

The condition of scleractinian corals and associated reef fauna in La Parguera, Puerto Rico.

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Scleractinian corals, octocorals, sponges, fishes, and foraminifera were assessed at 24 sites near La Parguera, Puerto Rico in fall 2008. Sites were selected to coincide with locations sampled by NOAA in 2005 for sediment contaminants. Our goals were to evaluate the sensitivity of coral reef condition indicators and patterns in coral reef community metrics (e.g., species abundance, surface area (SA), biomass) across a known low-level sediment contaminant gradient. NOAA's sediment contaminant data were used to generate categorical scores for each proximal study site. These scores were evaluated for associations with coral reef metrics as were other potential predictors of reef condition (e.g. distance from shore). In contrast to results from previous studies in which lower taxa richness was associated with higher contaminant levels, both stony coral taxa richness and indicators that incorporated stony coral SA tended to be higher at sites with high sediment contaminants. Potential impact from contaminants was reflected only in the sediment-dwelling foraminifera, for which a Foram Index (FI) significantly and negatively correlated with contaminant scores. Lower FI scores are associated with impaired water quality and a community shift from larger symbiotic forms to smaller, stress-tolerant forms. Sites located further from shore also had higher FI scores, perhaps reflecting diminished land surface runoff and associated sediments, nutrients and pollution. Measures of coral and sponge SA provides a means for quantifying structure and habitat provision to other reef organisms. Stony corals constituted the majority of total reef SA at over half the sites, while octocoral SA ranged from 7-78% of total. Sponge contribution to total SA was lowest, only exceeding 10% of total SA at one site. Surface rugosity was correlated positively with stony coral SA but not with fish abundance or species richness. Our results are compared with other studies of reef health in the region.