HSRP HYDROGRAPHIC SERVICES IMPROVEMENTS

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LIMITED SAND RESOURCES IN FLORIDA

- Goal to find the best and nearest sand resource and to protect sensitive marine habitats
- Critical to have most accurate and timely data
- Preliminary research involves locating past data sets
- Need to minimize duplication of effort
ROSS ArcIMS

FDEP Reconnaissance Offshore Sand Search

Tool Mode: Zoom In

Layers:
- Sediment Samples
- Other
- Reef/Hardbottom
- Geophysical
- Environmental
- Basemap
- Isopach Lines
- Bathymetry
- Borrow Sites
- Paleo Features
- Near Shore Features
- Geology/Geomorphology
- Interpreted Maps
- Queries

Auto Refresh

Refresh Map

View Legend
Sand Search Methods
Desktop Studies

- Nautical charts
- Bathymetry contours
- Grid NOAA bathymetry
- Color-stretch bathymetry
- Color-shaded relief
- Overlay seatruthing
  - Cores
  - Jet probes
- Digitize areas
Sand Search Methods
Desktop Studies

Based on JP, fine 6 sand, LBK BA 9 in 2004
1 JP, shell hash & sand

Fine white sand (<0.2)
Rubble, shell hash, and sand

7 & 8, wet fine sand (0.15), based on 1 USGS core
Largely unknown seaward of BA Time (0.15)

2 JP, Rubble, shell hash, sand
2 VC; fine sand (0.15)

USGS Core; Light grey & br

Shell hash and sand; MCV 6

MCV 6, shell mixed with silt; BA8 2004

BA LBK 7A; 1995
BA LBK 6A 2004

1 JP, Shell hash & sand; MCV 6
2 JP & BA LBK 6A 1997, MCV 6-8; 0.1
3 JP, W

Sand Resources

- MCV >= 7; => 0.3 mm
- MCV >= 7; => 0.25 mm
- MCV >= 6; => 0.2 mm
- MCV >= 6; => 0.15 mm
- MCV < 6
- Unknown Area, No Data
STUDY AREA

119,250 ha State shelf area
1,351,444 ha Federal shelf area
MORPHOSEDIMENTARY UNITS

- Transverse (nearshore) bars
- Ridge fields (sand ridges)
- Sand flats (shoreface-attached sand sheets)
- Sand waves (offshore transverse deposits)
- Banks (offshore deposits)
- Shoals (nearshore ridge-associated deposits)
- Ebb-tidal deltas (nearshore wave-dominated)
DUVAL RIDGE FIELD
131,000 ha, 12 x 10^9 m^3 potential sand source
Florida Shelf Habitat (FLaSH) Map Project

Example Overlay of Multiple Datasets - Broward County

Coastal Planning and Engineering (CPE), working in conjunction with several universities, collected and prepared a variety of nearshore data for Broward County in preparation for beach renourishment projects in 2001 and 2006. Broward County has placed a strong emphasis on the collection, distribution, and use of GIS products. Some CPE datasets can be downloaded from Broward county's GIS website. The U.S. Geological Survey has partnered with CPE in order to make the data more accessible to the larger scientific community as well as the general public. The Google Earth KMZs presented here are intended for use by the general public.

The large volume of quality data collected by CPE affords an opportunity to display and interpret these datasets. For ease of use, the data has been organized into four major themes: Biological constituents, laser bathymetry (LADS), man-made structures and zones, and bathymetry contours. The first two themes presented here have a large number of associated image and video files.
DISSEMINATION OF HYDROGRAPHIC DATA
DISSEMINATION OF HYDROGRAPHIC DATA
DISSEMINATION OF HYDROGRAPHIC DATA
Sand Search Methods
Reconnaissance Level Investigations
Conversion of ellipsoid heights to orthometric heights require a Geoid. The better the Geoid the better the orthometric heights.
Sand Search Technologies

Magnetometer Surveys

- Cesium vapor magnetometer detects differences in the natural magnetic field of an area.
- Sensitive (0.2 gammas) to submerged metallic objects.
- Used to look for cultural resources and submerged hazards.
Sand Search Methods
Reconnaissance Level Investigations
Sand Search Methods
Detailed Level Investigations