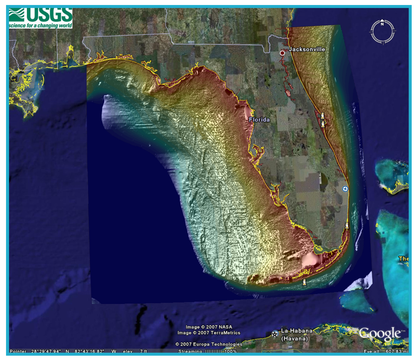
FLaSH Map–Florida Shelf Habitat Map Project Presents the World beneath the Waves

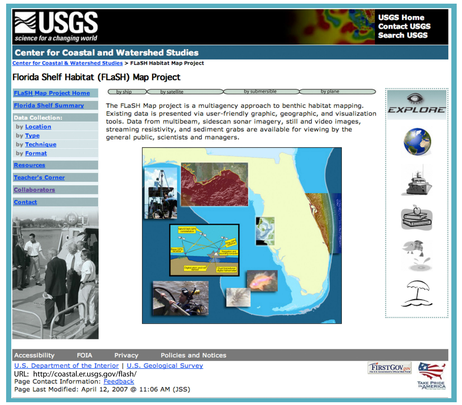
Ellen Raabe, Lisa Robbins, and Myra Schwarz*; USGS, FISC, St. Petersburg, FL, *ETI Professionals

Introducing FLaSH

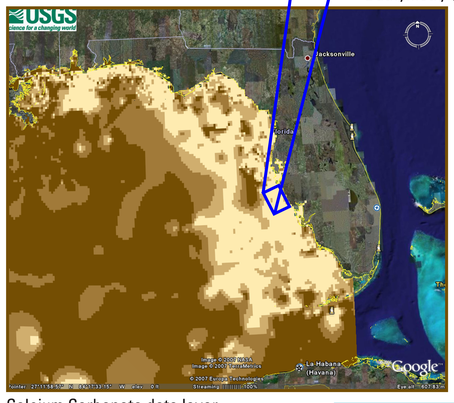
- Bathymetry
- Mapping Techniques
- Sediment Texture and Composition
- Underwater Video
- Habitat and Feature Delineation
- State Priorities and Resources



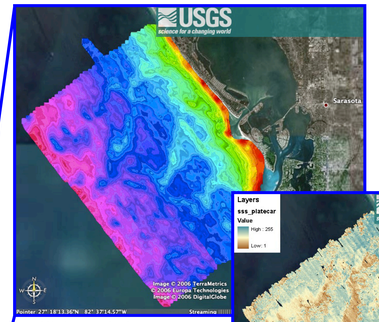
Bathymetry (1m NOAA) of entire West Florida Shelf



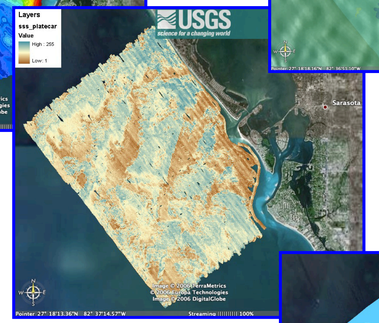
Google Earth is an interactive, 3D viewer that seamlessly zooms from a global scale down to less than a meter in many urban areas. For the first time, a variety of marine geology data sets were compiled and developed for the FLasH website. Interactive features include visualization of bottom characteristics, access to imbedded data, links to other URL sites, and transparent overlays. Existing bathymetric data (NOAA and USGS) and sediment data (usSeaBed) were rasterized and converted to KML format files for display in Google Earth. Point and line data were also converted to KML format files for visualization.



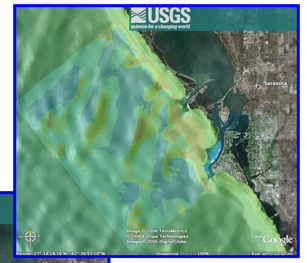
Calcium Carbonate data layer



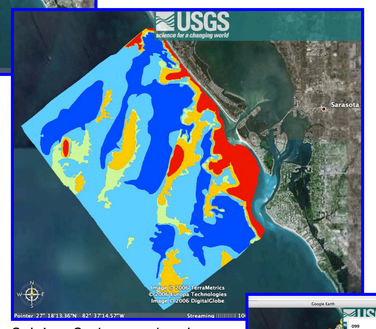
High resolution Bathymetry (USGS)



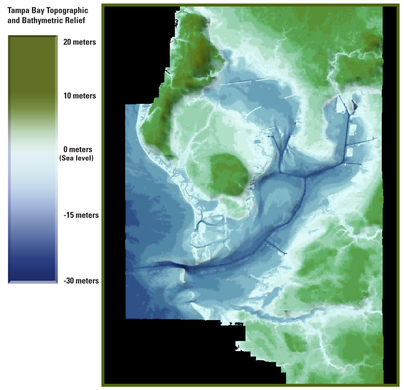
Sidescan Sonar data layer



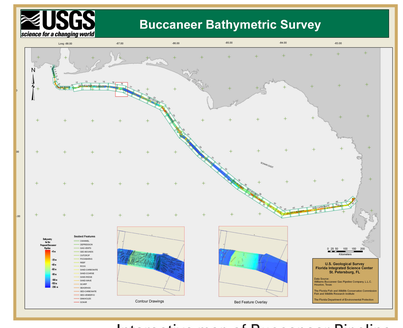
Multiple layer transparency showing associations-1m Bathymetry and $CaCO_3$



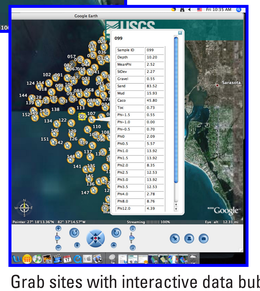
Calcium Carbonate data layer



Tampa Bay Florida Fly-through



Interactive map of Buccaneer Pipeline bathymetry and bottom features



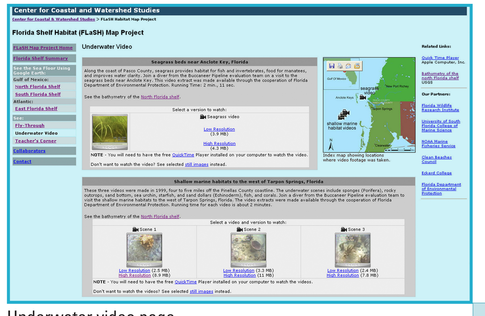
Grab sites with interactive data bubbles showing sediment composition data (Twitchell and Paskevitch, 1999)

Introduction

Spectacular views of earth from space have become commonplace on the Internet with new application tools, such as Google Earth. The Florida Shelf Habitat Mapping Project (FLaSH) website takes the concept of a bird's-eye view of the earth to the world beneath the waves. The FLaSH web pages invite exploration of the underwater world via Google Earth, bathymetric maps, underwater video, fly-through adventures, and resource tools. The viewer can visit the complex physical and biological world of the Florida Shelf and learn about the submerged terrain. Data for the Florida Shelf originates from many sources, dates, and formats. A multi-agency effort is underway to coordinate and prioritize the compilation of suitable data sets for an integrated information system of Florida's coastal and ocean resources. Water quality, fishery sustainability, sea level and climate change impacts, and economic issues drive the need for enhanced public awareness of the environment that surrounds, supports, and shapes our coastal communities. The FLaSH website places existing data in a user-friendly environment and within the larger context of the Florida Shelf. Accessible data, presented in a geographic context, offers citizens, managers, and scientists an opportunity to visualize coastal resources and to consider options in resource management.

Discussion

The Florida shelf is a carbonate platform that is approximately 100 km in width off of St. Augustine tapering to less than 2 km by West Palm Beach to the south, while the Florida Gulf of Mexico continental shelf is a wide, low energy area extending a distance of approximately 900 km in length from the western Panhandle to the extreme Southwest margin off the Florida Keys. Both shelves are sediment-starved, and composed of a mixture of siliciclastic and carbonate sediment depending on latitude. The Florida shelf offers considerable economic resources including commercial and recreational fisheries, tourism, recreation, mining of sand and gravel resources, phosphate and freshwater reserves. Yet managers and the general public lack the basic information needed to know where resources are, to interpret data for their particular problem, and to utilize existing information of ongoing shelf processes to make informed management decisions. Website visitors can explore underwater features and data via user-friendly graphic visualization tools. Data from mulitbeam, sidescan sonar imagery, still and video images, streaming resistivity, and sediment grabs are made available. Mapping technologies are introduced and examples of applications are provided. Visitors may view scientific data in the broader context of the submerged shelf. Better understanding and synthesis of geologic framework, dynamic habitat, and ecologic function of the Florida Shelf can assist in management of Florida's marine resources.



Underwater video page

Reference:
David Twitchell and Valerie Paskevich, 1999, Bathymetry, Sidescan Sonar Image, Surface Sediments, and Surficial Geological Map of the Inner Shelf off Sarasota, Florida: Preliminary discussion and GIS database release. Open-File Report 99-396

Collaborators

Contact : Lisa Robbins, PI lrobbins@usgs.gov
URL: http://coastal.er.usgs.gov/flash/