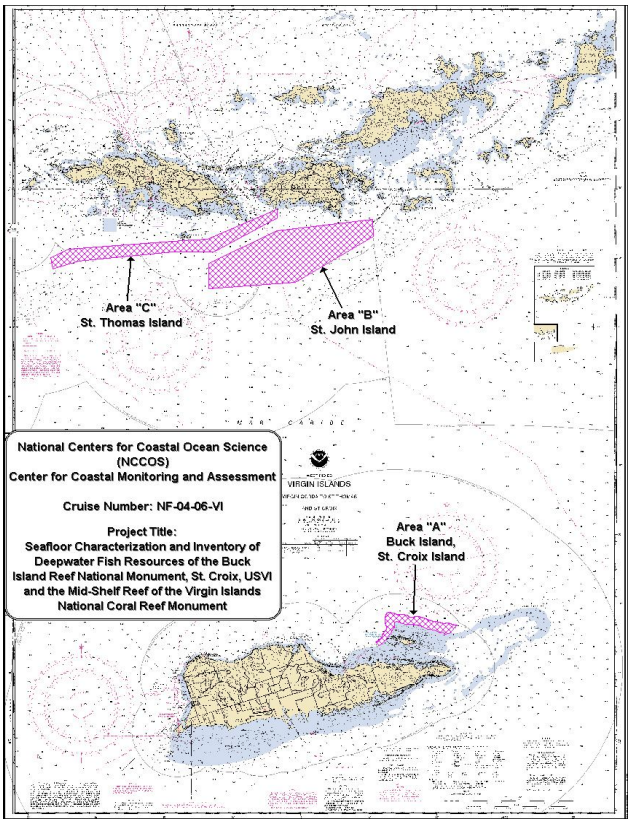
Multibeam Mapping in the USVI
A Collaborative Project Between NCCOS, OCS, NMAO and CO-OPS

Purpose: The National Centers for Coastal Ocean Science (NCCOS) scientific purpose is to explore and characterize the seafloor of the near shore and deepwater fish habitats during a research cruise on board the NOAA Ship NANCY FOSTER. This project will take place in mid-February through early March 2004, in portions of the Buck Island Reef National Monument, St Croix, USVI, and the mid-shelf reef of the Virgin Islands National Coral Reef Monument *(see the graphic on the right)*. The project team will: 1) acquire 200% multibeam bathymetric data coverage, side scan sonar data, and employ towed underwater video cameras; and 2) use multiple methodologies to conduct an inventory of deepwater fishes and their habitats.



Proposed region for multibeam, sidescan and mini-bat work around St. Croix, St. Thomas and St. John, USVI

Background: NCCOS typically conducts and supports research, monitoring, assessment, and provides technical assistance to people managing coastal ecosystems and society's use of them. NCCOS activities focus on five key areas of ecosystem stress: climate change, extreme natural events, pollution, invasive species, and land and resource use. This particular area of concern in the USVI lies within a coral reef ecosystem.

Program Benefits: An immediate and tangible benefit of this collaborative project, is the multibeam data sharing between NCCOS and OCS. Another benefit of this project is the development of a cooperative approach between the four NOAA programs: NCCOS, Office of Coast Survey (OCS), NOAA's Marine Aircraft and Operations (NMAO) and the Center for Operational Oceanographic Products and Services (CO-OPS). This will greatly facilitate future endeavors between these programs.

OCS Support: In an effort to acquire more data in the coral reef areas of the U.S. Virgin Islands (USVI), NCCOS approached OCS and NMAO in December 2003 to install a multibeam sonar system on board the NANCY FOSTER prior to its departure for the USVI in early February

2004. OCS rapidly identified what resources were available in its inventory and was able to work through NMAO to obtain a multibeam sonar system (on loan), motion reference unit, and GPS equipment. OCS acquired systems integrator services from a GSA-listed company to install and calibrate the multibeam sonar system on board the NANCY FOSTER. OCS will loan the navigation and data processing software to NCCOS.

OCS will also send Sean Rooney, a physical scientist, to operate the multibeam equipment and post process the data during the cruise period.

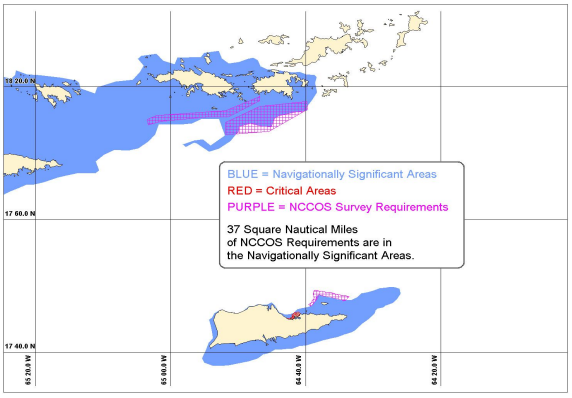
NCCOS Support: NCCOS will fund travel and per diem costs for the NMAO and OCS multibeam operators. NCCOS have already provided $43,000 for a firm fixed price contract with Triton Elics International to provide system integration on board NANCY FOSTER. This includes a mount for the sonar, motion reference installation, calibration, training and travel.

NMAO Support: NMAO will send Grant Froelich, a survey technician from NOAA Ship THOMAS JEFFERSON, to operate the equipment and post process the multibeam data during the cruise period. NMAO shipped pieces of the system from MOC-P in Seattle, Washington, to the NANCY FOSTER in Charleston, South Carolina. MOC-A in Norfolk, Virginia, has assigned an electronic technician to assist with supplying video to the bridge.

CO-OPS Support: Monica Cisternelli and Cary Wong provided the tide requirements in direct support of the multibeam portion of this project. Time and height correctors for the predicted tides are applied during the acquisition and preliminary processing phases of this project for correcting all multibeam data.

Outcome: NCCOS expects to acquire approximately 50 SNM of multibeam data within three priority study areas of the U.S. Virgin Islands *(see the graphic above).* As a result of the multibeam data acquisition in these NCCOS project areas, OCS can complete 37 square nautical miles (SNM) within the predetermined Navigationally Significant area (*see the graphic on the right).*

Products: A multibeam data set, along with a backscatter mosaic product, will be sent from the NANCY FOSTER to OCS' Pacific Hydrographic Branch, in Seattle, Washington, for potential chart updates in this area.



Map showing the NCCOS project priorities in magenta within OCS' Navigationally Significant Areas