

**Seascape ecology of reef fish at Buck Island Reef National Monument,
St.Croix, US Virgin Islands**

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Visual surveys were used to assess habitat utilization patterns of reef fish at Buck Island Reef National Monument, US Virgin Islands. Beginning in 2001, two field missions per year have resulted in 461 surveys conducted over multiple bottom types around the Monument. Survey locations were selected using a random stratified approach with strata including bottom type (hard bottom vs. soft bottom) and, beginning in 2003, position relative to Monument boundaries (inside vs. outside). Descriptive statistics of the reef fish inventory by hard and soft bottom strata are provided. In addition, a novel approach for examining landscape scale influences on fish assemblages is presented. To illustrate the technique, species richness and diversity at fish survey sites were evaluated for correlations with landscape-scale parameters using regression and correlation. These habitat/seascape parameters included area of seagrass around reef sites and area of reefs around sand sites. These parameters were measured around each survey site using benthic maps. Best scales of correlation between the fish community and seascape patterns were identified by systematically varying the amount of the landscape adjacent to each survey site which was included in the analysis from 25, 50, 100, 200, 400, and 800m radii respectively. The maximum correlation of fish diversity at reef sites with area of seagrass was at the 400m analysis scale. The best fitting regression between fish richness at sand sites and area of hard bottom was found at the 100m analysis scale. This continuing database establishes a baseline for the Monument's reef fish inventory and monitoring activities. Data are ultimately to be used for analysis of changes in the fish fauna inside versus outside of the Monument boundaries now that extractive activities are prohibited.