

# Digital Bathymetric Grid and Associated Spatial Data Files for USGS Cruise 07CCT01

## Metadata:

- [Identification Information](#)
  - [Data Quality Information](#)
  - [Spatial Data Organization Information](#)
  - [Spatial Reference Information](#)
  - [Entity and Attribute Information](#)
  - [Distribution Information](#)
  - [Distribution Information](#)
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  - [Distribution Information](#)
  - [Metadata Reference Information](#)
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### *Identification\_Information:*

#### *Citation:*

##### *Citation\_Information:*

##### *Originator:*

Nancy T. DeWitt, James G. Flocks, B.J. Reynolds, and Mark Hansen

*Publication\_Date:* 2012

##### *Title:*

Digital Bathymetric Grid and Associated Spatial Data Files for USGS Cruise 07CCT01

*Geospatial\_Data\_Presentation\_Form:* remote-sensing image

##### *Series\_Information:*

*Series\_Name:* USGS Data Series Publication

*Issue\_Identification:* DS722

##### *Publication\_Information:*

*Publication\_Place:* St. Petersburg, FL

*Publisher:* St. Petersburg Coastal and Marine Science Center

*Online\_Linkage:* <<http://pubs.usgs.gov/ds/722>>

### *Description:*

#### *Abstract:*

The Gulf Islands National Seashore (GUIS) is composed of a series of barrier islands along the Mississippi - Alabama coastline. Historically these islands have been undergoing long-term change. The devastation of Hurricane Katrina in 2005 prompted questions about the stability of the barrier islands and their potential response against future storm impacts. Additionally, there was concern from the National Park Service (NPS) about the preservation of the historical Fort Massachusetts, located on West Ship Island. Prior to 1969, Ship Island was an individual island. In 1969 Hurricane Camille breached Ship Island, widening the cut and splitting it into what is now known as West Ship Island and East Ship

Island. In July of 2007, the U.S. Geological Survey (USGS) was able to provide the NPS with a small bathymetry survey of Camille Cut using high-resolution single-beam bathymetry. This provided the GUIS with a post-Katrina assessment of the bathymetry in Camille Cut and along the northern shoreline directly in front of Fort Massachusetts. Ultimately, this survey became an initial bathymetry dataset toward a larger USGS effort included in the Northern Gulf of Mexico (NGOM) Ecosystem Change and Hazard Susceptibility Project.

*Purpose:*

This report serves as an archive of the processed single-beam bathymetry. Data products herein include gridded and interpolated digital depth surfaces and x,y,z data products. Additional files include trackline maps, navigation files, geographic information system (GIS) files, Field Activity Collection System (FACS) logs, and formal Federal Geographic Data Committee (FGDC) metadata. Scanned images of the handwritten FACS logs and digital FACS logs are also provided as PDF files. Refer to the Acronyms page for description of acronyms and abbreviations used in this report or hold the cursor over an acronym for a pop-up explanation.

*Supplemental\_Information:*

For navigational purposes, bathymetric surveys have traditionally been referenced to a water level datum using tide gages and tide models. Bathymetric measurements referenced to a Global Positioning System (GPS) is a more accurate way of representing water depth and has been implemented in the acquisition and processing procedures for these datasets. Previous single-beam bathymetric studies performed at the USGS Center for Coastal and Marine Science have successfully referenced bathymetric measurements to GPS (DeWitt and others, 2007; Hansen 2008 and 2009).

*Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 20070728

*Ending\_Date:* 20070801

*Currentness\_Reference:* data collection interval

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None planned

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -88.996405

*East\_Bounding\_Coordinate:* -88.882288

*North\_Bounding\_Coordinate:* 30.248529

*South\_Bounding\_Coordinate:* 30.200405

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* ISO 19115 Topic Category

*Theme\_Keyword:* oceans

*Theme\_Keyword:* elevation

*Theme\_Keyword:* location

*Theme:*

*Theme\_Keyword\_Thesaurus:* General

*Theme\_Keyword:* trackline

*Theme\_Keyword:* bathymetry

*Theme\_Keyword:* USGS

*Theme\_Keyword:* shapefile

*Theme\_Keyword:* HYPACK Inc.

*Theme\_Keyword:* single-beam bathymetry

*Theme\_Keyword:* single beam

*Theme\_Keyword:* base station

*Theme\_Keyword:* benchmark

*Theme\_Keyword:* Fort Massachusetts

*Theme\_Keyword:* BH088

*Theme\_Keyword:* FTMA

*Theme\_Keyword:* kinematic

*Theme\_Keyword:* shoreline

*Theme\_Keyword:* GeoTIFF

*Theme\_Keyword:*

U.S. Geological Survey (USGS), St. Petersburg Coastal and Marine Science Center

*Theme\_Keyword:* Gulf Islands National Seashore (GUIS)

*Theme\_Keyword:* Marimatech Echosounder

*Theme\_Keyword:* E-SEA-103 echosounder

*Theme\_Keyword:* TSS Motion Sensor

*Theme\_Keyword:* System for Accurate Nearshore Depth Surveying (SANDS)

*Theme\_Keyword:* echosounder

*Place:*

*Place\_Keyword\_Thesaurus:* (GUIS)

*Place\_Keyword:* Gulf Islands National Seashore (GUIS)

*Place\_Keyword:* Mississippi

*Place\_Keyword:* West Ship Island

*Place\_Keyword:* East Ship Island

*Place\_Keyword:* Camille Cut

*Stratum:*

*Stratum\_Keyword\_Thesaurus:* General

*Stratum\_Keyword:* water

*Temporal:*

*Temporal\_Keyword\_Thesaurus:* General

*Temporal\_Keyword:* July 2007

*Access\_Constraints:*

The U.S. Geological Survey requests that it be referenced as the originator of this dataset in any future products or research derived from these data.

*Use\_Constraints:* These data are not to be used for navigation.

*Point\_of\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Nancy T. DeWitt

*Contact\_Organization:*

U.S. Geological Survey - St. Petersburg Coastal and Marine Science Center

*Contact\_Position:* Geologist

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 600 4th Street South

*City:* St. Petersburg

*State\_or\_Province:* FL

*Postal\_Code:* 33701

*Country:* USA

*Contact\_Voice\_Telephone:* (727) 803-8747 x3058

*Contact\_Electronic\_Mail\_Address:* ndewitt@usgs.gov

*Data\_Set\_Credit:*

Nancy T. DeWitt, James G. Flocks, B.J. Reynolds, and Mark E. Hansen.

*Native\_Data\_Set\_Environment:*

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

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*Data\_Quality\_Information:*

*Attribute\_Accuracy:*

*Attribute\_Accuracy\_Report:*

The accuracy of the data is determined during data collection. This dataset is from one research cruise and is therefore internally consistent. Methods are employed to maintain data collection consistency aboard the platform. During mobilization, each piece of equipment is isolated to obtain internal and external offset measurements with respect to the survey platform. All the critical measurements are recorded manually and digitally entered into their respective programs. For single-beam bathymetry, offsets between the single-beam transducers and the Ashtech antenna reference point (ARP) were measured and accounted for in post-processing. Bar checks were performed as calibration efforts and accounted for any drift in the Marimatech Echosounder. Differential Geographic Positioning (DGPS) was obtained using post-processing software packages. DGPS is always implemented for navigational accuracy either during acquisition or as a post-processing step.

*Logical\_Consistency\_Report:*

This dataset was acquired on one research cruise over the course of 7 days in 2007. Refer to the FACS logs for respective vessel platform and survey information. This dataset was created to show the bathymetry from the cruise. The grid is 50-m spacing.

*Completeness\_Report:*

This is a complete processed bathymetry surface in GeoTIFF format. These data provide a continuous and complete surface; however, there may in some cases be data missing and inconsistent with reported tracklines. This is directly due to the exclusion of poor data and (or) instrument failures.

*Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy\_Report:*

GPS base stations were erected within approximately 15 to 20 km of the survey area. Efforts were made to utilize pre-existing National Geodetic Survey (NGS) benchmarks

on the islands. The GPS instrument combination at the base station is duplicated on the survey vessel (rover). The base receiver and the rover receiver record their positions concurrently at 1-second (s) recording intervals throughout the survey period. The GPS base station data were processed quickly and accurately through one of the three online submittal services commercially available: (1) Automated GPS-Inferred Positioning System (GIPSY), a service provided by National Aeronautic and Space Administration's (NASA) Jet Propulsion Laboratory, (2) On-Line Positioning User Service (OPUS), maintained by the National Oceanic and Atmospheric Administration (NOAA) and the National Geodetic Survey (NGS), and (3) Scripps Coordinate Update Tool (SCOUT). For the 2007 bathymetry, results from all three services were analyzed independently first. The final x,y,z from each service was then reviewed and averaged together. The SCOUT values differed the most from the average of the three with 1.175 m in the vertical, whereas GIPSY and OPUS differed considerably less at 0.627 m and 0.549 m, respectively. For this reason SCOUT values were not included in the final position, only GIPSY and OPUS and produced +/- 3.9 cm accuracy in the vertical component. This base station position, once finalized, was used as the base x,y,z for post-processing the base GPS to the boat GPS.

*Quantitative\_Horizontal\_Positional\_Accuracy\_Assessment:*

*Horizontal\_Positional\_Accuracy\_Value:* 0.00500

*Horizontal\_Positional\_Accuracy\_Explanation:* latitude decimal seconds

*Quantitative\_Horizontal\_Positional\_Accuracy\_Assessment:*

*Horizontal\_Positional\_Accuracy\_Value:* 0.04100

*Horizontal\_Positional\_Accuracy\_Explanation:* longitude decimal seconds

*Vertical\_Positional\_Accuracy:*

*Vertical\_Positional\_Accuracy\_Report:*

Ship motion was measured using a TSS DMS-05 heave, roll, and pitch sensor. It can measure within 0.05 m. The measurements from the TSS are used to geometrically correct the soundings at each differentially corrected position.

*Quantitative\_Vertical\_Positional\_Accuracy\_Assessment:*

*Vertical\_Positional\_Accuracy\_Value:* -3.9 - +3.9

*Vertical\_Positional\_Accuracy\_Explanation:* centimeters

*Lineage:*

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* U.S. Geological Survey

*Publication\_Date:* Unpublished Material

*Title:* USGS Cruise 07CCT01 Bathymetry

*Type\_of\_Source\_Media:* digital tabular data

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 20070728  
*Ending\_Date:* 20070807

*Source\_Currentness\_Reference:* ground condition

*Source\_Citation\_Abbreviation:* USGS

*Source\_Contribution:* Original processed single-beam bathymetric data.

*Process\_Step:*

*Process\_Description:*

Acquisition: The single-beam data for 07CCT01 were collected using the System for Accurate and Nearshore Depth Surveying (SANDS) version 3.70, which has two components, data acquisition and data processing. SANDS differs from conventional bathymetric surveys in that it references bathymetric measurements to GPS rather than water depth.

*Process\_Date:* 2007

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Nancy T. DeWitt

*Contact\_Organization:*

U.S. Geological Survey St. Petersburg Coastal and Marine Science Center

*Contact\_Position:* Geologist

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 600 4th Street South

*City:* St. Petersburg

*State\_or\_Province:* FL

*Postal\_Code:* 33701

*Country:* USA

*Contact\_Voice\_Telephone:* (727) 803-8747 x3058

*Contact\_Electronic\_Mail\_Address:* ndewitt@usgs.gov

*Process\_Step:*

*Process\_Description:*

Differentially Corrected Navigation Process: Each base station GPS file was processed to the roving survey vessel GPS file using GrafNav version 8.10, a product of Waypoint Product Group. During this process, steps were taken to ensure that the trajectory produced from the base to the rover was clean and produced fixed positions. From these processes a single differentially corrected, precise position at 1-s intervals for each roving GPS session was created.

*Process\_Date:* 2007

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Nancy T. DeWitt

*Contact\_Organization:*

U.S. Geological Survey St. Petersburg Coastal and Marine Science Center

*Contact\_Position:* Geologist

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 600 4th Street South

*City:* St. Petersburg

*State\_or\_Province:* FL

*Postal\_Code:* 33701

*Country:* USA

*Contact\_Voice\_Telephone:* (727) 803-8747 x3058

*Contact\_Electronic\_Mail\_Address:* ndewitt@usgs.gov

*Process\_Step:*

*Process\_Description:*

Single-beam bathymetry processing: All data were processed using SANDS version 3.70. SANDS uses the time stamp to correlate the external navigation file with the HYPACK line data and performs geometric corrections of the depth values caused by boat motion (pitch and roll). The heave component is not used in SANDS but is more accurately represented by the GPS component. The GEOID03 model was also applied to the data. The end result was an x,y,z file horizontally referenced to NAD83 Universal Transverse Mercator (UTM) Zone 16 North (N) and vertically referenced to NAVD88 orthometric height.

*Process\_Date:* 2007

*Source\_Produced\_Citation\_Abbreviation:* USGS 07CCT01\_xyz

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Nancy T. DeWitt

*Contact\_Organization:*

U.S. Geological Survey St. Petersburg Coastal and Marine Science Center

*Contact\_Position:* Geologist

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 600 4th Street South

*City:* St. Petersburg

*State\_or\_Province:* FL

*Postal\_Code:* 33701

*Country:* USA

*Contact\_Voice\_Telephone:* (727) 803-8747 x3058

*Contact\_Electronic\_Mail\_Address:* ndewitt@usgs.gov

*Process\_Step:*

*Process\_Description:*

The processed x,y,z data were imported into ESRI's ArcMap version 9.2. The data were gridded with the 3D Analyst Interpolation to Raster tool using Natural Neighbors at 50-m grid cell size.

*Source\_Used\_Citation\_Abbreviation:* 07CCT01\_xyz

*Process\_Date:* 2007

*Source\_Produced\_Citation\_Abbreviation:* 07CCT01\_50m.tif

*Process\_Step:*

*Process\_Description:*

From this grid, a 1-m contoured surface shapefile was generated and then edited. A raster mask was created to clip the data to the extent of the survey lines. The contour surface generated from the final grid was edited in ArcMap Editor and then transferred to Adobe MapPublisher version 5 for further contour smoothing.

*Source\_Used\_Citation\_Abbreviation:* rm07CCT01\_50m.tif

*Process\_Date:* 2007

*Source\_Produced\_Citation\_Abbreviation:* 07CCT01\_Contour\_polygons

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Nancy T. DeWitt

*Contact\_Organization:*

U.S. Geological Survey St. Petersburg Coastal and Marine Science Center

*Contact\_Position:* Geologist

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 600 4th Street South

*City:* St. Petersburg

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*Postal\_Code:* 33701

*Country:* USA

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*Contact\_Electronic\_Mail\_Address:* ndewitt@usgs.gov

*Process\_Step:*

*Process\_Description:*

This is file rm07CCT01\_50m.tif converted to a point shapefile named rm07CCT01\_50m\_raster2point.shp. The shapefile was created using ArcMap version 9.3.1 raster to point conversion tool and the then populated with x,y fields using XTools Pro version 6.0.

*Source\_Used\_Citation\_Abbreviation:* rm07CCT01\_50m.tif

*Process\_Date:* 2007

*Source\_Produced\_Citation\_Abbreviation:* rm07CCT01\_50m\_raster2point

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*



*Contact\_Person:* Nancy T. DeWitt

*Contact\_Organization:*

U.S. Geological Survey St. Petersburg Coastal and Marine Science  
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*Contact\_Position:* Geologist

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 600 4th Street South

*City:* St. Petersburg

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*Postal\_Code:* 33701

*Country:* USA

*Contact\_Voice\_Telephone:* (727) 803-8747 x3058

*Contact\_Electronic\_Mail\_Address:* ndewitt@usgs.gov

*Process\_Step:*

*Process\_Description:*

This is file rm07CCT01\_50m.tif converted to a ASCII shapefile named  
rm07CCT01\_50m\_raster2ascii.txt. The text file was created using ArcMap version  
9.3.1 raster to ASCII conversion tool. This text file is in an array format with header  
information at the top of the file.

*Source\_Used\_Citation\_Abbreviation:* rm07CCT01\_50m.tif

*Process\_Date:* 2007

*Source\_Produced\_Citation\_Abbreviation:* rm07CCT01\_50m\_raster2ascii

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Nancy T. DeWitt

*Contact\_Organization:*

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*Contact\_Position:* Geologist

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 600 4th Street South

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*State\_or\_Province:* FL

*Postal\_Code:* 33701

*Country:* USA

*Contact\_Voice\_Telephone:* (727) 803-8747 x3058

*Contact\_Electronic\_Mail\_Address:* ndewitt@usgs.gov

---

*Spatial\_Data\_Organization\_Information:*

*Direct\_Spatial\_Reference\_Method:* Raster

*Raster\_Object\_Information:*

Raster\_Object\_Type: Pixel  
Row\_Count: 103  
Column\_Count: 218  
Vertical\_Count: 1

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*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Planar:*

*Grid\_Coordinate\_System:*

*Grid\_Coordinate\_System\_Name:* Universal Transverse Mercator  
*Universal\_Transverse\_Mercator:*

*UTM\_Zone\_Number:* 16  
*Transverse\_Mercator:*

*Scale\_Factor\_at\_Central\_Meridian:* 0.999600  
*Longitude\_of\_Central\_Meridian:* -87.000000  
*Latitude\_of\_Projection\_Origin:* 0.000000  
*False\_Easting:* 500000.000000  
*False\_Northing:* 0.000000

*Planar\_Coordinate\_Information:*

*Planar\_Coordinate\_Encoding\_Method:* row and column  
*Coordinate\_Representation:*

*Abscissa\_Resolution:* 50.000000  
*Ordinate\_Resolution:* 50.000000

*Planar\_Distance\_Units:* meters

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1983  
*Ellipsoid\_Name:* Geodetic Reference System 80  
*Semi-major\_Axis:* 6378137.000000  
*Denominator\_of\_Flattening\_Ratio:* 298.25722356300003

*Vertical\_Coordinate\_System\_Definition:*

*Depth\_System\_Definition:*

*Depth\_Datum\_Name:* North American Vertical Datum of 1988  
*Depth\_Resolution:* 3.9  
*Depth\_Distance\_Units:* centimeters  
*Depth\_Encoding\_Method:* Explicit depth coordinate included with horizontal coordinates

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*Entity\_and\_Attribute\_Information:*

*Detailed\_Description:*

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*Entity\_Type\_Label:* rm07CCT01\_50m\_raster2point.shp  
*Entity\_Type\_Definition:* ESRI ArcGIS 9.3  
*Entity\_Type\_Definition\_Source:* ESRI ArcGIS 9.3 shapefile

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*Attribute\_Label:* FID  
*Attribute\_Definition:* Internal feature number  
*Attribute\_Definition\_Source:* ESRI ArcGIS 9.3  
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*Unrepresentable\_Domain:*  
Sequential unique whole numbers that are automatically generated

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*Attribute\_Label:* SHAPE  
*Attribute\_Definition:* Point Geometry  
*Attribute\_Definition\_Source:* ESRI ArcGIS 9.3  
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*Unrepresentable\_Domain:*  
Sequential unique whole numbers that are automatically generated

*Attribute:*

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*Attribute\_Definition:* Number  
*Attribute\_Definition\_Source:* ESRI ArcGIS 9.3  
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*Range\_Domain:*  
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*Attribute:*

*Attribute\_Label:* GRID\_CODE  
*Attribute\_Definition:* Depth in meters  
*Attribute\_Definition\_Source:* ESRI ArcGIS 9.3  
*Attribute\_Domain\_Values:*

*Range\_Domain:*  
*Range\_Domain\_Minimum:* -12.8023  
*Range\_Domain\_Maximum:* 0.00

*Attribute:*

*Attribute\_Label:* X  
*Attribute\_Definition:* NAD83 UTM 16N  
*Attribute\_Definition\_Source:* North American Datum of 1983  
*Attribute\_Domain\_Values:*

*Range\_Domain:*

Range\_Domain\_Minimum: 307985.3742  
Range\_Domain\_Maximum: 318785.3742

*Attribute:*

Attribute\_Label: Y  
Attribute\_Definition: NAD83 UTM 16N  
Attribute\_Definition\_Source: North American Datum of 1983  
Attribute\_Domain\_Values:

*Range\_Domain:*

Range\_Domain\_Minimum: 3342750.268  
Range\_Domain\_Maximum: 3347750.268

*Overview\_Description:*

Entity\_and\_Attribute\_Overview:  
rm07CCT01\_50m.tif: Completed processed 50-m resolution single-beam bathymetric elevation grid. Pixel values convey elevation (meters NAVD88) of individual cells.  
Entity\_and\_Attribute\_Detail\_Citation: <http://ngom.usgs.gov/gomsc/mscip/index.html>

*Overview\_Description:*

Entity\_and\_Attribute\_Overview:  
07CCT01\_contour\_polygons.shp: One-meter contours generated from the bathymetric GeoTIFF (rm07CCT\_50m.tif)  
Entity\_and\_Attribute\_Detail\_Citation: <http://ngom.usgs.gov/gomsc/mscip/index.html>

*Overview\_Description:*

Entity\_and\_Attribute\_Overview:  
rm07CCT01\_50m\_raster2point.shp: Points generated from the centroid of the bathymetric GeoTIFF (rm07CCT\_50m.tif) pixel values.  
Entity\_and\_Attribute\_Detail\_Citation: <http://ngom.usgs.gov/gomsc/mscip/index.html>

*Overview\_Description:*

Entity\_and\_Attribute\_Overview:  
rm07CCT01\_50m\_raster2ascii.shp: ASCII text file containing the bathymetric GeoTIFF (rm07CCT\_50m.tif) pixel values.  
Entity\_and\_Attribute\_Detail\_Citation: <http://ngom.usgs.gov/gomsc/mscip/index.html>

---

*Distribution\_Information:*

*Distributor:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

Contact\_Person: Jim Flocks

*Contact\_Organization:*

U.S. Geological Survey St. Petersburg Coastal and Marine Science Center

Contact\_Position: Geologist

Contact\_Address:

*Address\_Type:* mailing and physical address  
*Address:* 600 4th Street South  
*City:* St. Petersburg  
*State\_or\_Province:* FL  
*Postal\_Code:* 33701  
*Country:* USA

*Contact\_Voice\_Telephone:* (727) 803-8747 x3012  
*Contact\_Electronic\_Mail\_Address:* jflocks@usgs.gov

*Resource\_Description:* Downloadable Data File Name = rm07CCT01\_50m.tif

*Distribution\_Liability:*

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*Standard\_Order\_Process:*

*Digital\_Form:*

*Digital\_Transfer\_Information:*

*Format\_Name:* TIFF  
*File-Decompression\_Technique:* no compression applied  
*Transfer\_Size:* 0.515 MB

*Digital\_Transfer\_Option:*

*Online\_Option:*

*Computer\_Contact\_Information:*

*Network\_Address:*

*Network\_Resource\_Name:* <<http://pubs.usgs.gov/ds/722>>

*Offline\_Option:*

*Offline\_Media:* CD-ROM  
*Recording\_Format:* CD-R

*Fees:* none

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*Distribution\_Information:*

*Distributor:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jim Flocks

*Contact\_Organization:*

U.S. Geological Survey St. Petersburg Coastal and Marine Science Center

*Contact\_Position:* Geologist

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*Country:* USA

*Contact\_Voice\_Telephone:* (727) 803-8747 x3012

*Contact\_Electronic\_Mail\_Address:* jflocks@usgs.gov

*Resource\_Description:* Downloadable Data File Name = rm07CCT01\_50m\_raster2point.shp

*Distribution\_Liability:*

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*Standard\_Order\_Process:*

*Digital\_Form:*

*Digital\_Transfer\_Information:*

*Format\_Name:* SHP

*File-Decompression\_Technique:* no compression applied

*Transfer\_Size:* 0.667 MB

*Digital\_Transfer\_Option:*

*Online\_Option:*

*Computer\_Contact\_Information:*

*Network\_Address:*

*Network\_Resource\_Name:* <<http://pubs.usgs.gov/ds/722>>

*Offline\_Option:*

*Offline\_Media:* CD-ROM

*Recording\_Format:* CD-R

*Fees:* none

*Technical\_Prerequisites:* This shapefile was created for use with ESRI ArcGIS software.

*Available\_Time\_Period:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 2012

---

*Distribution\_Information:*

*Distributor:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jim Flocks

*Contact\_Organization:*

U.S. Geological Survey St. Petersburg Coastal and Marine Science Center

*Contact\_Position:* Geologist

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*Address\_Type:* mailing and physical address

*Address:* 600 4th Street South

*City:* St. Petersburg

*State\_or\_Province:* FL

*Postal\_Code:* 33701

*Country:* USA

*Contact\_Voice\_Telephone:* (727) 803-8747 x3012

*Contact\_Electronic\_Mail\_Address:* jflocks@usgs.gov

*Resource\_Description:* Downloadable Data File Name = rm07CCT01\_50m\_raster2ascii.txt

*Distribution\_Liability:*

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*Standard\_Order\_Process:*

*Digital\_Form:*

*Digital\_Transfer\_Information:*

*Format\_Name:* TXT

*File-Decompression\_Technique:* no compression applied

*Transfer\_Size:* 0.172 MB

*Digital\_Transfer\_Option:*

*Online\_Option:*

*Computer\_Contact\_Information:*

*Network\_Address:*

*Network\_Resource\_Name:* <http://pubs.usgs.gov/ds/722>

*Offline\_Option:*

*Offline\_Media:* CD-ROM  
*Recording\_Format:* CD-R

*Fees:* none

*Technical\_Prerequisites:* This shapefile was created for use with ESRI ArcGIS software.

*Available\_Time\_Period:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 2012

---

*Distribution\_Information:*

*Distributor:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jim Flocks

*Contact\_Organization:*

U.S. Geological Survey St. Petersburg Coastal and Marine Science Center

*Contact\_Position:* Geologist

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 600 4th Street South

*City:* St. Petersburg

*State\_or\_Province:* FL

*Postal\_Code:* 33701

*Country:* USA

*Contact\_Voice\_Telephone:* (727) 803-8747 x3012

*Contact\_Electronic\_Mail\_Address:* jflocks@usgs.gov

*Resource\_Description:*

Downloadable Data File Name = rm07CCT01\_50m\_contours\_polygon.shp

*Distribution\_Liability:*

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thereof.

*Standard\_Order\_Process:*

*Digital\_Form:*

*Digital\_Transfer\_Information:*

*Format\_Name:* SHP

*File-Decompression\_Technique:* no compression applied

*Transfer\_Size:* 3.21 MB

*Digital\_Transfer\_Option:*

*Online\_Option:*

*Computer\_Contact\_Information:*

*Network\_Address:*

*Network\_Resource\_Name:* <<http://pubs.usgs.gov/ds/722>>

*Offline\_Option:*

*Offline\_Media:* CD-ROM

*Recording\_Format:* CD-R

*Fees:* none

*Technical\_Prerequisites:* This shapefile was created for use with ESRI ArcGIS software.

*Available\_Time\_Period:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 2012

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*Metadata\_Reference\_Information:*

*Metadata\_Date:* 20111219

*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Nancy T. DeWitt

*Contact\_Organization:*

U.S. Geological Survey St. Petersburg Coastal and Marine Science Center

*Contact\_Position:* Geologist

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 600 4th Street South

*City:* St. Petersburg

*State\_or\_Province:* FL

Postal\_Code: 33701  
Country: USA

Contact\_Voice\_Telephone: (727) 803-8747 x3058  
Contact\_Electronic\_Mail\_Address: ndewitt@usgs.gov

Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata\_Standard\_Version: FGDC-STD-001-1998

Metadata\_Time\_Convention: local time

Metadata\_Use\_Constraints:

The U.S. Geological Survey requests that it be referenced as the originator of this dataset in any future products or research derived from these data.

Metadata\_Security\_Information:

Metadata\_Security\_Classification\_System: none

Metadata\_Security\_Classification: unclassified

Metadata\_Security\_Handling\_Description: None

Metadata\_Extensions:

Online\_Linkage: <<http://www.esri.com/metadata/esriprof80.html>>

Profile\_Name: ESRI Metadata Profile