Bioassessment of Arsenic Contamination of the Gallinas River Using Benthic Macroinvertebrates

Bildad Eta Eyong and **Edward Martinez** (advisor)
Department of Natural Sciences
New Mexico Highlands University

Purpose of the Study

The Gallinas River is the primary drinking water source for Las Vegas, New Mexico, and during periods of high runoff, the river is susceptible to high levels of arsenic. Previous studies of arsenic in the Gallinas River have addressed the underlying geology of the river, the soil, and the water, but the methods used generally only provide a snapshot of the river as it is at the time the sample was taken. The researcher will use benthic macroinvertebrates as indicators of arsenic concentration and distribution in the Gallinas River, because heavy metals, such as arsenic, bioaccumulate in their fatty tissues and serve as excellent biological indicators of the distribution of heavy metals in aquatic sediment.

Study Underway

→ The researcher will collect benthic macro-invertebrates and analyze them for the presence of arsenic and other heavy metals.
→ Onsite analysis of some water quality parameters, such as dissolved oxygen, pH, temperature, turbidity, and conductivity, will be conducted.

Benefits

→ Using benthic macroinvertebrates as indicators of arsenic contamination is an inexpensive and practical way to assess the overall health of the aquatic ecosystem, as opposed to other methods that simply show contamination in the river at the particular time a sample is taken.

Top: Bildad records sampling site characteristics. Left: Bildad performs chemical analysis of the water samples. He is from Cameroon, Central Africa, where he received a B.S. in natural sciences. He plans to graduate in 2007 and conduct more research before pursuing a Ph.D.