

F00629

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Survey

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: F00629

LOCALITY

State(s): Florida

General Locality: St. Augustine, FL

Sub-locality: St. Augustine Inlet and Vicinity

2013

CHIEF OF PARTY
Erik H. Anderson

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

F00629

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(s): **Florida**

General Locality: **St. Augustine, FL**

Sub-Locality: **St. Augustine Inlet and Vicinity**

Scale: **20000**

Dates of Survey: **11/29/2012 to 04/09/2013**

Instructions Dated: **03/01/2013**

Project Number: **S-G902-NRT2-13**

Field Unit: **Navigation Response Team 2**

Chief of Party: **Erik H. Anderson**

Soundings by: **Multibeam Echo Sounder Singlebeam Echo Sounder**

Imagery by: **Side Scan Sonar**

Verification by: **Pacific Hydrographic Branch**

Soundings Acquired in: **meters at Mean Lower Low Water**

Remarks:

This survey should supersede all prior survey data in the common area.

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. Notes in red 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/>.

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Descriptive Report to Accompany Survey F00629

Project: S-G902-NRT2-13

Locality: St. Augustine, FL

Sublocality: St. Augustine Inlet and Vicinity

Scale: 1:20000

November 2012 - April 2013

Navigation Response Team 2

Chief of Party: Erik H. Anderson

A. Area Surveyed

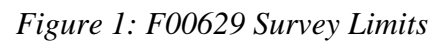
Rapidly shifting shoals and breaking waves make the St. Augustine Inlet dangerous to navigate, even with local knowledge. Several ship groundings in the past years prompted this survey.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
29° 55" 16.49' N 81° 15" 38.95' W	29° 52" 3.51' N 81° 19" 9.91' W

Table 1: Survey Limits



2

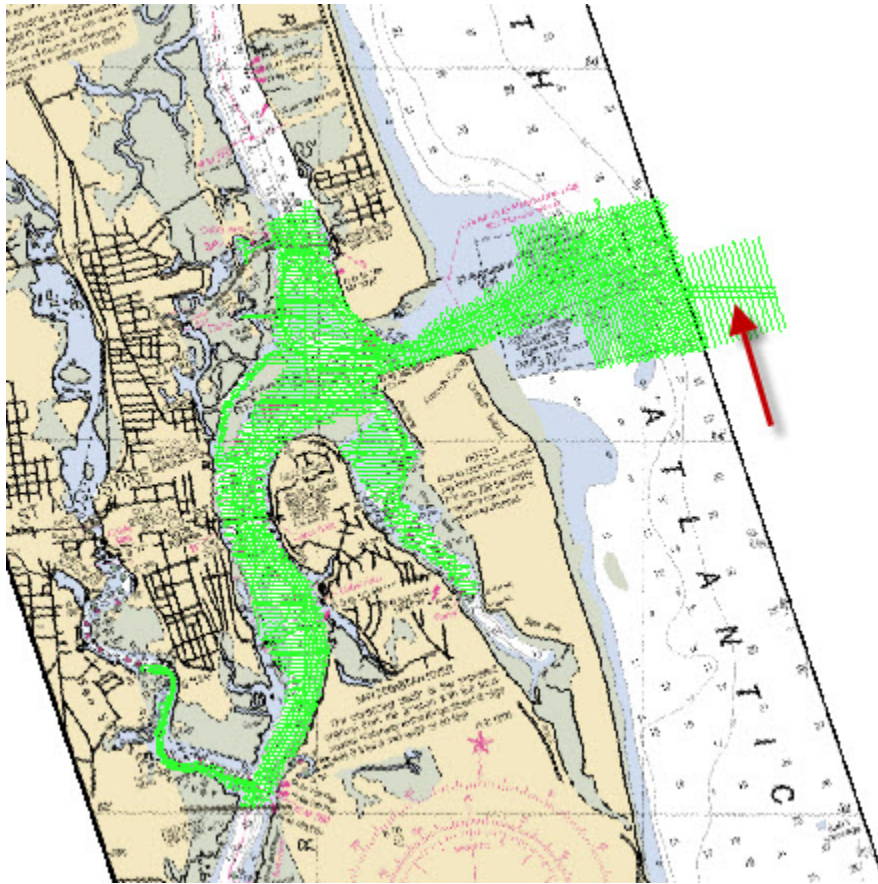


Figure 2: Lines Outside Survey Limits

A.2 Survey Purpose

The USCG has requested a hydrographic survey to define the channels in St. Augustine Inlet and vicinity. The survey data will help them reposition their buoys in the St. Augustine area. Also, this data will benefit the local port and the larger recreational traffic that uses the waterways. It is the intent of this survey to supersede all bathymetry, seafloor features, and bottom characteristics within the assigned survey area as defined by these instructions for updating of NOAA chart 11485.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

VBES with 200% SSS and MBES was used for development.

A.4 Survey Coverage

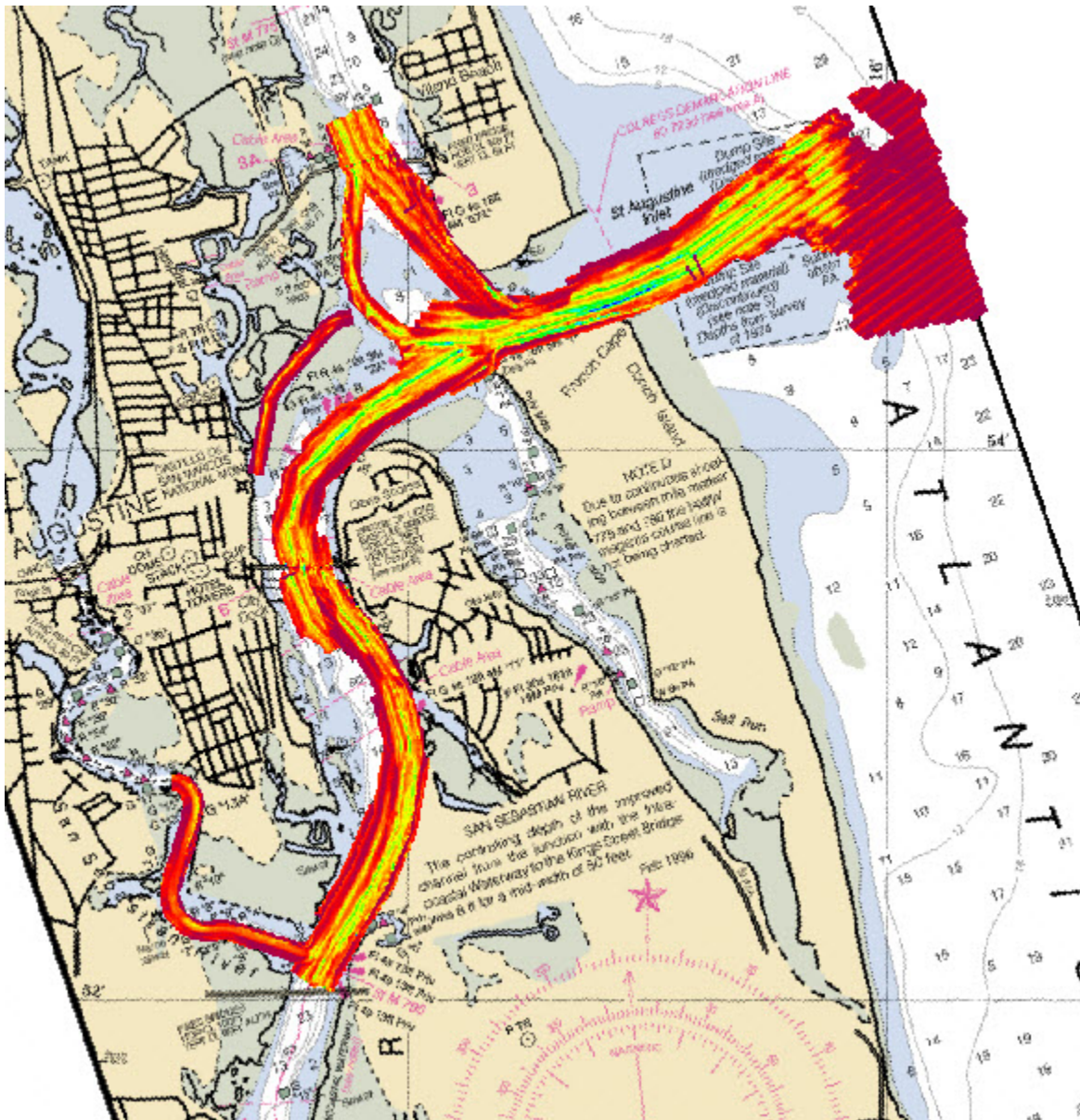


Figure 3: F00629 200% SSS Coverage

Survey Coverage was in accordance with the requirements in the Project Instructions and the HSSD.

A.5 Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey:

	Vessel	<i>1210</i>	<i>Total</i>
LNM	SBES Mainscheme	121.20	121.20
	MBES Mainscheme	5.75	5.75
	Lidar Mainscheme	0.00	0.00
	SSS Mainscheme	0.00	0.00
	SBES/MBES Combo Mainscheme	0	0.00
	SBES/SSS Combo Mainscheme	66.69	66.69
	MBES/SSS Combo Mainscheme	0	0
	SBES/MBES Combo Crosslines	20.26	20.26
	Lidar Crosslines	0.00	0.00
Number of Bottom Samples			2
Number AWOIS Items Investigated			5
Number Maritime Boundary Points Investigated			0
Number of DPs			74
Number of Items Items Investigated by Dive Ops			0
Total Number of SNM			3

Table 2: Hydrographic Survey Statistics

The following table lists the specific dates of data acquisition for this survey:

Survey Dates	Julian Day Number
11/29/2012	334
03/05/2013	64
03/06/2013	65
03/07/2013	66
03/11/2013	70
03/28/2013	87
04/04/2013	94
04/09/2013	99

Table 3: Dates of Hydrography

The VBES has 40m line spacing. There is 200% SSS coverage where water depth allowed and MBES development on SSS contacts.

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the 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 discussed in the following sections.

B.1.1 Vessels

The following vessels were used for data acquisition during this survey:

Hull ID	<i>S-1210</i>
LOA	9.15 meters
Draft	0.5 meters

Table 4: Vessels Used



Figure 4: S-1210

Launch used for Hydrographic Surveys, Operational Support, Equipment Testing, and Emergency Response Surveys.

B.1.2 Equipment

The following major systems were used for data acquisition during this survey:

Manufacturer	Model	Type
Sea Bird Electronics	SBE-19	Sound Speed System
Odom	DigiBar Pro	Sound Speed System
Odom	CV2	SBES
Klein	3000	SSS
R2Sonic	2024	MBES
Applanix	POS M/V 4	Positioning and Attitude System
Trimble	DSM 212/L	Positioning System

Table 5: Major Systems Used

DSM 212's are used to provide RTCM corrector data to the POS M/V and the DGPS feed to distress VHF radios.

B.2 Quality Control

B.2.1 Crosslines

Crosslines, acquired for this survey, totalled 16.0% of mainscheme acquisition.

Crosslines generally agree within 0.1 meters throughout the survey area.

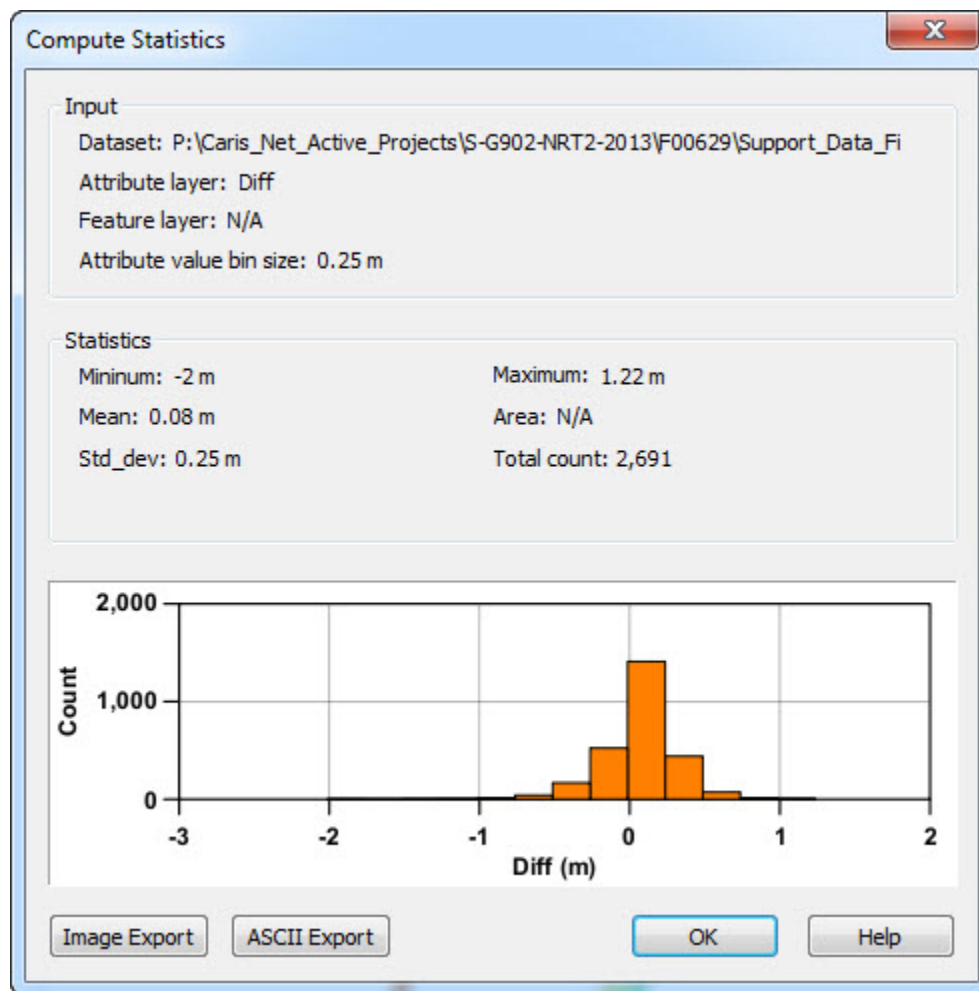


Figure 5: Crossline Stats

B.2.2 Uncertainty

Hull ID	Measured - CTD	Measured - MVP	Surface
S-1210_VBES	4 meters/second	0 meters/second	2 meters/second
S-1210_MBES	4 meters/second	0 meters/second	0.5 meters/second

Table 6: Survey Specific Sound Speed TPU Values

Tide uncertainty is not applicable for this project. Tidal Constituent And Residual Interpolator (TCARI) automatically calculates the error associated with water level interpolation. This error is incorporated into the residual/harmonic solutions and included in the Total Propagated Error (TPE) for the survey.

The values used for SVP TPE were recommended by HSTP, and the FPM and Specs & Deliverables.

The TPU values used to represent SVP uncertainty are not compliant with NOAA standards, and have resulted in under-reported uncertainty. Appendix 4, Table 4-9, of the FPM provides guidance on what values to report for typical SVP uncertainty, either Measured or Surface. The field's DAPR establishes that they conduct CTDs for MBES at a minimum rate of 1 cast per hour. At this interval, Appendix 4 can reasonably be read to recommend 2m/s for Measured CTD uncertainty, instead of the 0 reported in the DR and used in the computation of TPU. Appendix 4 recommends reporting a Surface uncertainty between 0.2 to 2.0 m/s. The HIPS processing log shows the field input 0.2 m/s, which disagrees with the value reported in this DR, but is acceptable given that real-time SVP data is collected at the face of the transducer.

B.2.3 Junctions

There are no contemporary surveys that junction with this survey.

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in the quality control section of the DAPR.

B.2.5 Equipment Effectiveness

MBES Pole Mount

The USM mount supporting the R2Sonic 2024 has been observed with a slight wobble in heavier sea states. All data remains within Specs and this issue will be remedied before the next survey.

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Casts were taken at least weekly for VBES acquisition and several times a day for MBES. If surface sound speed deviated more than 2 m/s from the starting value an additional SVP cast was taken.

B.2.8 Coverage Equipment and Methods

All equipment and survey methods were used as detailed in the DAPR.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All data reduction procedures conform to those detailed in the DAPR.

B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Backscatter was logged as a .R2S file and submitted to the IOCM processing center and/or directly to NGDC. Backscatter data has also been submitted to PHB.

B.5 Data Processing

B.5.1 Software Updates

There were no software configuration changes after the DAPR was submitted.

The following Feature Object Catalog was used: NOAA_Extended_Customized_Attributes_version5.2.3

B.5.2 Surfaces

The following surfaces and/or BAGs were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
F00629_VBES_4m_Base_Final	CUBE	4 meters	-0.62 meters - 17.87 meters	NOAA_4m	MBES TracklineSBES Set Line Spacing
F00629_MBES_50cm_Final	CUBE	50 centimeters	1.18 meters - 16.95 meters	NOAA_0.5m	Object Detection
F00629_1m_100	SSS Mosaic	1 meters	-	NOAA_1m	100% SSS

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
F00629_1m_200	SSS Mosaic	1 meters	-	NOAA_1m	200% SSS
F00629_MBES_50cm	CUBE	50 centimeters	1.18 meters - 16.95 meters	NOAA_0.5m	Object Detection
F00629_VBES_4m_Base	CUBE	4 meters	-0.62 meters - 17.87 meters	NOAA_4m	MBES TracklineSBES Set Line Spacing

Table 7: Submitted Surfaces

C. Vertical and Horizontal Control

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying HVCR.

C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

Standard Vertical Control Methods Used:

TCARI

The following National Water Level Observation Network (NWLON) stations served as datum control for this survey:

Station Name	Station ID
Mayport Bar Pilots Dock, FL	8720218

Table 8: NWLON Tide Stations

There was no Water Level file associated with this survey.

File Name	Status
F00629v.tc	Final

Table 9: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 05/01/2013. The final tide note was received on 05/14/2013.

There are no tidal concerns throughout the survey.

The Tide Note is attached.

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD83).

The projection used for this project is 17N.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Cape Canaveral // Site ID:809
Savannah // Site ID:818

Table 10: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

D.1.1 Raster Charts

The following are the largest scale raster charts, which cover the survey area:

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
11485	1:40000	36	07/2010	04/17/2012	07/17/2012

Table 11: Largest Scale Raster Charts

11485

Charted soundings and shoreline disagreed with surveyed soundings throughout the entire survey area. Instead of noting every single sounding and shoreline issue, we recommend to update shoreline and have all soundings in project area be superseded with data acquired. Previous sounding data is over 30 years old. San Sebastian River has its channel charted east of the actual channel in the upper section as seen in figure 6. Where the San Sebastian connects with the Matanzas River the USCG marked and actual channel is to the south of the charted as shown in figure 7. Figure 8 shows the uncharted entrance to the public Vilano Beach boat ramp and river to the south with a charted 14 ft with actual depths much shoaler. Figure 9 shows the St. Augustine Inlet NE offshore extents of the project with sounding discrepancies. Charted 27ft with actual 10ft, Charted 26ft with 13ft and so on. Salt Run River has extreme shoaling with no soundings over 16 ft, which was isolated in a scour surrounding a jetty as shown in figure 10. Recommend that white water and deep soundings be removed from Salt Run and update with new bathymetry as most depths are less than 10 ft. Recommend that all new bathymetry supersedes charted soundings in project.

Navigation response branch has made the recommendation to MCD to update the shoreline in the survey area.

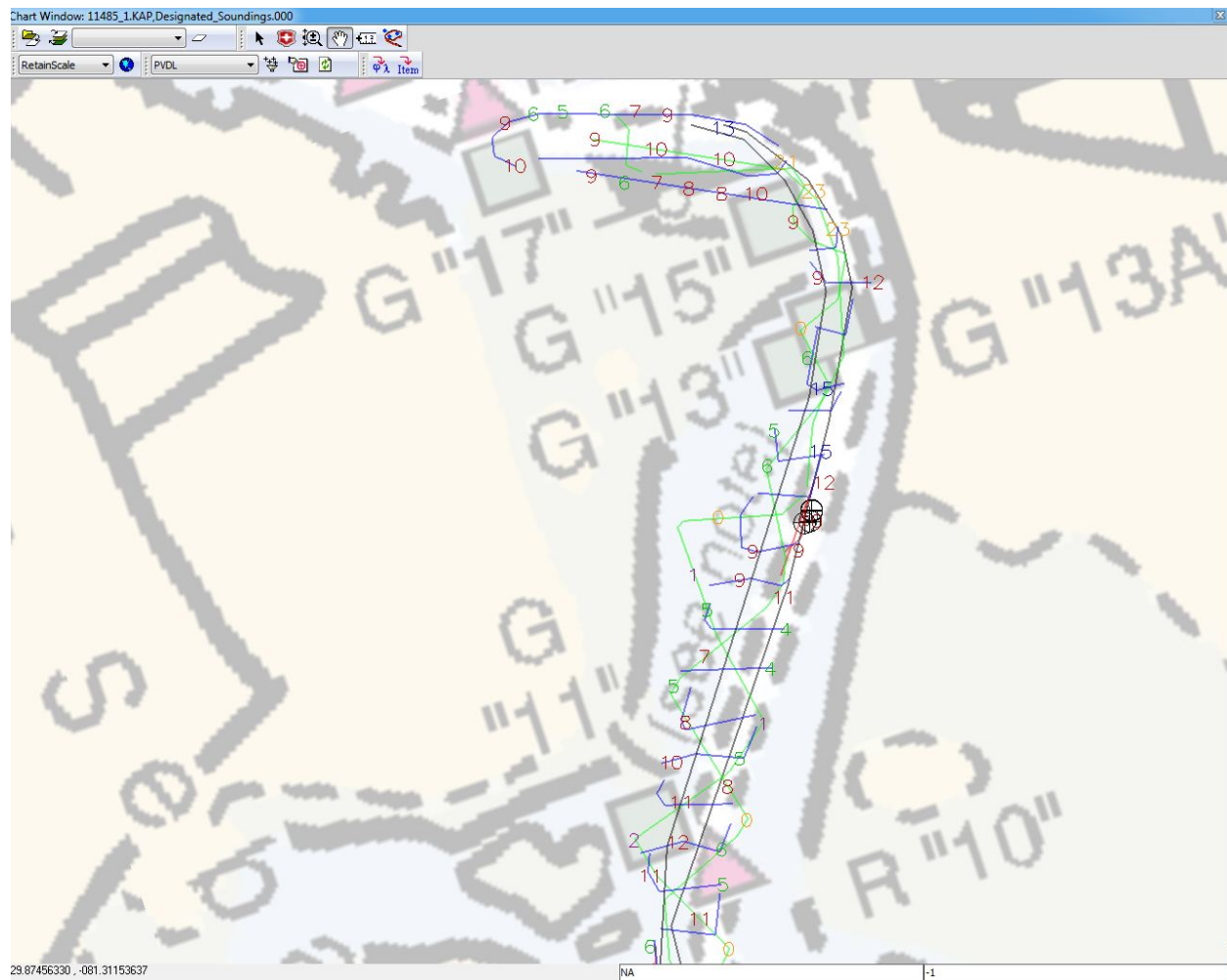


Figure 6: San Sebastian actual channel is west of charted

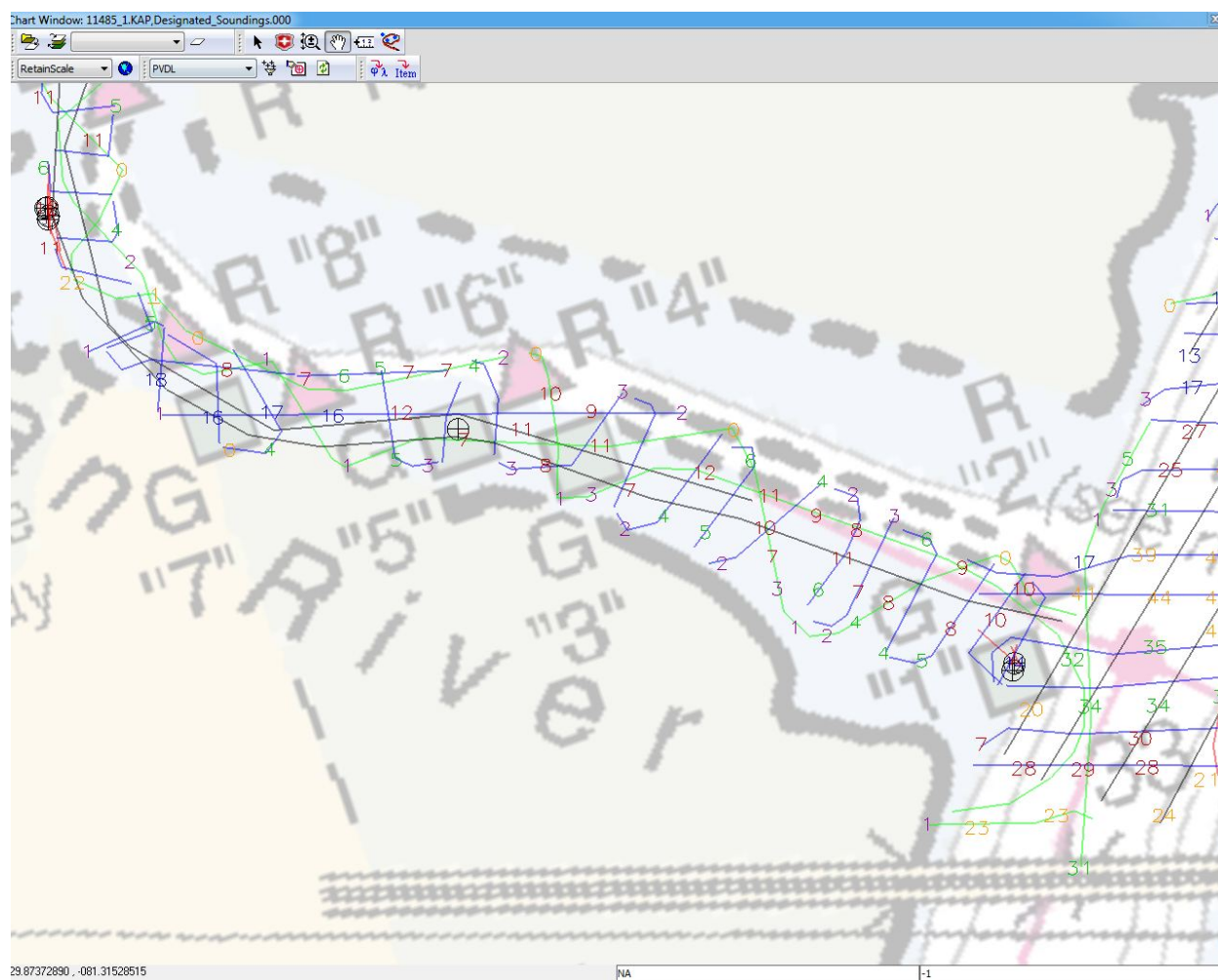


Figure 7: San Sebastian Connecting to Matanzas River with actual channel to the south of charted

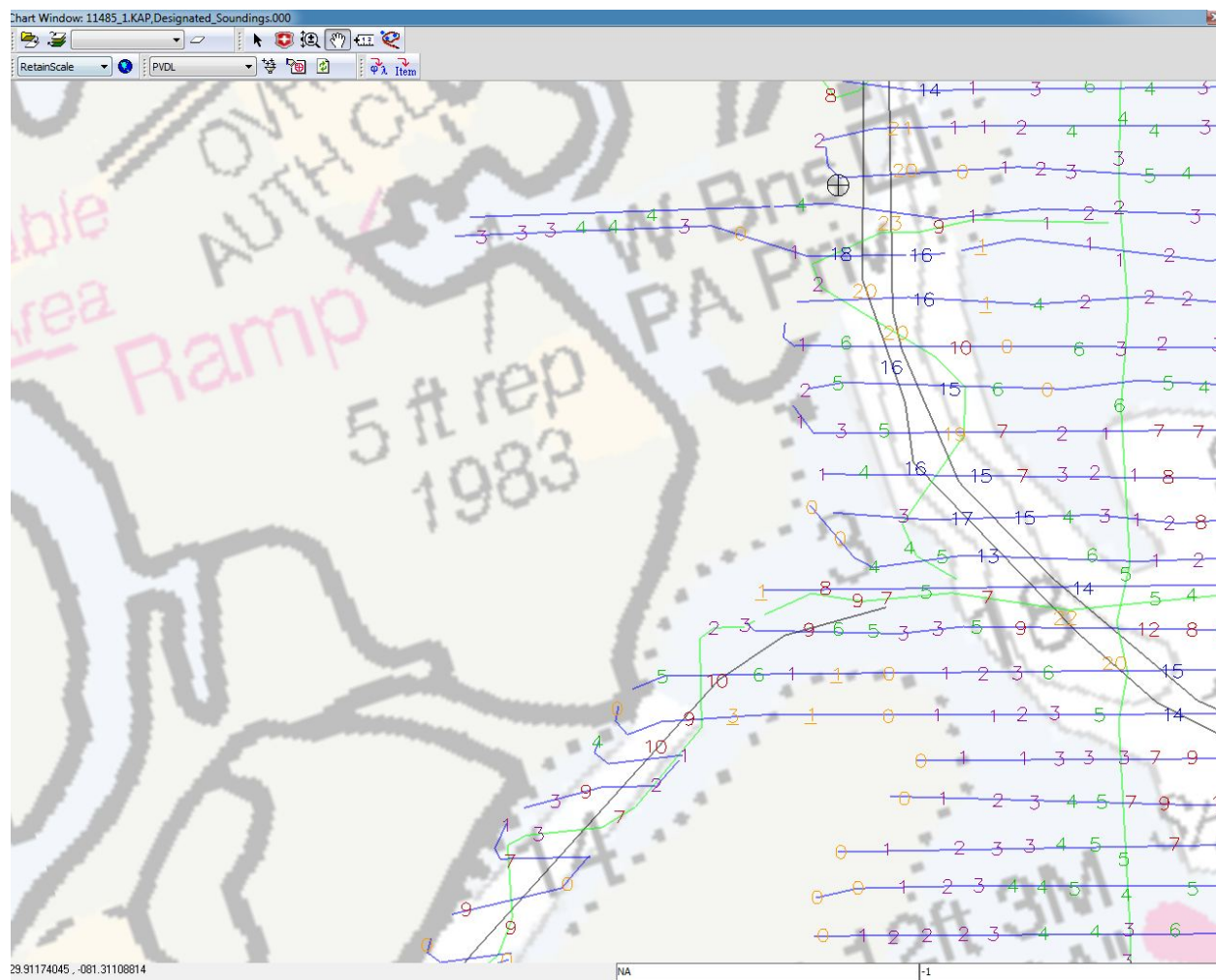


Figure 8: Uncharted entrance to Vilano Boat Ramp and Channel to the south with shoaling



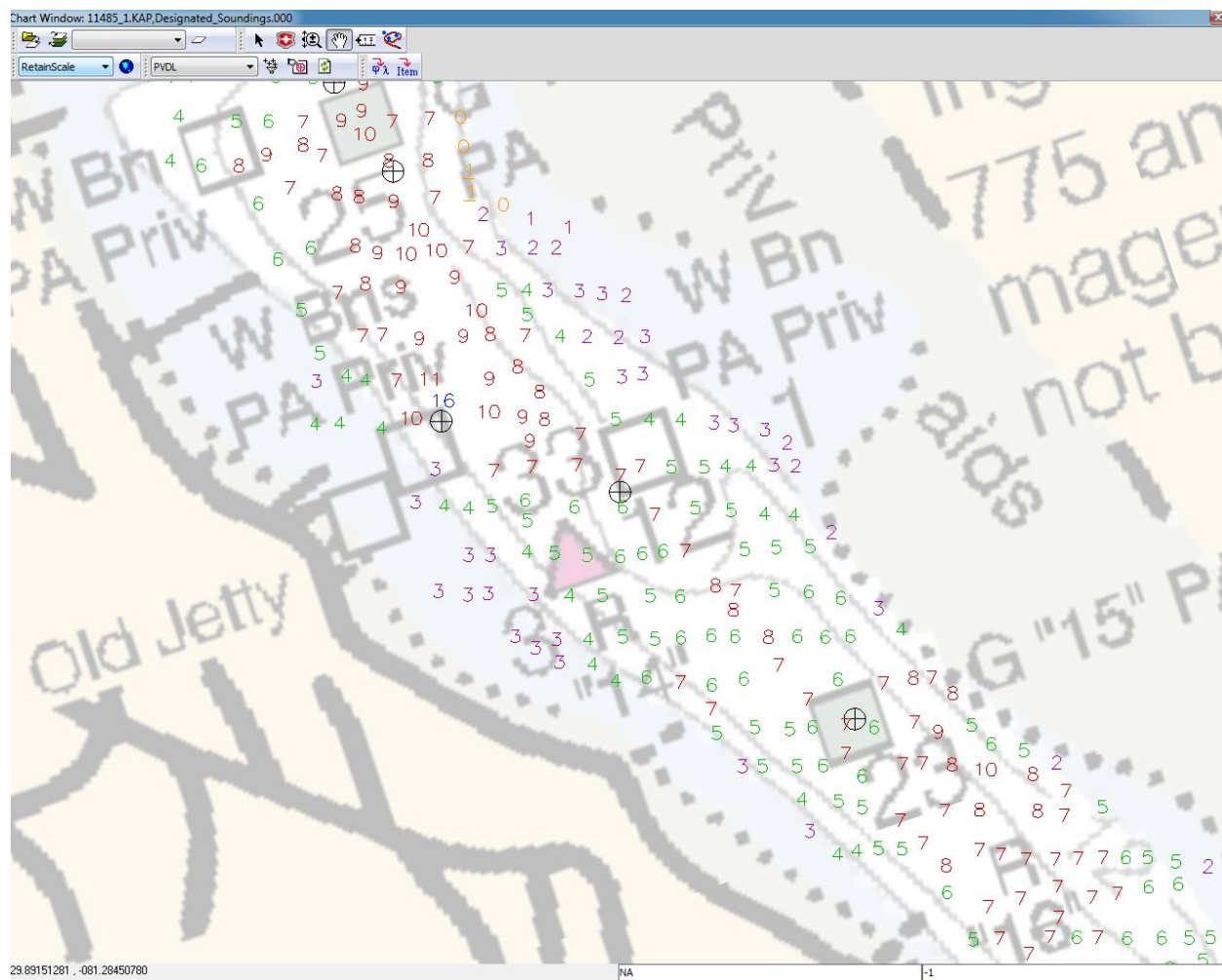


Figure 10: Salt Run Shoaling, Charted 25ft with 8ft, Charted 33ft with 7ft

D.1.2 Electronic Navigational Charts

The following are the largest scale ENC's, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5FL83M	1:40000	3	06/17/2011	04/19/2013	NO

Table 12: Largest Scale ENC's

US5FL83M

USFL83M matches chart 11485 and all recommendations and changes apply to both.

D.1.3 AWOIS Items

Addressed

--AWOIS 15091 charted as PA wreck just south of bridge of lions was found to be 130 meters NE of charted symbol. Least Depth of 4.39 meters at position 29 53 25.41N / 081 18 26.19W. Figure 13 shows position. Recommend remove PA and move symbol.

--AWOIS 15090 charted as ED Wreck on north side of St. Augustine Inlet. Charted position is 200 meters inland of high water line. Recommend removal from chart. Figure 14 shows charted position with latest aerial imagery.

Not Completely Addressed because water was too shallow for 200% SSS or MBES development.

--AWOIS 15093 charted as visible wreck at north extents of San Sebastian River. Wreck symbol is on edge of marsh and complete SSS was not possible. No visible sign of wreck in vicinity. Figure 15.

--AWOIS 15092 charted as PA wreck on west side of Matanzas River. Water was too shallow to perform SSS operations and no wreck was visible from the surface. Figure 16.

--AWOIS 15094 charted as PA Subm Obstrn in south spoil area of St. Augustine Inlet. Breaking waves on sandbar and shallow water limited SSS operations to outside the search radius. Figure 17.

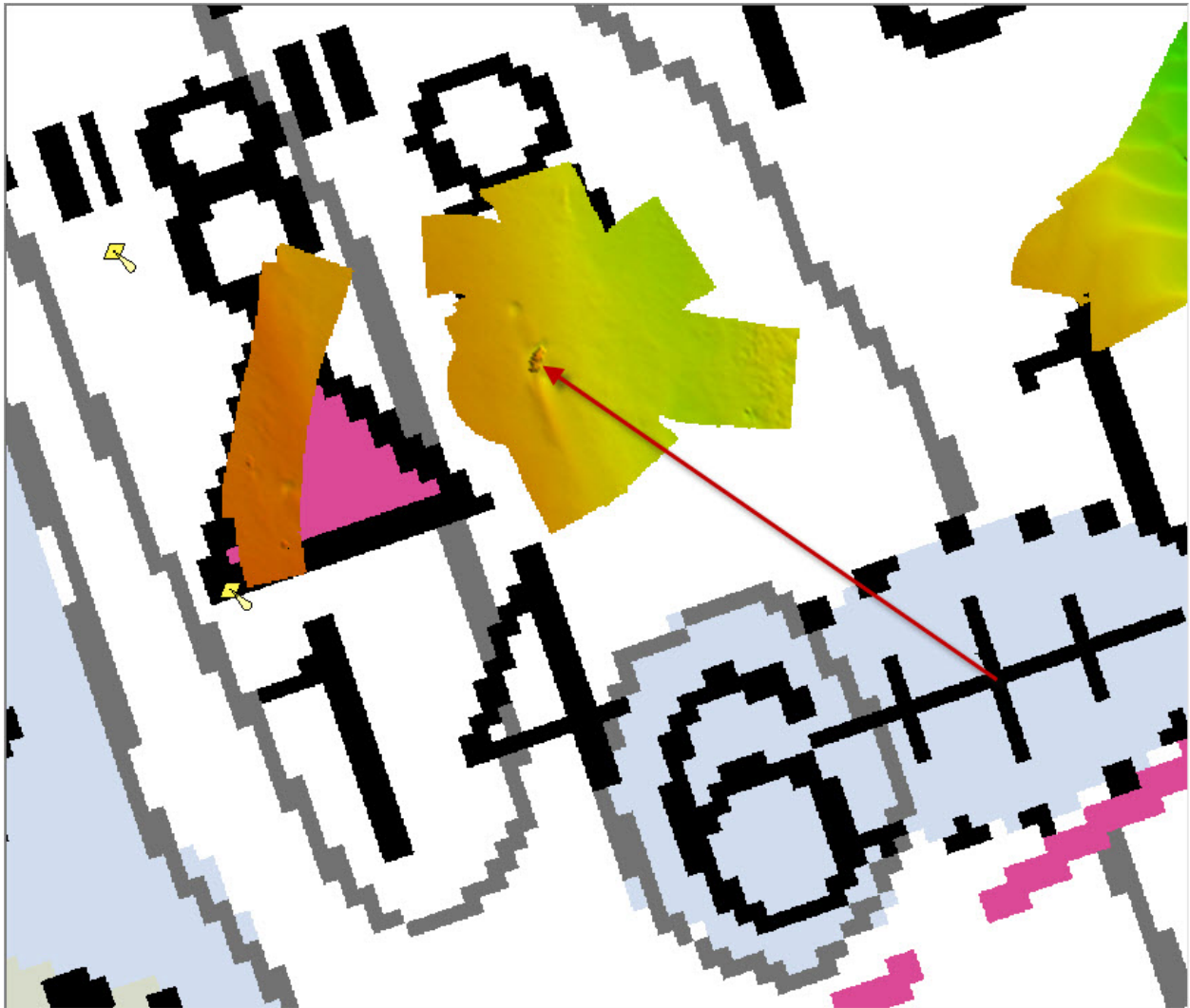


Figure 11: AWOIS 15091

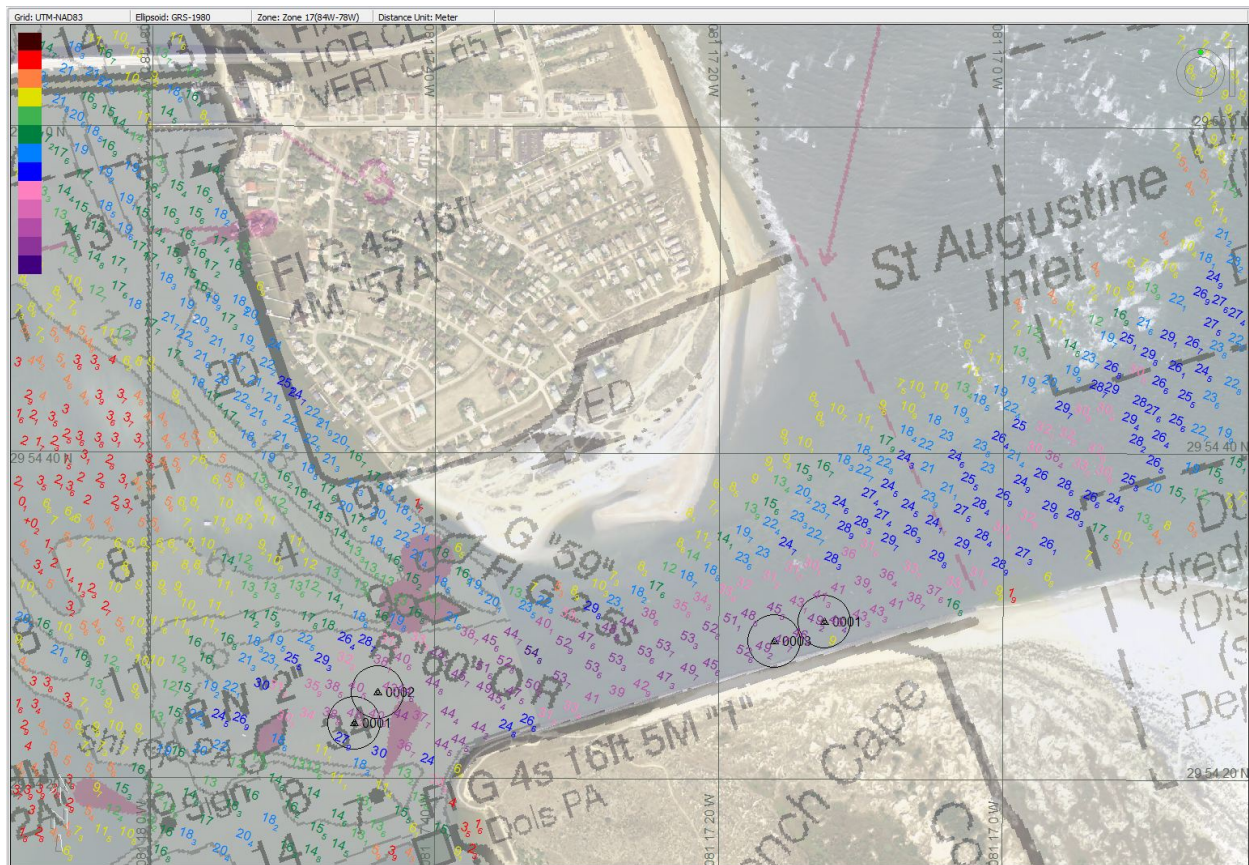


Figure 12: AWOIS 15090

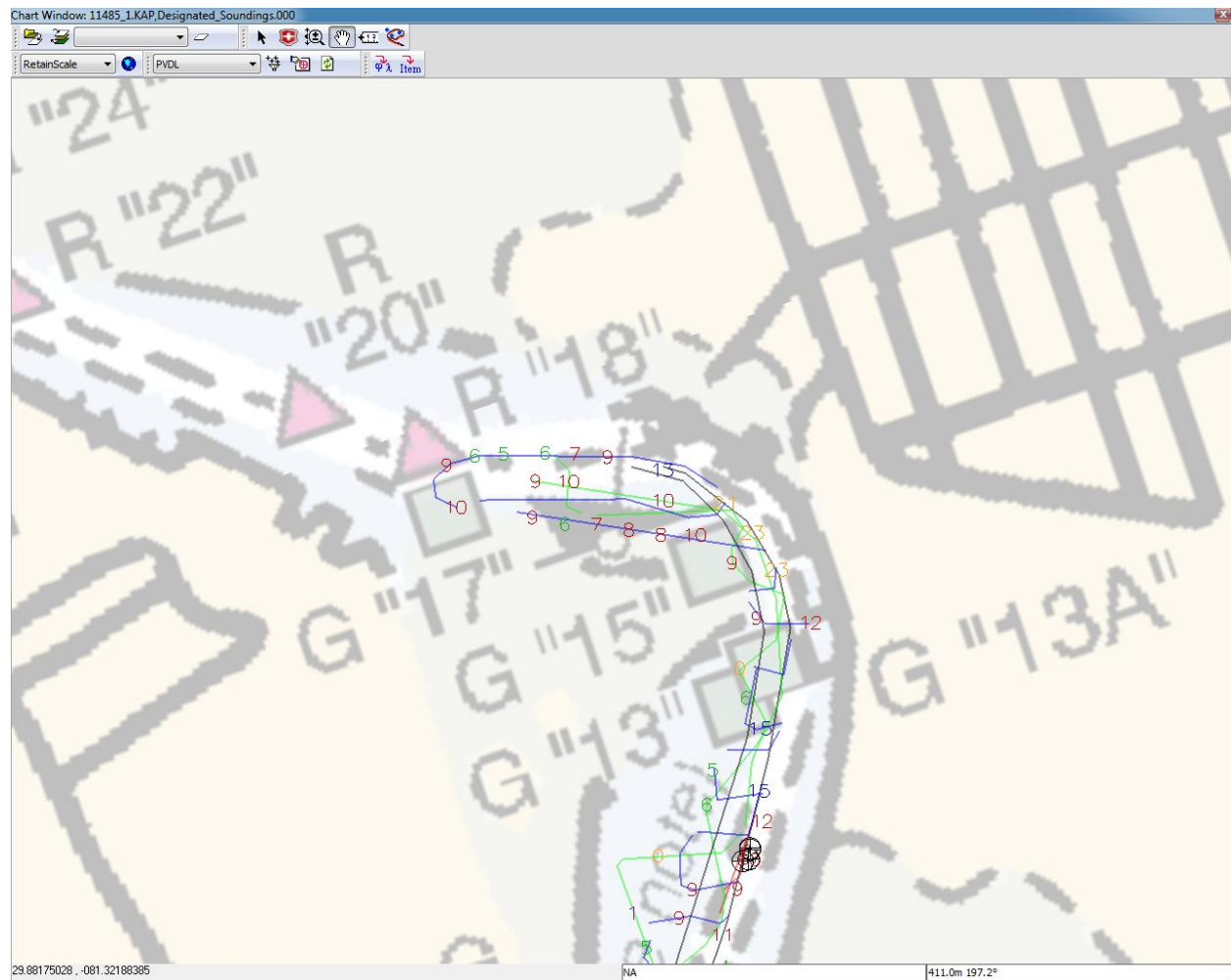


Figure 13: AWOIS 15093

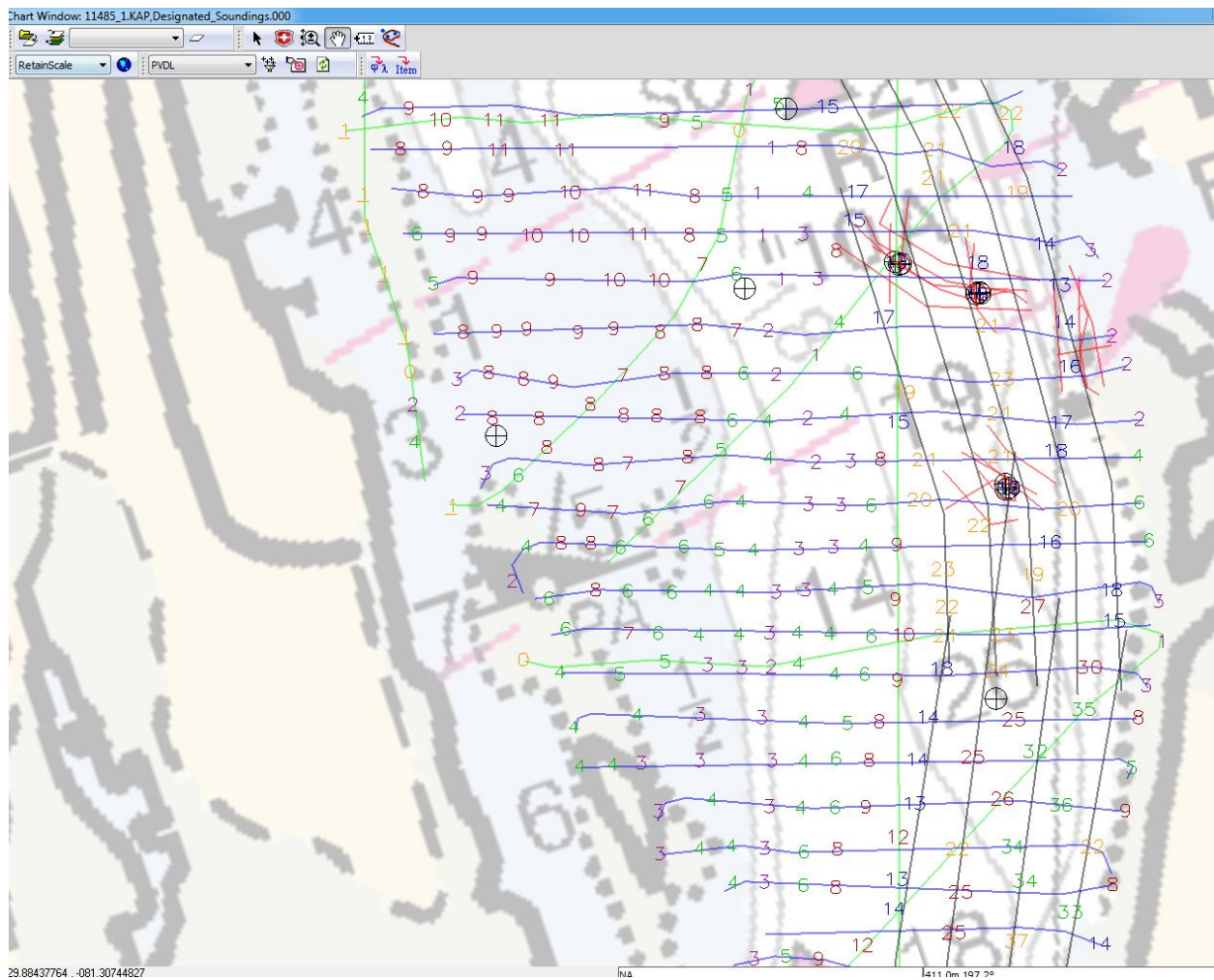


Figure 14: AWOIS 15092

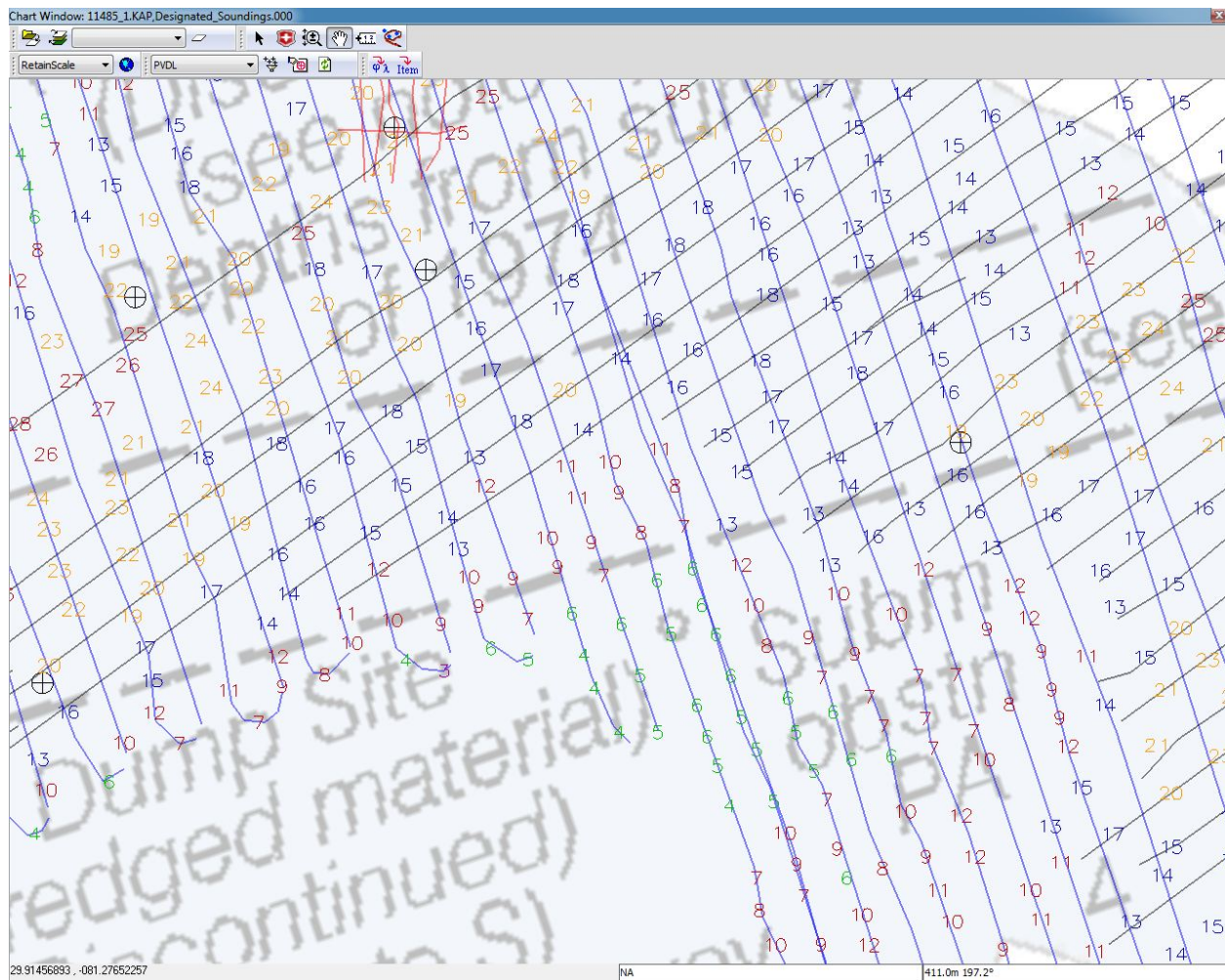


Figure 15: AWOIS 15094

The AWOIS and Wreck Report is attached and includes the charting recommendations below.

AWOIS 15091: The wreck was recommended to be charted at the new location in the chart update product.

AWOIS 15090: The wreck was recommended to be deleted in the chart update product.

AWOIS 15093, 15092 and 15094: The wrecks and obstruction were recommended to be retained in the chart update product.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

All aids containing PA, ED and Rep were investigated and included in the Final Feature File.

D.1.6 Uncharted Features

All uncharted features are included in the FFF with recommendations.

The following orthometric imagery was used:

File Name	Source	Source Image Date
q4711ne.jp2	Florida Department of Environmental Protection LABINS	01/20/2004
q4711nw.jp2	Florida Department of Environmental Protection LABINS	01/20/2004
q4811ne.jp2	Florida Department of Environmental Protection LABINS	01/20/2004
q4811nw.jp2	Florida Department of Environmental Protection LABINS	01/20/2004
q4811se.jp2	Florida Department of Environmental Protection LABINS	01/20/2004
q4811sw.jp2	Florida Department of Environmental Protection LABINS	01/20/2004

Table 13: Orthometric Imagery

The orthometric imagery listed above was used for reference only.

D.1.7 Dangers to Navigation

The following DTON reports were submitted to the processing branch:

DTON Report Name	Date Submitted
F00629_DTON_Report_1	2013-05-01

Table 14: DTON Reports

Danger to Navigation Reports are included in Appendix I of this report.

The DTON Report is attached. The DTONs listed above did not meet NOAA's criteria for DTONs and were not charted through the expedited DTON process. All of the items have been included in the chart update products and were recommended to be charted.

D.1.8 Shoal and Hazardous Features

Starting from the southern survey extents of the Matanzas River and heading north, a shoal was found to be encroaching into the channel between R "12" and R "10A" See Figure 59

The same shoal is continued north along the west edge of the channel and is nearly bearing at low water between R"10A" and R"10". Chart significantly differs from new bathy and hydrographer recommends that new soundings supersede charted ones. See Figure 60.

A 9 ft shoal was found between R N"2" and Fl G "1" in the ICW where the maintained depth should be 12 ft if not otherwise noted. A shoal report pa is charted to the west of the shoal. See figure 61.

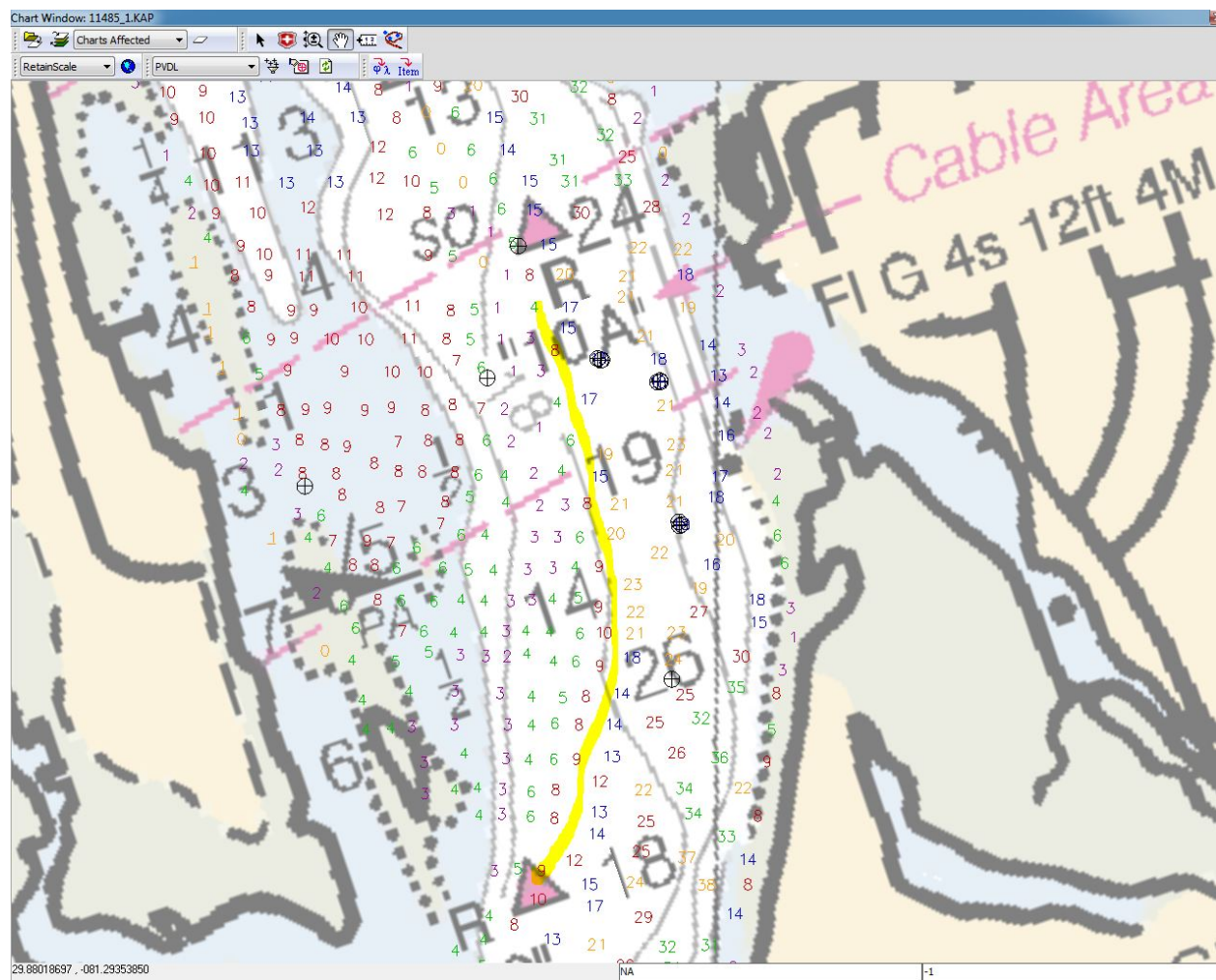


Figure 16: Shoal Encroachment Between R"12' and R"10A"

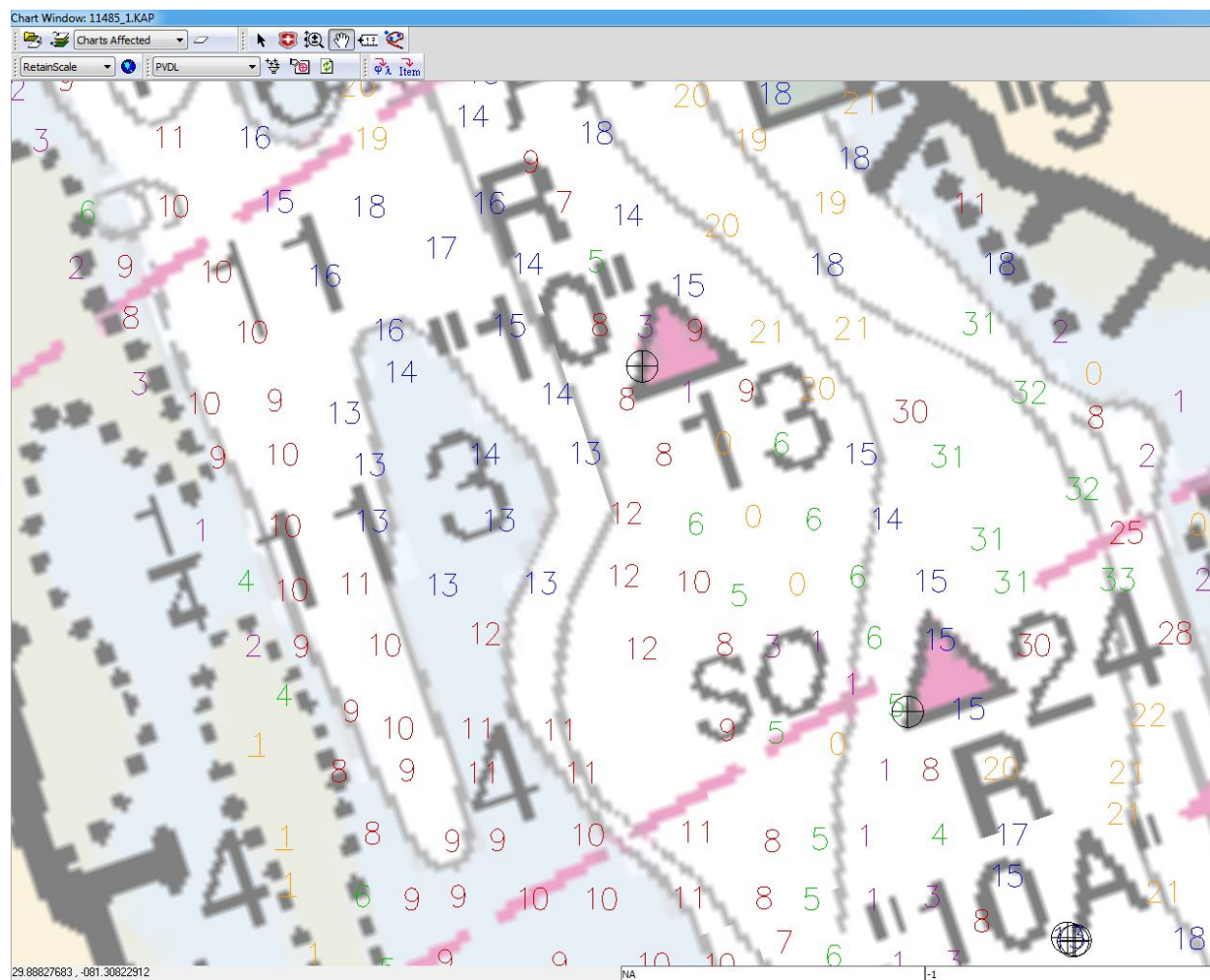


Figure 17: Continued Shoal Between R"10A" and R"10"

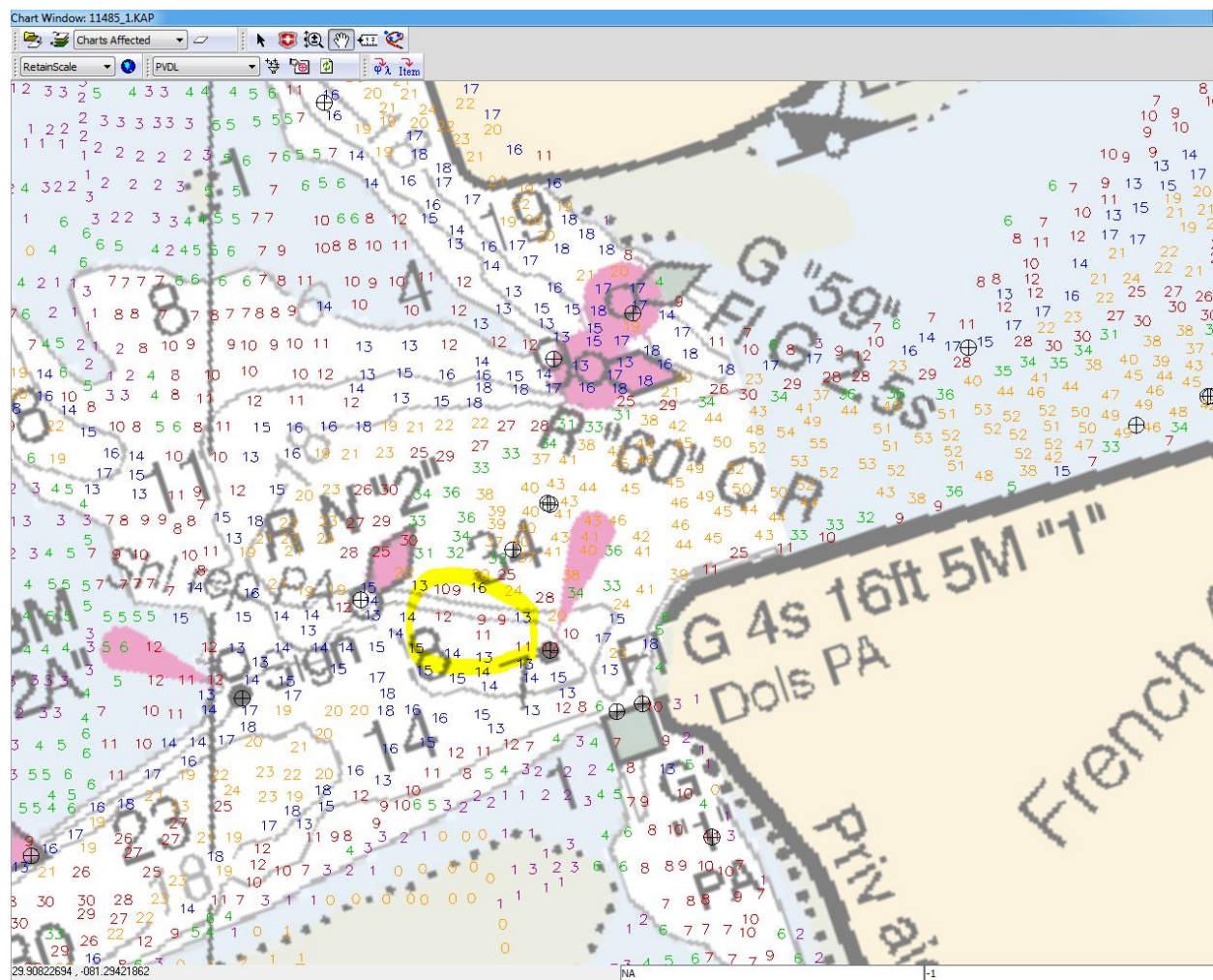


Figure 18: 9 ft Shoal Between R N"2" and Fl G "1" ICW

The above shoals have been addressed in the chart update product.

D.1.9 Channels

The San Sebastian River has a note stating "The controlling depth of the improved channel from the junction with the intracoastal waterway to the Kings Street Bridge was 8 ft for a mid-width of 50ft".

The 8 ft channel still exist between the charted ATON's but the charted channel location is wrong.

Hydrographer recommends recharting the proper channel. See figure 62.

Moving north from the San Sebastian River on the Matanzas River, Note D is mentioned on the chart. "Due to continuous shoaling between mile marker 775-780 the IAWW magenta coarse line is not being charted". Hydrographer feels the magenta line can now be charted as dense soundings have been acquired to properly depict the natural and dredged channel.

Salt Run River has a reported controlling depth of 5.5 ft in 2002 as stated in the coast pilot 4, chapter 10. Hydrographer recommends note be added to chart stating controlling depth of Salt Run or proper soundings be charted.

St. Augustine Inlet does not have charted soundings or ATON's as stated in Note C. "The entrance channel is subject to frequent changes in depth and direction because of shifting shoals. Buoys are not charted because of frequent changes in position. Mariners are advised to seek local knowledge".

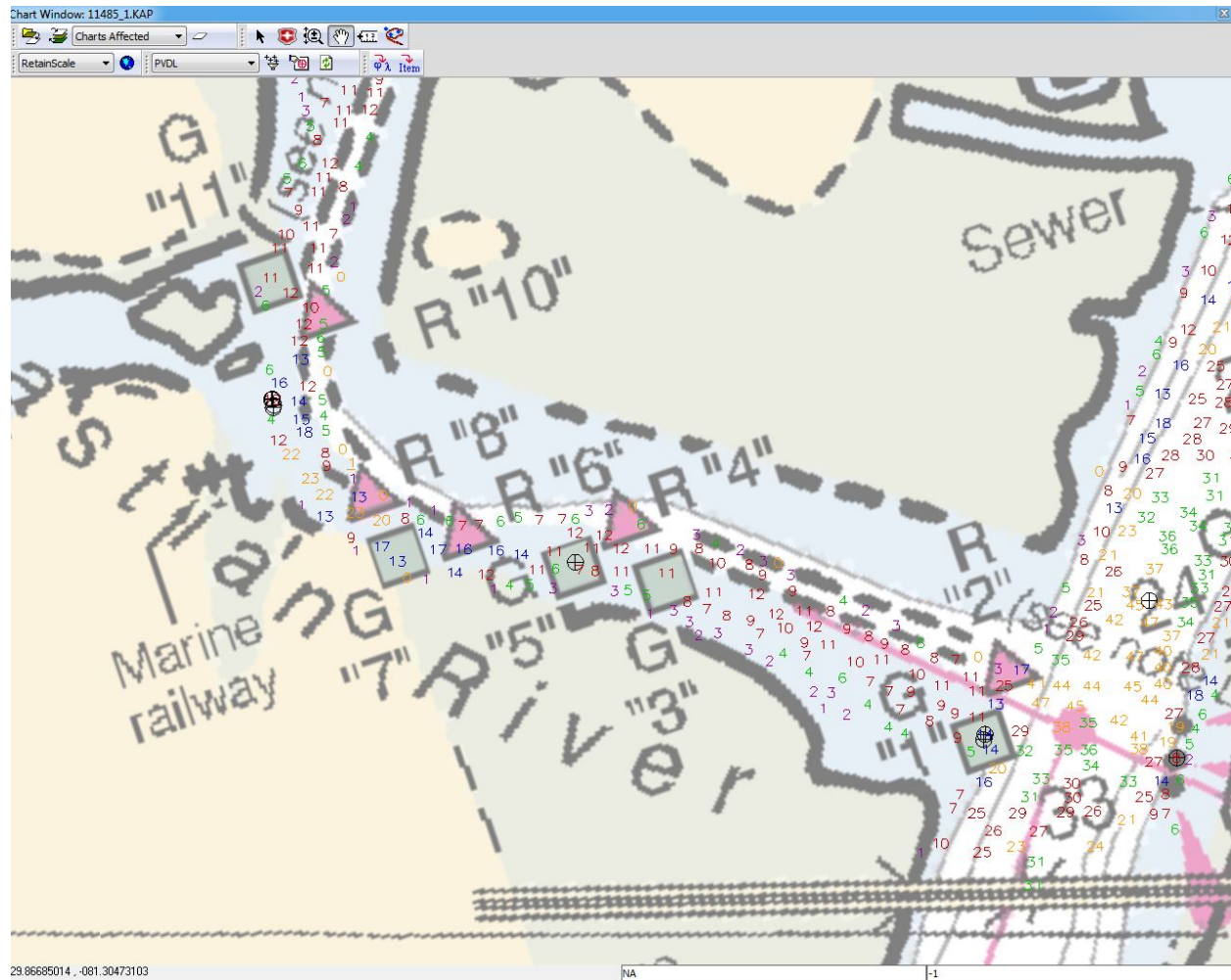


Figure 19: San Sebastian River Channel

D.1.10 Bottom Samples

Two bottom samples were acquired during the survey and were included in the chart update product.

D.2 Additional Results

D.2.1 Shoreline

Hydrographer recommends that shoreline be updated for entire project area as current shoreline is in disagreement with charted. All features are included in the FFF. See figure 63.

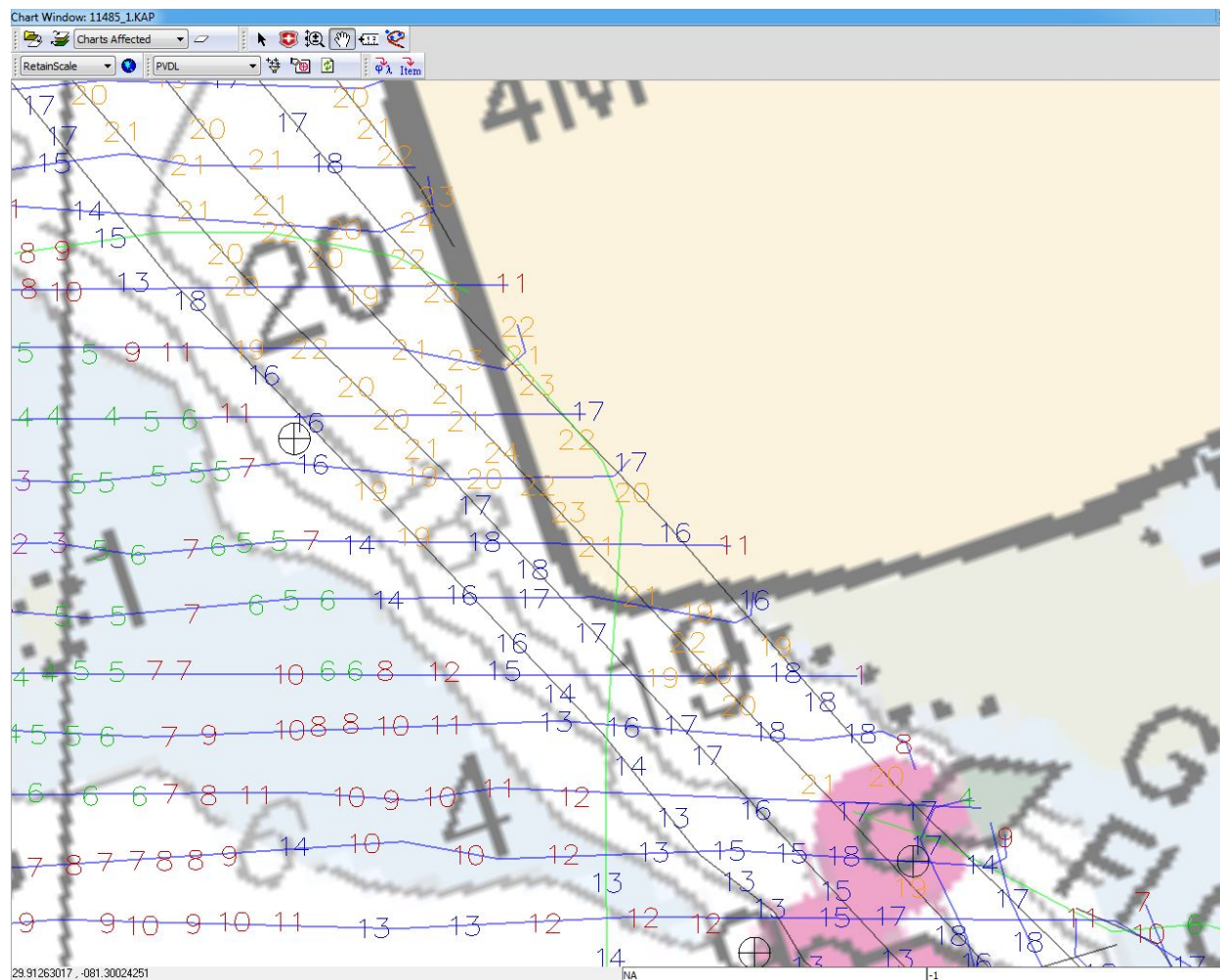


Figure 20: Shoreline Discrepancies

D.2.2 Prior Surveys

No prior survey comparisons exist for this survey.

Two new lights, FL R 58A and R58 were positioned. G 05 in San Sebastian River should be charted as a buoy rather than a daybeacon. These features are included in the FFF.

D.2.4 Overhead Features

Grid: UTM-14QDS
Ellipsoid: GRS-1980
Zone: Zone 17Q(4W-78W)
Distance Unit: Meter

20N
19N
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29 1 20 N
29 1 00 N
29 0 40 N
29 0 20 N
29 0 00 N

38 29 55 12 N
081 18 8 4087 W
04
Scale: 1:4341 77
Text Thinning

Figure 21: Vilano Beach Bridge and Overhead Power Cable

Submarine features exist for this survey, but were not investigated.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Platforms

No platforms exist for this survey.

D.2.8 Significant Features

No significant features exist for this survey.

D.2.9 Construction and Dredging

There is no present or planned construction or dredging within the survey limits.

D.2.10 New Survey Recommendations

No new surveys or further investigations are recommended for this area.

D.2.11 New Inset Recommendations

No new insets are recommended for this area.

E. Approval Sheet

As Chief of Party, Field operations for this hydrographic survey were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to the Processing Branch.

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual, Field Procedures Manual, Standing and Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Recommend that shoreline be updated

Report Name	Report Date Sent
DAPR	2013-05-29
HVCR	2013-05-29
Coast Pilot Report	2013-05-20

Approver Name	Approver Title	Approval Date	Signature
Erik H Anderson	Acting Team Lead / Physical Scientist Tech	08/09/2013	ANDERSON.ERIK.H ANS.1388637370 <small>Digitally signed by ANDERSON.ERIK.HANS.1388637370 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=ANDERSON.ERIK.HANS.1388637370 Date: 2013.08.12 13:48:57 Z</small>

F. Table of Acronyms

Acronym	Definition
AHB	Atlantic Hydrographic Branch
AST	Assistant Survey Technician
ATON	Aid to Navigation
AWOIS	Automated Wreck and Obstruction Information System
BAG	Bathymetric Attributed Grid
BASE	Bathymetry Associated with Statistical Error
CO	Commanding Officer
CO-OPS	Center for Operational Products and Services
CORS	Continually Operating Reference Station
CTD	Conductivity Temperature Depth
CEF	Chart Evaluation File
CSF	Composite Source File
CST	Chief Survey Technician
CUBE	Combined Uncertainty and Bathymetry Estimator
DAPR	Data Acquisition and Processing Report
DGPS	Differential Global Positioning System
DP	Detached Position
DR	Descriptive Report
DTON	Danger to Navigation
ENC	Electronic Navigational Chart
ERS	Ellipsoidal Referenced Survey
ERZT	Ellipsoidally Referenced Zoned Tides
FFF	Final Feature File
FOO	Field Operations Officer
FPM	Field Procedures Manual
GAMS	GPS Azimuth Measurement Subsystem
GC	Geographic Cell
GPS	Global Positioning System
HIPS	Hydrographic Information Processing System
HSD	Hydrographic Surveys Division
HSSD	Hydrographic Survey Specifications and Deliverables

Acronym	Definition
HSTP	Hydrographic Systems Technology Programs
HSX	Hypack Hysweep File Format
HTD	Hydrographic Surveys Technical Directive
HVCR	Horizontal and Vertical Control Report
HVF	HIPS Vessel File
IHO	International Hydrographic Organization
IMU	Inertial Motion Unit
ITRF	International Terrestrial Reference Frame
LNM	Local Notice to Mariners
LNM	Linear Nautical Miles
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NAIP	National Agriculture and Imagery Program
NALL	Navigable Area Limit Line
NM	Notice to Mariners
NMEA	National Marine Electronics Association
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NRT	Navigation Response Team
NSD	Navigation Services Division
OCS	Office of Coast Survey
OMAO	Office of Marine and Aviation Operations (NOAA)
OPS	Operations Branch
MBES	Multibeam Echosounder
NWLON	National Water Level Observation Network
PDBS	Phase Differencing Bathymetric Sonar
PHB	Pacific Hydrographic Branch
POS/MV	Position and Orientation System for Marine Vessels
PPK	Post Processed Kinematic
PPP	Precise Point Positioning
PPS	Pulse per second

Acronym	Definition
PRF	Project Reference File
PS	Physical Scientist
PST	Physical Science Technician
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
TPU	Total Propagated Error
TPU	Topside Processing Unit
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDA	Global Positioning System timing message
ZDF	Zone Definition File



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : May 14, 2013

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-G902-NRT2-2013
HYDROGRAPHIC SHEET: F00629

LOCALITY: St Augustine, FL
TIME PERIOD: November 29, 2012 - April 16, 2013

TIDE STATION USED: 872-0218 Mayport, FL
Lat. 30° 23.8' N Long. 81° 25.8' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.426 meters

REMARKS: RECOMMENDED GRID

Please use the TCARI grid "G902NRT22013.nc" as the final grid for project OPR-G902-NRT2-2013, F00629, during the time period between November 29, 2012 and April 16, 2013.

Refer to attachments for grid 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).

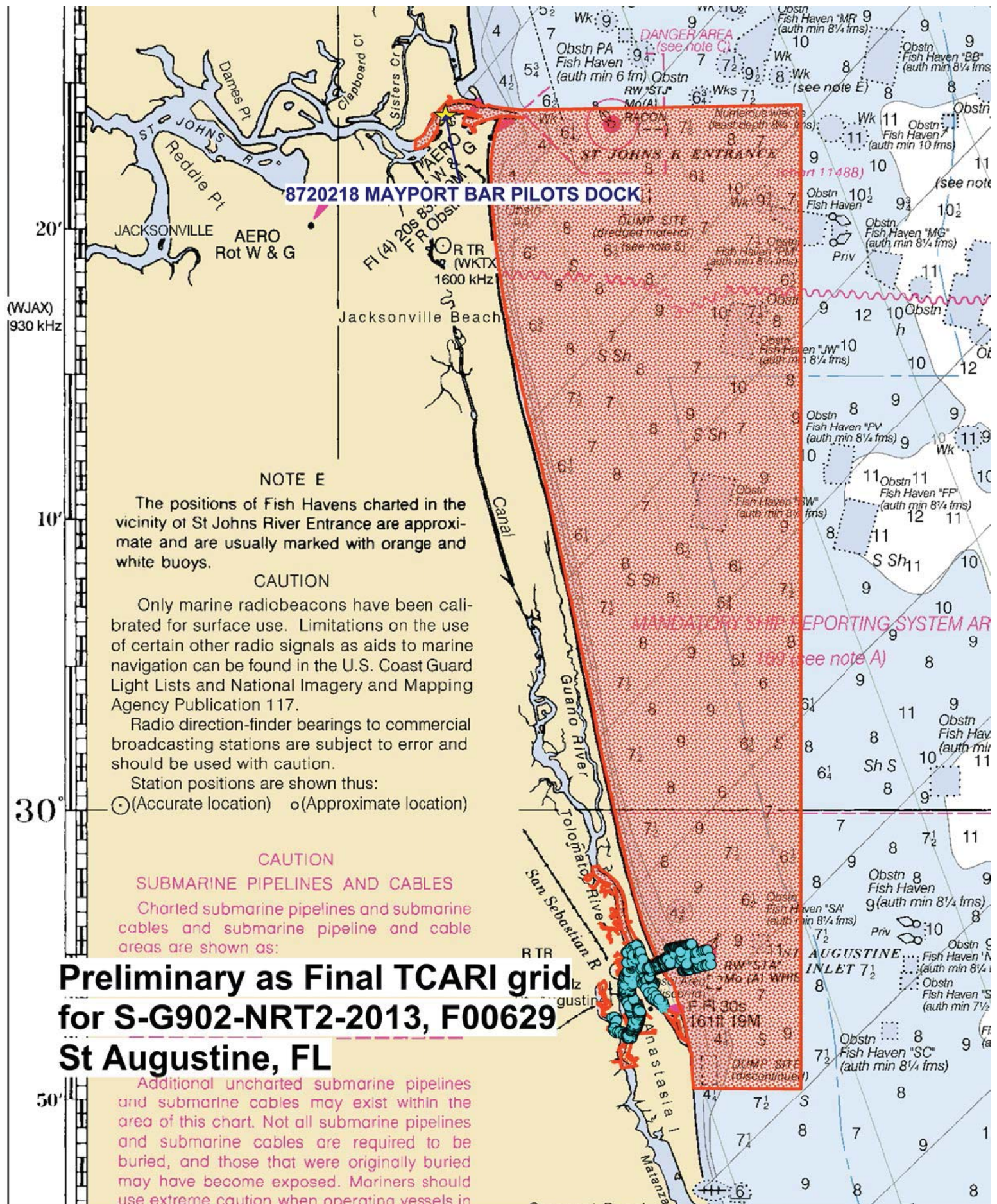
Note 2: Due to inaccurate shoreline around St Augustin, FL, survey tracklines fall outside of the TCARI grid boundaries in some areas. TCARI will extrapolate the tide corrector to cover these soundings.

HOVIS.GERALD.TH
OMAS.136586025
0

Digitally signed by
HOVIS.GERALD.THOMAS.1365860250
DN: c=US, o=U.S. Government, ou=DoD,
ou=PKI, ou=OTHER,
cn=HOVIS.GERALD.THOMAS.1365860250
Date: 2013.05.14 16:52:23 -04'00'

CHIEF, PRODUCTS AND SERVICES BRANCH





F00629 DTON Report 1

Registry Number: F00629
State: Florida
Locality: St. Augustine
Sub-locality: St. Augustine Inlet
Project Number: G902NRT22013
Survey Dates: 29 Nov 2012 (DN334) - 16 April 2013 (DN106)

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11485	36th	07/01/2010	1:40,000 (11485_1)	USCG LNM: 4/17/2012 (7/17/2012) NGA NTM: 5/31/2003 (7/28/2012)
11488	26th	12/01/2006	1:80,000 (11488_1)	[L]NTM: ?
11486	15th	07/01/2003	1:80,000 (11486_1)	[L]NTM: ?
11480	40th	03/01/2007	1:449,659 (11480_1)	[L]NTM: ?
11451	33rd	09/01/2007	1:495,362 (11451_17)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_1)	[L]NTM: ?
11009	38th	12/01/2006	1:1,200,000 (11009_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	FL R DBN 58A ICW	Daybeacon (red)	[None]	29° 54' 41.7" N	081° 17' 54.6" W	---
1.2	RN 58 ICW	Red buoy	[None]	29° 54' 52.6" N	081° 18' 02.8" W	---
1.3	Lighted dolphin	Shoal	[None]	29° 52' 33.3" N	081° 18' 12.6" W	---
1.4	Lighted Dolphin	Shoal	[None]	29° 52' 34.5" N	081° 18' 12.2" W	---
1.5	Lighted Dolphin	Shoal	[None]	29° 52' 35.7" N	081° 18' 11.8" W	---
1.6	US 0000016896 00001	Obstruction	3.50 m	29° 55' 04.3" N	081° 16' 20.2" W	---

1 - Dangers To Navigation

1.1) FL R DBN 58A ICW

DANGER TO NAVIGATION

Survey Summary

Survey Position: 29° 54' 41.7" N, 081° 17' 54.6" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2013-087.15:42:54.000 (03/28/2013)
DP Dataset: vesselconfig / nrt2_1210_dpnonechosounder / 2013-087 / 03282013
Profile/Beam: 13/1
Charts Affected: 11485_1, 11488_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

Uncharted ATON

Feature Correlation

Source	Feature	Range	Azimuth	Status
03282013	13/1	0.00	000.0	Primary

Hydrographer Recommendations

Chart

S-57 Data

Geo object 1: Beacon, lateral (BCNLAT)
Attributes: BCNSHP - 5:pile beacon
 CATLAM - 2:starboard-hand lateral mark
 COLOUR - 3:red
 SORDAT - 20130328
 SORIND - US,US,graph,F00629
Geo object 2: Daymark (DAYMAR)
Attributes: COLOUR - 3:red
 SORDAT - 20130328
 SORIND - US,US,graph,F00629
 TOPSHP - 24:triangle, point up

Geo object 3: Light (LIGHTS)
Attributes: COLOUR - 3:red
LITCHR - 2:flashing
SORDAT - 20130328
SORIND - US,US,graph,F00629

Office Notes

This is a USCG ATON and has not been charted. The ATON was included in a separate chart update product for aids to navigation.

Feature Images

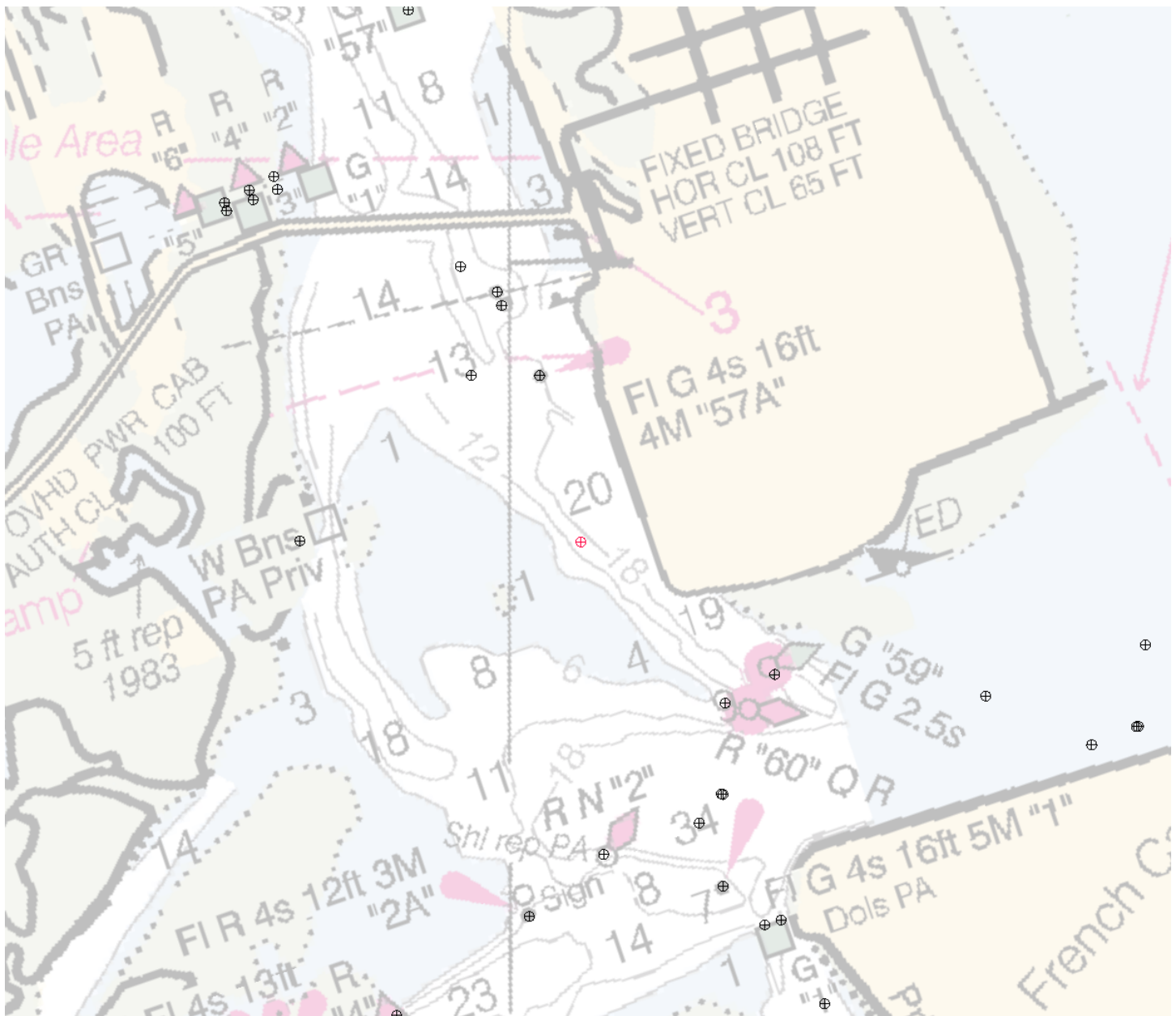


Figure 1.1.1



Figure 1.1.2

1.2) RN 58 ICW

DANGER TO NAVIGATION

Survey Summary

Survey Position: 29° 54' 52.6" N, 081° 18' 02.8" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2013-087.15:48:58.000 (03/28/2013)
DP Dataset: vesselconfig / nrt2_1210_dpnonechosounder / 2013-087 / 03282013
Profile/Beam: 15/1
Charts Affected: 11485_1, 11488_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

Uncharted ATON

Feature Correlation

Source	Feature	Range	Azimuth	Status
03282013	15/1	0.00	000.0	Primary

Hydrographer Recommendations

Chart

S-57 Data

Geo object 1: Buoy, lateral (BOYLAT)
Attributes: BOYSHP - 1:conical (nun, ogival)
 CATLAM - 2:starboard-hand lateral mark
 COLOUR - 3:red
 SORDAT - 20130328
 SORIND - US,US,graph

Office Notes

The buoy was recommended to be charted in the chart update product for private ATONs.

Feature Images

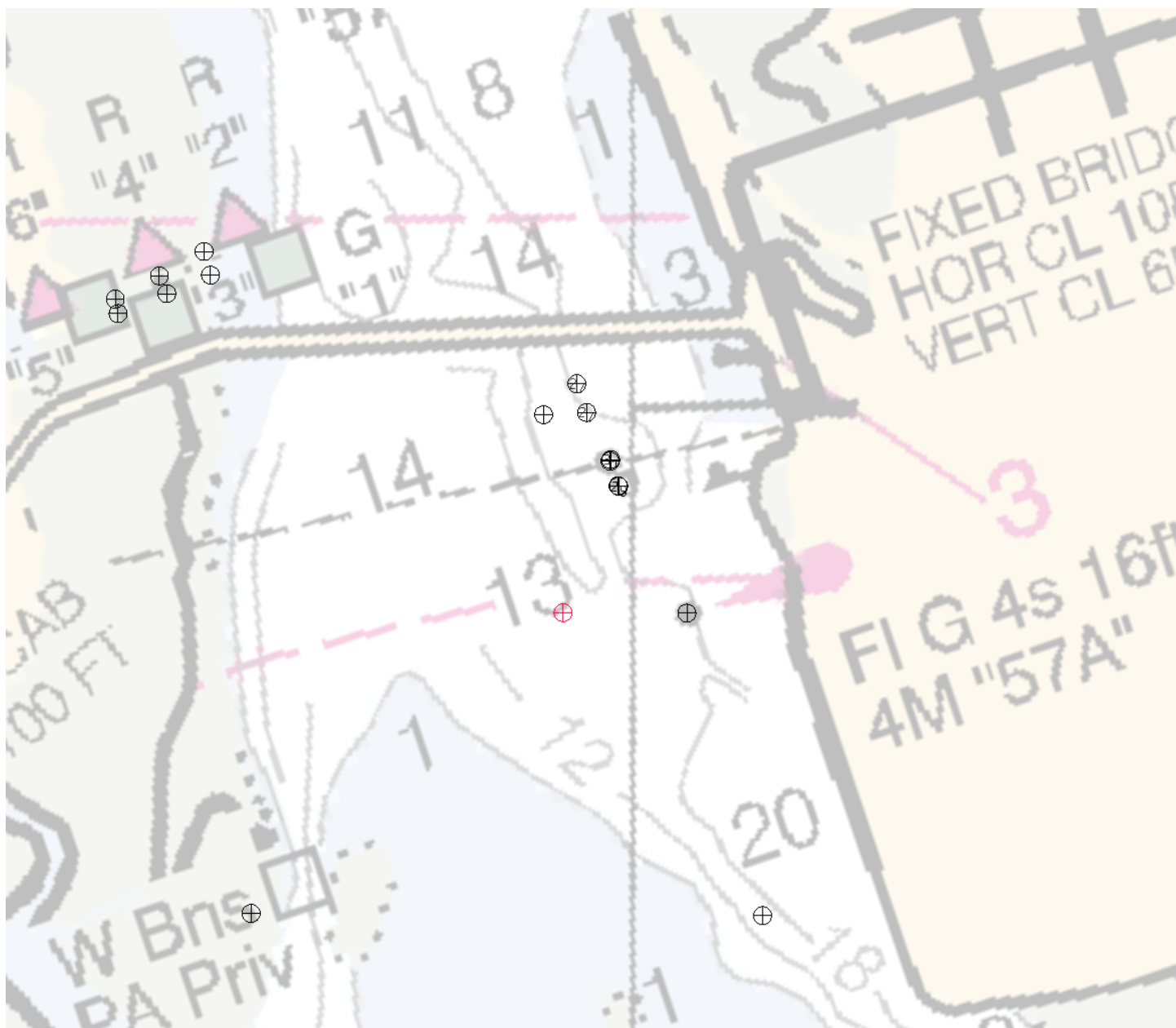


Figure 1.2.1



Figure 1.2.2

1.3) Lighted dolphin

DANGER TO NAVIGATION

Survey Summary

Survey Position: 29° 52' 33.3" N, 081° 18' 12.6" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2013-106.13:43:44.000 (04/16/2013)
DP Dataset: vesselconfig / nrt2_1210_dpnonechosounder / 2013-106 / 04162013
Profile/Beam: 4/1
Charts Affected: 11485_1, 11486_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

Uncharted Mooring Dolphin

Feature Correlation

Source	Feature	Range	Azimuth	Status
04162013	4/1	0.00	000.0	Primary

Hydrographer Recommendations

Add to Chart

S-57 Data

Geo object 1: Light (LIGHTS)
Attributes: EXCLIT - 4:night light
Geo object 2: Mooring/warping facility (MORFAC)
Attributes: CATMOR - 1:dolphin
 CONRAD - 1:radar conspicuous
 CONVIS - 1:visual conspicuous
 SORDAT - 20130416
 SORIND - US,US,graph,F00629
 STATUS - 1:permanent
 WATLEV - 2:always dry

Office Notes

The dolphin was recommended for charting in the chart update product.

Feature Images



Figure 1.3.1



Figure 1.3.2

1.4) Lighted Dolphin

DANGER TO NAVIGATION

Survey Summary

Survey Position: 29° 52' 34.5" N, 081° 18' 12.2" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2013-106.13:45:41.000 (04/16/2013)
DP Dataset: vesselconfig / nrt2_1210_dpnonechosounder / 2013-106 / 04162013
Profile/Beam: 5/1
Charts Affected: 11485_1, 11486_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

Uncharted Mooring Dolphin

Feature Correlation

Source	Feature	Range	Azimuth	Status
04162013	5/1	0.00	000.0	Primary

Hydrographer Recommendations

Add to Chart

S-57 Data

Geo object 1: Light (LIGHTS)
Attributes: EXCLIT - 4:night light
Geo object 2: Mooring/warping facility (MORFAC)
Attributes: CATMOR - 1:dolphin
 CONRAD - 1:radar conspicuous
 CONVIS - 1:visual conspicuous
 SORDAT - 20130416
 SORIND - US,US,graph,F00629
 STATUS - 1:permanent
 WATLEV - 2:always dry

Office Notes

The dolphin was recommended for charting in the chart update product.

Feature Images



Figure 1.4.1



Figure 1.4.2

1.5) Lighted Dolphin

DANGER TO NAVIGATION

Survey Summary

Survey Position: 29° 52' 35.7" N, 081° 18' 11.8" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2013-106.13:46:31.000 (04/16/2013)
DP Dataset: vesselconfig / nrt2_1210_dpnonechosounder / 2013-106 / 04162013
Profile/Beam: 6/1
Charts Affected: 11485_1, 11486_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

Uncharted Mooring Dolphin

Feature Correlation

Source	Feature	Range	Azimuth	Status
04162013	6/1	0.00	000.0	Primary

Hydrographer Recommendations

Add to Chart

S-57 Data

Geo object 1: Light (LIGHTS)
Attributes: EXCLIT - 4:night light
Geo object 2: Mooring/warping facility (MORFAC)
Attributes: CATMOR - 1:dolphin
 CONRAD - 1:radar conspicuous
 CONVIS - 1:visual conspicuous
 SORDAT - 20130416
 SORIND - US,US,graph,F00629
 STATUS - 1:permanent
 WATLEV - 2:always dry

Office Notes

The dolphin was recommended for charting in the chart update product.

Feature Images

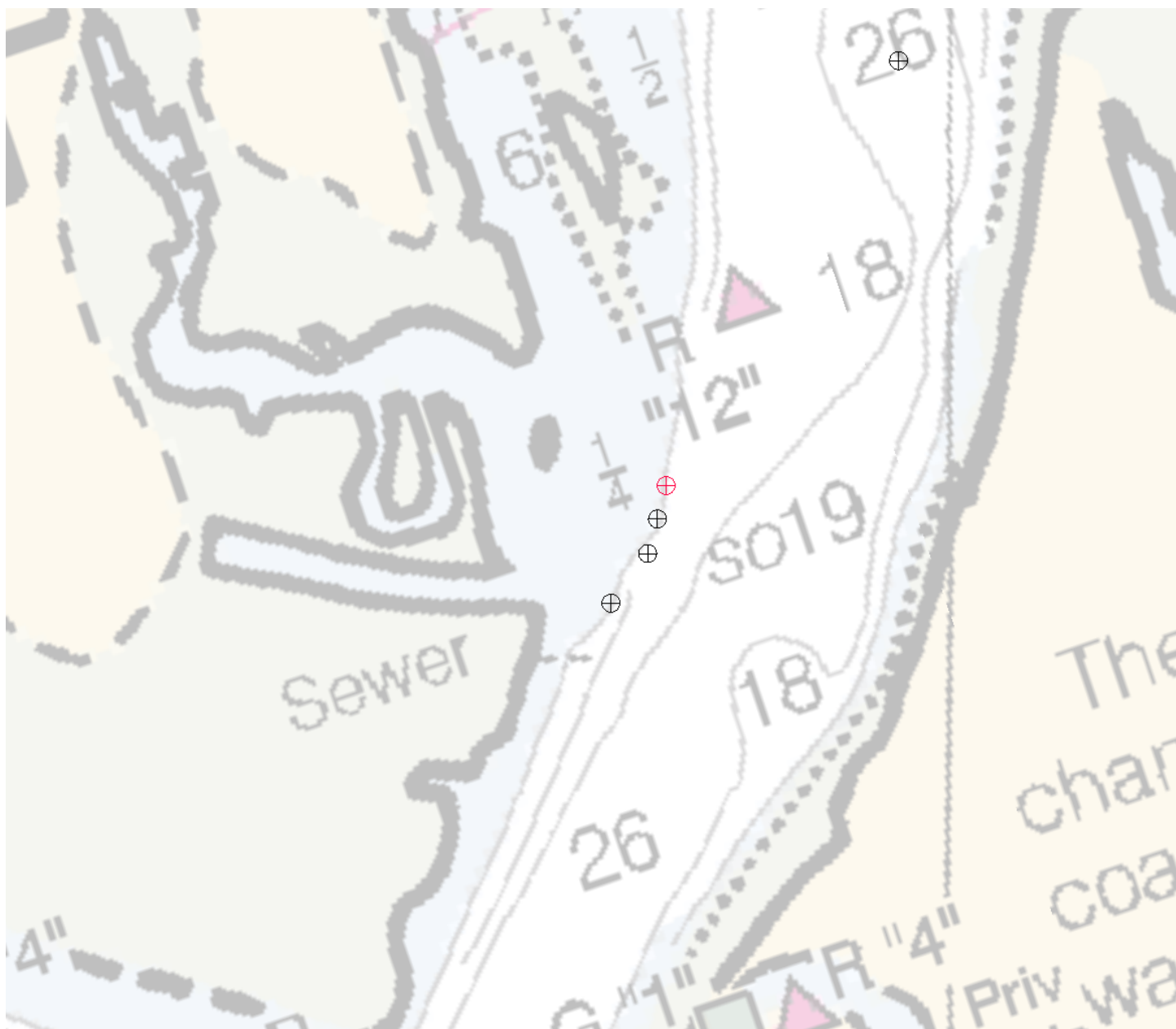


Figure 1.5.1



Figure 1.5.2

1.6) US 0000016896 00001**DANGER TO NAVIGATION****Survey Summary**

Survey Position: 29° 55' 04.3" N, 081° 16' 20.2" W
Least Depth: 3.50 m (= 11.49 ft = 1.914 fm = 1 fm 5.49 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 1981-001.00:00:00.000 (01/01/1981)
Dataset: Designated_Soundings.000
FOID: US 0000016896 00001(0226000042000001/1)
Charts Affected: 11485_1, 11488_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

Obstruction with several 2m by 2m cubes in area

Feature Correlation

Source	Feature	Range	Azimuth	Status
Designated_Soundings.000	US 0000016896 00001	0.00	000.0	Primary

Hydrographer Recommendations

Add to Chart

Cartographically-Rounded Depth (Affected Charts):

11ft (11485_1, 11488_1, 11451_17)

1 ¾fm (11480_1, 11006_1, 11009_1, 411_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: CATOBS - 6:foul area
 QUASOU - 6:least depth known
 SORDAT - 20130409
 SORIND - US,US,graph,F00629
 TECSOU - 2,3:found by side scan sonar,found by multi-beam
 VALSOU - 3.501 m
 WATLEV - 3:always under water/submerged

Geo object 2: Sounding (SOUNDG)

Attributes: QUASOU - 6:least depth known

SORDAT - 20130409

SORIND - US,US,graph,F00629

TECSOU - 2,3:found by side scan sonar,found by multi-beam

Office Notes

The obstruction was recommended to be charted in the chart update product.

Feature Images

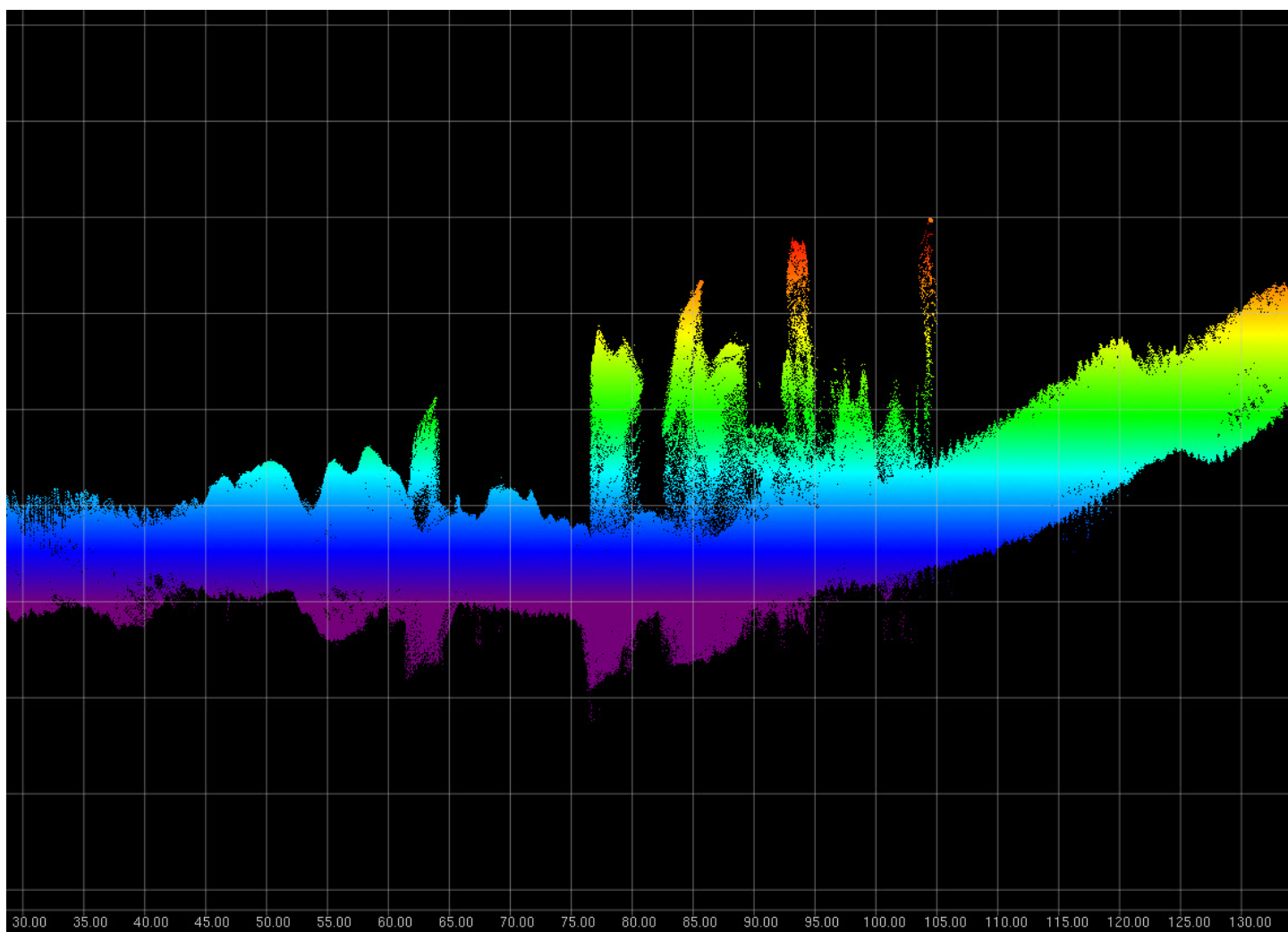
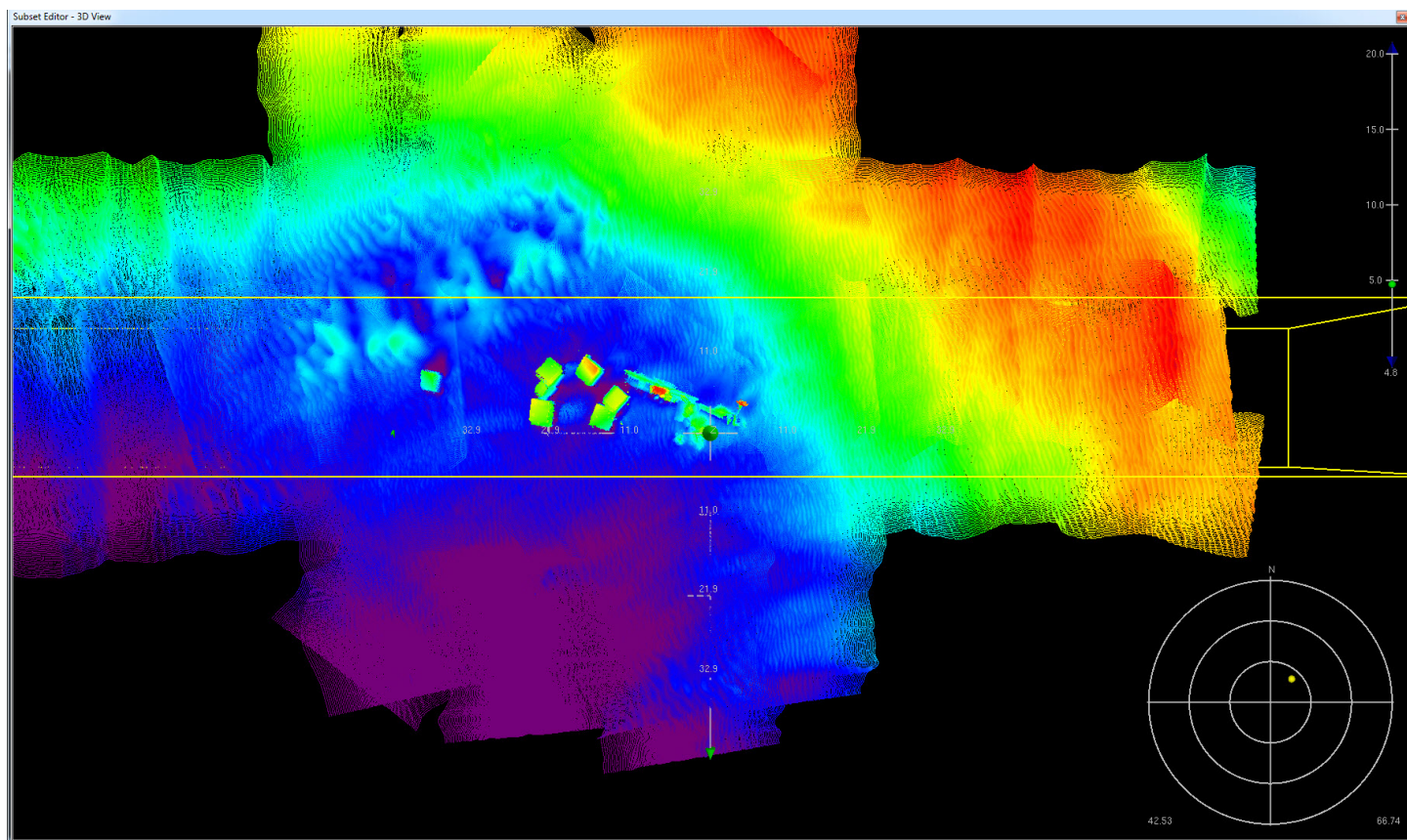


Figure 1.6.1

*Figure 1.6.2*

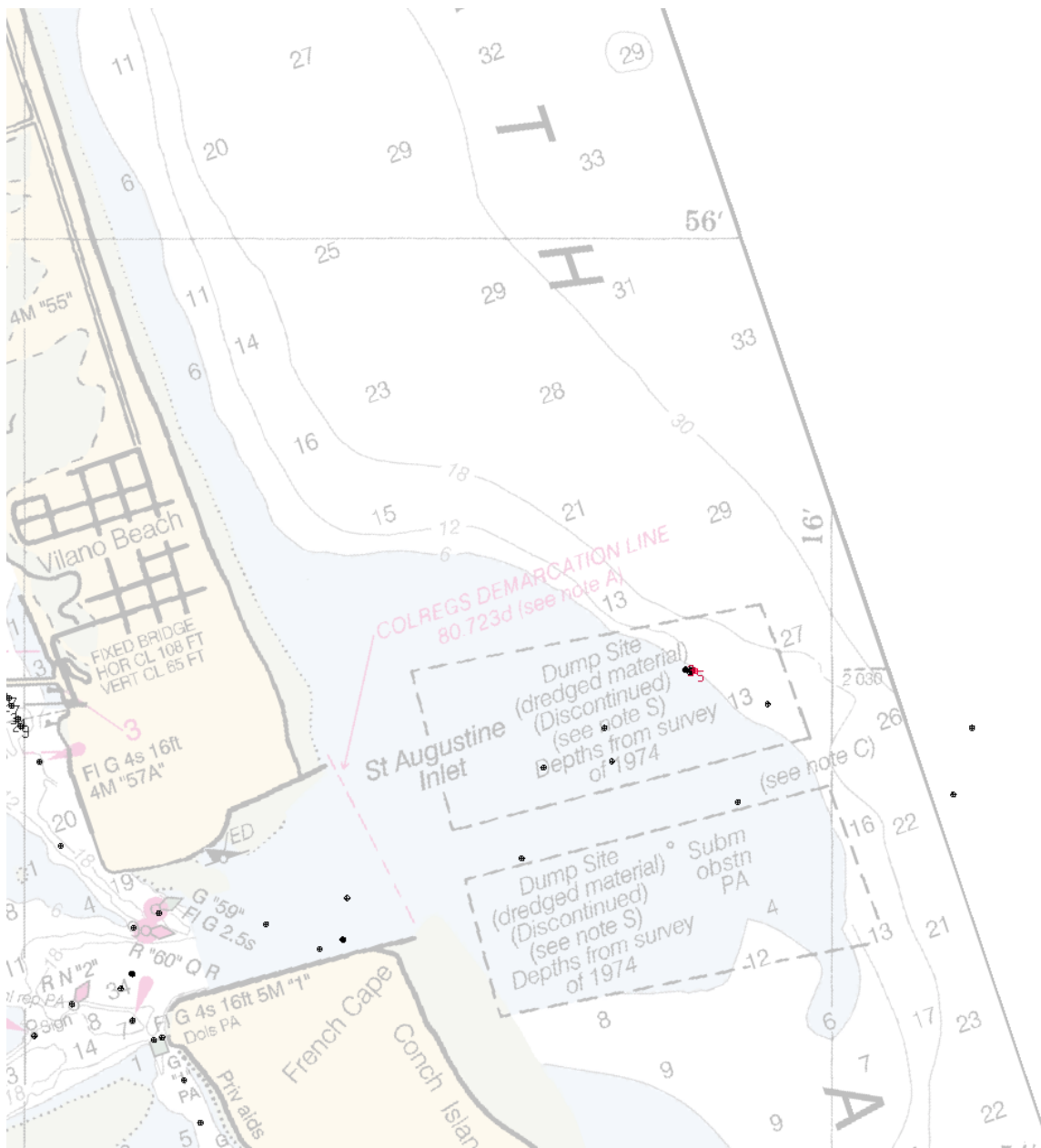


Figure 1.6.3

AWOIS and Wreck Report

Registry Number: F00629
State: Florida
Locality: St. Augustine
Sub-locality: St. Augustine Inlet and Vicinity
Project Number: S-G902-NRT2-13
Survey Dates: 01/01/1981 - 04/16/2013

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11485	36th	07/01/2010	1:40,000 (11485_1)	USCG LNM: 11/5/2013 (2/4/2014) NGA NTM: 5/31/2003 (3/29/2014)
11488	26th	12/01/2006	1:80,000 (11488_1)	[L]NTM: ?
11486	15th	07/01/2003	1:80,000 (11486_1)	[L]NTM: ?
11480	40th	03/01/2007	1:449,659 (11480_1)	[L]NTM: ?
11451	33rd	09/01/2007	1:495,362 (11451_17)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_1)	[L]NTM: ?
11009	38th	12/01/2006	1:1,200,000 (11009_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.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Wreck	3.71 m	29° 52' 21.8" N	081° 19' 00.3" W	---
1.2	GP	[None]	29° 52' 45.3" N	081° 18' 59.8" W	---
1.3	Wreck	3.25 m	29° 52' 35.8" N	081° 18' 54.9" W	---
1.4	Wreck	4.39 m	29° 53' 25.4" N	081° 18' 26.2" W	---
1.5	Wreck	[None]	29° 52' 54.2" N	081° 18' 17.9" W	---
1.6	Wreck	[None]	29° 54' 40.3" N	081° 17' 30.4" W	---
1.7	Wreck	13.38 m	29° 54' 28.4" N	081° 17' 16.2" W	---
1.8	GP	[None]	29° 54' 41.8" N	081° 16' 24.2" W	---

1 - Tree

1.1) New Wreck

Survey Summary

Survey Position: 29° 52' 21.8" N, 081° 19' 00.3" W
Least Depth: 3.71 m (= 12.18 ft = 2.030 fm = 2 fm 0.18 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 1981-001.00:00:00.000 (01/01/1981)
Dataset: F00629_Feature_Report.000
FOID: US 0000114969 00001(02260001C1190001)
Charts Affected: 11485_1, 11486_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

New Wreck alongside marina.

Hydrographer Recommendations

Chart wreck.

Office Notes

Concur. A new wreck was included in the chart update product at the surveyed location.

Feature Images

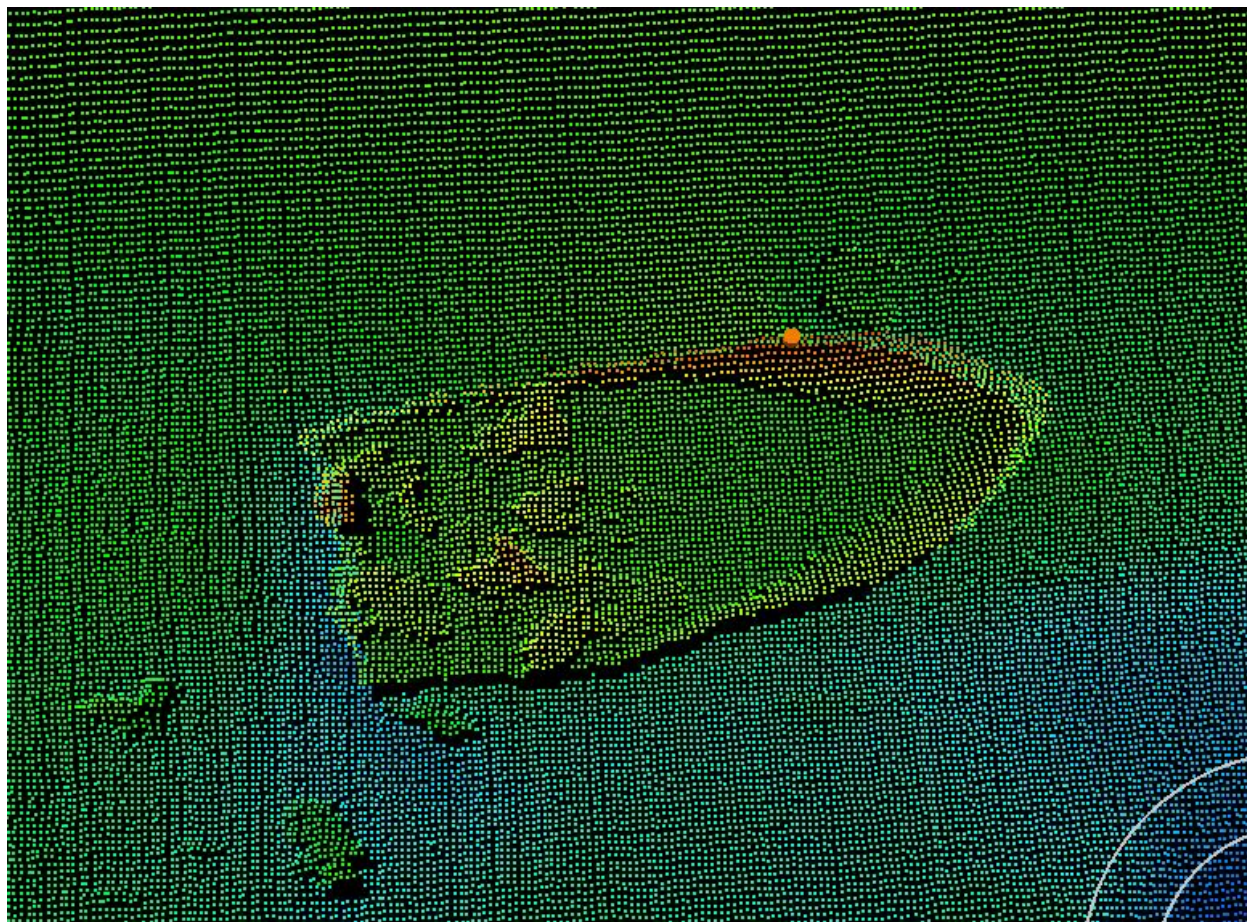


Figure 1.1.1

1.2) AWOIS 15093

Survey Summary

Survey Position: 29° 52' 45.3" N, 081° 18' 59.8" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2005-091.00:00:00.000 (04/01/2005)
Dataset: F00629_Feature_Report.000
FOID: US 0000114917 00001(02260001C0E50001)
Charts Affected: 11485_1, 11486_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

No visual contact, Charted well into marsh area

Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: VS ES S2 MBES

Hydrographer Recommendations

Retain charted wreck.

Office Notes

The wreck was retained at the charted position with updated attribution VALSOU=UNKNOWN.

1.3) New Wreck

Survey Summary

Survey Position: 29° 52' 35.8" N, 081° 18' 54.9" W
Least Depth: 3.25 m (= 10.67 ft = 1.779 fm = 1 fm 4.67 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 1981-001.00:00:00.000 (01/01/1981)
Dataset: F00629_Feature_Report.000
FOID: US 0000114967 00001(02260001C1170001)
Charts Affected: 11485_1, 11486_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

Uncharted Wreck found in MBES.

Hydrographer Recommendations

Chart wreck.

Office Notes

Concur. A new wreck was included in the chart update product at the surveyed location.

Feature Images

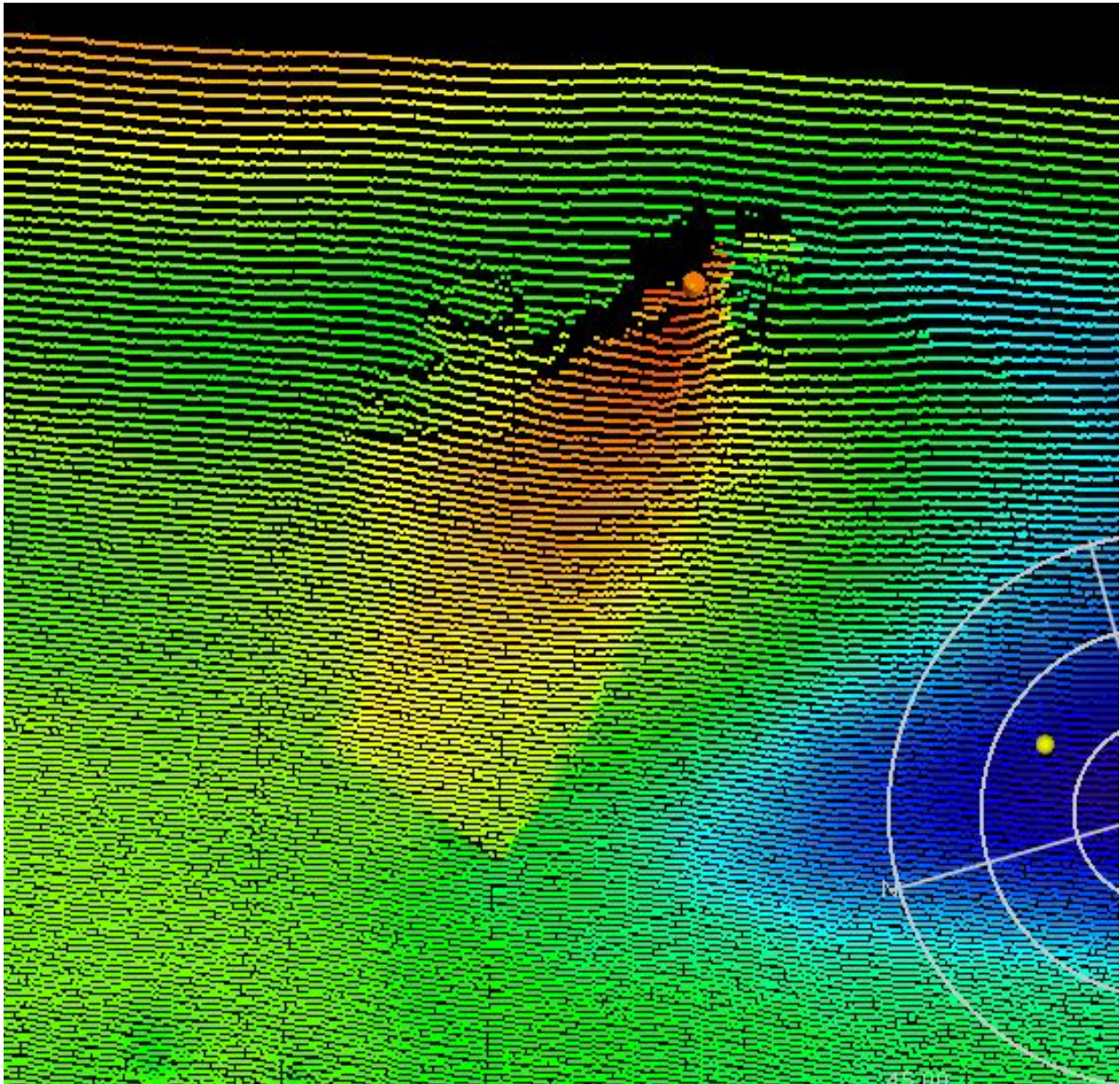


Figure 1.3.1

1.4) AWOIS 15091

Survey Summary

Survey Position: 29° 53' 25.4" N, 081° 18' 26.2" W
Least Depth: 4.39 m (= 14.40 ft = 2.400 fm = 2 fm 2.40 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2013-106.00:00:00.000 (04/16/2013)
Dataset: F00629_Feature_Report.000
FOID: US 0000114883 00001(02260001C0C30001)
Charts Affected: 11485_1, 11486_1, 11488_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

Sunken intact sailboat.

Hydrographer Recommendations

Chart wreck in new position.

Office Notes

Concur. The wreck was included in the chart update product at the new location.

Feature Images

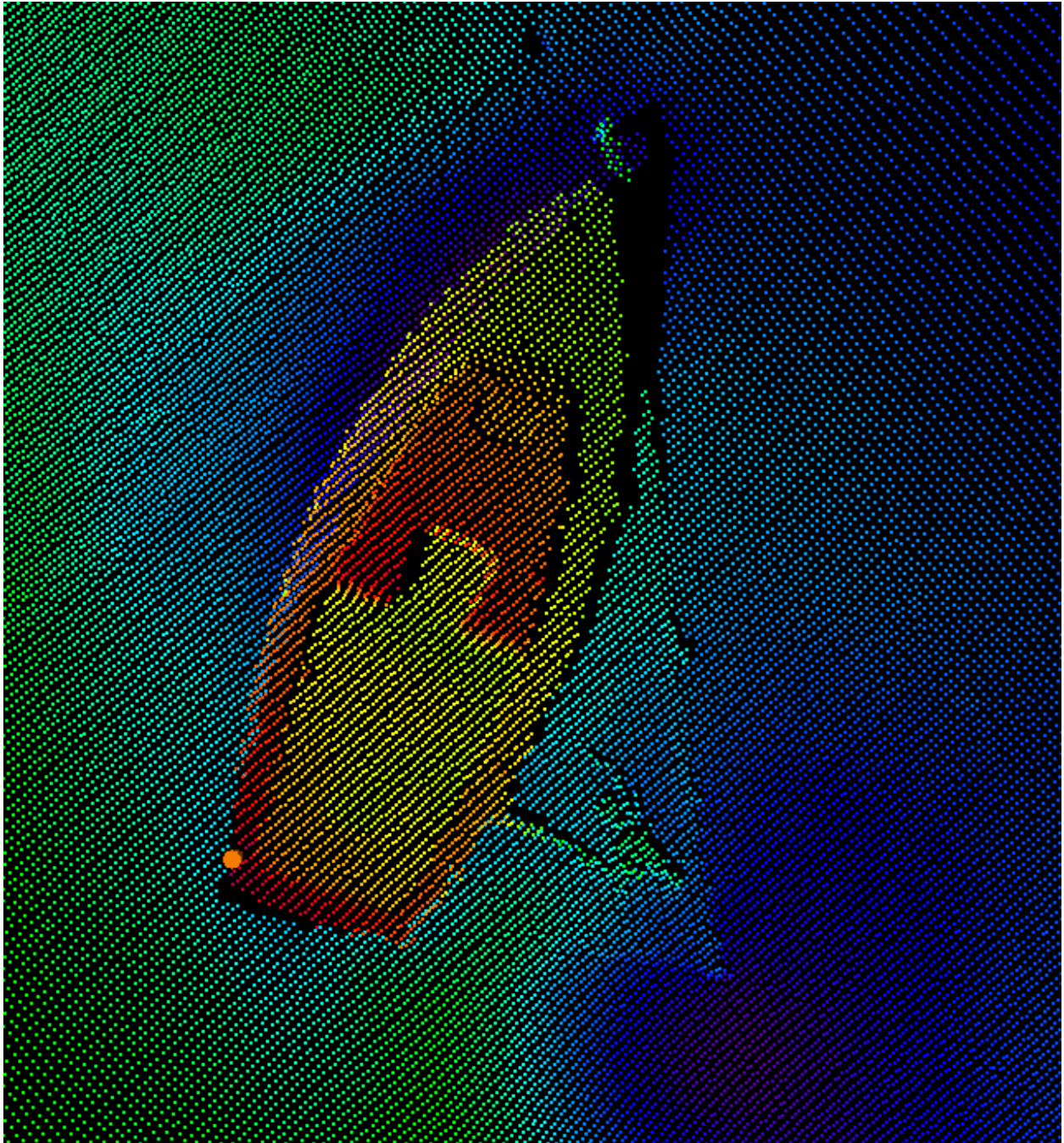


Figure 1.4.1

1.5) AWOIS 15092

Survey Summary

Survey Position: 29° 52' 54.2" N, 081° 18' 17.9" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2005-091.00:00:00.000 (04/01/2005)
Dataset: F00629_Feature_Report.000
FOID: US 0000114918 00001(02260001C0E60001)
Charts Affected: 11485_1, 11486_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

No wreck visible.

Hydrographer Recommendations

None

Office Notes

The wreck was retained at the charted position with updated attribution VALSOU=UNKNOWN.

1.6) AWOIS 15090

Survey Summary

Survey Position: 29° 54' 40.3" N, 081° 17' 30.4" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2013-106.00:00:00.000 (04/16/2013)
Dataset: F00629_Feature_Report.000
FOID: US 0000114873 00001(02260001C0B90001)
Charts Affected: 11485_1, 11488_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

Wreck charted over 200m inshore.

Hydrographer Recommendations

Delete wreck.

Office Notes

Concur. No MBES or SSS possible due to location being inshore of MHW but as the wreck position is clearly on land it was recommended to be deleted in the chart update product.

1.7) New Wreck

Survey Summary

Survey Position: 29° 54' 28.4" N, 081° 17' 16.2" W
Least Depth: 13.38 m (= 43.88 ft = 7.314 fm = 7 fm 1.88 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 1981-001.00:00:00.000 (01/01/1981)
Dataset: F00629_Feature_Report.000
FOID: US 0000114920 00001(02260001C0E80001)
Charts Affected: 11485_1, 11488_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

Small wreck found in review.

Hydrographer Recommendations

Chart new wreck.

Office Notes

Concur. A new wreck was included in the chart update product at the surveyed location.

Feature Images

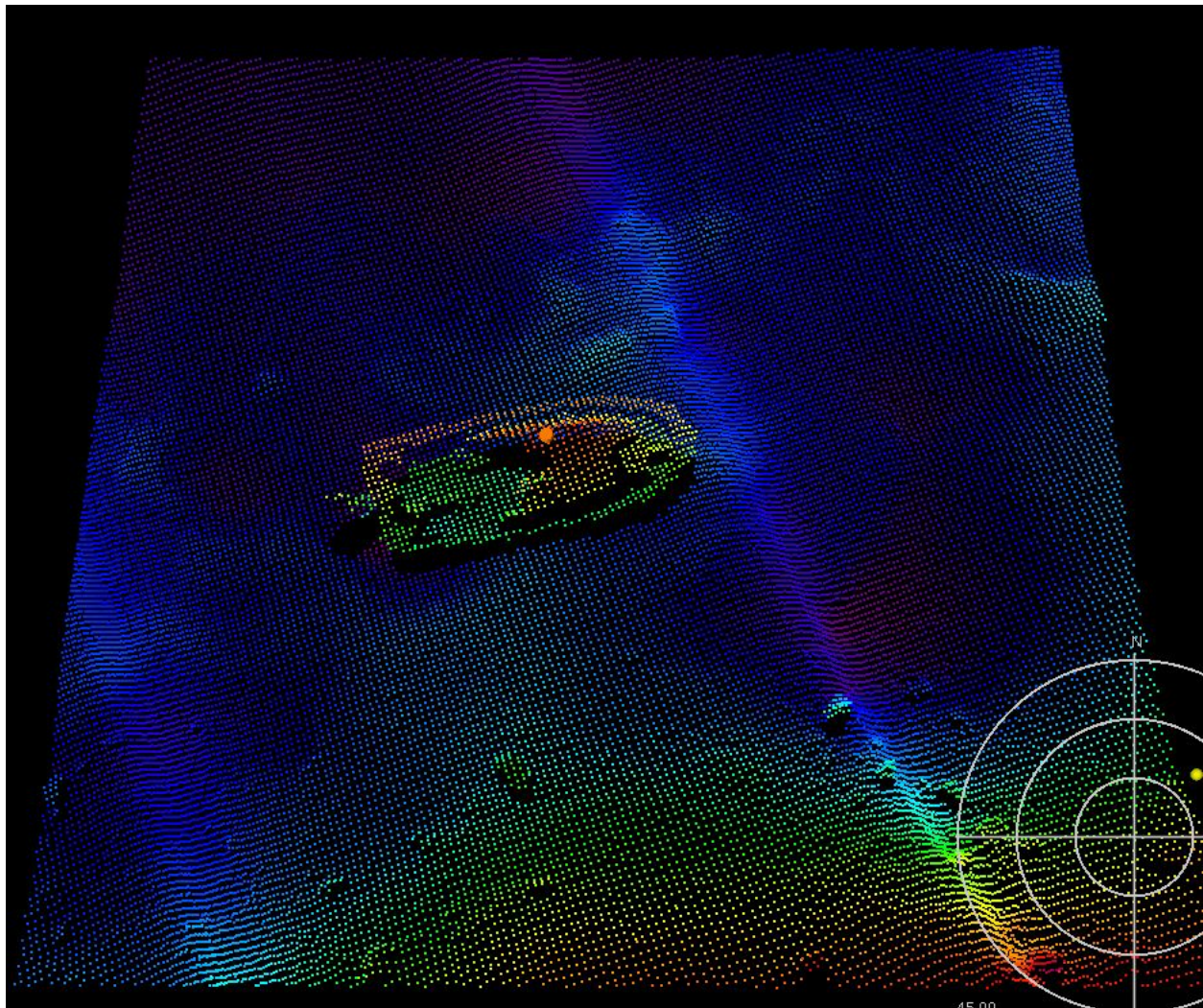


Figure 1.7.1

1.8) AWOIS 15094

Survey Summary

Survey Position: 29° 54' 41.8" N, 081° 16' 24.2" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2005-091.00:00:00.000 (04/01/2005)
Dataset: F00629_Feature_Report.000
FOID: US 0000114910 00001(02260001C0DE0001)
Charts Affected: 11485_1, 11488_1, 11480_1, 11451_17, 11006_1, 11009_1, 411_1

Remarks:

Unable to fully address item due to shallow water (2m) and breaking waves

Type: OBSTRUCTION, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 ES MBES

Hydrographer Recommendations

Retain obstruction.

Office Notes

Concur. The obstruction was retained in the chart update product.

APPROVAL PAGE

F00629

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

- F00629_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- F00629_GeoImage.pdf

The survey evaluation and verification has been conducted according current OCS Specifications.

Approved: _____

Pete Holmberg

Cartographic Team Lead, Pacific Hydrographic Branch

The survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved: _____

LCDR Benjamin K. Evans, NOAA

Chief, Pacific Hydrographic Branch