

PROGRAM SCHEDULE

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Presenter: Nicole Stevens (University of San Diego)

Description:

Coral reefs in the US Virgin Islands (USVI) are threatened by multiple human impacts such as coastal development and pollution. In St. John, USVI, watershed development and unpaved roads have been shown to increase the delivery of sediment and land-based pollutants to sensitive coral reef habitats. Hallock et al. (2003) described a "FORAM Index" (FI), based on the proportion of symbiont-bearing foraminifera. The FI is used as a proxy for water quality in tropical coral reef environments and predicts whether water quality is adequate for reef growth or recovery. The objectives of this study are 1) to examine differences between the FI in coral reefs below areas of watershed development (with abundant unpaved roads) compared to below undeveloped watersheds that are protected within the Virgin Islands National Park, and 2) to examine if the FI changed from 2011 to 2013. Benthic sediment samples (top 1-2 cm) were collected using snorkel and SCUBA in 2010, 2011, and 2013 from three coral reef sites, one below a developed watershed, one below a minimally developed watershed and one from a mangrove area with coral reefs (Hurricane Hole). Samples were wet sieved (63µm), split, and 150-200 Foraminifera were picked and counted. Foraminifera were then identified and classified as symbiont-bearing, opportunistic, or heterotrophic. Finally, the FI was calculated for each site. The FIs at minimally developed sites were greater than at developed sites, indicating better water quality at sites protected by the national park. The FI increased between the years, suggesting a slight

improvement in water quality over time, which may be related to the paucity of large storms or the implementation in 2011 of watershed restoration. The FORAM Index can be used as part of regular reef monitoring to track the condition of coral reefs.

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DETERMINING CORAL REEF WATER QUALITY USING FORAMINIFERA IN THE US VIRGIN ISLANDS

Category

Education and Policy Session > ED - Education & Outreach > ED12 Undergraduate Research in Marine and Aquatic Sciences

Presentation Preference: Poster

Supporting Program: None

Student or Profesional? I am a Student

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