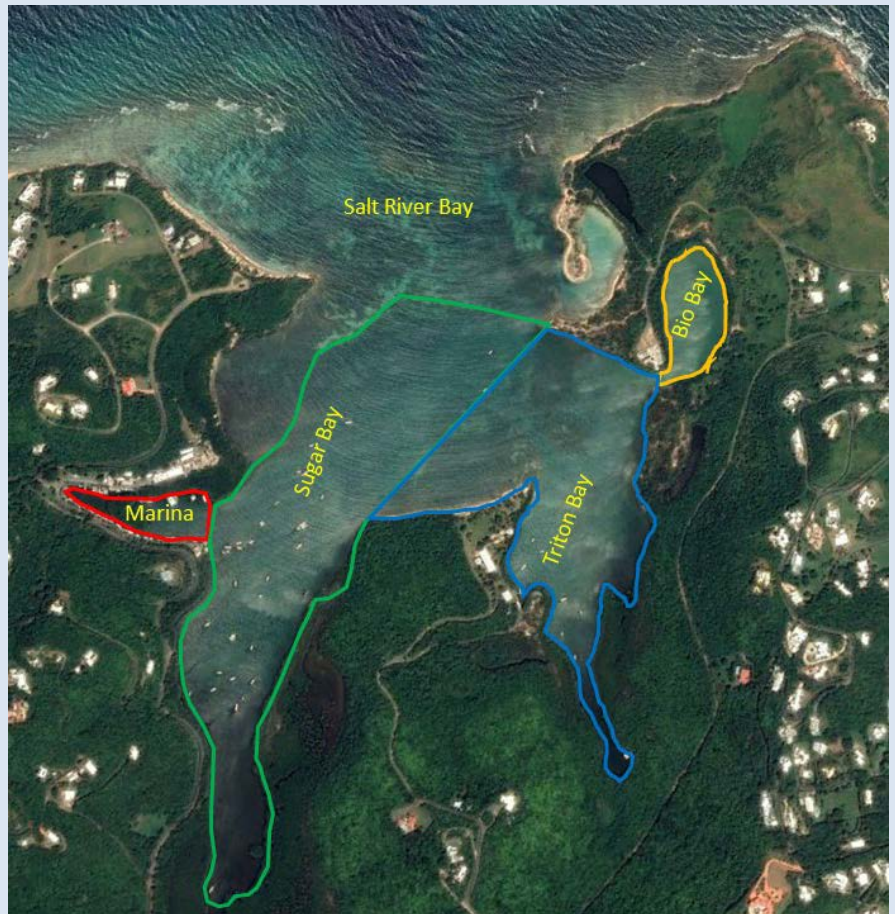


Assessment of Chemical Contaminants in Biota from the Salt River Bay National Historical Park and Ecological Preserve, St. Croix, USVI



Background

The Salt River Bay National Historical Park and Ecological Preserve (SARI) in St. Croix, USVI, comprises an area of 1,015 acres and is jointly managed by the National Park Service (NPS) and the USVI Department of Planning and Natural Resources (DPNR). Habitats include mangrove forests, seagrass beds, coral reefs and a submarine canyon. The surrounding watershed has an area of approximately 3,000 acres and contains forest, shrub and barren areas, along with residential and commercial lands. A TMDL (Total Maximum Daily Load) has been established for dissolved oxygen in SARI. The impairment is thought to be the result of inputs from the surrounding watershed, and is a likely indicator of land-based sources of pollution (LBSP) which may include nutrients, sedimentation and chemical contaminants. In 2014, DPNR and NPS requested that NOAA's National Centers for Coastal Ocean Science (NCCOS) conduct a chemical contaminants assessment in SARI.



The Project

Working with local partners (NPS and DPNR), the project will result in the collection and analysis of a variety of biota (fish, crustaceans and clams), for a suite of chemical contaminants routinely characterized by NOAA's National Status and Trends (NS&T) Program. The NS&T Program, located within NCCOS, has been quantifying chemical contaminants and bioeffects in the nation's coastal waters for over 30 years. For this project, samples will be collected within SARI from four strata including: Sugar Bay, Triton Bay, Bio Bay, and Marina (Figure 1).

Figure 1. Sampling strata developed for SARI.

The project leverages the fish collections occurring as part of the telemetry work being conducted by NCCOS' Biogeography Branch. Some of the fish collected during the telemetry project will provide the fish needed for the chemical contaminants assessment. Originally, only fish were scheduled to be analyzed for this project. However, during initial work for the fish telemetry project, crabs and lobsters were occasionally found in the fish traps. In addition, clams have been found in some nearshore areas and adjacent to the sites where the fish traps have been deployed. As a result, crustaceans and clams along with fish will be collected and analyzed for chemical contaminants, providing a more complete trophic level assessment of chemical contaminant

stressors present in SARI. The project will also complement planned or ongoing work in the area including the collection and analysis of sediments by NCCOS for another project, and work by NOAA's National Marine Fisheries Service to collect conch for analysis of chemical contaminants.

Field Work

The collection of biota is scheduled to occur during the summer of 2018. All sampling will occur within the strata identified in Figure 1. Transportation to and from the sites will be by small boat provided in partnership with NPS. The fish traps (Antillean-type fish traps) used for this project will be the same ones currently being used by NCCOS' Biogeography Branch, and because the collection of biota for contaminants analysis will occur at the same time as the Biogeography work, the overall time and cost of the project will be reduced.



Figure 2. Sea bream (Archosargus rhomboidalis), one species which may be collected and analyzed for this project.

The species of fish and crustaceans collected will be the ones found in the traps. Sampling permits will be obtained from NPS and DPNR. One common species of fish that may be collected for this project is *Archosargus rhomboidalis* or sea bream (Figure 2). Clams will be collected from nearshore areas or by using SCUBA divers.

At the end of the field mission, the samples of fish, crustaceans and clams will be shipped via FedEx to a NOAA analytical contract laboratory (TDI-Brooks, International) in College Station, Texas, and subsequently analyzed by TDI-Brooks, and by a NOAA analytical laboratory in Charleston, South Carolina. The samples will be analyzed for over 150 chemical contaminants, including polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, butyltins (e.g., tributyltin or TBT), and heavy metals.

Outcomes

The results from this project will provide a better understanding of the chemical contaminants present, along with their concentrations in biota in SARI, particularly in those areas that may be receiving inputs of LBSP. The results from this study, in conjunction with the other chemical contaminants work completed or ongoing (e.g., sediments and conch), will provide a robust baseline assessment of chemical contaminant issues in SARI. The information generated will also be important to help gauge the level of contamination in marine biota that are sometimes consumed by humans in the area. Finally, the project will provide local resource managers with information needed to make informed decisions regarding the health of the system, and management activities that may be required to preserve or restore this valuable natural resource.

For additional information or questions on the project, please contact:

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