated that metals were precipitating out of the water column and being deposited along the river channel bottom or being carried downstream. The precipitated metals along the river bottom could persist over time, and will could be re-suspended during high-velocity events, such as monsoon storms. Furthermore, as the river level drops, and the water recedes from the banks, precipitates will be deposited along the river banks. Future needs for monitoring the health of the Animas River include studying the contents of the sediment along the river bottom and banks.

“As soon as we heard about the release we began sampling and testing for water quality and invertebrates. We continued to take water quality samples every one-two hours as the release hit downtown” says Aaron Kimple, Program Director of Water Quality and Forest Health.

Scott Roberts, MSI’s aquatic biologist, has been observing live individuals of common macroinvertebrates throughout the passing of the plume. As of Tuesday morning, August 11, Roberts observed an individual of a less dominant taxa as well, a salmonfly larva, which is a Pteronarcys stonefly. However, the individual detected was of a well-developed stage. Earlier instars of larvae may not have faried as well, cautions Scott Roberts. Full analysis of macro invertebrate community composition are underway.

MSI’s findings mirror the Colorado Department of Parks and Wildlife’s (CPW) results that fish have mostly survived the first 100 hours as well. CPW are monitoring fish in cages to see if the exposure to the slug of toxic sediment would kill the fish. However, the ability for fish to sustain after the plume of water has passed depends on their ability to find food—the insects—and to sustain any potential toxic metals that have been absorbed through their gills and skin.

“Continued monitoring may reveal substantial impacts to aquatic life over a longer period of time, but it is good news that widespread acute mortality did not immediately occur” says Roberts.

“There are two big picture items now as the plume passes through. First, we need to keep our eye on the long-term effects to the environment. The sediments that are being deposited on the bottom of the river will have an extended impact on aquatic life and the

river" says Marcie Demmy Bidwell, MSI's Director. "The second is to stay dedicated to working together to respond, understand the effects, and address the issue in the long run."

Additional resources and updates can be found at MSI's website and social media: Mountain Studies Institute on facebook, check out our website at www.mountainstudies.org, or contact Aaron Kimple at akimple@mountainstudies.org or (970)387-5161.

La Plata County has set up a call center for the public. Call 970-385-8700. The EPA has set up a website about the Gold King Mine incident. Visit it at www.epaosc.org/GoldKingMine.

#####

Water Quality & pH