

H12192

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEY

**DESCRIPTIVE REPORT**

Type of Survey: Navigable Area

Registry Number: H12192

**LOCALITY**

State: Florida

General Locality: Gulf of Mexico

Sub-locality: Smith Shoal

**2010**

CHIEF OF PARTY  
CDR Shepard M. Smith  
NOAA

LIBRARY & ARCHIVES

DATE

**HYDROGRAPHIC TITLE SHEET**

**H12192**

INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State: **Florida**

General Locality: **Gulf of Mexico**

Sub-Locality: **Smith Shoal**

Scale: **1:40,000** Date of Survey: **9 August to 25 August, 2010**

Instructions Dated: **7 June, 2010** Project Number: **OPR-H355-TJ-10**

Vessel: **NOAA Ship *Thomas Jefferson***

Chief of Party: **CDR Shepard M. Smith , NOAA**

Surveyed by: ***Thomas Jefferson* Personnel**

Soundings by: **Reson 7125 MBES. Odom EchotracVBES**

Graphic record scaled by: **N/A**

Graphic record checked by: **N/A**

Protracted by: **N/A** Automated Plot: **N/A**

Verification by: ***Atlantic Hydrographic Branch***

Soundings in: **Meters at MLLW**

Remarks:  
**1) All Times are in UTC.**  
**2) This is a Navigable Area Hydrographic Survey.**  
**3) Projection is NAD83, UTM Zone 17.**

*The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Revisions and Rednotes were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non-sequential. All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via <http://www.ngdc.noaa.gov/>.*

*Table of Contents*

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A. AREA SURVEYED.....	4
B. DATA ACQUISITION AND PROCESSING.....	6
B.1 EQUIPMENT.....	6
B.2 QUALITY CONTROL.....	6
B.3 CORRECTIONS TO ECHO SOUNDINGS.....	8
B.4 DATA PROCESSING.....	9
C. HORIZONTAL AND VERTICAL CONTROL.....	10
D. RESULTS AND RECOMMENDATIONS.....	11
D.1 CHART COMPARISON.....	11
D.2 ADDITIONAL RESULTS.....	12
D.3 DANGERS TO NAVIGATION.....	12
D.4 AIDS TO NAVIGATION.....	12
D.5 COAST PILOT INFORMATION.....	13
D.6 MISCELLANEOUS.....	13
D.7 ENVIRONMENTAL CONDITIONS AND NOTES.....	15
D.8 ADEQUACY OF SURVEY.....	15
E. APPROVAL SHEETS.....	16
Appendix I DANGER TO NAVIGATION REPORTS	
Appendix II SURVEY FEATURES REPORT	
Appendix III FINAL PROGRESS SKETCH AND SURVEY OUTLINE	
Appendix IV TIDES AND WATER LEVELS	
Appendix V SUPPLEMENTAL SURVEY RECORDS & CORRESPONDENCE	

List of Tables

---

Table 1. Hydrographic Survey Statistics.....	4
Table 2. MB and SSS Acquisition Dates.....	5
Table 3. TPE Parameters.....	9
Table 4. Base Surfaces.....	9

List of Figures

---

Fig. 1. H12192 Survey Area.....	5
Fig. 2. H12192 Junction Surveys.....	7
Fig. 3. Final Tide Zoning.....	8
Fig. 4: Coral head west of Smith Shoal Light.....	11
Fig. 5: Smith Shoal Light.....	13
Fig. 6: Along Track View of Hydrochart Data.....	14

**Descriptive Report to Accompany Hydrographic Survey H12192**

Project OPR-H355-TJ-10  
 NW Approach to Key West, Florida  
 Smith Shoal  
 Scale 1:40,000  
 August 9<sup>th</sup> to August 25<sup>th</sup>, 2010  
**NOAA Ship *Thomas Jefferson***

**A. AREA SURVEYED**

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-H355-TJ-10, dated 07 June, 2010. See figure 1 for chart of area surveyed.

Northern limit	Southern limit	Eastern limit	Western limit
24° 44' 49.01 " N	24° 41' 51.62" N	-081° 51' 52.47" W	-082° 00' 04.29" W

Data acquisition was conducted from August 9<sup>th</sup> through August 25<sup>th</sup>, 2010.

This project is being conducted in support of the Office of Coast Survey (OCS) and the Office of National Marine Sanctuary (ONMS) to provide contemporary bathymetric and imagery data of critical benthic habitats within the boundaries of the Florida Keys National Marine Sanctuary (FKNMS) in the Northwest approaches to Key West, FL. Bathymetric and imagery data from this project will be collected utilizing Side Scan Sonar (SSS), Vertical Beam echosounder (VBES), and Multibeam sonar (MB) systems and will be further utilized by OCS to update the nautical charts and products in this area. In addition, the Klein HydroChart 5002 Interferometric sonar system will be used to determine if it can provide IHO Order 1b accuracy.

	Linear Nautical Miles
LNM Single beam mainscheme only	N/A
LNM Multibeam mainscheme only	N/A
LNM Lidar mainscheme only	N/A
LNM Side Scan Sonar mainscheme only	N/A
Lineal nautical miles of any combination of the above techniques (SSS 200%, MBES, VBES)	616.6
LNM Crosslines singlebeam and multibeam combined	53.7
LNM Lidar Crosslines	N/A
LNM development lines non mainscheme	20.6
LNM shoreline/nearshore investigations	N/A
Number of Bottom Samples	6
Number of items investigated that required additional time/effort in the field beyond the above survey operations	N/A
Total number of square nautical miles	21.69

**Table 1: Hydrographic Survey Statistics**

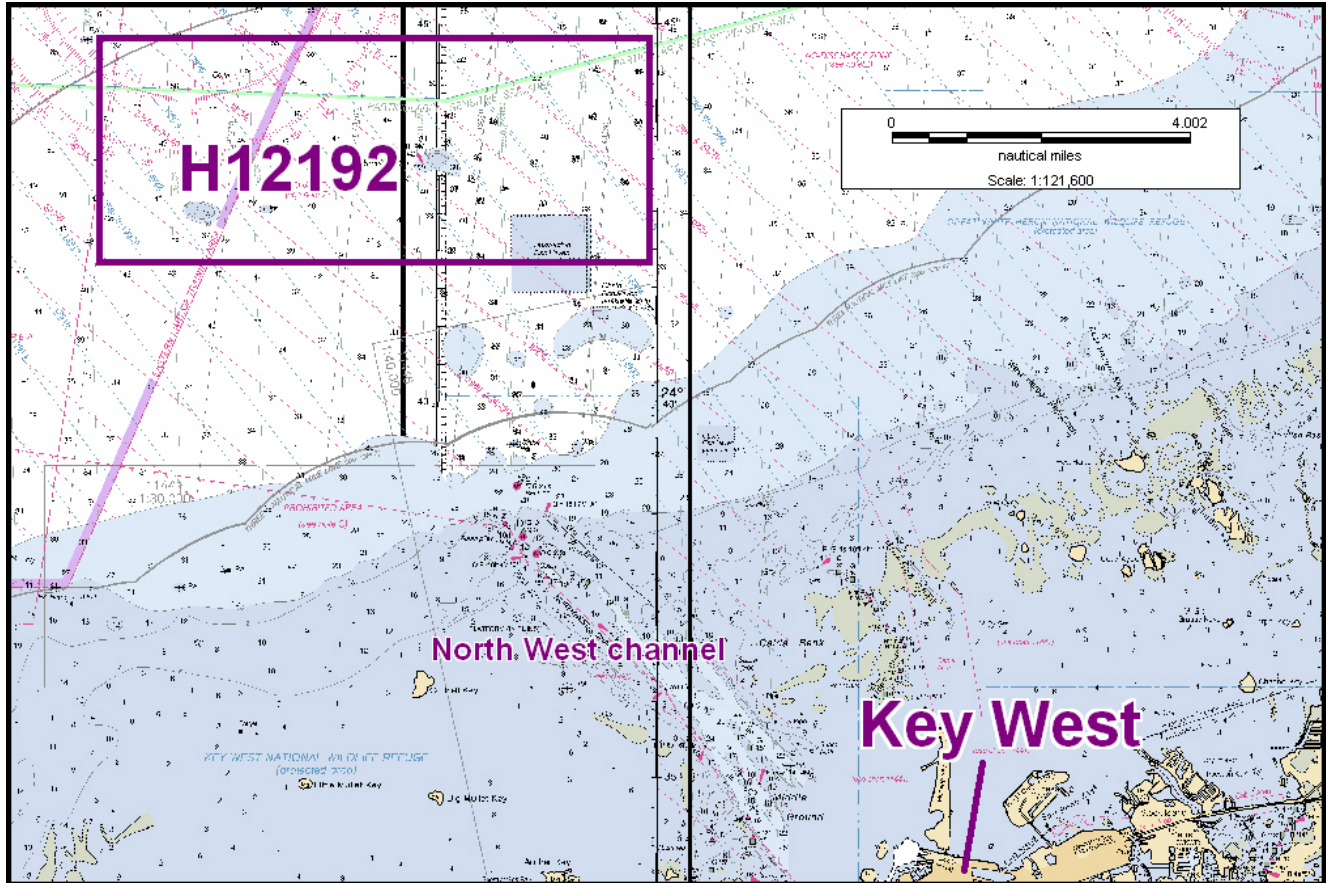


Fig. 1. H12192 Survey Area.

Calendar Date	Julian Day
9-August, 2010	221
10-August, 2010	222
11-August, 2010	223
12-August, 2010	224
13-August, 2010	225
14-August, 2010	226
15-August, 2010	227
16-August, 2010	228
17-August, 2010	229
18-August, 2010	230
24-August, 2010	236
25-August, 2010	237

Table 2. Dates of Multibeam Data Acquisition in Calendar and Julian Days

## **B. DATA ACQUISITION AND PROCESSING**

Refer to *OPR-H355-TJ-10 Data Acquisition and Processing Report (DAPR)* for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the *DAPR* are included in this descriptive report.

### **B 1. EQUIPMENT AND VESSELS**

Data were acquired by NOAA Ship *Thomas Jefferson*, NOAA launch *3101* and NOAA launch *3102*. NOAA Ship *Thomas Jefferson* acquired Reson 7125 multibeam echo sounder (MBES) soundings, Klein 5000 side scan SoNAR (SSS) imagery, sea bed samples and water column sound speed profiles. NOAA launch *3101* collected Klein 5000 SSS imagery, Reson 7125 MBES, Odom vertical beam echo sounder (VBES), one bottom sample and sound speed profiles. NOAA launch *3102* collected Odom VBES, Klein HydroChart 5000 SSS imagery, phase differencing bathymetry data and sound speed profiles.

### **B 2. QUALITY CONTROL**

#### **B 2.1 System Certification and Calibration**

Refer to NOAA Ship *Thomas Jefferson's DAPR* and *Hydrographic Systems Readiness Report (HSRR)* for a complete description of system integration and initial calibration results for equipment and sensors used for this survey.

#### **B.2.2 Sounding Coverage**

As per the Letter Instructions, this survey was conducted using 200% SSS coverage with concurrent MBES, or VBES bathymetry with object detection MBES development over navigationally significant features. Also, Klein HydroChart 5000 (HC5K) phase measuring bathymetric data were collected over the southern portion of the survey area. A special variation in the line spacing was required for the HC5K. 75 meter range scale, 100% side scan lines were spaced 120 meters apart with the 200% lines also spaced 120 meters apart offset from the 100% by 30 meters. Normally the 200% would be spaced halfway between each pair of 100% lines, however, the 30 meter offset allows full 200% imagery and places better quality bathymetry within the nadir data gap beneath each line.

#### **B 2.3 Crosslines**

MBES and VBES cross-lines totaling 53.7 LNM or approximately 8.7% of the total main scheme hydrography were acquired during the course of the survey. As per the HSSD 2010, section 5.2.4.3 the quality control check was done using the standard deviation layer of the survey's uncertainty surface. Areas of unusually high standard deviation were investigated and resolved in processing, except where caused by areas of high bathymetric relief or features or as described in Section 2.5 Systematic Errors.

### B 2.4 Junctions and Prior Surveys

The following contemporary surveys junction with H12192, see figure 2.

Registry #	Scale	Date	Field Party	Junction side
H12191	1:40,000	2010	Thomas Jefferson	south
H12193	1:40,000	2010	Thomas Jefferson	north
H12194	1:40,000	2010	Thomas Jefferson	south-west
H12196	1:10,000	2010	Thomas Jefferson	north-west

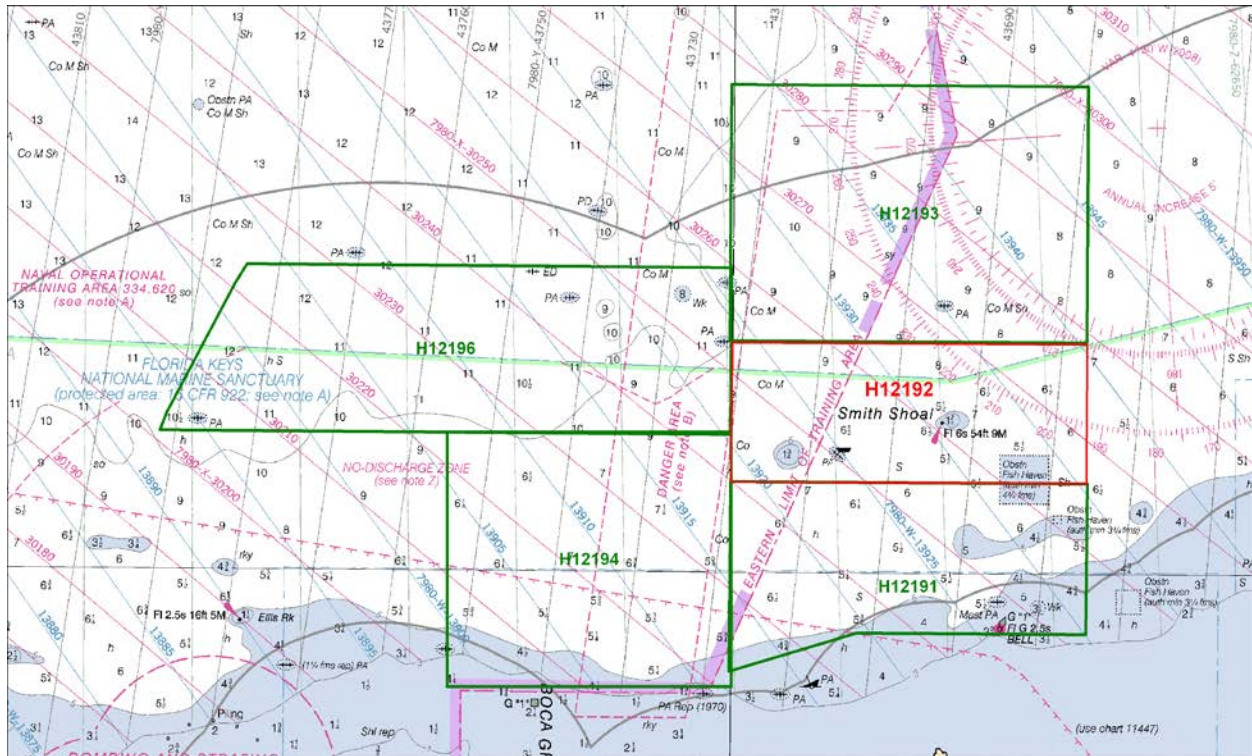


Figure 2: H12192 Junction Surveys.

Survey H12191 junctions with H12192 to the south. The difference in soundings between the two surveys is less than 33cm. The depths between surveys H12192 and H12193 (to the north) also agree to within 30cm. H12194 to the south-west agrees with H12192 within 20cm. Survey H12196 to the north-west generally matches H12192 within 30 cm except one area near latitude 24/43/24.5 where H12196 shows depths almost 60cm deeper than H12192. This discrepancy is most likely due to a problem with the tide data applied to survey H12196. Refer to H12196 DR and DAPR for explanation.

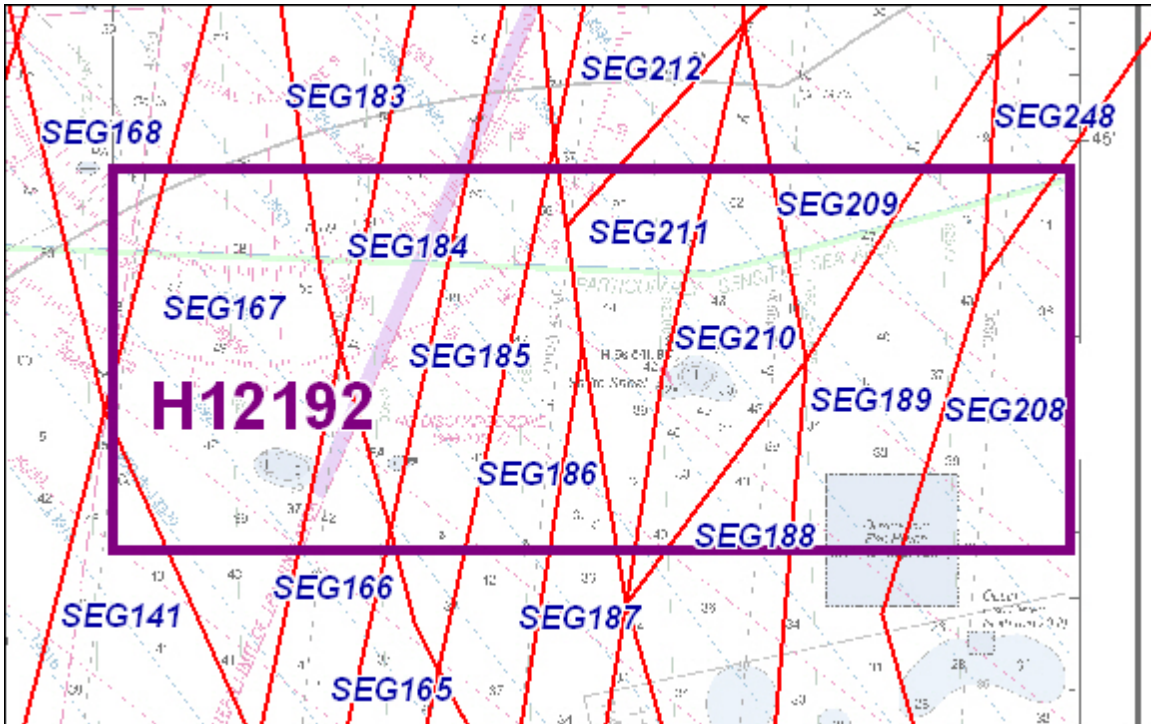
### B 2.5 Systematic Errors

No significant systematic errors were observed in the side scan imagery or vertical beam bathymetry. Issues with the Klein Hydrochart 5000 Sonar are noted in section D.6 below.



**B 3. CORRECTIONS TO ECHO SOUNDING**

HDSCS sounding data were reduced to mean lower-low water (MLLW) using verified tides from Smith Shoal Light, FL (872-4671) with final tide zoning applied as provided by CO-OPS in the Tide Note dated 15 December 2010 and illustrated in Figure 3. The Key West, FL (872-4580) tide gauge mentioned in the project instructions was not used for final tides.



**Fig 3: Final Tide Zoning**

All other datum reduction procedures conform to those outlined in the DAPR. All methods and instruments used for sound velocity correction were as described in the DAPR. A table detailing all sound velocity casts is located in Separate II of this Descriptive Report.

Sound velocity corrections for this survey were applied using the ship’s Moving Vessel Profiler (MVP) and Conductivity, Temperature and Depth (CTD) profilers. SVP casts were applied in CARIS using nearest in time.

## B 4. DATA PROCESSING

### B 4.1 Total Propagated Error

For the 2010 field season, Total Propagated Error (TPE) parameters for sound, speed, and tides are calculated separately for each project. The project-specific parameters for OPR-H355-TJ-10, Survey H12192 are estimated values, and were not provided by CO-OPS.

Project	Vessel	Tide Values*		Sound Velocity Values			
		Measured	Zoning	CTD	MVP	Surface	For SSS
H12192	S222	0.05*	0.125	4	1	0.2	1548 m/s
H12192	3202	0.05*	0.125	4	n/a	0.2	1548 m/s
H12192	3101	0.05*	0.125	4	n/a	0.2	1548 m/s

*\*Values listed above were not consistently applied. The TPU parameters values used to compute TPU varied within the survey were between 0.00m to 0.05m for the measured tide values and 0.00m to 0.20m for tidal zoning.*

**Table 3: TPE Parameters**

\* Error value not provided by CO-OPS, estimated value.

These values were calculated for all MBES data following CARIS Merge.

### B 4.2 BASE Surfaces and Mosaics

The following table describes all BASE Surfaces submitted as part of Survey H12192:

<i>Name of Surface</i>	<i>Resolution</i>	<i>Type</i>	<i>Purpose</i>
H12192_MB_Cube_MLLW_2m_Final	2m	CUBE	Sounding Coverage
H12192_VB_Cube_MLLW_4m_Final	4m	Uncertainty	Sounding Coverage
H12192_WestDev_CUBE_50cm_MLLW_Final	0.5m	CUBE	Development
H12192_CentDev_CUBE_50cm_MLLW_Final	0.5m	CUBE	Development
H12192_EastDev_CUBE_50cm_MLLW_Final	0.5m	CUBE	Development
H12192_HC5K_MB_1m_CUBE_MLLW_Final	1m	CUBE	Reference
H12192_HC5K_MB_4m_CUBE_MLLW_Final	4m	CUBE	Reference
H12192_SSS_Mosaic_100	1m	Mosaic	100% SSS Coverage
H12192_SSS_Mosaic_200	1m	Mosaic	200% SSS Coverage

**Table 4: BASE Surfaces**

The bathymetry for this survey was processed using the Combined Uncertainty and Bathymetry Estimator (CUBE) algorithm. The CUBE configuration was set to NOAA\_0.5m for object detection surfaces and NOAA\_2m for all MB main scheme surfaces. Refer to the *2010 Data Acquisition and Processing Report*, *2010 Field Procedures Manual*, and *CARIS HIPS and SIPS User Guide* for further discussion.

The side scan mosaics show a variation in intensity between the data collected by launch 3102 with the Klein Hydrochart 5000 (HC5K) side scan SONAR and the side scan data collected by the other platforms. The HC5K imagery created from our current processing procedure appears to be about 20% less intense than that from the other SONARs used. An allowance or corrector must be applied if these data are going to be compared to other imagery and used for sea bed classification.

### **B 4.3 Data Cleaning**

The survey data was cleaned using the swath and subset editor tools in Caris HIPS. All areas of the BASE surface that indicated a high standard deviation were examined and cleaned as required such that no residual errors exist in the surface that exceed the IHO order 1 depth accuracy requirements.

## **C. HORIZONTAL AND VERTICAL CONTROL**

As per FPM section 5.2.3.2.3 a HVCR report was not filed as no horizontal and vertical control stations were established by the field party for this survey. A summary of horizontal and vertical control for this survey follows.

### **C 1.1 Horizontal Control**

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS (DGPS) was the sole method of positioning. Differential corrections used were from the U.S. Coast Guard beacon at Key West, Florida (286 KHz).

No horizontal control stations were established by the field party for this survey.

### **C 1.2 Vertical Control**

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) station at Smith Shoal Light, FL (872-4671), will serve as datum control for H12192. Verified tides with Final zoning were applied to all sounding data.

A request for delivery of final approved (verified) tides for this survey was forwarded to N/OPS1 on 25 August 2010 in accordance with the FPM and project letter instructions. Final smooth tide letter is dated 15 December 2010.



## **D 1.2 ENC US4FL97M, ENC US4FL92M, ENC US3FL90M Comparison**

Soundings are generally comparable with charted depths, with differences in charted and survey soundings 0.2 meters or less.

## **D.2 Additional Results**

### **D.2.1 Automated Wreck and Obstruction Information Service (AWOIS) Items**

One AWOIS item was investigated for this survey. See the feature report, appendix II for details on this.

### **D.2.4 Shoreline**

There is no shoreline within the sheet limits of survey H12192.

### **D.2.5 Charted Features**

The least depth found over the Obstruction Fish Haven contained within survey H12192 was approximately 36 feet. All other charted features and item investigations are described in detail in Appendix II of this report. *Concur w/clarification, the least depth found over the Obstruction Fish Haven was 33 feet.*

### **D.2.6 Charted Pipelines and Cables**

No pipelines or cables are charted, or were observed within the limits of this survey.

### **D.2.7 Bridges, Ferry Routes, and Overhead Cables**

There are no ferry routes, bridges, or overhead cable crossings within the limits of this survey.

## **D.3 Dangers to Navigation and Shoals**

### **D 3.1 Dangers to Navigation**

No dangers to navigation were found or reported to the NOAA's Office of Coast Survey.

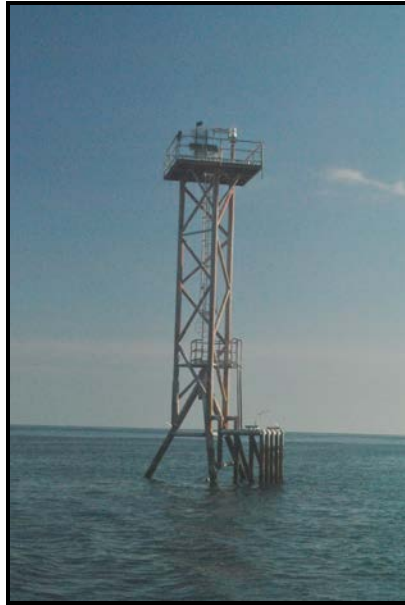
### **D 3.2 Shoals**

There were no significant uncharted shoals discovered during this survey.

## **D.4 Aids to Navigation**

Smith Shoal Light is lies within the bounds of this survey. Its appearance and location are as described in the charts, see figure 5. There is a mooring buoy charted to be at approximately 24°42'27" north by 081°57'37" west near AWOIS item number 14763. It is described in the

AWOIS history as being placed there for recreational dive operations. This buoy is no longer present and should be removed from the chart.



**Figure 5: Smith Shoal Light.**

#### **D.5 Coast Pilot Information**

The Hydrographer has no recommendations for changes or addenda to the Coast Pilot.

#### **D.6 Miscellaneous**

##### **Bottom Samples**

Six bottom samples were acquired with this survey in accordance with section 7.1 of the NOS Hydrographic Survey Specifications and Deliverables, dated April 2010. A complete description of all bottom samples acquired during Survey H12192 is contained in the Pydro PSS. A list of all bottom samples acquired during Survey H12192 is also contained in Appendix V of this report.

***Do not concur. The bottom sample target file was located within Descriptive Report Appendix V; bottom samples were not included within the submitted Pydro PSS.***

##### **Additional Tasks**

Side scan data were acquired as per the FKNMS special requirements. Specifically, the survey was conducted so that all 100% SSS survey data were acquired in the same azimuth and all 200% SSS in an opposing azimuth, in order to aid in benthic habitat classification using GEO-CODER.

Additionally, the SSS imagery trace was scanned for identification of placed casitas/fish traps, and a target was placed within the data acquisition software (SonarPro®) for all observed and

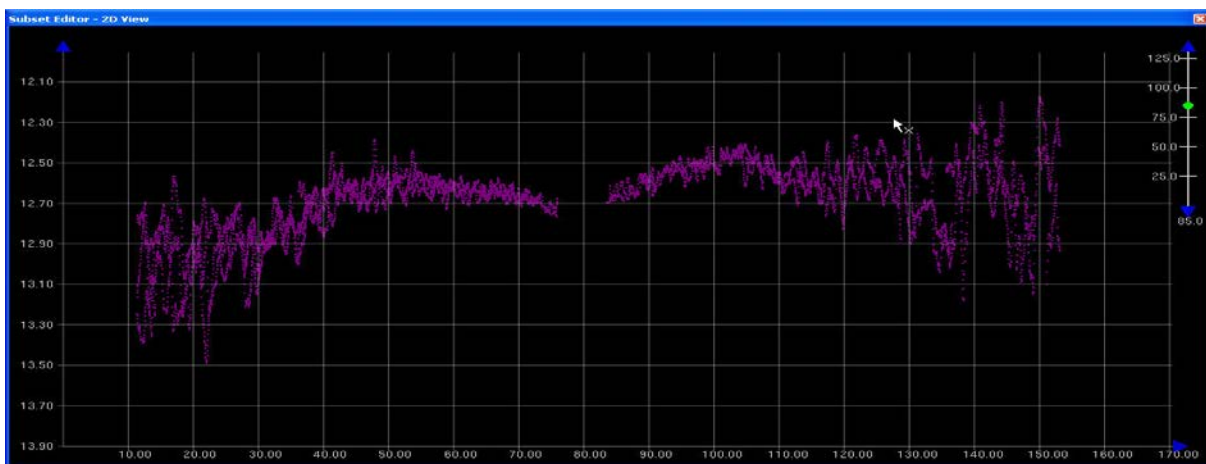
potential casitas. The target files, as well as standard raw and processed bathymetric and imagery data should be provided to the Office of National Marine Sanctuaries, upon availability from OCS. See project instructions for specific contact information.

**Klein Hydrochart 5000 Phase Measuring Bathymetric System (KC5K PMBS)**

In addition to the vertical-beam and side scan sonar coverage of the survey area, a bathymetric digital terrain model (DTM) was created using the PMBS data from the HC5K sonar over part of the area surveyed by launch 3102. This survey is considered to be complete without these data but they are included here in order to compare them to proven methods of acquisition and to determine how they might be used to enhance future surveys. The DTM produced shows seabed characteristics and features which do not show up in the vertical beam sonar, therefore it will have value to the Integrated Ocean and Coastal Mapping (IOCM) and National Marine Sanctuary divisions and is included with the survey.

Currently there are three shortcomings which prevent the HC5K bathymetry from being adequate for charting. These are an inherent data gap at nadir, a vertical bias which shows the seabed to be nearly one half meter too shoal, and an across track ‘albatross wing’ hump in the data to port and starboard of nadir, (see figure 6). The data spreads out randomly as it approaches the outer beams.

The inherit data gap at nadir is covered by using the line spacing as described in section B.2.2. This spacing allowed for full 200% object detection imagery and placed the nadir data gap over a stripe of relatively good quality bathymetric data from the closest, adjacent line. For this survey the vertical offset was compensated for by applying a vertical corrector to the measured draft of the hydrochart transducers. The draft of the transducers was measured to be 0.655 meters but had to be offset by another 0.445 meters to a draft of 1.10 meters in the vessel .hvf file in order to line up with the vertical beam data. It is presumed that the ‘albatross wing’ artifact and this shoal bias are both a due to a problem applying the sound speed to the data during processing and will be resolved in the future.



**Figure 6: Along track view of HC5K data**

Small contacts are not as well defined on the HC5K bathymetric record as they are in our current multi-beam devices. This is especially true if the object appears only in the outer beams of the HC5K. This shortcoming may be inherit to the system. It is suggested that the process of scanning the SSS imagery, then developing significant contacts with multi-beam sonar is always used in conjunction with hydrochart bathymetry for charting purposes.

#### **D.7 Environmental Conditions and Notes**

No significant unusual environmental conditions occurred during this survey.

#### **D.8 Adequacy of Survey**

This survey is considered complete and adequate to supersede charted depths and features within the common area except as noted in this report.

#### **Summary and Recommendations for Additional Work**

No additional work is needed to complete this survey. No changes significant to navigation have been noted and it is recommended that this survey receive normal processing priority.




**E. APPROVAL**

As Lead Hydrographer, I have ensured that standard field surveying and processing procedures were followed in producing this examination in accordance with the Office of Coast Survey Hydrographic Surveys Division’s *Field Procedures Manual*, and NOS *Hydrographic Surveys Specifications and Deliverables*. Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to N/CS33, Atlantic Hydrographic Branch.

The Data Acquisition and Processing Report for OPR-B310-TJ-09 is submitted separately and contains additional information relevant to this survey.

Approved and Forwarded:

 Mark Blankenship  
2011.04.17  
01:30:32 -04'00'

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 Digitally signed by  
Shepard Smith  
Date: 2011.04.17 11:54:40  
-04'00'

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LT Mark A. Blankenship, NOAA  
Field Operations Officer

CDR Shepard M. Smith, NOAA  
Commanding Officer

In addition, the following individuals were also responsible for overseeing data acquisition and processing of this survey:

Survey Manager:

**Doug Wood**  
2011.04.17 01:38:42 -04'00'

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Douglas A. Wood, NOAA  
Senior Hydrographic Survey Technician

## APPENDIX I

### H12192 Tide Request



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
National Ocean Service  
Silver Spring, Maryland 20910

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE :** December 15, 2010

**HYDROGRAPHIC BRANCH:** Atlantic  
**HYDROGRAPHIC PROJECT:** OPR-H355-TJ-2010  
**HYDROGRAPHIC SHEET:** H12192

**LOCALITY:** Smith Shoal, Gulf of Mexico, FL  
**TIME PERIOD:** August 9 - August 25, 2010

**TIDE STATION USED:** 872-4671 Smith Shoal Light, FL  
Lat. 24° 43.1'N Long. 81° 55.3' W

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 1.002 meters

**REMARKS: RECOMMENDED ZONING**

**Use zone(s) identified as:** SEG142, SEG142A, SEG143, SEG160A, SEG164,  
SEG169, SEG170, SEG184, SEG189, SEG250,  
SEG300, and SEG301

**Refer to attachments for zoning information.**

**Note 1:** Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

**Note 2:** The datum at 8724671 Smith Shoal Light will not be accepted. Accordingly, six-minute data cannot be retrieved from the [opendap.co-ops.nos.noaa.gov](http://opendap.co-ops.nos.noaa.gov) website relative to MLLW. It must be retrieved relative to Station Datum. Please apply a correction of 1.451 meters to account for the STND - MLLW separation when retrieving the data.

**Peter J. Stone**

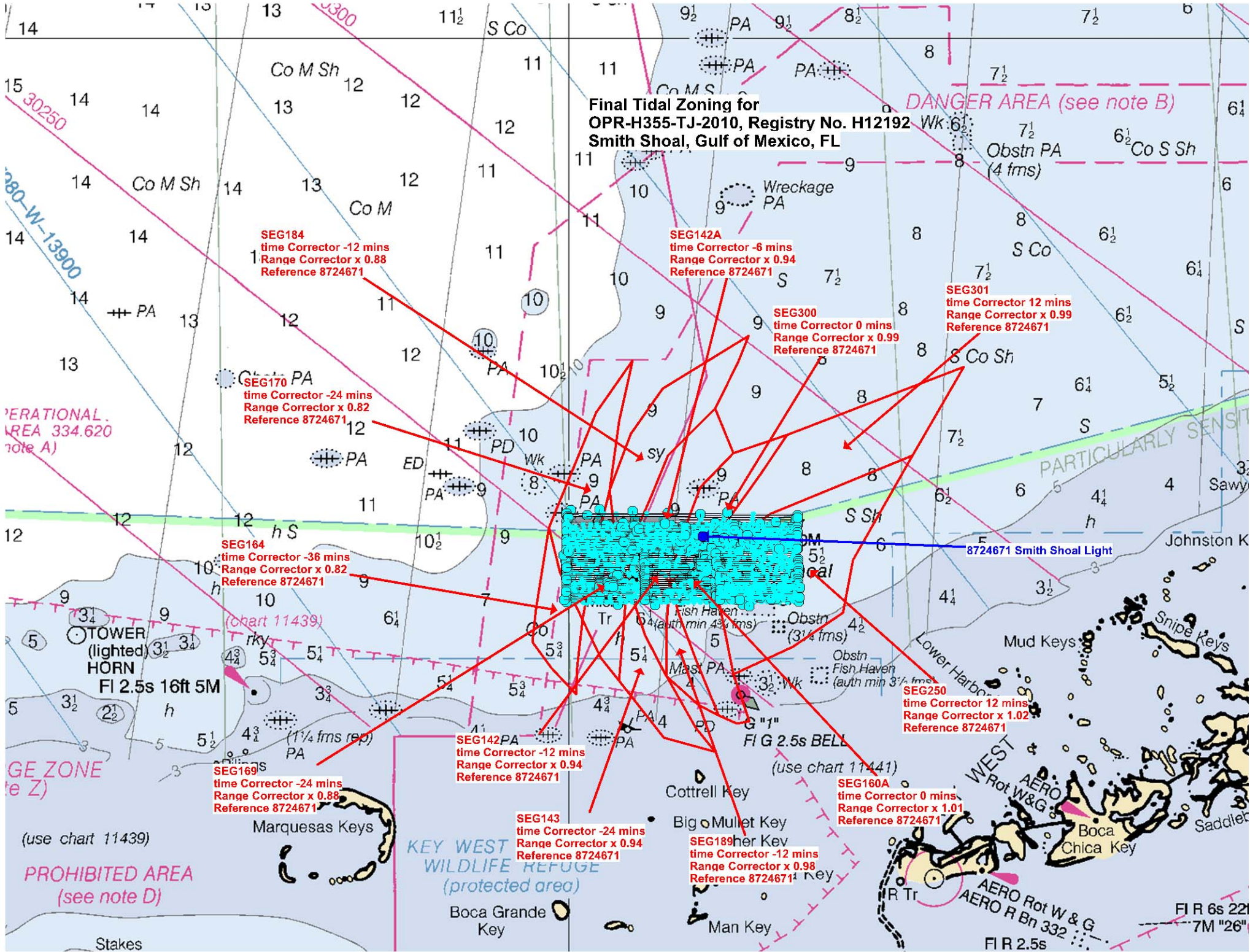
Digitally signed by Peter J. Stone  
DN: cn=Peter J. Stone, o=NOAA/NOS/CO-OPS,  
ou=Oceanographic Division, email=peter.stone@noaa.gov,  
c=US  
Date: 2010.12.17 12:45:29 -05'00'

CHIEF, OCEANOGRAPHIC DIVISION



**Final Tidal Zoning for  
OPR-H355-TJ-2010, Registry No. H12192 Wk:62  
Smith Shoal, Gulf of Mexico, FL**

**DANGER AREA (see note B)**



## APPENDIX II

### H12192 Supplemental Correspondence

**Subject:** Re: Crossline comparison

**From:** Chris van Westendorp <Christiaan.VanWestendorp@noaa.gov>

**Date:** Thu, 10 Sep 2009 13:00:35 -0400

**To:** "mark.blankenship" <Mark.Blankenship@noaa.gov>

**CC:** LCDR Rick Brennan <Richard.T.Brennan@noaa.gov>, Castle Parker <Castle.E.Parker@noaa.gov>, Edward Owens <Edward.Owens@noaa.gov>, LT Jasper Schaer <jasper.schaer@noaa.gov>, CDR Shep Smith <Shep.Smith@noaa.gov>, Daniel Wright <Daniel.Wright@noaa.gov>

Mark,

Per 5.1.4.3 of the HSSD, AHB authorizes TJ to use the Standard Deviation layer to conduct surface difference comparison and analysis on future survey submissions of multibeam data. This meets the crossline comparison requirement laid out in HSSD.

Please let me know if you have any questions or need for further clarification.

R/

LCDR Chris van Westendorp, NOAA

mark.blankenship wrote:

Chris,

You mentioned in the meeting today that AHB was not going to require the multiple CUBE surface comparison, instead allowing us to use a single surface standard deviation layer to do our checks with. Is there any memo coming out for that?

Mark

LCDR Chris van Westendorp <[christiaan.vanwestendorp@noaa.gov](mailto:christiaan.vanwestendorp@noaa.gov)>

Atlantic Hydrographic Branch

NOAA OCS

**Subject:** Re: Bottom Sample submission

**From:** Gene Parker <Castle.E.Parker@noaa.gov>

**Date:** Mon, 31 Jan 2011 11:47:48 -0500

**To:** "ops.thomas.jefferson" <OPS.Thomas.Jefferson@noaa.gov>

Good day Mark,

Submit both. HSSD specifies both in two areas of the document. First one needs to comply with HSSD; if the TJ wants to make the Hob file, then they have gone beyond the minimum requirements. If the TJ doesn't do it, then AHB would have to as long as the BS is within the Pydro PSS. Reference HSSD Section 8.2 S57 Feature File, paragraph 6:

The S-57 feature file contains all the attributed information on specific objects that cannot be portrayed in a simple depth grid. Features to include in the S-57 feature file include; wrecks, obstructions, shoreline, rocks, islets, oil platforms, nature of seabed (bottom samples) and all other objects that may need to be compiled to a navigational product and require additional information that cannot be included in the BAG.

The Pydro PSS is in lieu of the S57 format file.

We could make the hob from the table, but since the TJ has done this, submit both the Hob file and the table contained in DR Appendix 5. Place the Hob file in the PSS directory which has contained all features in NOAA PSS format as in the past. If the TJ is going to submit the hob file, the source would be the table, so HSSD specifies delivery of both. If the TJ only submitted the table, AHB would have to generate the feature objects. If the TJ creates the hob file, then submit it.

gene

ops.thomas.jefferson wrote:

Gene,

We will be submitting .HOB files for the bottom samples in addition to the summary table found in the supplemental survey records and correspondence section of the DR. It is my understanding that the table is only used to create the .HOB anyways. A recommendation will need to be made that either the table either be omitted or be used in place of the .hob file. Only the summary table is mention in the HSSD april 2010 version. If there are any other issues with this idea please let us know.

Mark

Castle Eugene Parker <[castle.e.parker@noaa.gov](mailto:castle.e.parker@noaa.gov)>

Physical Scientist - Hydrographic Team Lead

Atlantic Hydrographic Branch

NOAA Office of Coast Survey

**Station Information**

Station Id	8724671	Station Name	SMITH SHOAL LIGHT, FL		
Latitude	24° 43' 5.8" N	Longitude	81° 55' 17.5" W		
Time Meridian	75 W	GMT Time Zone Offset (hrs)	5	By GPS	<input checked="" type="radio"/> Yes <input type="radio"/> No
Team Lead	Kyle Dinberg	Visit Purpose	Remove		
Team Member	Richard James	Visit Begin Date	10/10/2010		
Team Member	Chris Haith	Visit End Date	10/11/2010		
Team Member		Primary Retained ZETG (m)			
Team Member					

**Station Description**

Station was located on the Smith Shoal Light, all DCP,s and existing equipment were removed.

**To Reach**

**Station Information**

**Station Logistics**



**Project Instructions**

**Future Work**

**Site Owner Information**

Facility Name	Smith Shoal Light		
Site Address			
Site Address			
Site City	Key West	Site State	FL
		Site Zip	

**Owner Information**

Owner Name	United States Coast Guard	Work Phone	(305) 415-6746
Address	909 SE 1st Ave. Suite 406	Cell Phone	( ) -
Address		Home Phone	( ) -
City	Miami	Fax	(305) 415-6757
State	FL	Zip	
E-mail		Owner Hours	
Owner Contact	Christopher A. Jasnoch	Owner Since	00/00/0000

**Owner Comment**

--

**Local Contact Information**

Local Contact		Work Phone	( ) -
Address		Cell Phone	( ) -
Address		Home Phone	( ) -
City		Fax	( ) -
State		Date Last Trained	00/00/0000
E-mail			

**Local Contact Comments**

--

**Location Comments**

--

**SHELTER INFORMATION**

Station ID	8724671	Shelter Type	
Date Installed	00/00/0000 00:00	Date Removed	00/00/0000 00:00
Lock Type		Combination	
Shelter Size		Condition	

Comments

**NITROGEN**

Station	8724671	Hours Of Op:		Tank Size: (lbs)	
# of Tanks		Tank Sensor			
Provider Name					
Provider Info					

Comments

**DCP**

STATION ID	8724671	DCP #	1	DATE INSTALLED	5/10/2010 12:00:00 AM	DATE REMOVED	10/10/2010
DCP TYPE	9210 DCP DCP and not box		SERIAL NO.	*2	MODEL	9210	
DCP PHONE		CELLULAR Y/N		SDL VERSION			
OPERATING SYSTEM VER		SOLAR POWER (w)		IP ADDR			
DESICCANT CHG DATE		RADIO ID		LAST DOWNLOAD DATE	00/00/0000		
PIC VER A1		PIC VER A2		PIC VER D1			
LATITUDE	24° 43' 5.8" N		LONGITUDE	81° 55' 17.5" W			
ELEVATION		ELEV REF					
MANUFACTURER	Sutron Corporation						

DESCRIPTION

**Component Information**

**OTHER PART**

Station ID	8724671	DCP #	1	Date Installed	00/00/0000 00:00	Date Removed	10/10/2010
Component Type	Air Compressor Waterlog Airpum		Serial #	*2		Model	
Manufacture	Design Analysis Associa		Cable		Cable Length (m)		

**Comments**

[Redacted Comments Area]

**GOES INFORMATION**

Station	8724671	DCP #	1	Date Installed	00/00/0000 00:00	Date Removed	10/10/2010 13:47:00
Antenna Type	Sutron GOES Antenna		Antenna Serial#	*35		Model #	
Manufacturer	Sutron Corporation						
Platform ID	3357B140	GOES Channel	069E	Satellite Used	GOES EAST		
Start Xmitting (hhmmss)	000930	Xmit Interval (min)	60	Xmit Length (sec)	30	Xmit Power (w)	
Elevation from Horz (°)		Azimuth(°)		Local Deviation (°)		Local Dev Direction	
Cable Type		Cable Length (m)					

**Comments**

[Redacted Comments Area]

**SOLAR PANELS**

Station	8724671	DCP #		Date Installed			
Type		Serial #		Model			
Manufacture							
Solar Panel Angle (°)	0	Cable		Cable Length(m)			

**Comments**

[Redacted Comments Area]

**BATTERY INFORMATION**

Station ID	8724671	DCP #		Battery Date	00/00/0000	Replacement Date	00/00/0000
Manufacture				Battery Capacity in Amp-Hrs			
Type				Voltage			
Comments							

**Well and Sump Information**

Station ID	8724671	DCP#		Sensor ID			
Well Purpose		Date Installed	00/00/0000	Date Remove			
Well Diameter(ft)		Material		Bottom Height(ft)			
Well Depth(ft)		Length(ft)		Copper Insert			
Intake Type		Top Hat		MF Seasonal			
Securing Method		Parallel Plates		Marine Fouling			
Valve Turns		Valve Turns Max		# Brackets			
Heater Setting		Sump Pumped		Date Last Pumped	00/00/0000		
Sump Diameter(ft)		Sump Depth(ft)		Intake Pipe Material			
Element Setting		Element Length(ft)		Element Submerged			
Valve Invert		Intake Invert		Sump Intake Dia(ft)			
Intake Screen		Intake Screen Clean		Valve Type			
Well Pumped		# Heat Lamps		Valve Dia(ft)			
Ladder Access		Heat Lamp Setting		Valve Leak			
Description							

**Most Recent Dive Information**

Station ID	8724671	Dive Date	00/00/0000	Dive during calendar year (Y/N)	NO
Dive Span(min)		Divers			
Dive Notes					

**Acoustic Water Level Sensor**

Station ID	8724671	DCP#:		Date Installed	00/00/0000 00:00	Date Removed	
Type		Serial #		Model			
Manufacturer					Sensor ID		
Sound Tube Len(m)		Copper Tube Len(m)		T1/T2 Spacing(m)		# of Bails	
Sound Tube Cleaned		Sensor Offset(m)		Ping Test Display		Diff (<+/- 0.06 passes)	
LATITUDE				LONGITUDE			
ELEVATION				ELEV REF			

Comments

**SAE**

Station ID	8724671	DCP #		Date Installed	00/00/0000 00:00	Remove Date	00/00/0000 00:00
SAE Type		SAE Serial#		SAE Model#			
Manufacturer					Sensor ID		
<b>Maintenance Check</b>		<b>Encoder Set-Up</b>					
Display (m)		Display (m)		Counter Weight (ozs)			
ETG (m)		ETG (m)		Float Dia (in)			
C2 Check (m)		C2 (m)		Tape Length (m)			
Reset C2 (Y/N)	NO	Encoder Offset (m)		ZETG C2 (m)			
LATITUDE				LONGITUDE			
ELEVATION				ELEV DATUM REF			

SAE Comments

**Upper Pressure Water Level Information**

Station ID	8724671	DCP#	1	Date Installed	05/10/2010 00:00	Date Removed	10/10/2010 13:46
Type		Serial #	*15	Model #	6000-30G		
Manufacturer	Paroscientific, Inc.						
Orifice Above Station Datum(m)		Sensor ID	N1				
LATITUDE	24° 43' 5.8" N			LONGITUDE	81° 55' 17.5" W		
ELEVATION				ELEV DATUM REF			

Comments

PAROS installed on this temporary system, model# 3000-30G; S/N 100586

**Lower Pressure Water Level Sensor Information**

Station ID	8724671	DCP#		Date Installed	00/00/0000 00:00	Date Removed	00/00/0000 00:00
Type		Serial #		Model			
Manufacturer							
Orifice Above Station Datum(m)		Sensor ID					
LATITUDE		LONGITUDE					
ELEVATION		ELEV REFERENCE					
Comments							

**Back Up Water Level Sensor Information**

Station ID	8724671	DCP#		Date Installed	00/00/0000 00:00	Date Removed	00/00/0000 00:00
Type		Serial #		Model			
Manufacturer						Sensor ID	
LATITUDE		LONGITUDE					
ELEVATION		ELEV REFERENCE					
Comments							

**Microwave Water Level Sensor Information**

Station ID	8724671	DCP#		Date Installed	00/00/0000 00:00	Date Removed	
Type		Serial #		Model #			
Manufacturer						Sensor ID	
LATITUDE		LONGITUDE					
ELEVATION		ELEV REF DATUM					
Comments							

**Ancillary Equipment Information**

Station ID	8724671	DCP #		Date Installed	00/00/0000 00:00	Date Removed	
Type		Serial #		Model			
Height Above Station Datum (m)		Cable		Cable Length (m)			
Manufacture							
Latitude		Longitude		Sensor ID			
Elevation		Elev Ref		Sensor ID			

**Sensor Comments**

**GPS INFO**

Station ID	8724671	Session#	1	Session Date Time	10/10/2010 14:51
BM Designation	Smith Shoal Light	Session Length (hrs)	4hrs 43 min	ARP Height (m)	1.958
Percent OBS	75%	Ellipsoidal Ht(m)	-19.952	Ortho Ht(m)	
				CORS Site Y/N	NO

**GPS COMMENT**

**Level Run Information**

Station ID	8724671	Level Begin Date	00/00/0000	Level End Date	00/00/0000
PBM Designation		PBM Elevation (m)	.0000	PBM Connected	
Orifice Connected		Staff Connected		Down Shot Fixture	
Level Type		Level Order		Level Order Class	
Match History		Water Transfer		Water Trans Diff (m)	
Recovered By					

**Level Run Comments**

**Leveling Team**

Station ID	8724671
JOB	First Name Middle Name Last Name

**Leveling Equipment**

ITEM	TYPE	SERIAL#



## APPENDIX III

### H12192 Feature Report

1 - No DtoNs

2 - One AWOIS Item (Wk)

3 - No Maritime Boundaries

# H12192 Features Report

**Registry Number:** H12192  
**State:** Florida  
**Locality:** Gulf of Mexico  
**Sub-locality:** Smith Shoal  
**Project Number:** OPR-H355-TJ-10  
**Survey Date:** 08/24/2010

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11439	26th	07/01/2004	1:80,000 (11439_1)	USCG LNM: 11/24/2009 (01/19/2010) NGA NTM: 10/02/1999 (01/30/2010)
11434	28th	06/01/2008	1:180,000 (11434_1)	[L]NTM: ?
1113A	28th	07/01/2005	1:470,940 (1113A_1)	[L]NTM: ?
11420	28th	07/01/2005	1:470,940 (11420_1)	[L]NTM: ?
11451	33rd	09/01/2007	1:495,362 (11451_17) 1:495,362 (11451_16)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_1)	[L]NTM: ?
11013	47th	02/01/2008	1:1,200,000 (11013_1)	[L]NTM: ?
411	52nd	09/01/2007	1:2,160,000 (411_1)	[L]NTM: ?

\* Correction(s) - source: last correction applied (last correction reviewed--"cleared date")

## Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	134/9 - 37 Wk - AWOIS #14763	Wreck	11.42 m	24° 42' 30.1" N	081° 57' 24.4" W	14763

## **1 - AWOIS Feature**

**1.1) 134/9 - 37 Wk - AWOIS #14763****Primary Feature for AWOIS Item #14763**

**Search Position:** 24° 42' 27.4" N, 081° 57' 37.4" W  
**Historical Depth:** 10.97 m  
**Search Radius:** 500  
**Search Technique:** SSS, MB, SB  
**Technique Notes:** [None]

**History Notes:**

LNM-5/85; Unnamed wreck reported to have sank in roughly 6 fathoms of water in approximate position 24° 42' 27" N / 081° 57' 37.4 W. A mooring buoy has been placed adjacent to the wreck and is used for recreational dive operations. (PTT, 3/3/10)

**Survey Summary**

**Survey Position:** 24° 42' 30.1" N, 081° 57' 24.4" W  
**Least Depth:** 11.42 m (= 37.48 ft = 6.246 fm = 6 fm 1.48 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)**  $\pm 1.008$  m ; **TVU (TPEv)**  $\pm 0.341$  m  
**Timestamp:** 2010-236.21:57:15.977 (08/24/2010)  
**Survey Line:** h12192 / tj\_s222\_reson7125\_stbd / 2010-236 / 322\_2157  
**Profile/Beam:** 134/9  
**Charts Affected:** 11439\_1, 11434\_1, 1113A\_1, 11420\_1, 11451\_16, 11451\_17, 11006\_1, 11013\_1, 411\_1

**Remarks:**

[None]

**Feature Correlation**

Source	Feature	Range	Azimuth	Status
322_2157	134/9	0.00	000.0	Primary
322_2212	172/484	1.55	359.4	Secondary
109_100817203300_bf0_v12_0	0002	3.69	350.9	Secondary
209_100817204600_bf0_v12_0	0002	16.31	116.8	Secondary
110_100817212300_bf0_v12_0	0001	21.32	162.5	Secondary
209_100817204600_bf0_v12_0	0001	44.34	014.3	Secondary
109_100817203300_bf0_v12_0	0003	47.69	019.2	Secondary

322_2212	44/466	49.81	015.3	Secondary
OPR-H355-TJ-10 AWOIS	AWOIS # 14763	374.85	077.1	Secondary

## Hydrographer Recommendations

[None]

### Cartographically-Rounded Depth (Affected Charts):

37ft (11439\_1, 11451\_16, 11451\_17)

6 ¼fm (11434\_1, 1113A\_1, 11420\_1, 11006\_1, 11013\_1, 411\_1)

## S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 1:non-dangerous wreck  
 QUASOU - 6:least depth known  
 SORDAT - 20100825  
 SORIND - US,US,graph,H12192  
 STATUS - 1:permanent  
 TECSOU - 2,3:found by side scan sonar,found by multi-beam  
 VALSOU - 11.423 m

## Office Notes

SAR Note - feature present in both MB and SSS

Compile note - Delete dangerous wreck, least depth unknown, and mooring buoy. Chart dangerous wreck, least depth 37 ft., at the surveyed position.

## Feature Images



*Figure 1.1.1*

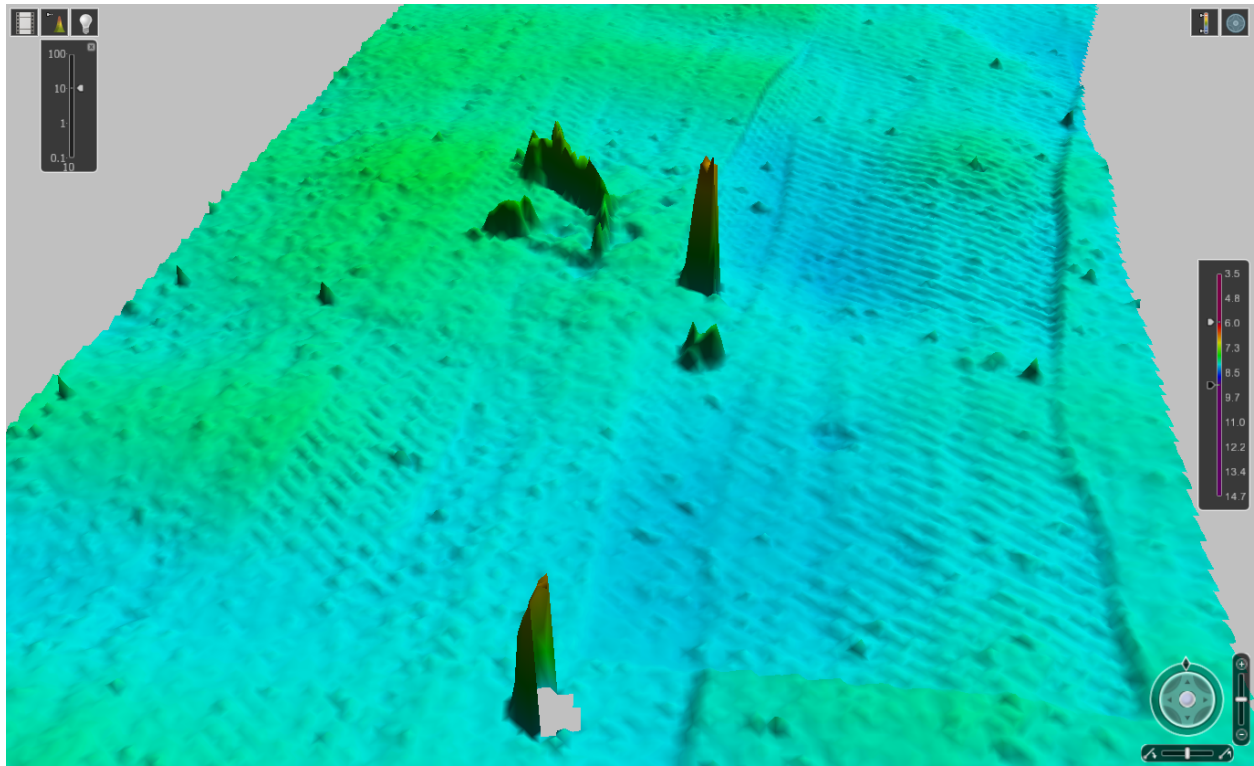


Figure 1.1.2

APPROVAL PAGE

H12192

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NGDC for archive

- H12192\_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12192\_GeoImage.pdf

The survey evaluation and verification has been conducted according current OCS Specifications, and the survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved for: \_\_\_\_\_

**LT Abigail Higgins**

Chief, Atlantic Hydrographic Branch