
SOUTH & SOUTHWEST

concentrations were high, they defecated on the sediment surface when oxygen concentrations were low. Therefore, a second experiment was designed to study the influence of the worms on the transport of pollutants specifically when oxygen concentrations were low.

In the second experiment, worms were added about ten days after the start of the water flow. The influence of the animals on the transport was obvious. During this experiment, researchers also looked at the defecation rates of the worms. They found no significant difference in the defecation rates for worms fed on contaminated or uncontaminated sediments. However, the rates did increase from 1–2 mg per day at the start of the experiment to 3–4 mg per day on the seventeenth day of the experiment, indicating that the worms were growing and acclimating to the environment.

During the second half of year 2, researchers focused on determining the effect of a sediment stabilizer (bovine mucus) on the pollutant transport caused by the worms. These experiments were conducted exactly as in the previous two successful experiments, except that 12 of the 15 microcosms were loaded with surface sediments that contained bovine mucus. Worm activity and pyrene transport decreased noticeably in the presence of mucus at least during the early experimental stages, indicating that if the mucus was stable and nondegrading, it would have a stabilizing influence on the sediment. Researchers are continuing this experiment in an effort to ascertain the transport of the pollutants and to study the sediment concentration.

Proposed Activities

Upcoming activities will focus on the interaction of the bioturbator, *Tubifex tubifex*, with the stabilizer, bovine mucus. Because bovine mucus is not found naturally in sediments, experiments will also be conducted with diatoms (microscopic algae with a silicious outer coating) as the stabilizer. The researchers will expose the sediments to sunlight and allow the diatoms to grow. Then, the researchers will add *Tubifex tubifex* and study the effect on the transport of contaminants in the presence of the diatoms. Researchers also plan to look at the effect of temperature on the worms' behavior and how clean-sediment caps might reduce contaminant fluxes caused by bioturbation.

While continuing to develop a model for bioturbation, the researchers are attempting to determine the answer to the question: how important is *Tubifex tubifex* to the food chain and could this position in the food chain further facilitate the movement of contaminants into the environment because of predators?

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