

NOAA Coastal Imagery

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NOAA/NGS**

**National Ocean and Coastal Mapping Inventory Workshop
13 January, 2011**



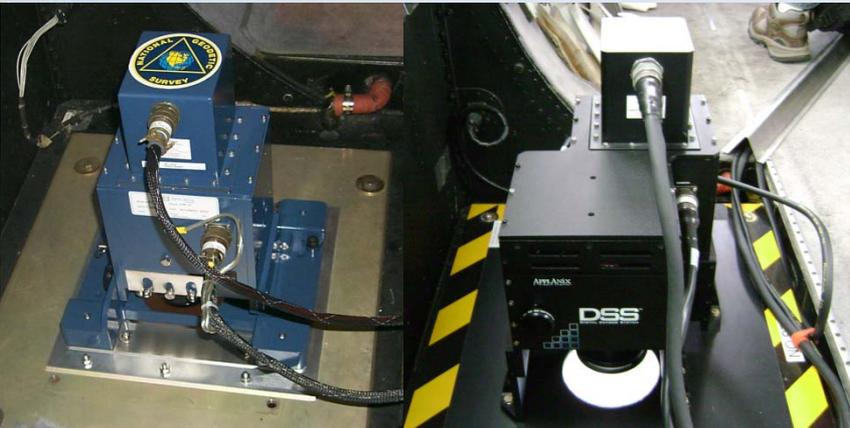
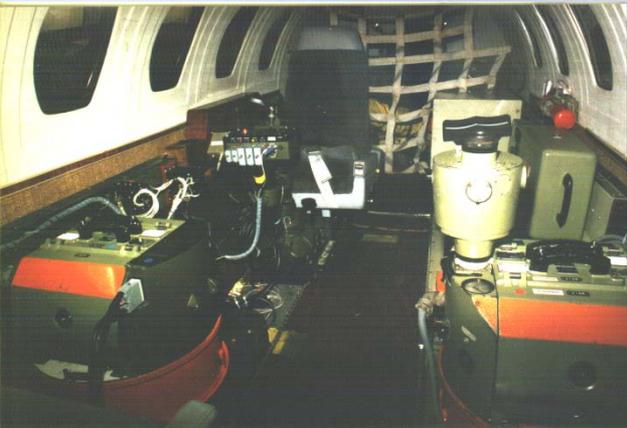
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CMP

- National Shoreline depicted on NOAA nautical charts
- Other important applications:
 - Legal boundary determination
 - Estimates of shoreline erosion, SLR and other climate-change threats
 - Coastal resource management
 - Storm surge and coastal inundation modeling
 - Many more...

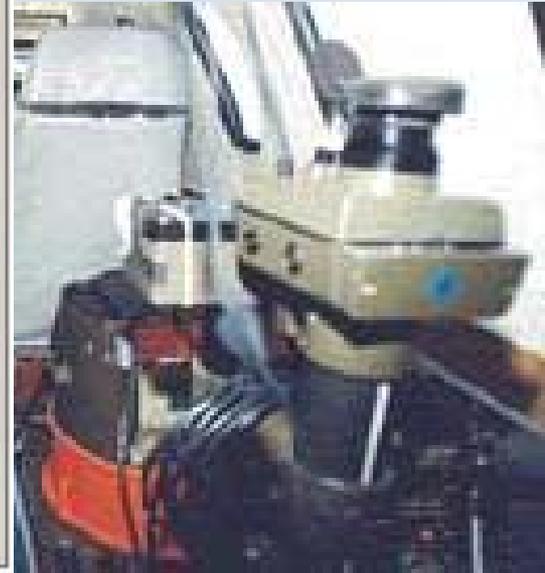
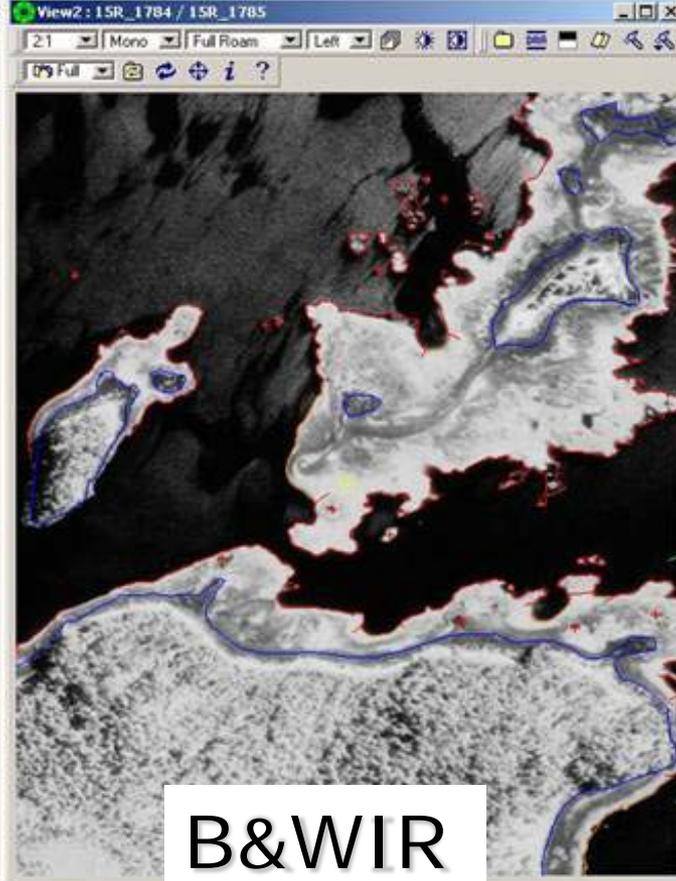


CMP Technology Evolution



Primary Method of Shoreline Mapping:

Stereo compilation from tide-coordinated aerial imagery

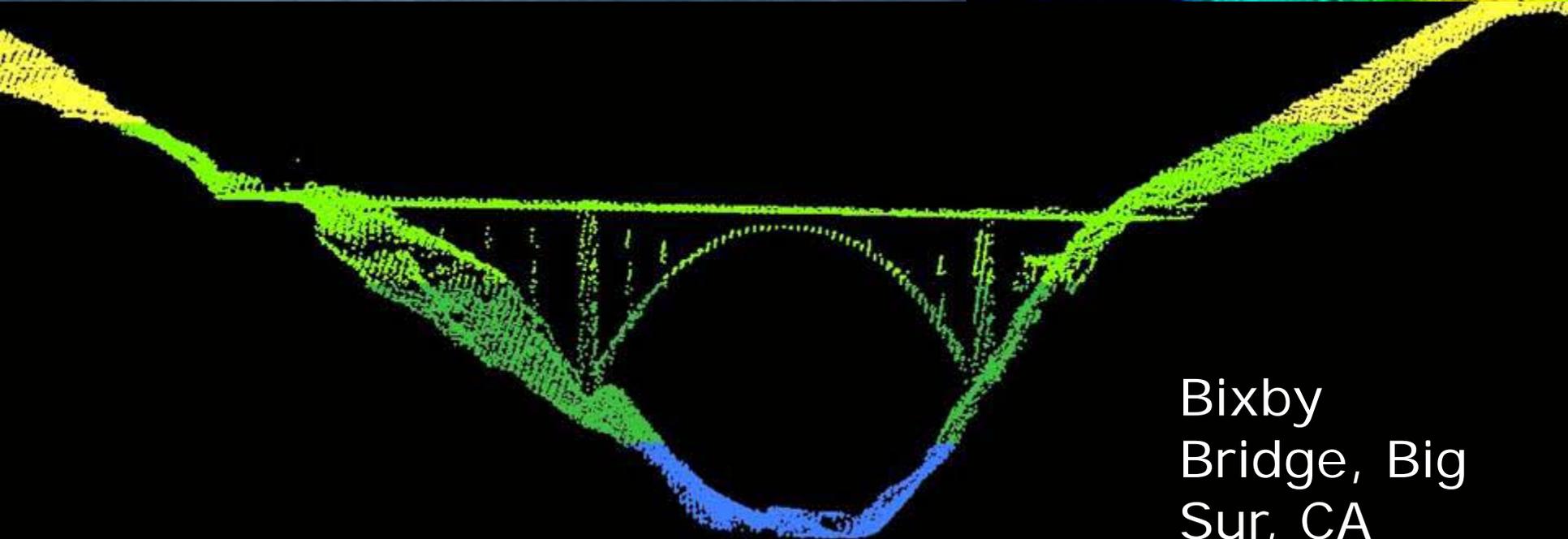
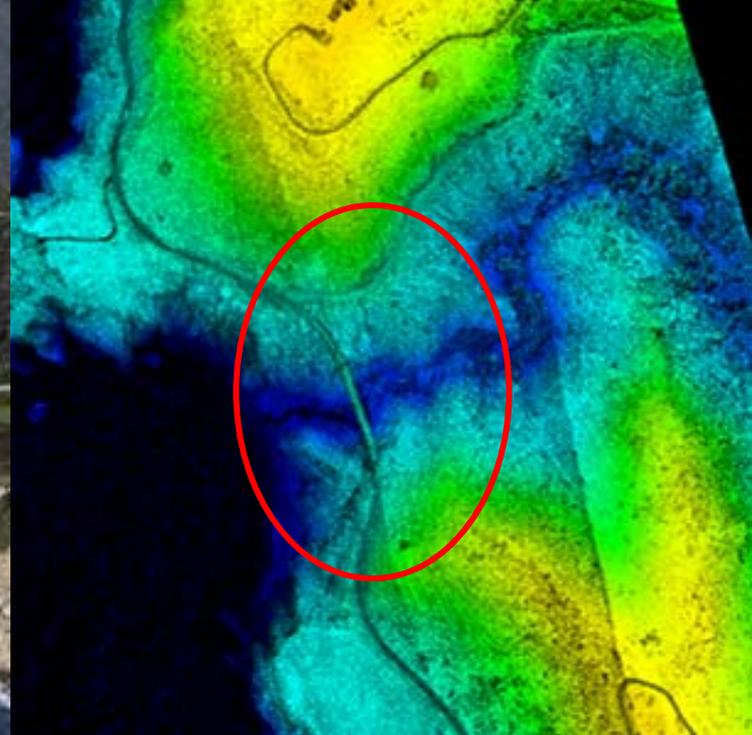


Digital Photography for Shoreline Mapping



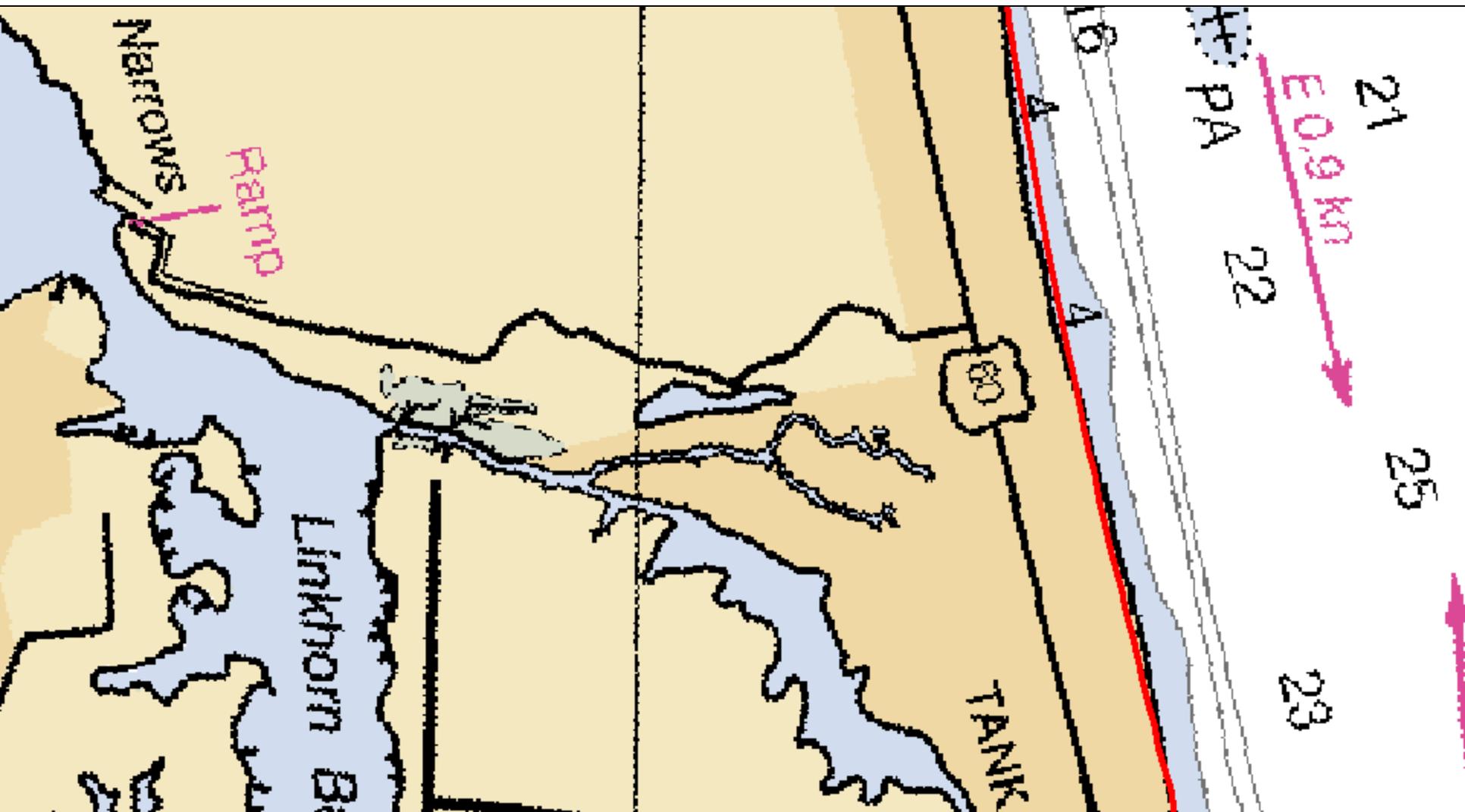
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Lidar Acquisition & Coastal Data

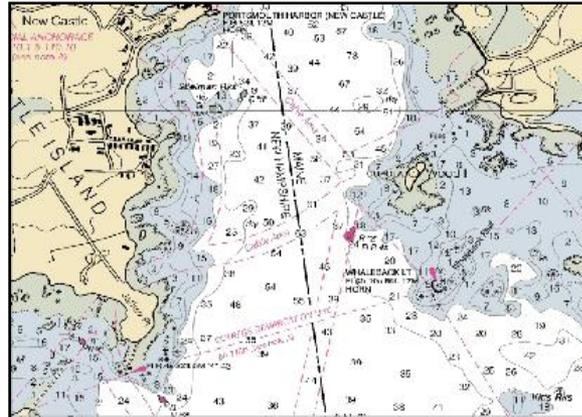
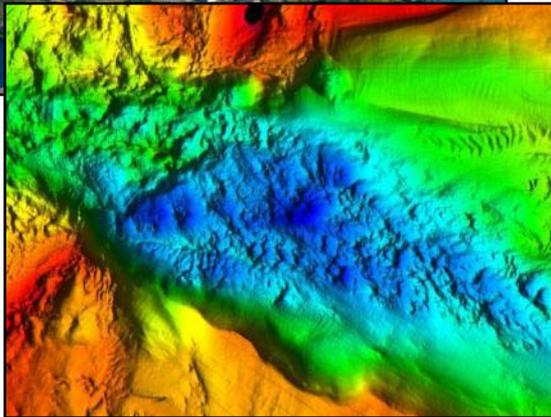
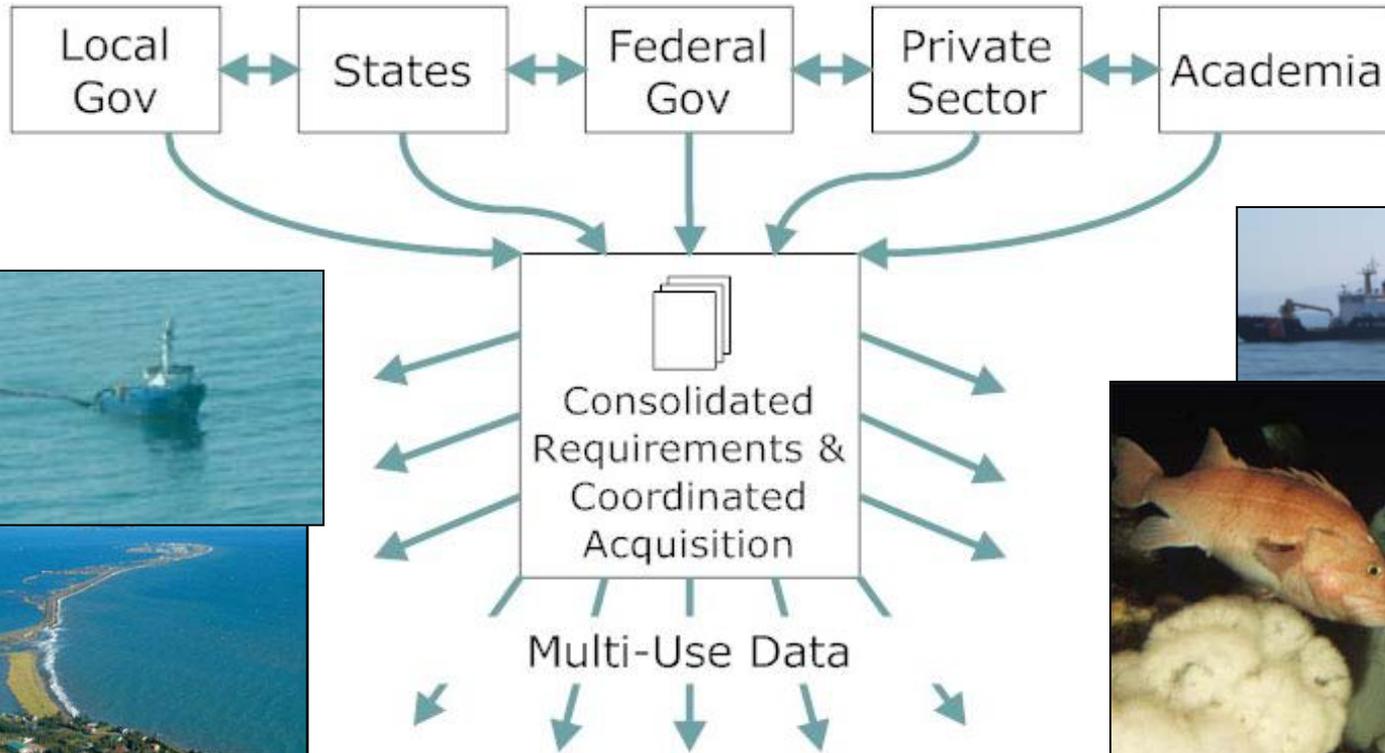


Bixby
Bridge, Big
Sur, CA

VDatum MHW lidar-derived Shoreline

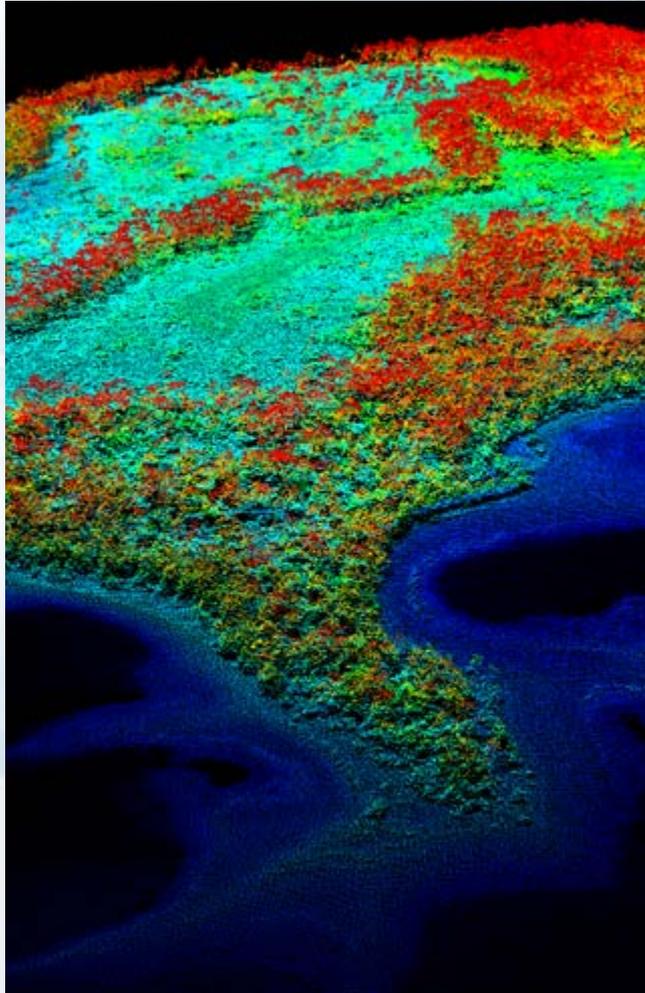


Integrated Ocean and Coastal Mapping (IOCM)

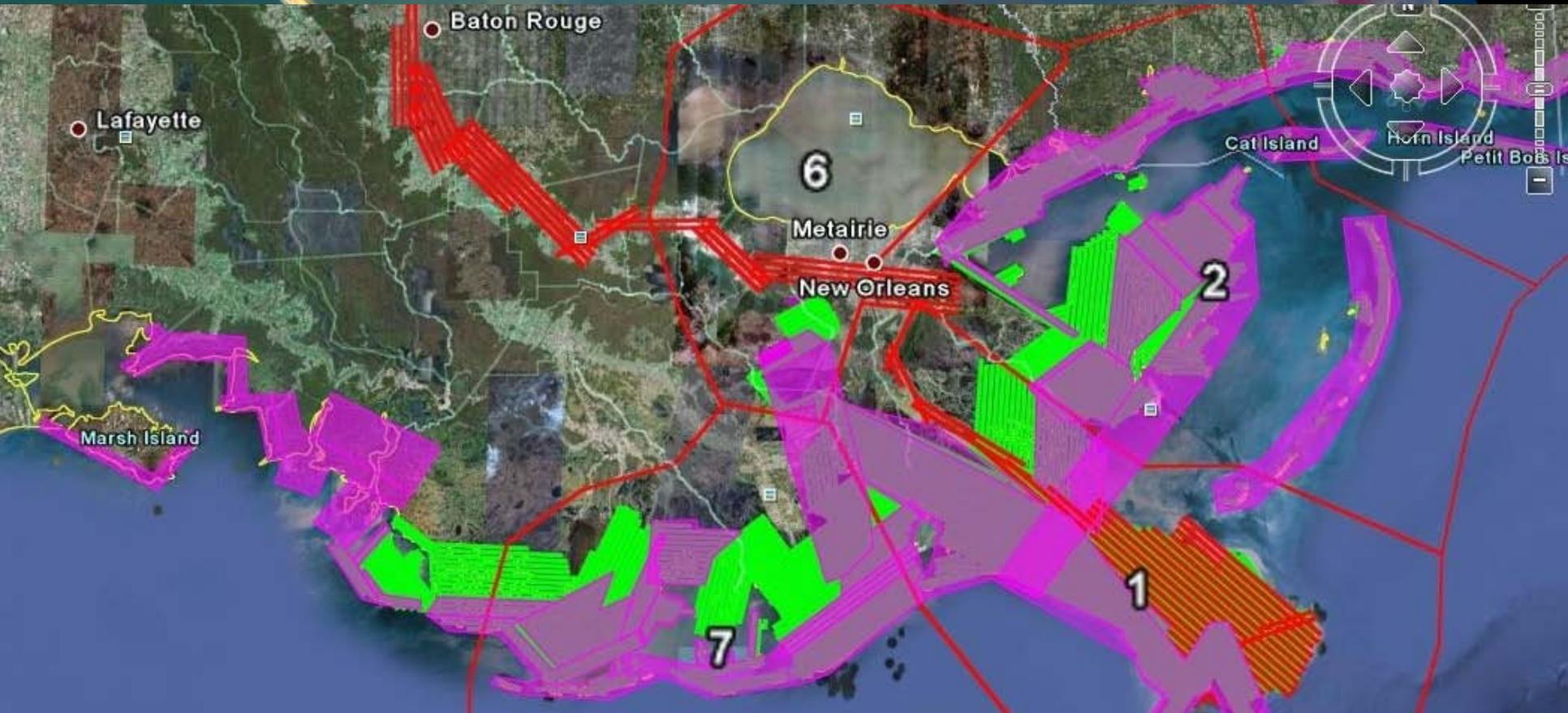


IOCM: Multi-Use Data

NOAA Digital Coast: <http://www.csc.noaa.gov/digitalcoast>



Emergency Response: Gulf Coast Oil Spill Response



FY11 Aerial Projects



National Oceanic and Atmospheric Administration

FY11 Aerial Projects

(Continuation of 2010 Projects Only)

- ME0702 BAR HARBOR NORTHWEST TO CUTLER ISLAND
- ME0801 NEW HAMPSHIRE BORDER TO PORTLAND
- NH0901 NEW HAMPSHIRE SHORLINE AND ISLE OF SHOALS
- DE1001 DELAWARE BAY
- NC0901 MOREHEAD CITY
- MI 1001 EASTERN LAKE MICHIGAN



FY11 Satellite Projects (CSCAP)

PORTS:

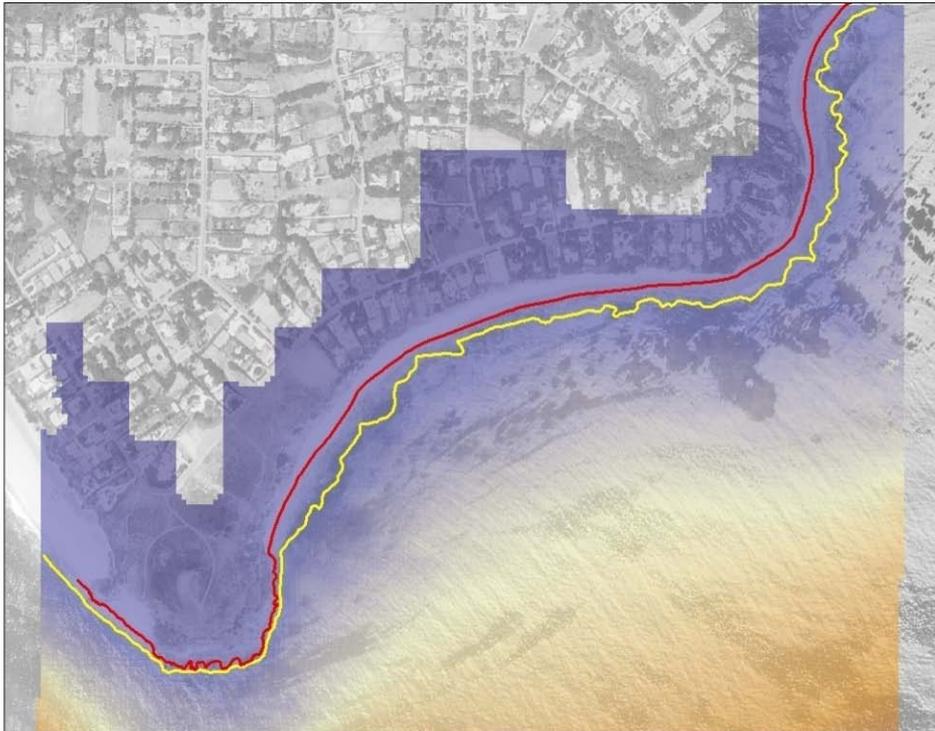
- New London/Groton
- Stamford, CT
- Gulfport, MS
- Mobile, AL Tampa, FL
- Weedon Island/ St. Petersburg, FL
- Port Manatee, FL
- Erie, PA
- Galveston, TX
- Texas City, TX
- Houston, TX
- Corpus Christi/Port Ingleside, TX
- Matagorda Ship Channel, TX
- Nikishka/ Kenai, AK
- Kivilina/Red Dog Portsite, AK
- Valdez, AK
- Jacksonville/Mayport, FL
- Port Everglades, FL
- Miami, FL
- Palm Beach, FL
- Buffalo, NY
- Port Angeles, WA
- Baltimore, MD
- Norfolk/Hampton Roads, VA
- Newport New, VA
- Reedville, VA
- Richmond, VA
- Annapolis, MD
- Intracoastal City, LA



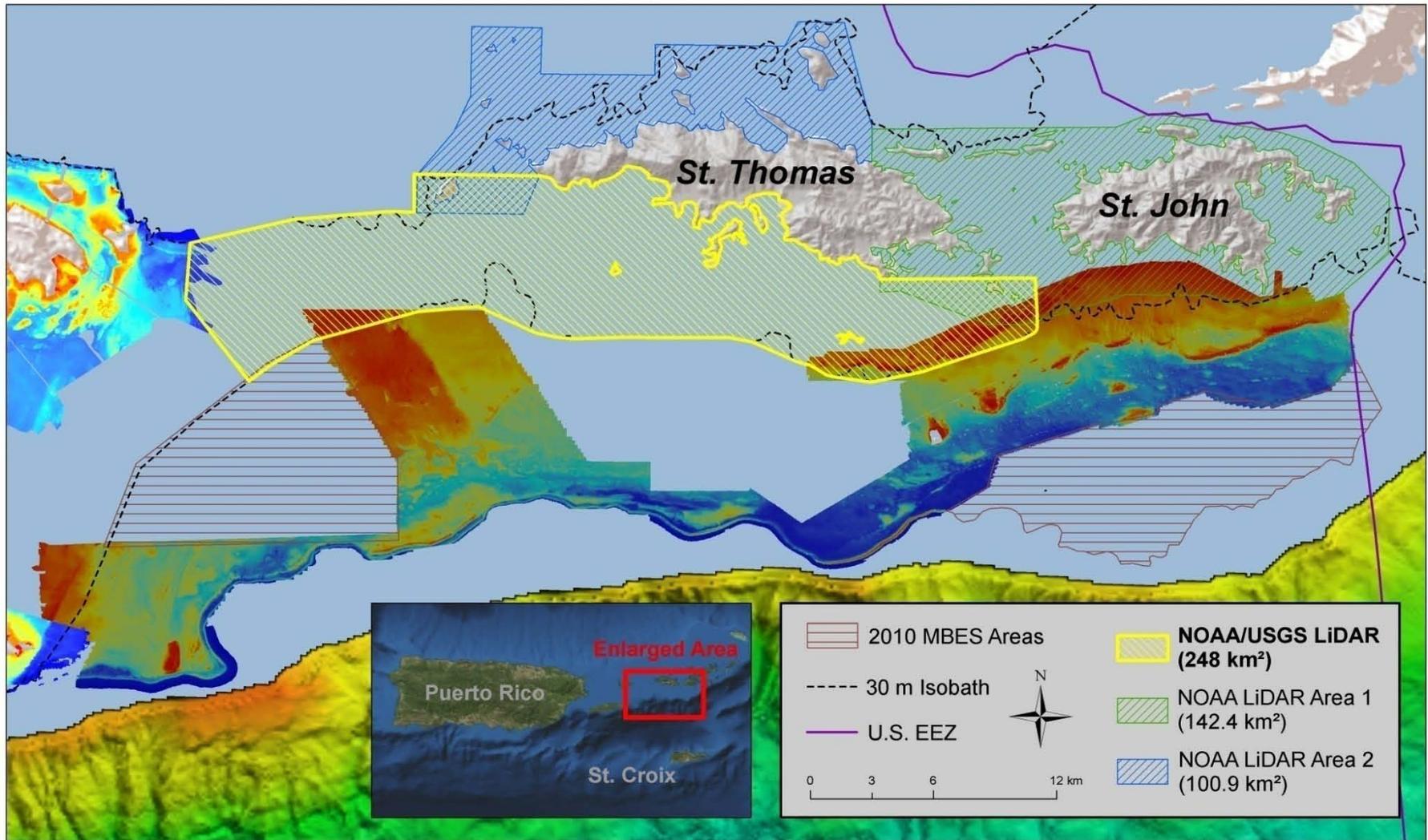
FY11 Projects: West Coast

(PHASE I)

Leveraging JALBTCX
West Coast Topo/Bathy
Lidar collects
for derivation of outer
coast shorelines



USVI Airborne Bathymetric LiDAR Collection



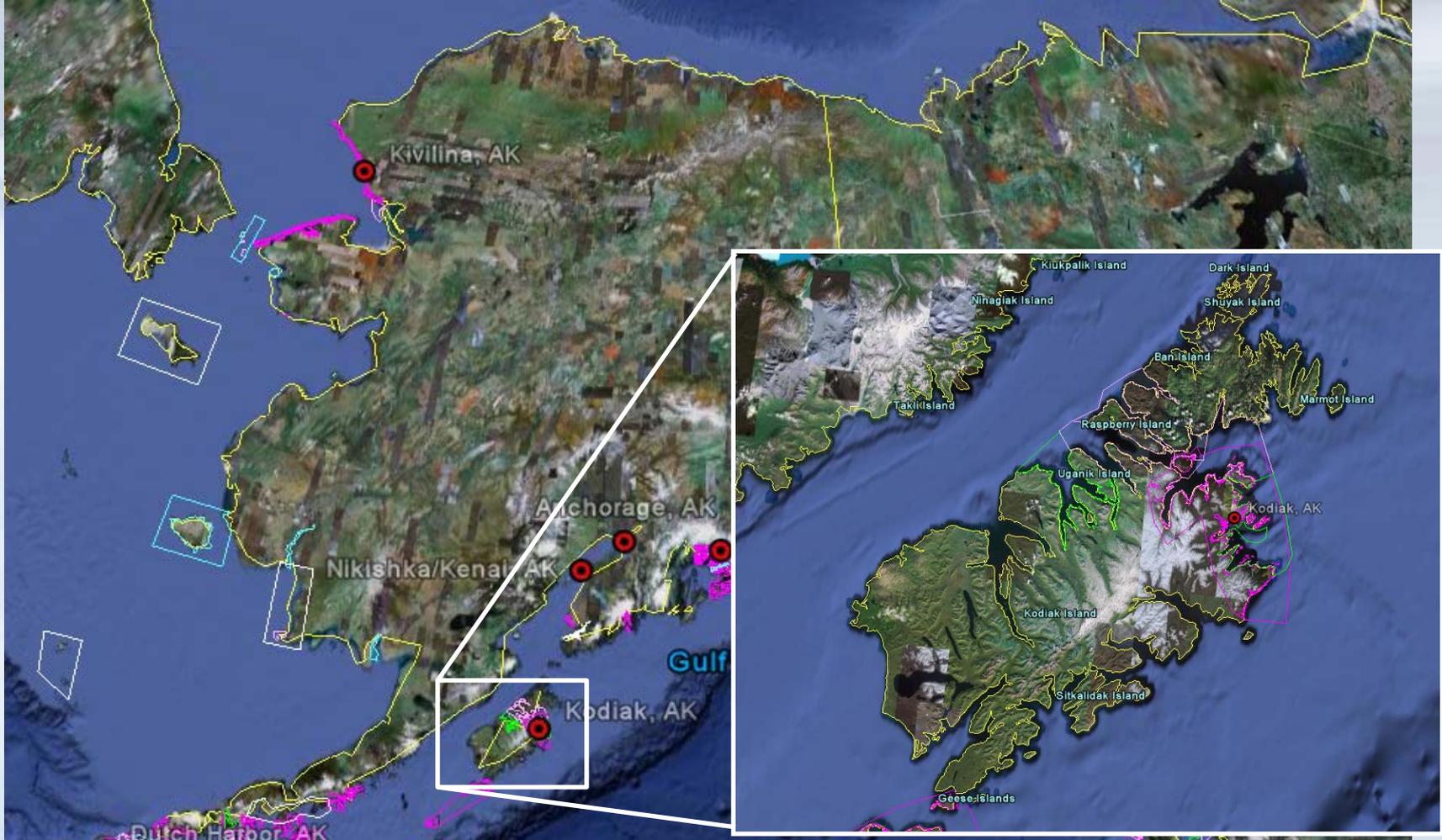
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EAARL+ project moved to FY12

Planning/Requirements Gathering

- Integration of multiple requirements/drivers, partner data acquisition plans, existing data holdings, and long-term objectives
 - Requirements from OCS (hydro out-year plan)
 - New shoreline at same time as new hydro
 - Other drivers:
 - Age of shoreline
 - Other initiatives (e.g., Arctic)
 - IOCM partner requests: NERRS, other Feds (USACE, USGS, FEMA, etc.), states, NGOs
 - JALBTCX and other external data holdings (e.g., states, DHS)





- Boxes: HSD and NSD priority areas
- Red circles: 2010 CSCAP
- Purple: Current Shoreline (since 2000)

- Green: 2012 requests
- Pink: 2011 requests
- Not shown here: current compilation



Port Angele
Grays Harbor/Westpo

JALBTCX Common Specs



The specifications on the following pages are by-products of the "LIDAR Survey Specifications Summit Meeting", hosted by JALBTCX in Jan. 2009.

Prior to the conference, the four sponsoring agencies (NAVOCEANO, USACE, NOAA and USGS) each listed their specifications within their own agency [e.g. blue rectangle below]. Throughout the conference, these standards were compared and some instances, one standard was considered to be the best practice and declared to be a consensus item [e.g. green rectangle below], while other parameters that still remain up to debate (or at least are agency specific) are outlined in red.

In most cases, the consensus specifications are subdivided depending on the application of the data (i.e. is the survey purpose for nautical charting or environmental assessment).

Topographic lidar	NAVOCEANO	USACE	NOAA	USGS	Consensus Items (application dependent)		
					Charting	Coastal Mapping, etc.	
Product Information							
horizontal datum	WGS84	NAD83	NAD83	WGS84(G1150)		} No Consensus Reached	
vertical datum	chart datum (MLLW)	NAVD88	MHW / MLLW	WGS84(G1150)			
horizontal accuracy	altitude dependant, < 0.38 m	2 m 2 σ	1 m, or as specified in project instructions	1 m	2.0m at 2 σ		} Consensus Reached
vertical accuracy	altitude dependant, < 0.37	25 cm 2 σ	15 cm RMSE, or as specified in project instructions	15 cm	0.3m at 2 σ		
Individual Agency Specifications							



<http://shoals.sam.usace.army.mil/Standards.aspx>



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Metadata

- Geospatial One Stop (GOS) Metadata
 - Aerial acquisition planning data is loaded into National Coastal Data Development Center's Metadata Enterprise Resource Management Aid (MERMAid) when Project Instructions are circulated internally
 - GOS harvests metadata from MERMAid
 - RSD sends product metadata to CSC which is also loaded into MERMAid for Digital Coast



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A screenshot of a web browser window displaying a metadata page. The browser's address bar shows the URL: http://www.geodata.gov/E-FW/DiscoveryServlet?uuid=%7B6382023D-B4... The page header features the geodata.gov logo and a banner image of the Golden Gate Bridge and the Statue of Liberty. The main content area is titled "IOCM Aerial Photography (RGB) for NERR:" and contains the following information:

Content Citation
Title:IOCM Aerial Photography (RGB) for NERR: Integrated Ocean and Coastal Mapping Product
Content Type:Downloadable Data
Publishing Organization:National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), National Geodetic Survey (NGS), Remote Sensing Division
Publication Date:20100305

Below this information are two buttons: "View Full Metadata" and "Downl".

Content Description
Abstract:Integrated Ocean and Coastal Mapping Product (IOCM). The images were acquired from a nominal altitude of 7,500 feet above ground level (AGL), using an Applanix Digital Sensor System (DSS). Imagery products are true color (RGB) and infrared (IR) images. The IR images were acquired with a 850 nm cut on filter. Images have been orthorectified and mosaiced to produce a seamless data set. For information about combining the IR image and the RGB image into a 4 band NIR image, please download the IOCM Band Stack Guide document at this link:

The browser's taskbar at the bottom shows the system tray with the date "Dc", the "Internet" icon, and a zoom level of "100%".

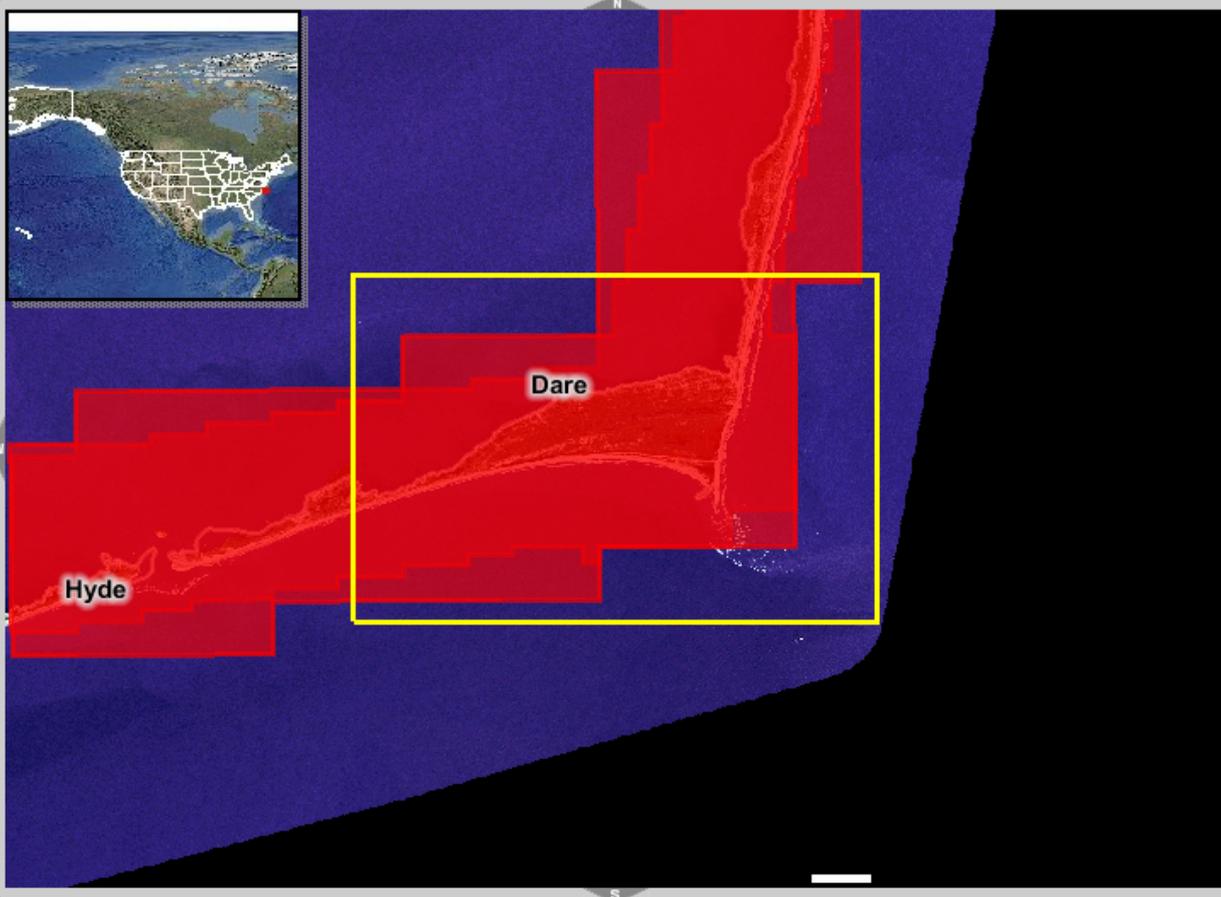
Data Dissemination

- Vector shoreline data (and soon raster, too)
 - Shoreline Data Explorer:
http://www.ngs.noaa.gov/newsys_ims/shoreline/index.cfm
- New IOCM data products (high-res orthomosaics and lidar point clouds)
 - Digital Coast: <http://www.csc.noaa.gov/digitalcoast>
- Aerial imagery
 - Photo Ordering System:
<http://egisws02.nos.noaa.gov/ngsPhotos/>
- Emergency Response Data
 - WOC site: http://ngs.woc.noaa.gov/eri_page
- Metadata
 - GOS: <http://gos2.geodata.gov/wps/portal/gos>
- And other distribution mechanisms... *this is not a complete list!*



DIGITAL COAST

Digital Coast : Data Access Viewer



Data Search Results Help

[Back to results](#)

National Geodetic Survey LiDAR Mapping

Topographic LiDAR data was acquired by the National Geodetic Survey Remote Sensing Division in support of NOAA's Integrated Ocean and Coastal Mapping Initiative.

Vertical accuracy: Tested 15.17 centimeter vertical root mean square error (RMSEz) for open terrain.

Horizontal accuracy: Horizontal accuracy exceeds 2.0 meters at 2 sigma.

Nominal Ground Spacing: 1.0 meters

Ancillary Mission Information: Passive

Data Classes Available: Not classified

Est. Data Size = OMB

[Data Checkout](#)

Questions??



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