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An Assessment of Coliform and Pathogenic Bacteria on the Upper Rio Grande River (San Luis Valley) in Colorado

This study was conducted to determine the presence and amount of coliform and pathogens bacteria along several points of the Rio Grande River and mouth of the Conejos River. In the beginning the purpose of this study was to see if town's sewage lagoons were depositing bacteria into the river. After finding that only one colony grew out of eleven sites, I then wanted to know where in the water column the bacteria were, and if they were dormant. In December I did a standard streak test, and only one colony grew on RG-04 (Alamosa National Wildlife Refuge) overall. In February I tested for dormancy and let the samples warm up to room temperature for 24 hours. For every site, the sediment column had more bacteria then the upper water column. At almost every site, bacteria grew from both the upper column and sediment samples. On RG-03 and RG-06 however bacteria only grew in the sediment samples. I sampled for total bacteria, coliforms, and shigella and salmonella, and I also identified "unknown" white or clear colonies using a ViTek analyzer. At RG-03 Sediment there was Vibrio vulnificus; RG-04 Upper, Roseomonas gilardii; RG-04 Sediment, Pseudomonas aeruginosa; and CON-01 Sediment, Pseudomonas mendocina. As a comparison of techniques, I also used a common presence/absence test (Colitag media) for total coliforms and E. coli. Every site except RG-03, which was only positive for total Coliforms and negative for E. coli, was positive for both total Coliforms and E. coli.