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Effects of Water Quality on Genetic Variation on the Brackish-water Rotifer *Brachionus plicatilis*

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Impacts of water quality on the genetic structure of aquatic organisms have not been well characterized. Unfavorable conditions may result in loss of species diversity and/ or select for tolerant genotypes. We investigated whether aquatic pollutants affect the genetic diversity of the rotifer *Brachionus plicatilis*, common in saline systems. We predict that the genetic diversity of *B. plicatilis* will decrease with lower water quality. An urban population (Ascarate Lake, El Paso Co., TX) was compared with a non-impacted population (Figure Eight Lake, Bottomless Lakes, NM). Basic water chemistry parameters were measured along with heavy metals concentrations. Genetic variation is being determined by sequencing the mitochondrial COI, 16S rRNA genes and the nuclear non-coding ITS region. Water chemistry parameters for both lakes fell within the EPA freshwater chronic criteria except for conductivity, salinity, and TDS. Ascarate Lake exceeded criteria for several metals. Figure Eight Lake exceeded the criteria for one metal and will be used as the non-impacted site. Preliminary analyses of 16S rRNA genes showed no genetic variation among individuals from Ascarate Lake; however it was useful in phylogenetic analysis. Individuals from Figure 8 Lake are being cultured and determination of genetic variation within and between populations is underway.