

Trip Report

Characterization of reef fish populations and benthic habitats within St. Thomas East End Reserve (STEER), USVI:

Project in partnership with the U.S. Virgin Islands Department of Planning and Natural Resources, The Nature Conservancy, and the University of the Virgin Islands

11 June – 23 June 2012

Mission Purpose:

The 2012 field mission in the STEER was in support of Year 2 for the project: *Characterization of Land-Based Sources of Pollution and Effects in the St. Thomas East End Reserve (STEER)*. The overall goals of the field mission were to conduct a biological survey of the marine resources within the STEER, and to collect samples of coral and conch for chemical contaminant analysis. The Biogeography Branch of NCCOS' Center for Coastal Monitoring and Assessment (CCMA) conducted the biological survey, and CCMA's Coastal Oceanographic Assessment Status and Trends (COAST) Branch conducted the collection of coral and conch tissue for chemical contaminant analysis. This trip report provides a summary of activities by the Biogeography Branch, while a separate trip report provides a summary of the contaminants work. The goal of the Biogeography Branch work was to conduct a biological assessment to characterize fish communities and benthic habitats within the STEER and at select hardbottom locations adjacent to STEER.

Background:

NCCOS' Center for Coastal Monitoring and Assessment (CCMA) is working closely with a number of divisions in the USVI DPNR (e.g., Divisions of Fish and Wildlife and Coastal Zone Management), the University of the Virgin Islands (UVI), and The Nature Conservancy to develop the baseline characterization of chemical contamination, toxicity, and the marine resources in the St. Thomas East End Reserve (STEER) in St. Thomas, USVI. The STEER contains extensive mangroves, seagrass beds and coral reefs. Within the watershed, however, are a large active landfill, numerous marinas, various commercial/industrial activities, an EPA Superfund Site, resorts, and several residential areas served by individual septic systems. This baseline assessment will provide managers with critical information needed to help preserve and restore habitats, including a number of nursery areas within the STEER that are important to commercial and recreational fisheries.

In Year 1 of this project, sediments were sampled to assess chemical contamination throughout the Reserve, benthic community condition, and sediment toxicity using a battery of established bioassays. In addition, monthly sampling for sedimentation (using sediment traps), nutrients, and total suspended solids (TSS) were begun in Fall 2011 in partnership with UVI. Year 2 of the project builds upon this work, providing an assessment of the biological resources within the STEER, including fish and benthic habitats, along with an assessment of chemical contaminants in biota (e.g., fish, corals, and conch). Overall, this work will provide the baseline data requested by STEER managers, and will help identify future projects to reduce LBSP (land-based sources of pollution) and help restore and conserve critical habitats.

As part of the Year 2 component of the characterization, a field survey was conducted in June 2012. The primary objective was to conduct a biological assessment to characterize fish communities and benthic habitats within the STEER and at select hardbottom locations adjacent to STEER.

Methodology:

Data were collected under DPNR permit number STT-024-12. Sites were randomly selected within strata to ensure coverage of the entire study region. The habitat stratification is divided into three major habitat types: hardbottom which includes reef, pavement, etc. inside STEER; softbottom which consists of sand and seagrass, and mangrove (Figure 1). In addition, two hardbottom areas outside STEER, and of interest to STEER's Core Team were included as a separate stratum (8 sites total). Alternate sites were available within each category if a primary site could not be surveyed. Due to water quality concerns and low visibility, a portion of Mangrove Lagoon and Benner Bay were excluded from the study area. In addition, extra precautions were taken in the area where the ferries traverse.

One boat was used each day of the mission. The fish and benthic habitat survey was conducted by two scientific divers. During each dive one diver quantified the species and size of fish within a 25 x 4 m transect while a second diver characterized the habitat and invertebrate community. On one day during the second week of the mission, divers collected coral samples to analyze for chemical contaminants (see corresponding COAST trip report).

A total of 80 surveys were conducted: 71 within STEER and 9 on hardbottom outside STEER (Figure 1, Table 1). One of the "outside STEER" sites south of Little St. James was not part of the random selection but a targeted location. The site was chosen with input from TNC during extra time at the end of the mission due to interest in potential effects of island development on the surrounding marine ecosystem. Two planned survey sites, located south of Benner Bay, could not be completed due to low water visibility. Alternate sites were surveyed instead.

Data from the fish and habitat surveys will be available for download on the Biogeography Branch's online database (http://www8.nos.noaa.gov/biogeo_public/query_main.aspx) by November 2012.

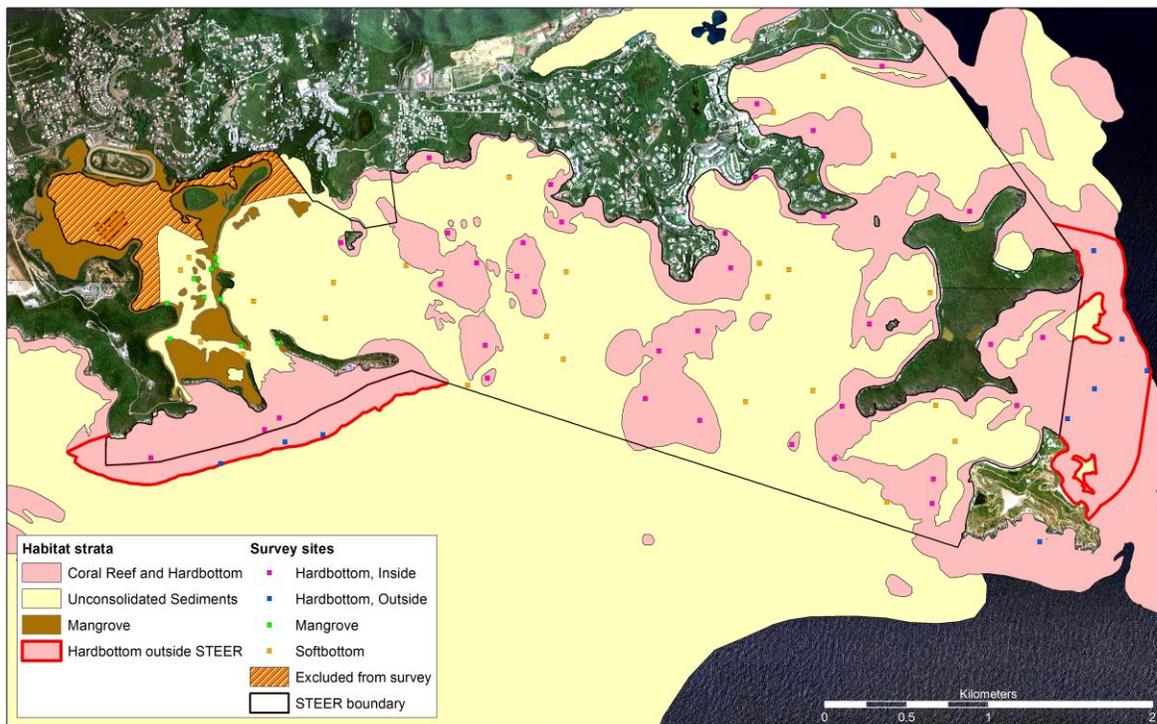


Figure 1. Sites surveyed during the June 2012 field mission

Table 1. Summary of surveys by strata conducted during June 2012 field mission.

Strata	Number of sites accomplished
Hardbottom (Inside)	36
Hardbottom (Outside)	9
Softbottom	25
Mangrove	10
Total	80

Personnel List

NOAA Project Managers

Tony Pait
Ian Hartwell
Laurie Bauer

NOAA Field Scientists

Laurie Bauer
Kimberly Edwards
Matt Kendall
Jennifer Vander Pluym
Amy Uhrin

TNC Field Scientists

Anne Marie Hoffman
Jeanne Brown