UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NOAA Marine and Aviation Operations
Marine Operations Center - Atlantic
Norfolk, Virginia 23510-1114

MEMORANDUM FOR: Captain Shepard M. Smith, NOAA
Commanding Officer, NOAA Ship *Thomas Jefferson*

FROM: Captain Anne K. Lynch, NOAA
Commanding Officer, NOAA Marine Operations Center-Atlantic

SUBJECT: Project Instruction for TJ-15-05
Chincoteague Inlet

Attached is the final Project Instruction for TJ-15-05, Chincoteague Inlet, which is scheduled aboard NOAA Ship *Thomas Jefferson* during the period of December 7 - 17, 2015. Of the 11 DAS scheduled for this project, 11 days are funded by Line Office Allocation. This project is estimated to exhibit a Medium Operational Tempo. Acknowledge receipt of these instructions via e-mail to **OpsMgr.MOA@noaa.gov** at Marine Operations Center-Atlantic.

cc:
LCDR Michael Gonsalves
CAPT Eric W. Berkowitz

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Coast Survey
Silver Spring, Maryland 20910-3282

FINAL Project Instruction

Date Submitted: December 4, 2015

Platform: NOAA Ship *Thomas Jefferson*

Project Number: TJ-15-05 (OMAO)

Project Title: Chincoteague Inlet

Project Dates: December 7, 2015 to December 17, 2015

Prepared by: _____ Dated: 4 Dec 2015
LCDR Michael Gonsalves, NOAA
Chief, Operations Branch
Hydrographic Surveys Division

Approved by: _____ Dated: 4 Dec 2015
CAPT Eric W. Berkowitz, NOAA
Chief, Hydrographic Surveys Division
Office of Coast Survey

Approved by: _____ Dated: 7 Dec 2015
CAPT Anne K. Lynch, NOAA
Commanding Officer
Marine Operations Center - Atlantic

I. Overview

A. Brief Summary and Project Period

This survey is scheduled to begin in December 2015 and end in December 2015. This project is being conducted in support of NOAA's Office of Coast Survey to provide contemporary hydrographic data in order to update the nautical charting products and reduce survey backlog in the area.

B. Days at sea (DAS)

Of the 11 DAS scheduled for this project, 0 DAS are funded by an OMAO allocation, 11 DAS are funded by a Line Office Allocation, 0 DAS are Program Funded, and 0 DAS are Other Agency funded. This project is estimated to exhibit a High Operational Tempo.

C. Operating Area (include optional map/figure showing op area)

The project area is located at Chincoteague Inlet just north of the entrance to the Chesapeake Bay. A layout of the project area can be found with the detailed project instructions appended to these instructions.

D. Summary of Objectives

To support safe navigation through the acquisition and processing of hydrographic survey data for updating nautical charts and by the identification and dissemination of dangers to navigation as identified during the course of survey operations.

E. Participating Institutions

N/A

F. Personnel/Science Party: name, title, gender, affiliation, and nationality

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Weller, Erin	PS	11/7/15	11/17/15	F	NOAA/OCS	US

G. Administrative

1. Points of Contacts:

Principal Investigator:

LCDR Michael Gonsalves, NOAA
Chief, Operations Branch
Hydrographic Surveys Division
1315 East West Hwy, #6854
Silver Spring, MD 20910
(301) 713-2702 x112
Michael.Gonsalves@noaa.gov

Project Coordinator:

Patrick Keown
Physical Scientist, Operations Branch
Hydrographic Surveys Division
1315 East West Hwy, #6752
Silver Spring, MD 20910
(301) 713-2702 x107
Patrick. Keown@noaa.gov

Chief Scientist:

CAPT Shepard Smith, NOAA
Commanding Officer, NOAA Ship *Thomas Jefferson*
439 West York Street
Norfolk, VA 23510-1114
(757) 647-0187
CO.Thomas.Jefferson@noaa.gov

2. Diplomatic Clearances

None Required.

3. Licenses and Permits

The Office of Coast Survey is sensitive to the potential effects of its operations on the physical, biological, and cultural marine environment. In accordance with the National Environmental Protection Act, Coast Survey prepared a Programmatic Environmental Assessment to gauge the environmental impacts resulting from surveying and other data-gathering activities. As a result, the National Ocean Service has published a Finding of No Significant Impact (FONSI) for the Office of Coast Survey program of conducting hydrographic surveys for the calendar years 2013 - 2018. For further information, please refer to http://www.nauticalcharts.noaa.gov/Legal/

II. Operations

The Commanding Officer is responsible for ensuring the scientific staff are trained in planned operations and are knowledgeable of project objectives and priorities. The Commanding Officer is responsible for ensuring all operations conform to the ship's accepted practices and procedures.

A. Project Itinerary:

Itinerary will be based upon the ship's schedule and executed under the direction of the Commanding Officer. Every effort shall be made by the Commanding Officer to maximize the operational efficiency of assigned projects. Please refer to ships sailing schedule below:

DEP: 12/7/2015	Mon	Norfolk, VA	TJ-15-05 Leg 1
ARR: 12/17/2015	Thu	Norfolk, VA	Chincoteague Inlet

B. Staging and Destaging: N/A

C. Operations to be Conducted:

Hydrographic survey operations per the appended project instructions using two survey launches up to 10 hr/day for data acquisition and project field support. Additionally, the ability to run concurrent 24 hr ship survey operations for short periods of time or for extended periods of time with reduced launch operations.

D. Dive Plan

Dives are not planned for this project

E. Applicable Restrictions

Conditions which preclude normal operations:

- Poor weather conditions
- Equipment failure
- Safety concerns
- Personnel shortage

III. Equipment

A. Equipment and Capabilities provided by the ship (itemized)

1. Two fully-outfitted and operational survey launches to support shallow water survey operations utilizing hull-mounted side scan sonar, multibeam, and vertical beam sonar systems.

2. Ship fully-outfitted with hydrographic survey equipment to support multibeam and side scan survey operations.

3. Personnel to staff and operate the ship's survey equipment for 24 hr/day operations and a minimum of 2 survey launches and equipment for up to 10 hr per day concurrently, at the discretion of the command to ensure the most efficient survey operations.

4. A fully-staffed survey department to efficiently manage the project's data processing requirements.

B. Equipment and Capabilities provided by the scientists (itemized)

Hydrographic Surveys Division may provide Physical Scientists for hydrographic data acquisition, processing, training, and data quality assurance support during project survey operations. Additionally, shore-based technical support may be provided for survey systems and data acquisition and processing software.

IV. Hazardous Materials

A. Policy and Compliance

No Hazardous Materials are being brought aboard the ship for this project.

B. Radioactive Materials

No Radioactive Isotopes are planned for this project

V. Additional Projects

A. Supplementary ("Piggyback") Projects

No Supplementary Projects are planned

B. NOAA Fleet Ancillary Projects

No NOAA Fleet Ancillary Projects are planned

VI. Disposition of Data and Reports

Disposition of data gathered aboard NOAA ships will conform to NAO 216-101 *Ocean Data Acquisitions* and NAO 212-15 *Management of Environmental Data and Information.* To guide the implementation of these NAOs, NOAA's Environmental Data Management Committee (EDMC) provides the *NOAA Data Documentation Procedural Directive* (data documentation) and *NOAA Data Management Planning Procedural Directive* (preparation of Data Management Plans). OMAO is developing procedures and allocating resources to manage OMAO data and Programs are encouraged to do the same for their Project data.

VII. Meetings, Vessel Familiarization, and Project Evaluations

A. Pre-Project Meeting: The Principal Investigator and the Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship's crew to discuss required equipment, planned operations, concerns, and establish mitigation strategies for all concerns. This meeting shall be conducted before the beginning of the project with sufficient time to allow for preparation of the ship and project personnel.

B. Vessel Familiarization Meeting: The Commanding Officer is responsible for ensuring scientific personnel are familiarized with applicable sections of the standing orders and vessel protocols, e.g., meals, watches, etiquette, drills, etc. A vessel familiarization meeting shall be conducted in the first 24 hours of the project's start and is normally presented by the ship's Operations Officer.

C. Post-Project Meeting: The Commanding Officer is responsible for conducting a meeting no earlier than 24 hrs before or 7 days after the completion of a project to discuss the overall success and short comings of the project. Concerns regarding safety, efficiency, and suggestions for future improvements shall be discussed and mitigations for future projects will be documented for future use. This meeting shall be attended by the ship's officers, applicable crew, the Commanding Officer, and members of the scientific party and is normally arranged by the Operations Officer.

D. Project Evaluation Report

Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the HSD Operations Branch. The form is available at http://www.omao.noaa.gov/fleeteval.html and provides a "Submit" button at the end of the form. Submitted form data is deposited into a spreadsheet used by

OMAO management to analyze the information. Though the complete form is not shared with the ships', specific concerns and praises are followed up on while not divulging the identity of the evaluator.

VIII. Miscellaneous

A. Meals and Berthing

The ship will provide meals for the scientists listed above. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the project, and ending two hours after the termination of the project. Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours. Special dietary requirements for scientific participants will be made available to the ship's command at least seven days prior to the project.

Berthing requirements, including number and gender of the scientific party, will be provided to the Commanding Officer by the Principal Investigator. The Commanding Officer will work on a detailed berthing plan to accommodate the gender mix of the scientific party taking into consideration the current make-up of the ship's complement.

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The Principal Investigator will ensure that all non NOAA or non-Federal scientists aboard also have proper orders. It is the responsibility of the Principal Investigator to ensure that the entire scientific party has a mechanism in place to provide lodging and food and to be reimbursed for these costs in the event that the ship becomes uninhabitable and/or the galley is closed during any part of the scheduled project.

All persons boarding NOAA vessels give implied consent to comply with all safety and security policies and regulations which are administered by the Commanding Officer. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must comply with OMAO's Drug and Alcohol Policy dated May 17, 2000 which forbids the possession and/or use of illegal drugs and alcohol aboard NOAA Vessels.

B. Medical Forms and Emergency Contacts

The NOAA Health Services Questionnaire (NHSQ, NF 57-10-01 (3-14)) must be completed in advance by each participating scientist. The NHSQ can be obtained from http://www.corporateservices.noaa.gov/noaaforms/eforms/nf57-10-01.pdf.

All NHSQs submitted after March 1, 2014 must be accompanied by NOAA Form (NF) 57-10-02 - Tuberculosis Screening Document in compliance with OMAO Policy 1008 (Tuberculosis Protection Program).

The completed forms should be sent to the Regional Director of Health Services at the applicable Marine Operations Center. The NHSQ and Tuberculosis Screening Document should reach the Health Services Office no later than 4 weeks prior to the start of the project to allow time for the participant to obtain and submit additional information should health services require it, before clearance to sail can be granted. Please contact MOC Health Services with any questions regarding eligibility or completion of either form. Ensure to fully complete each form and indicate the ship or ships the participant will be sailing on. The participant will receive an email notice when medically cleared to sail if a legible email address is provided on the NHSQ.

The participant can mail, fax, or email the forms to the contact information below. Participants should take precautions to protect their Personally Identifiable Information (PII) and medical information and ensure all correspondence adheres to DOC guidance (http://ocio.os.doc.gov/ITPolicyandPrograms/IT_Privacy/PROD01_008240).

The only secure email process approved by NOAA is Accellion Secure File Transfer which requires the sender to setup an account. Accellion's Web Users Guide is a valuable aid in using this service, however to reduce cost the DOC contract doesn't provide for automatically issuing full functioning accounts. To receive access to a "Send Tab", after your Accellion account has been established send an email from the associated email account to accellionAlerts@doc.gov requesting access to the "Send Tab" function. They will notify you via email usually within 1 business day of your approval. The 'Send Tab" function will be accessible for 30 days.

Contact information:

Regional Director of Health Services
Marine Operations Center – Atlantic
439 W. York Street
Norfolk, VA 23510
Telephone 757-441-6320
Fax 757-441-3760
Email MOA.Health.Services@noaa.gov

Prior to departure, the Executive Officer will obtain an electronic listing of emergency contacts for all members of the scientific party, with the following information: contact name, address, relationship to member, and telephone number.

C. Shipboard Safety

Hard hats are required when working with suspended loads. Work vests are required when working near open railings and during small boat launch and recovery operations. Hard hats and work vests will be provided by the ship when required.

Wearing open-toed footwear or shoes that do not completely enclose the foot (such as sandals or clogs) outside of private berthing areas is not permitted. At the discretion of the ship CO, safety shoes (i.e. steel or composite toe protection) may be required to participate in any work dealing with suspended loads, including CTD deployment and recovery. The ship does not provide safety-toed shoes/boots. The ship's Operations Officer should be consulted by the Principal Investigator to ensure members of the scientific party report aboard with the proper attire.

D. Communications

A progress report on operations prepared by the Commanding Officer may be relayed to the program office. The ship's primary means of communication with the Marine Operations Center is via email and the Very Small Aperture Terminal (VSAT) link. Standard VSAT bandwidth at 128kbs is shared by all vessels staff and the science team at no charge. Increased bandwidth in 30 day increments is available on the VSAT systems at increased cost to the scientific party. If increased bandwidth is being considered, program accounting is required and it must be arranged through the ship's Commanding Officer at least 30 days in advance.

E. IT Security

Any computer that will be hooked into the ship's network must comply with the *OMAO Fleet IT Security Policy* 1.1 (November 4, 2005) prior to establishing a direct connection to the NOAA WAN. Requirements include, but are not limited to:

(1) Installation of the latest virus definition (.DAT) file on all systems and performance of a virus scan on each system.
(2) Installation of the latest critical operating system security patches.
(3) No external public Internet Service Provider (ISP) connections.

Completion of the above requirements prior to boarding the ship is required.

Non-NOAA personnel using the ship's computers or connecting their own computers to the ship's network must complete NOAA's IT Security Awareness Course within 3 days of embarking.

F. Foreign National Guests Access to OMAO Facilities and Platforms

Foreign National access to the NOAA ship or Federal Facilities is not required for this project.

VIII. Appendices

1. Primary Project Instructions: OPR-D302 -TJ-15, Chincoteague Inlet

Hydrographic Survey Project Instructions

Project Name:	Chincoteague Inlet
Project Number:	OPR-D302-TJ-15
Assigned Field Unit:	NOAA Ship *Thomas Jefferson*
Assigned Processing Branch:	Atlantic Hydrographic Branch
Signed Date:	12/04/2015
Project Instructions Version:	Final
Planned Acquisition Time:	Start Date: 12/2015 End Date: 12/2015
Delivery Dates:	120 days from completion of data acquisition.

Purpose and Location:

Survey data from this project is intended to supersede all prior survey data in the common area. Hydrographic holdings in this area date back to 1930 and prior. Local constituents have raised concern over the accuracy of this data and the ability to safely navigate. In addition, lidar analysis has shown significant shoal movement in shallow areas and cause concern that this is occurring in deeper stretches. This project will cover approximately 86 square nautical miles of navigationally significant area as identified in the 2012 NOAA Hydrographic Survey Priorities (NHSP).

Supporting Documents:

Hydrography shall consist of Navigable Area Surveys in accordance with the following support documents.

NOS Hydrographic Surveys Specifications and Deliverables Manual (HSSD), May 2015

NOS Field Procedures Manual for Hydrographic Surveying (FPM), April,2014
Hydrographic Survey Technical Directive (HTD): 2015-3 File Name Character Limit
Hydrographic Survey Technical Directive (HTD): 2015-1 Configuration Management
Hydrographic Survey Technical Directive (HTD): 2015-4 Revision of Feature Flagging Guidance

PERSONNEL SAFETY AND DATA QUALITY SHALL ALWAYS BE EMPHASIZED OVER DATA QUANTITY! THE HYDROGRAPHER SHALL NEVER SUBJECT PERSONNEL OR BOATS TO UNDUE RISKS AND HAZARDS.

Registry Details:

General Locality: Coastal Virginia

Registry Number	*Sheet Number*	*Sublocality*	*State or Territory*	*Scale*	*Estimated SNM*	*Instructions*
H12853	1	Offshore Metompkin Island	Virginia	10000	33	
H12854	2	Offshore of Assawoman Island	Virginia	10000	32	
H12855	3	Vicinity of Chincoteague Inlet	Virginia	10000	1	
H12856	4	Approach to Chincoteague Inlet	Virginia	10000	19	

Limits & Coverage:

Inshore Limit: The inshore limit of hydrography will be the farthest offshore of the following: (1) the 4-meter depth contour, or (2) the extents of the HSD Operations Branch-supplied sheet limits (based on a combination of a 0.8mm buffer of the MHW line as derived from lidar dataset, and an informal "lidar good line"). Given the shallow nature of portions of this survey area, the Chief-of-Party has the authority to survey farther inshore than the previously-stated criteria in areas determined to be of navigational significance. Refer to HSSD Section 1.1.2."

Coverage Requirements:

Coverage Water Depth	*Coverage Required*
Inshore limit to 4 meters water depth	100m Set line spacing. Indications of shoaling falling between set line spacing main scheme lines must be investigated. Set line spacing orientation should be approximately perpendicular to countours whenever possible. Refer to HSSD Section 5.2.2.3
Greater than 4 meters water depth	Complete Coverage accomplished using either: A) Complete coverage MBES depth and backscatter data, or B) 100% SSS coverage with concurrent set line spacing MBES depth and backscatter data. Refer to HSSD Section 5.2.2.2

Assigned Tasks

Acknowledgement:

The project manager for this project is Patrick Keown. Contact information for the project manager may be found in the User Contacts section of this document. The field unit shall acknowledge receipt of these instructions and submit any comments or questions via email to the project manager. Additionally, the project manager shall be included on all discussions or correspondence involving issues concerning the project.

Environmental Compliance Requirements

Comply with the marine mammal observation and reporting requirements in Section 7.6 of the HSSD.

Aids to Navigation (ATONs):

There are no ATONs specifically assigned for this project. Any ATONs located within the survey area should be verified so that they serve their intended purpose in accordance with Section 7.2 of the HSSD.

AWOIS Items:

There are no AWOIS investigation requirements for this project. For reference, a dataset containing all AWOIS items can be accessed within the GIS files located within the project folder or found in multiple formats at http://www.nauticalcharts.noaa.gov/hsd/wrecks_and_obstructions.html

Maritime Boundary Points (MBPs):

There are no Maritime Boundary investigation requirements for this project.

Bottom Samples:

Obtain bottom samples in accordance with Section 7.1 of the HSSD in areas designated by the feature object class springs (SPRING) in the Project Reference File (PRF). Review the recommended bottom sample locations with regards to the acquired survey data. Contact HSD Operations Branch if it is determined that modifying the bottom sample plan would better differentiate the varying bottom characteristic within the survey area. Any modification to the bottom sample plan shall closely maintain the same plan provided. This may increase or decrease the sample density but should closely maintain the same numbers of samples per survey as originally assigned.

Chart Comparison:

Perform a chart comparison in accordance with Section 4.5 of the FPM and Sections 8.1.4 and D.1 of the HSSD. Use only the latest editions of the largest scale NOS charts covering the project area. Resolve any discrepancies identified in the field and explain them in the Descriptive Report. The charts, listed below, were used in the preparation of these project instructions and accompanying project files, however, this list is for reference only and not exhaustive. Some charts listed may have larger scale sections to which survey data must be compared.

Affected Raster Charts

Chart Number	*Scale*	*Edition Number*	*Edition Date*	*Kapp Number*	*LNM Date*	*NM Date*
12210	20000	40	08/2015	550	11/17/2015	11/28/2015
12210	80000	40	08/2015	550	11/17/2015	11/28/2015
12211	80000	45	05/2013	552	11/17/2015	11/28/2015

Affected ENCs

ENC Name	*Scale*	*Edition*	*Update Application Date*	*Issue Date*	*Preliminary*
US5VA71M	20000	12	09/11/2014	04/01/2015	NO
US4VA70M	80000	14	10/30/2013	06/27/2015	NO
US4VA50M	80000	21	05/26/2015	10/29/2015	NO

Coast Pilot:

Submit a Coast Pilot Review Report in accordance with section 7.5 of the HSSD. The following pages have mention of Chincoteague Inlet: 62,95,117,221,222,223,224

Dangers to Navigation (DTONs):

Generate DTON reports in accordance with Section 8.1.3 of the HSSD. DTON reports should be sent to ocs.ndb@noaa.gov with a courtesy copy to the project manager. It is of paramount importance that DTONs be reported as soon as possible.

Junctions:

Junction with data from the surveys listed below. Early in the planning process, HSD was notified that LIDAR data from RSD was aboard NOAA Ship Thomas Jefferson, use said on board LIDAR from RSD to ensure overlap and proper junctioning, where safety permits. Refer to sections 2.2.2.3 and 4.5.2 of the FPM.

Registry Number	*Scale*	*Year*	*Platform*	*Relative Location*
H12338	40000	2011	SAIC	S
H12336	40000	2011	SAIC	E
H12160	10000	2010	SAIC	E
H12094	20000	2009	SAIC	E
H12092	20000	2009	SAIC	E
L00000	10000	2015	NOAA Remote Sensing Division	E

Progress Reports:

Submit a weekly acquisition progress report during field operations in accordance with Section 8.1.1 of the HSSD.

Survey Outlines:

Generate a survey outline in accordance with Section 8.1.2 of the HSSD. Submit survey outlines to survey.outlines@noaa.gov.

Special Data Handling Requirements:

ATTENTION: Field Unit

Submit all Conductivity, Temperature, and Depth (CTD) data to the National Oceanographic Data Center (NODC) ensuring data are in an appropriate file format as outlined on the NODC website at http://www.nodc.noaa.gov/access/dataformats.html

Horizontal Control Requirements:

Comply with the horizontal control requirements in Section 3 of the HSSD.

Vertical Control Requirements:

Comply with the vertical control requirements in Section 4 of the HSSD.

TCARI

Comply with the requirements from CO-OPS which are included with the project data from the Operations Branch. Submit surveys with final approved water levels applied. Contact the Operations Branch if this causes the survey to miss a submission deadline.

VDatum

Vertical control will either be the CO-OPS provided model or VDATUM, and will officially be decided on upon delivery of interim deliverable products. This project has a requirement to reference the survey data to GRS80 ellipse (except for data acquired through use of Z-Boat SBES, which may use TCARI vertical control.) At the start of survey operations, checklines should be run across the entirety of the project sheets (reference checkline guidance document). The results of the checkline analysis should be reported back to HSD Operations Project Manager. All survey lines shall be delivered with SBET/RMS files applied and GPS tides computed. Within 60 days of the completion of acquisition, the field unit shall prepare an ERS Capability Memorandum, submitted to HSD Operations Project Manager, summarizing the degree to which ERS surveying campaign was successful.

VDatum Version	Geoid	Area	Area Version	Separation Uncertainty
3.2	2012	Virginia/Maryland/Delaware - Coastal embayment	Version 1.1	9.0 centimeters

NWLON Gauges

Operating Water Level Station	*Station ID*
Wachapreague, VA	8631044

Orthometric Imagery:

No Orthometric Imagery has been provided for this project.

Shoreline and Nearshore Features:

Conduct a limited shoreline verification using the composite source file (CSF). All features with attribute asgnmt populated with 'Assigned' shall be addressed in accordance with Sections 5.2.1.2 and 8.2 of the HSSD. Features that DO NOT have the attribute asgnmt populated with 'Assigned' need not be addressed unless they are deemed by the field unit as a navigationally significant hazard. For the purposes of disproving a feature, either complete MB coverage or 200% SSS is necessary. The search radius for such disprovals are as follows: charted features in H12856, labeled with a "PA" will have a search radius of 100 meters, features with "PD" / "ED", a search radius of 150 meters and all other features a search radius of 50 meters. Charted features in H12853 and H12854, labeled with a "PA" will have a search radius of 160 meters, features with "PD" / "ED", a search radius of 240 meters and all other features, a search radius of 80 meters. Please contact the HSD OPS Project Manager if there are any questions in regards to feature assignment. In addition, see Section 3.5.5.2.2 of the FPM.

User Contacts

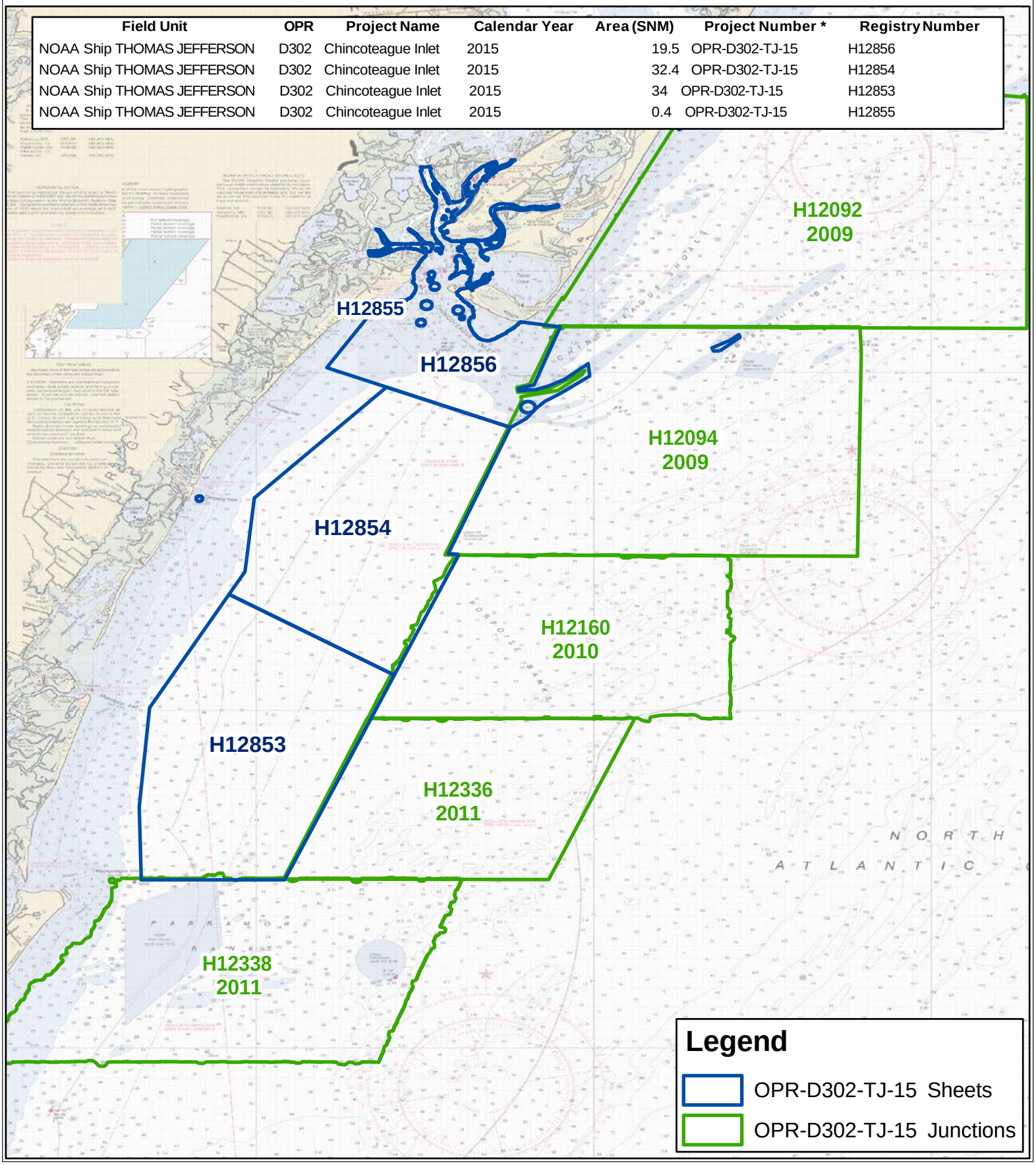
The following primary offices and persons shall be contacted at or near the beginning and end of the field operations to discuss survey objectives and accomplishment (Mandatory) or are listed for contact at the discretion of the Commanding Officer (Reference).

Project Manager
Patrick Keown
NOAA
Phone: 301-713-2702 ext. 107
Fax:
Email: Patrick.Keown@noaa.gov
Obligation: Mandatory

NOAA Navigation Manager (Acting), Mid-Atlantic
Erin Weller
NOAA
Phone: 757-441-6746 ext. 101
Fax:
Email: Erin.Weller@noaa.gov
Obligation: For Reference

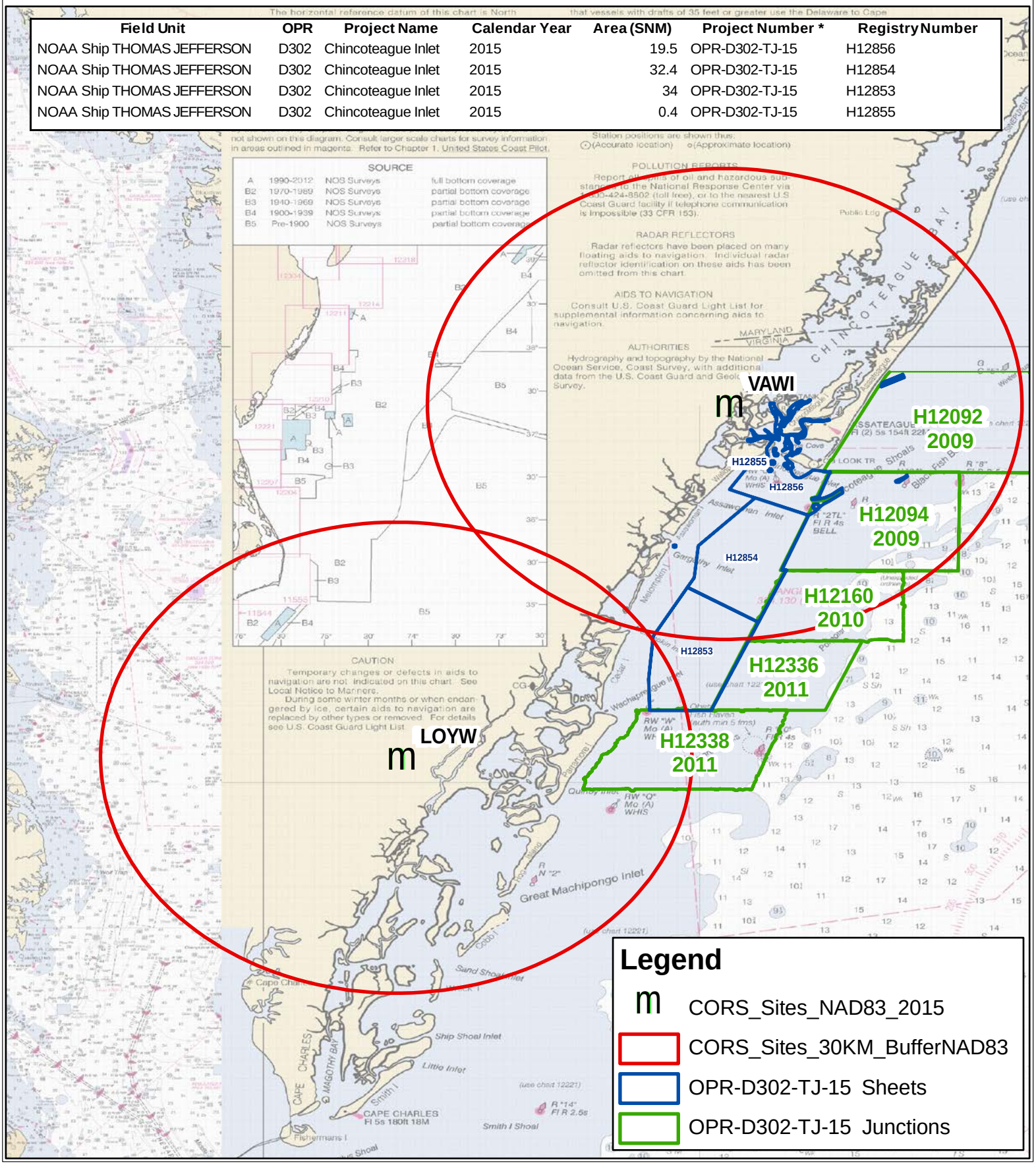
OPR-D302-TJ-15
Chincoteauge Inlet
Sheet Layout
12/02/2015

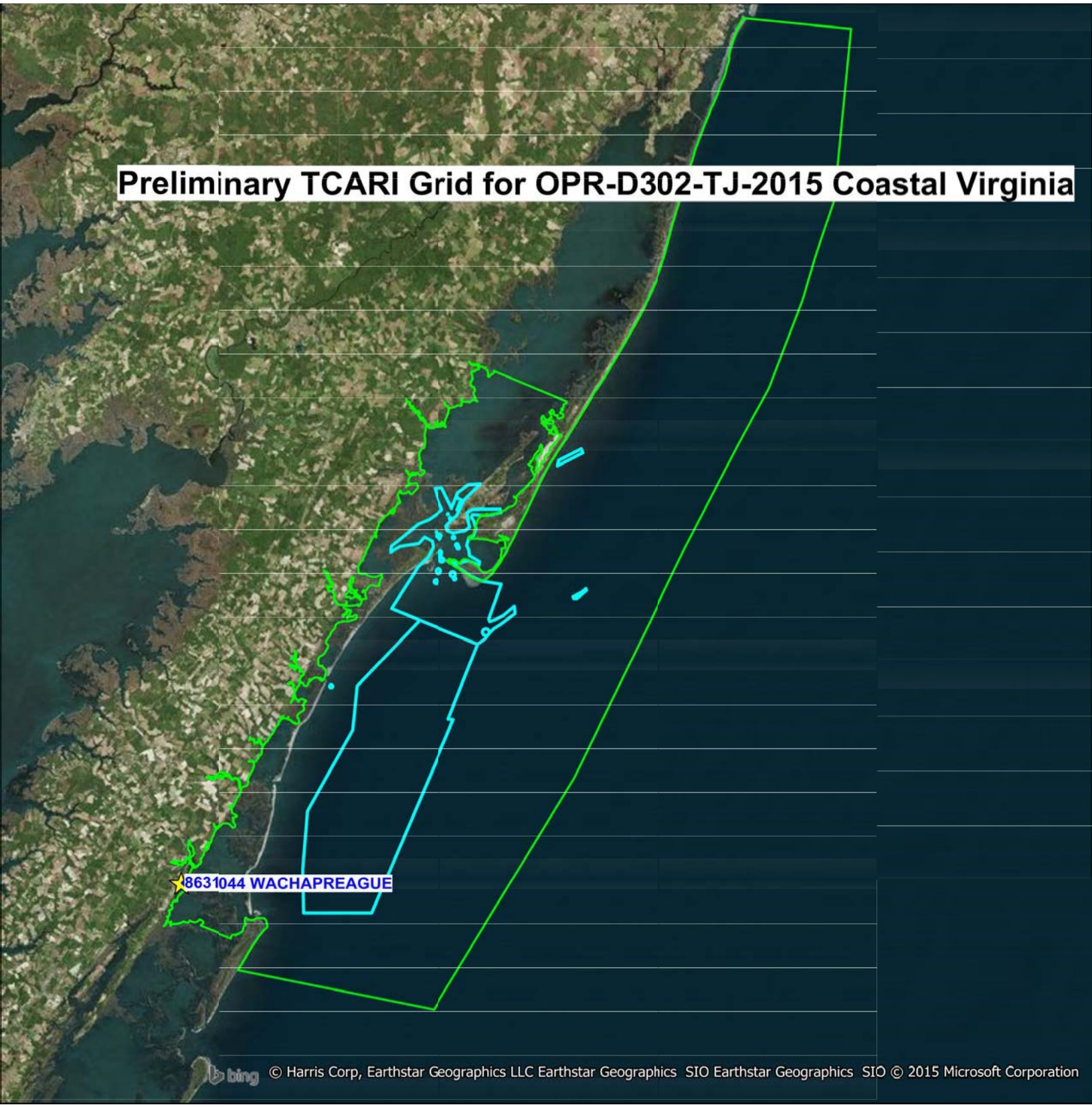
Field Unit	OPR	Project Name	Calendar Year	Area (SNM)	Project Number *	Registry Number
NOAA Ship THOMAS JEFFERSON	D302	Chincoteague Inlet	2015	19.5	OPR-D302-TJ-15	H12856
NOAA Ship THOMAS JEFFERSON	D302	Chincoteague Inlet	2015	32.4	OPR-D302-TJ-15	H12854
NOAA Ship THOMAS JEFFERSON	D302	Chincoteague Inlet	2015	34	OPR-D302-TJ-15	H12853
NOAA Ship THOMAS JEFFERSON	D302	Chincoteague Inlet	2015	0.4	OPR-D302-TJ-15	H12855



OPR-D302-TJ-15
Chincoteauge Inlet
CORS Sites
12/02/2015

Field Unit	OPR	Project Name	Calendar Year	Area (SNM)	Project Number *	Registry Number
NOAA Ship THOMAS JEFFERSON	D302	Chincoteague Inlet	2015	19.5	OPR-D302-TJ-15	H12856
NOAA Ship THOMAS JEFFERSON	D302	Chincoteague Inlet	2015	32.4	OPR-D302-TJ-15	H12854
NOAA Ship THOMAS JEFFERSON	D302	Chincoteague Inlet	2015	34	OPR-D302-TJ-15	H12853
NOAA Ship THOMAS JEFFERSON	D302	Chincoteague Inlet	2015	0.4	OPR-D302-TJ-15	H12855




Preliminary TCARI Grid for OPR-D302-TJ-2015 Coastal Virginia
8631044 WACHAPREAGUE
bing
© Harris Corp, Earthstar Geographics LLC Earthstar Geographics SIO Earthstar Geographics SIO © 2015 Microsoft Corporation

WATER LEVEL INSTRUCTIONS
OPR-D302-TJ-2015 Coastal Virginia
(11/06/2015 LH)

1.1. TIDES AND WATER LEVELS

1.2. Specifications

Tidal data acquisition, data processing, tidal datum computation and final tidal zoning shall be performed utilizing sound engineering and oceanographic practices as specified in National Ocean Service (NOS) Hydrographic Surveys Specifications and Deliverables (HSSD), dated May 2015, and OCS Field Procedures Manual (FPM), dated April, 2014. Specifically reference Chapter 4 of the HSSD and Sections 1.5.8, 1.5.9, 2.4.3, and 3.4.2 of the FPM.

1.3. Vertical Datums

The tidal datums for this project are referenced to Chart Datum, Mean Lower Low Water (MLLW) and Mean High Water (MHW). Soundings are referenced to MLLW and heights of overhead obstructions (bridges and cables) are referenced to MHW.

1.3.1. Water Level Data Acquisition Monitoring

The Commanding Officer (or Team Leader) and the Center for Operational Oceanographic Products and Services (CO-OPS) are jointly responsible for ensuring that valid water level data are collected during periods of hydrography. The Commanding Officer (or Team Leader) is required to monitor the pertinent water level data via the CO-OPS Web site at http://tidesandcurrents.noaa.gov/hydro.shtml, or through regular communications with CO-OPS/Oceanographic Division (OD) personnel before and during operations. During traditional non duty hours, the Commanding Officer/Team Leader may contact the Continuous Operational Real-Time Monitoring System (CORMS) watch stander who is available 24 hours/day - 7 days/week for assistance in assessing the status of applicable water level station operation. The CORMS watch stander may be contacted either by phone at 301-713-2540 or by email: CORMS@noaa.gov. Problems or concerns regarding the acquisition of valid water level data identified by the Commanding Officer/Team Leader shall be communicated with CO-OPS/OD (nos.coops.hpt@noaa.gov) to coordinate the appropriate course of action to be taken such as gauge repair and/or developing contingency plans for hydrographic survey operations. In addition, CO-OPS is required to coordinate with the Commanding Officer (or Team Leader) before interrupting the acquisition of water level data for the NWLON stations mentioned above for any reason during periods of hydrography.

1.3.2. The Hydro Hot List (HHL)

Please contact the CO-OPS/Hydrographic Planning Team (HPT) at nos.coops.hpt@noaa.gov and the Operational Engineering Team (OET) at nos.coops.oetteam@noaa.gov at least three business days before survey operations begin, and within 1 business day after survey operations are completed so that the appropriate CO-OPS National Water Level Observation Network (NWLON) control water level station is added to or removed from the CO-OPS Hydro Hotlist (HHL) (http://tidesandcurrents.noaa.gov/hydro). Include start and end survey dates, full project number (e.g. OPR-H355-TJ-10), and control station numbers. The notification must be sent to both teams as OET is responsible for configuring the stations in the CO-OPS data base and HPT manages the addition and removal of stations from the HHL.

Station	Station ID	Residual Control	Type (NWLON, PORTS©, etc.)	Comment
Wachapreague, VA	8631044	Residual Control	NWLON	

Table 1: All stations that need to be added to the HHL in support of D302TJ2015

It is important to know that the addition of a water level station to the HHL ensures the station is monitored by CORMS and any problems are reported daily. However, platforms should view the HHL each morning of active survey operations and click on the "Plot" to double check that there are no problems with the required stations on that day. If a platform notices problems with data on their survey day of operation, please contact HPT at nos.coops.hpt@noaa.gov, CORMS at CORMS@noaa.gov, and their respective headquarters point of contact at HSD or NSD. Stations on the HHL are given priority for maintenance should a station cease normal operation during scheduled times of hydrography. CO-OPS will notify a field unit within 1 business day if a HHL water level station ceases operation during scheduled times of hydrography. This is in addition to the daily CORMS report that CORMS sends to NOAA field units, if the field unit's e-mail address is added to the CORM's daily e-mail list. To be added to the CORMS daily HHL report, the platform should contact CO-OPS' Data Monitoring and Analysis Team (DMAT) at nos.co-ops.dmat@noaa.gov and request to be added.

If the stations are listed on HHL, then weekly priority processing will occur and, for those water level stations, verified 6-minute water level data will be made available every week on Monday or Tuesday. If Monday happens to be a federal holiday, then the 6-minute verified water level data will be made available on the following Tuesday or Wednesday. In order to ensure that verified data is correctly downloaded please **select a date that is more than 7 days prior to the day of interest** in the 'From' field on the CO-OPS website.

1.4. Operating Tide Reducer Stations

1.4.1. CO-OPS Long Term Water Level Station Operation and Maintenance

The NWLON station Wachapreague, VA (8631044), will provide water level reducers for this project. Therefore it is critical that it remains in operation during the survey. See Sections 1.1. and 1.2. concerning responsibilities.

No leveling is required at Wachapreague by NOAA's THOMAS JEFFERSON personnel.

CO-OPS/FOD is responsible for the operation and maintenance of all NWLON primary control stations. If a problem is identified at an NWLON primary control station, FOD shall make all reasonable efforts to repair the malfunctioning station. However, CO-OPS may request assistance from the NOAA ship or NRT personnel in the actual repair of the water level station to facilitate a rapid repair. CO-OPS/FOD and the Commanding Officer (or Team Leader) shall maintain the required communications until the repairs to the water level station have been completed.

1.4.2. Subordinate Station Requirements

No subordinate water level stations are required for this project, however, supplemental and/or back-up water level stations may be necessary depending on the complexity of the hydrodynamics and/or the severity of the environmental conditions of the project area. The installation and continuous operation of water level measurement systems (tide gauges) at subordinate station locations is left to the discretion of the Commanding Officer (or Team Leader), subject to the approval of CO-OPS. If the Commanding Officer (or Team Leader) decides to install additional water level stations, then a 30-day minimum of continuous data acquisition is required. For all subordinate stations, data must be collected throughout the

entire survey period for which they are applicable, and not less than 30 continuous days. This is necessary to facilitate the computation of an accurate datum reference as per NOS standards.

1.4.3. Tide Component Error Estimation

This section 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. Uncertainty values input into TCARI model are 2-sigma. Pydro will automatically supply 1-sigma values to CARIS when computing uncertainty.

1.4.4. GOES Satellite Enabled Subordinate Stations

This section is not applicable for this project.

1.4.5. Benchmark Recovery and GPS Requirements

This section is not applicable for this project.

1.4.6. Residual Water Level Station(s) Data

Tidal Constituent And Residual Interpolation (TCARI) method uses harmonic constituents and residuals from historical and operating water level stations to provide precise water level correction for bathymetric surveys. Download the Preliminary/Verified data at following water level station(s) data for all periods of survey.

The operating station at Wachapreague, VA (8631044) will provide residuals for this project and must remain in operation during all periods of hydrography.

Station Number	Station Name	Latitude(N)	Longitude(W)
8631044	**Wachapreague, VA**	**37° 36.4'**	**75° 41.2'**

1.5. Tidal Constituent and Residual Interpolation (TCARI)

1.5.1. For hydrography in the area of Coastal Virginia, apply the TCARI grid "D302TJ2015.tc" supplied in conjunction with the water level data from Section 1.3.6 to produce a seamless tide correction. Refer to the TCARI Field SOP for detailed TCARI instructions.

1.5.2. This section is not applicable for this project.

1.5.3. TCARI Graphic

A diagram which includes the exported TCARI grid boundary is provided in digital copy format to assist with the information provided in section 1.4.1.

1.5.4. TCARI Final Solutions

Upon completion of project, submit a Pydro generated request for smooth tides, with times of hydrography abstract and mid/mif tracklines attached. Forward this request to final.tides@noaa.gov. Provide the project number, as well as sheet number, in the subject line of the email.

CO-OPS will review the times of hydrography, final tracklines, and six-minute water level data from all applicable water level gauges. If there are any discrepancies, CO-OPS will make the appropriate adjustments and forward a revised TCARI grid and solutions to the field group and processing branch for final processing.

1.6. Fetchtides

Preliminary and verified six minute water level time series data may be retrieved from the CO-OPS database via the Fetchtides application. Fetchtides provides a mechanism to store imported data locally and combines multiple days of data into one CARIS readable tide (.tid) file. Fetchtides is available for download at Hydrosoft Online (https://inside.nos.noaa.gov/hydrosoft/hydrosoftware.html. For more information, please see the Fetchtides User Manual in the FPM chapter 3 appendix.

1.6 Water Level Records

This section is not applicable for this project.