

Florida Integrated Science Center, St. Petersburg, Florida

## Mapping and Vessel-Based Capabilities

U.S. Geological Survey (USGS) scientists from the Florida Integrated Science Center (FISC) conduct scientific investigations of submerged coastal and marine resources using new and existing technologies. Each contributing technique, method, or product adds to our understanding of coastal and marine resources and provides information for resource-management decisionmaking. In support of this mission, the USGS St. Petersburg office maintains a fleet of research vessels used for inland, coastal, and open-water marine surveys and investigations. Each vessel has advantages and limitations related to water depth, carrying capacity, speed, operation in open water, and other functions. These research platforms are staffed by experienced technical and scientific professionals with expertise in marine navigation, geology, geophysics, engineering, biology, and oceanography.



Scientists and engineers from USGS FISC in St. Petersburg prepare a sediment core barrel onboard the R/V Gilbert.

### Research Facilities and Vessels

The USGS St. Petersburg office oversees facilities and vessels staffed by experts and equipped with the latest technology. Onshore labs, computers, and experts are on hand to help prepare, and then support the missions by analyzing and storing information.

Facilities include a fully operational shop, an electronics lab, sediment and core labs, a clean lab, a microbiology lab, and a biology lab. State of the art information technology support is available for computing, data analysis, archiving, and servers. Geographic Information System (GIS) and remote sensing capabilities and expertise are also housed at FISC in St. Petersburg.

Vessels and platforms are available to perform bathymetric surveys, sidescan sonar sea-floor imaging, sub-bottom seismic profiling, swath bathymetry surveys, and coring operations. Vessels also support scientific investigations on coral reefs, aquifers, water quality, coastal and benthic habitats, fish and turtle populations, underwater imaging, and assist with marine education.



R/V Gilbert traveling to coring site in Tampa Bay, Florida.

*Research Vessel G.K. Gilbert*—This 1993 research vessel is a 50-foot, semi-V-hulled Munson Hammerhead with a shallow, 2.5-foot draft. The vessel can operate at 30 knots with three 425-horsepower turbodiesels powering three quiet Hamilton Jets. With all exhaust outlets above the waterline, the vessel is relatively quiet, with an excellent acoustic signal-to-noise ratio to optimize survey data quality. The jet propulsion also eliminates propeller entanglement with sensor cables and improves shallow water access without damage to the boat. Fully-equipped, the R/V Gilbert can simultaneously run sidescan sonar imaging, swath bathymetry, high-resolution bathymetry, and three levels of seismic profiles, while maintaining coring and dive platform capabilities.

*Houseboats*—Two USGS houseboats serve as home base for biological monitoring and extended site-specific data collection. The houseboat, R/V Marjorie Douglas, is a 50-foot aluminum custom-built Clark Boat with 22-inch draft, 200-gallon freshwater carrying capacity, and a 10-day field range. The Marjorie Douglas has a wet-lab and can house a 4-person crew. Houseboats provide basic living facilities, onsite laboratories, 24-hour data collection, and eliminate travel time during extended field sessions.

*R/V Catboat*—This 1999 research vessel is a 26-foot fiberglass Glacier Bay Coastal Runner with Twin Yamaha 115-horsepower engines and a cruising speed of 25 knots. It is used to perform shallow water and nearshore bathymetric surveys, sidescan sonar seafloor imaging, and swath bathymetry surveys. The vessel can cruise at 40 knots fully loaded, enabling daily surveys in large estuaries, lakes, bays, or rivers, and nearshore ocean environments that require long transits.