ABSTRACT

Bacterial Diversity in Soil and Sediments From a Former Bombing Range (Vieques, PR). ERNIE PEREZ, NATALIA M. RAMOS, ARTURO MASSOL (University of Puerto Rico, Mayagüez, PR 00681) GARY ANDERSON, YVETTE PICENO, EOIN BRODIE, TERRY C. HAZEN(Lawrence Berkeley National Laboratory, Berkeley, CA 94720)

The U.S. Navy Atlantic Fleet Weapons Training Area (AFWTA) located in Vieques, Puerto Rico, includes land areas, waters and islets impacted by 63 years of military training operations. High-density universal SSU rRNA gene microarray analysis for Archaea and Bacteria were used to describe the microbial community structure of soil and marine sediment samples from Vieques and two reference locations. Total community DNA was extracted, PCR amplified and hybridized to an array encompassing 16S rRNA for over 8,900 distinguishable taxonomic units. Hierarchical clustering of the 100 most variable sub-families detected by the array demonstrated that variable sequences fell into six (6) primary response groups. Samples from sediments and soils are very similar between each of their kind. Furthermore, samples from closer geographical locations were more similar than distant sites. Higher numbers of OTU's were observed in soil samples with 193 to 318 sub-families identified in each sample. Bacteroidetes, actinobacterias and acidobacteria were the more common phyla detected in Vieques than reference samples. The presence of diverse groups of bacteria may indicate a great potential for natural or enhanced biological restoration. Understanding the function and community structure of highly disturbed ecosystems could assist environmental restoration strategies.