

# Effects of Copper Sulfate Treatment on Benthic Macro invertebrates in Peterson Reservoir Sediments

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## Purpose of Study

Peterson Reservoir, near Montezuma, New Mexico is a 11-acre man-made lake that partly supplies drinking water to Las Vegas. Water is currently pumped from Peterson to Bradner Reservoir and finally into the city water purification plant. The reservoir is a non-public, secure facility that receives regulated water directly from the Gallinas River. No human manipulation of the aquatic ecosystem has occurred at the facility except during blue-green algae blooms, when the algacide copper sulfate is applied. This study will determine what effect using toxic copper sulfate to treat algae blooms will have on benthic macro invertebrates.

## Study Underway

Water samples will be taken every month for a year at four depth contour intervals at each site in Peterson Reservoir, and from the Gallinas River. Water sediment and benthic macro invertebrates will be sampled, and measurements such as sechi depth, pH, dissolved oxygen, conductivity, turbidity, light intensity and chlorophyll A as well as alkalinity and copper and heavy metal concentrations will be taken. This will assess any toxic effect of the copper sulfate in the water and macro invertebrates.

## Benefits

If copper sulfate is found to be detrimental to the benthic macro invertebrates, alternative algae reduction methods to sequester phosphate (alum or iron) could be investigated.

*Daryl Williams is a 57-year old returning student who attended South Dakota School of Mines and Technology in 1970-71. After deciding office work was not for him, he went back to college in 2002 at NMHU. In the 32 years between colleges, he owned a welding and fabrication business in Albuquerque among other jobs. He has lived in Nebraska, Arizona, South Dakota and Detroit but spent most of his life in New Mexico. Daryl received a bachelor's degree in watershed management from NMHU in December 2007 and will complete a master's degree at NMHU in natural resources management in December 2009.*



*Above: Daryl has enlisted the aid of Jason Martinez who is using a Tremble GPS unit.*



*Above: A water inlet into Peterson Reservoir.*

