



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

Final Project Instructions

Date Submitted: March 20, 2017

Platform: NOAA Ship *Rainier*

Project Number: RA-17-01 (OMAO)

Project Title: Puget Sound, WA

Project Dates: April 4, 2017 to April 20, 2017

Prepared by: _____ Dated: 3/20/2017
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Chief, Operations Branch
Hydrographic Surveys Division

Approved by: _____ Dated: 3/20/2017
Captain Richard Brennan, NOAA
Chief, Hydrographic Surveys Division
Office of Coast Survey

Approved by: _____ Dated: _____
Commander Brian Parker, NOAA
Commanding Officer
Marine Operations Center – Pacific

I. Overview

A. Brief Summary and Project Period

This survey is scheduled to begin in April 2017 and end in May 2017. This project is being conducted in support of NOAA’s Office of Coast Survey’s mission to provide contemporary hydrographic data in order to update nautical charting products and reduce survey backlog in the area.

B. Days at Sea (DAS)

Of the 14 DAS scheduled for this project, 0 DAS are funded by an OMAO allocation, 14 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

The project area is located in Puget Sound, WA offshore of Everett, WA. A map of the project area can be found with the detailed project instructions appended to this document.

D. Summary of Objectives

This project will support the following primary mission:

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

NOAA Office of Coast Survey

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

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Pagano, Laura	Physical Scientist	4/4/2017	4/20/2017	Female	NOAA	USA
Wozumi, Toshi	Physical Scientist	4/4/2017	4/20/2017	Male	NOAA	USA

G. Administrative

1. Points of Contacts:

Principal Investigator:
Lieutenant Russell Quintero, NOAA
Chief, Operations Branch
Hydrographic Surveys Division
1315 East West Hwy, #6854 Silver
Spring, MD 20910
301-713-2702 x112
russell.quintero@noaa.gov

Project Manager:
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

Back up Project Manager:
Meredith Payne
Physical Scientist, Operations Branch
Hydrographic Surveys Division
1315 East West Hwy, #6854
Silver Spring, MD 20910
301-713-2698 x113
meredith.payne@noaa.gov

Chief Scientist:
CDR John Lomnický, NOAA
Commanding Officer, NOAA Ship *Rainier*
2002 SE Marine Science Drive
Newport, Oregon 97365-5229
(206) 660-8747
CO.Rainier@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/>

In addition, the Office of Coast Survey has implemented Best Management Practices (BMPs) based on the ESA mitigation and monitoring measures agreed to between the OCS Hydrographic Surveys Division (HSD) and the NMFS Office of Protected Resources (OPR-ESA) and documented in the April 30, 2013 Biological Opinion. They were adopted in the context of the ESA, but include BMPs for marine mammals listed in the ESA (“depleted” under MMPA).

For further information on the BMPs, please refer to the Environmental Compliance Section of the Hydrographic Survey Project Instructions. For further information on the OCS Regulations and Policies go to:

<http://www.nauticalcharts.noaa.gov/Legal/>

II. Operations

The Chief Scientist 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:

Project	Depart	Arrive	Programs	DAS
Inside Passage Transit (RA-17-01 - Leg 1)	Newport, OR 2017-04-04	Kodiak, AK 2017-04-20	NOS	17

B. Staging and Destaging:

None Required

C. Operations to be Conducted:

Hydrographic survey operations shall be conducted per the appended project instructions.

The ship and/or survey launches shall operate for a combined total of 40 hr/day for data acquisition and project field support. To achieve this, the Commanding Officer may elect to run 24 hr ship survey operations for short or extended periods with reduced launch operations as long as the total hours per day are achieved.

D. Dive Plan

All dives are to be conducted in accordance with the requirements and regulations of the NOAA Diving Program (<http://www.ndc.noaa.gov/dr.html>) and require the approval of the ship's Commanding Officer.

Dives are not planned for this project.

E. Applicable Restrictions

Conditions which preclude normal operations:

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

III. Equipment

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

- a. Four survey launches fully-outfitted with hydrographic survey equipment to support multibeam and/or side scan and/or vertical beam sonar survey operations.
- b. Ship fully-outfitted with hydrographic survey equipment to support multibeam and/or side scan sonar survey operations.
- c. Personnel to staff and operate the survey equipment on the launches and ship for the required operational hours/day described in Section II. C. Operations to be Conducted.
- d. A fully-staffed survey department to efficiently manage the project's data processing requirements.

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

IV. Hazardous Materials

A. Policy and Compliance

No Hazardous Materials are being brought aboard the ship 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 Chief Scientist and 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. The ship's Operations Officer usually is delegated to assist the Chief Scientist in arranging this meeting.

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 conducted 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 Chief Scientist, and members of the scientific party and is normally arranged by the Operations Officer and Chief Scientist.

D. Project Evaluation Report

Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the Chief Scientist. The form is available at <http://www.omaο.noaa.gov/connect/omaο-website-customer-satisfaction-survey> 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 ship by the Chief Scientist. The Chief Scientist and Commanding Officer will work together 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. The Chief Scientist is responsible for ensuring the scientific berthing spaces are left in the condition in which they were received; for stripping bedding and linen return; and for the return of any room keys which were issued. The Chief Scientist is also responsible for the cleanliness of the laboratory spaces and the storage areas utilized by the scientific party, both during the project and at its conclusion prior to departing the ship.

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The Chief Scientist will ensure that all non NOAA or non Federal scientists aboard also have proper orders. It is the responsibility of the Chief Scientist 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 the Chief Scientist or the NOAA website <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 – Pacific
2002 SE Marine Science Dr.
Newport, OR 97365
Telephone 541-867-8822
Fax 541-867-8856
Email MOP.Health-Services@noaa.gov

Prior to departure, the Chief Scientist must provide an electronic listing of emergency contacts to the Executive Officer 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 Chief Scientist to ensure members of the scientific party report aboard with the proper attire.

D. Communications

A progress report on operations prepared by the Chief Scientist may be relayed to the program office. Sometimes it is necessary for the Chief Scientist to communicate with another vessel, aircraft, or shore facility. Through various means of communications, the ship can usually accommodate the Chief Scientist. Special radio voice communications requirements should be listed in the project instructions. 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.

IX. Appendices

1. Primary Project Instructions: OPR-N305-RA-17 Puget Sound, WA

Hydrographic Survey Project Instructions

Project Name:	Puget Sound, WA
Project Number:	OPR-N305-RA-17
Assigned Field Unit:	NOAA Ship <i>Rainier</i>
Assigned Processing Branch:	Pacific Hydrographic Branch
Signed Date:	03/20/2017
Project Instructions Version:	Final
Planned Acquisition Time:	Start Date: 04/2017 End Date: 05/2017
Delivery Dates:	120 days from completion of data acquisition.

Purpose and Location:

This project will provide updated nautical charts in areas with primary traffic lanes for the large, deep draft vessels transiting to and from the region's busiest ports - Seattle, Tacoma and Everett. In addition, new surveys will support military traffic transiting to and from Bangor Naval Submarine Base and tug/barge, commercial / tribal fishing and recreational boating in the immediate area. The eastern portions of the survey area will encompass The Port of Everett which is an essential element in the aviation supply chain to Boeing. Its facilities accommodate all the oversized aerospace parts for the 747, 767, 777 and 777X airplanes, and serves as a backup for the 787 Dreamliner. These parts arrive to the Port's deep-water shipping terminals from Japan. Port of Everett is a large export terminal for logs. The proposed survey encompasses Naval Station Everett, home port to two destroyers and two USCG vessels. Additionally, USS Nimitz will return to her home port in Everett in 2018. The Washington State Ferries' Mukilteo/Clinton ferry route falls within this area and in 2015 this ferry run transported 4,113,029 passengers. Survey data from this project is intended to supersede all prior survey data in the common area.

Supporting Documents:

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

NOS Hydrographic Surveys Specifications and Deliverables Manual (HSSD), March 2016

NOS Field Procedures Manual for Hydrographic Surveying (FPM), April, 2014

Hydrographic Survey Technical Directive (HTD): 2016-2 Configuration Management

Hydrographic Survey Technical Directive (HTD): 2016-3 Horizontal Datums

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:** Puget Sound, WA

<i>Registry Number</i>	<i>Sheet Number</i>	<i>Sublocality</i>	<i>State or Territory</i>	<i>Scale</i>	<i>Estimated SNM</i>	<i>Instructions</i>
H12991	1	Approaches to Everett, WA	Washington	10000	38	All waters within limits of ENC US5WA51M perform Object Detection Coverage. ENC US5WA51M extents have been provided in the GIS Files folder of the project deliverables. Naval Station Everett is located on the eastern portion of this sheet. Exercise extreme caution when navigating near this area. There is a security barrier in place and sheet limits are drawn around it. Refer to note J on chart 18444 and restricted area depicted on US5WA51M.
H12993	2	Holmes Harbor to Elger Bay	Washington	20000	14	
H12994	3	Vicinity of Hansville, WA	Washington	20000	18	
H12995	4	Approach to Port Gamble, WA	Washington	12500	10	
F00692	5	Dungeness Bay Shoal Investigation	Washington	10000	1	Shoaling has been reported in the area. Use extreme caution when navigating to the investigation area. Mariner reported depths of 5 feet.

Limits & Coverage:	
<i>Inshore Limit:</i> The Inshore Limit is the Navigable Area Limit Line (Refer to HSSD 1.2.2).	
Coverage Requirements:	
<i>Coverage Water Depth</i>	<i>Coverage Required</i>
All waters within ENC US5WA51M Boundary	Object Detection Coverage (refer to HSSD Section 5.2.2.2 and 6.2)
All other waters in survey area	Complete Coverage (refer to HSSD Sections 5.2.2.3 and 6.2)
All waters in F00692	Complete Coverage (refer to HSSD Sections 5.2.2.3 and 6.2)

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 HSSD Section 1.4 and all Best Management Practices (BMPs) listed at the end of the Project Instructions.

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 7.3.5 of the HSSD.

Maritime Boundary Points (MBPs):
There are no Maritime Boundary investigation requirements for this project.

Bottom Samples:
Obtain bottom samples in accordance with HSSD Sections 7.2 and 7.2.2. Do not acquire in greater than 80m of water.

Chart Comparison:

Perform a chart comparison in accordance with 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

<i>Chart Number</i>	<i>Scale</i>	<i>Edition Number</i>	<i>Edition Date</i>	<i>Kapp Number</i>	<i>LNМ Date</i>	<i>NM Date</i>
18444	10000	17	11/2009	1691	01/31/2017	01/28/2017
18477	25000	5	08/2001	1938	01/31/2017	01/28/2017
18476	40000	7	01/2017	1943	01/31/2017	01/28/2017
18473	40000	9	04/2016	1937	01/31/2017	01/28/2017
18443	40000	17	01/2010	1690	01/31/2017	01/28/2017
18441	80000	48	01/2017	1689	02/08/2017	02/08/2017

Affected ENCѕ

<i>ENC Name</i>	<i>Scale</i>	<i>Edition</i>	<i>Update Application Date</i>	<i>Issue Date</i>	<i>Preliminary</i>
US5WA51M	10000	17	01/24/2017	01/24/2017	YES
US5WA19M	25000	17	10/06/2016	10/06/2016	NO
US5WA17M	40000	22	11/07/2016	11/07/2016	NO
US5WA50M	40000	14	12/07/2016	12/07/2016	NO
US4WA11M	80000	31	01/24/2017	01/24/2017	NO

Coast Pilot:

Perform a Coast Pilot Review as described in HSSD Section 8.1.3. There is a Coast Pilot Investigation document in the "Coast Pilot" folder of the project deliverables. This document contains issues that have been brought to the attention of the Coast Pilot branch as needing verification.

Dangers to Navigation (DTONs):

Generate DTON reports in accordance with Section 1.5 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:

Perform a junction analysis with the surveys listed below and between current project sheets. Refer to HSSD Section 8.1.4 Junction guidance.

<i>Registry Number</i>	<i>Scale</i>	<i>Year</i>	<i>Platform</i>	<i>Relative Location</i>
H11556	5000	2006	Navigation Response Team 3	E
H12053	10000	2009	Williamson & Associates, Inc.	E
H12419	10000	2012	NOAA Ship <i>Fairweather</i>	N
H12420	10000	2012	NOAA Ship <i>Fairweather</i>	N
W00166	25000	2004	US Navy	S

Progress Reports:

Submit weekly (refer to HSSD Section 8.1.1.1) and monthly (refer to HSSD Section 8.1.1.2) progress reports.

Survey Outlines:

Generate and submit survey outline in accordance with Section 8.1.2 of the HSSD.

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

If used, 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.

Ellipsoidally-Referenced Survey via VDATUM

This project has a requirement to acquire survey data vertically-referenced to the ellipsoid. Based on analysis of existing infrastructure, this will most likely be achieved through existing CORs stations and a single/smartbase solution. For this project, the field unit shall use a VDatum Separation Model to realize chart datum via the ellipsoid. At the commencement of survey operations, checklines shall be acquired across the entirety of the survey to identify any systematic procedural, hardware, or configuration errors prior to the bulk of data acquisition. To determine the quality of the 3D trajectory, the checkline crossline analysis shall be performed between the ERZT separation model and the VDatum separation model. If the field's recommendation on the method of acquiring 3D trajectories and the method of reducing the ellipsoid-referenced data to chart datum proves valid, all survey lines shall be delivered with 3D trajectory and associated uncertainty files applied (e.g. SBETs and RMS) and GPS tides computed. All delivered grids shall be derived via the ellipsoid. If at any point the field unit experiences difficulty in realizing chart datum via the ellipsoid, the field shall communicate with the HSD Project Manager for guidance on how to proceed.

VDATUM Model

<i>VDatum Version</i>	<i>Geoid</i>	<i>Area</i>	<i>Area Version</i>	<i>Separation Uncertainty</i>
3.6.1	2012	Washington - Puget Sound	2.0	9.7 centimeters

NWLON Gauges

<i>Operating Water Level Station</i>	<i>Station ID</i>
Port Townsend	9444900
Seattle	9447130

Orthometric Imagery:

No Orthometric Imagery has been provided for this project.

Shoreline and Nearshore Features:

Submit a Final Feature File in accordance with HSSD Section 7. Contact the HSD Project Manager if there are any questions regarding feature assignments and feature management.

Additional Task: *Office of Coast Survey Blog Post*

Submit Coast Survey blog content, as per the attached guidance, at least once per project.

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 x107

Email: patrick.keown@noaa.gov

Obligation: Mandatory

Backup Project Manager

Meredith Payne

NOAA

Phone: 301-713-2702 x101

Email: meredith.payne@noaa.gov

Obligation: For Reference

Navigation Manager

Crescent Moegling

NOAA

Phone: 206-526-6840

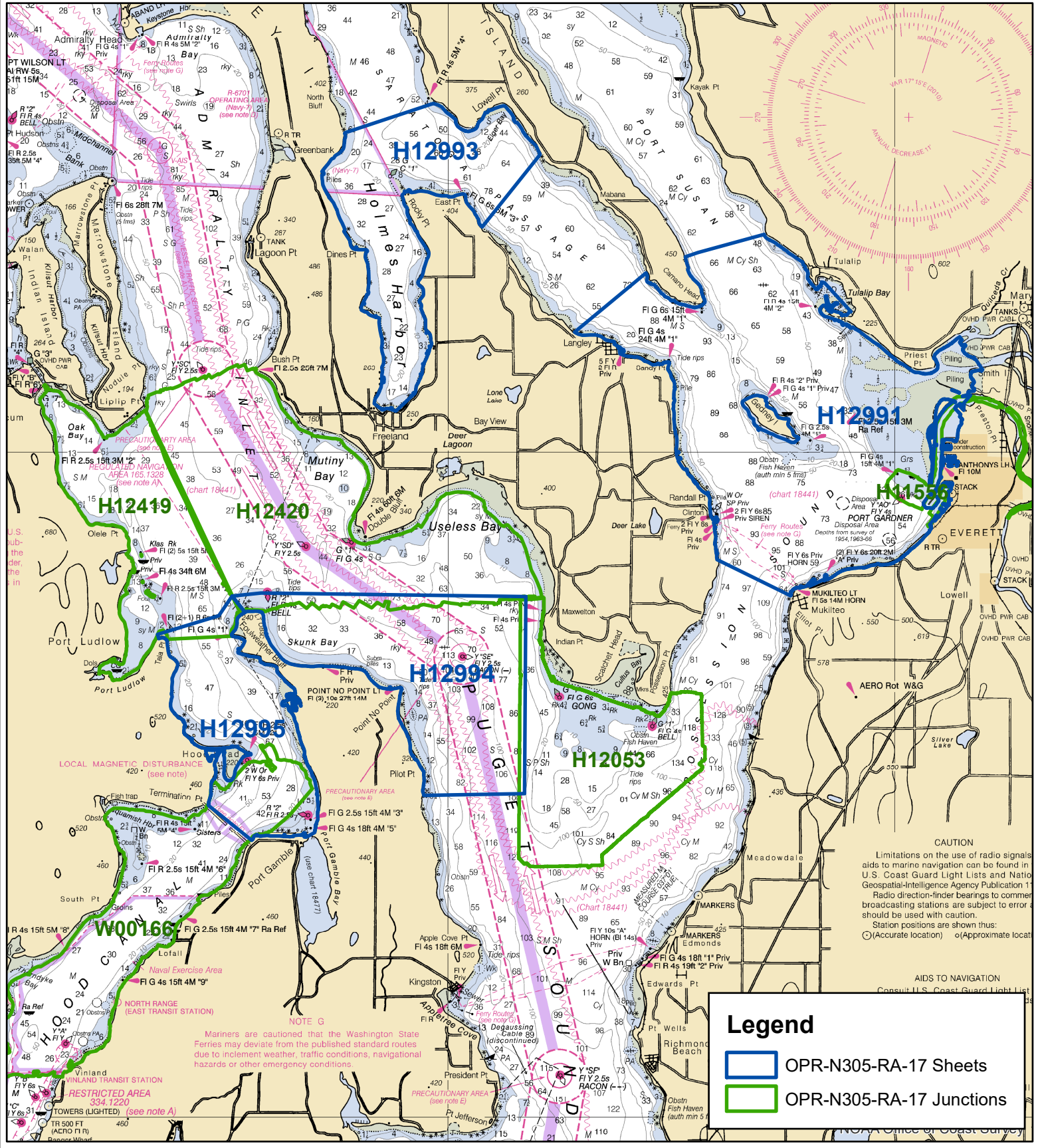
Fax: 206-526-4514

Email: crescent.moegling@noaa.gov

Obligation: Mandatory

OPR-N305-RA-17 Puget Sound, WA Sheet Layout 3/10/2017

Total SNM - 81



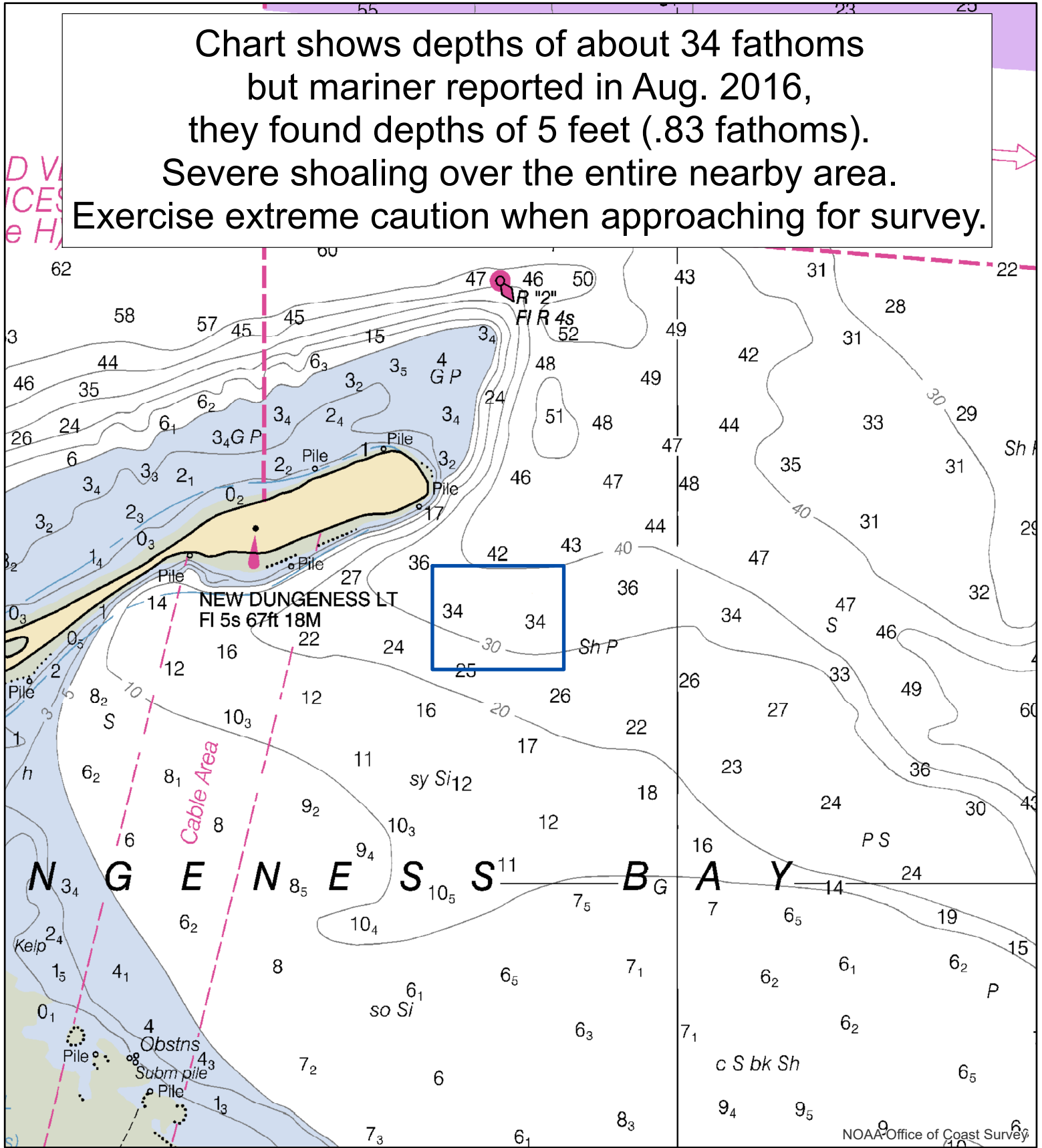
Legend

- OPR-N305-RA-17 Sheets
- OPR-N305-RA-17 Junctions

OPR-N305-RA-17
Dungeness Bay
Shoal Investigation
3/10/2017

Total SNM - .08

Chart shows depths of about 34 fathoms but mariner reported in Aug. 2016, they found depths of 5 feet (.83 fathoms). Severe shoaling over the entire nearby area. Exercise extreme caution when approaching for survey.



Report Number	29226
Status	Unclaimed
Date Submitted	Friday, February 10, 2017 11:12 AM
Name	
Organization	
Email	mikem@yachtsdelivered.com
Phone Number	
Time Zone	
Date Observed	
Time Observed	
Affected Chart	18645
Position	
From Web Page	Main Discrepancy
Discrepancy	Entered from email by N. Perugini 48 10 41 N 123 05 41 W Shows depths of about 35 feet. I was there in Aug. 2016, found depths of 5 feet. Sever shoaling over the entire nearby area. Regards, Mike Maurice
Forwarded To	NDB: ocs.ndb@noaa.gov,Tara.Wallace@noaa.gov sent 2/10/2017 11:18:56 AM

Responder	None
Group	None
Research	
Response	
How Received	website
Organization	Select Organization
Subject	Select Subject
Effort	low
Minutes Worked	0
Charting Action	No
Subject	Select Subject

Close

WATER LEVEL INSTRUCTIONS
OPR-N305-RA-2017 Puget Sound and Vicinity
(02/07/2017 LH)

1.0. TIDES AND WATER LEVELS

1.1. 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 March 2016, 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.

1.2. 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.

1.2.1. 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.

1.2.2. 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	Control or Subordinate	Type (NWLON, PORTS®, etc.)	Comment
Port Townsend	9444900	Control	NWLON	
Seattle	9447130	Control	NWLON	

Table 1: All stations that need to be added to the HHL in support of N305-RA-2017

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.

1.3. Operating Tide Reducer Stations

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

The NWLON stations Port Townsend, WA (9444900) and Seattle, WA (9447130), will provide water level reducers for this project. Therefore it is critical that they remain in operation during the survey. See Sections 1.1. and 1.2. concerning responsibilities.

No leveling is required at Port Townsend, WA (9444900) or Seattle, WA (9447130), by NOAA’s Rainier 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.

1.3.2. 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.

1.3.3. 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.

1.3.4. GOES Satellite Enabled Subordinate Stations

This section is not applicable for this project.

1.3.5. Benchmark Recovery and GPS Requirements

This section is not applicable for this project.

1.3.6. 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 stations at Port Townsend, WA (9444900) and Seattle, WA (9447130), will provide residuals for this project and must remain in operation during all periods of hydrography.

<u>Station Number</u>	<u>Station Name</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
9444900	Port Townsend, WA	48°06.7'	122°45.5'
9447130	Seattle, WA	47°36.1'	122°20.4'

1.4. Tidal Constituent and Residual Interpolation (TCARI)

1.4.1. For hydrography in the area of Puget Sound and Vicinity apply the TCARI grid “N305RA2017.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.

1.4.2. This section is not applicable for this project.

1.4.3. 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.

1.4.4. 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 Water Level Records

This section is not applicable for this project.

Preliminary TCARI Grid for OPR-N305-RA-2017 Puget Sound and Vicinity

9444900 PORT TOWNSEND

9447130 SEATTLE



PUBLIC COMMUNICATIONS

NOAA gives OMAO platforms significant latitude in planning their own public affairs activities. However, the chief science officer is obligated to provide at least one blog post for this project. The blog post should describe, in plain language, one or more of the following project aspects:

- Contribution to the marine transportation system or ocean planning partnerships
- Collaboration with local or regional communities or industry
- Innovative use of science or technology
- Project relationship to historical events or programs
- Other project aspects, mutually agreed between the science officer and Coast Survey communications staff

The length of the blog post should be as long as required to effectively communicate the main idea, but ideally run about 1,000 words. The absolute maximum is 2,500 words. See the blog at <https://noaacoastsurvey.wordpress.com> for examples of writing styles.

Consult with Coast Survey communications staff (coastsurveycommunications@noaa.gov) to schedule submission and publication dates. Submit the draft post in Word format. Include the name and rank of the author. Photos and other images must be submitted as separate digital files (not embedded in the Word document – except to illustrate image placement). Include suggested image captions, with all people identified by name. Any photo showing the faces of children under the age of 18 must be accompanied with a NOAA Talent Release Form, signed by the parent or guardian. (Commerce Department-authorized release forms are at: <https://ogc.commerce.gov/page/intellectual-property-1>.)

In most cases, giving a photo credit is at your discretion. For example, if you are using a photograph taken and provided by a NOAA employee while on official duty, that photograph will be considered the property of NOAA and may be used freely with or without credit. The same holds true if you obtained a photograph from another federal agency. However, as a courtesy, you may give a photo credit.

(REMINDER: You could be violating the Marine Mammal Protection Act if you disturb animals while taking photos of them. It's against the law to harass mammals, and harassment is defined very broadly to include "causing disruption of behavioral patterns.")

The Coast Survey communications staff will coordinate review and edits of the blog post with the OMAO public affairs office, and will provide suggested final text to the author and science officer, for final review, prior to publication.

OPR-N305-RA-17 Puget Sound, WA

PROPOSED BEST MANAGEMENT PRACTICES (BMPs) FOR HYDROGRAPHIC SURVEYS

The following BMPs are based on the ESA mitigation and monitoring measures agreed to between the OCS Hydrographic Services Division (HSD) and the NMFS Office of Protected Resources (OPR-ESA) and documented in the April 30, 2013 Biological Opinion. They were adopted in the context of the ESA, but include BMPs for marine mammals listed in the ESA (“depleted” under MMPA). OCS proposes that these BMPs be applied to all OCS hydro work while MMPA compliance is underway. In all cases BMPs will be communicated to ship and boat crews via project instructions. Contractors will additionally be made aware of BMPs via contract RFPs.

Universal BMPs (those to be included in all OCS project instructions):

Vessel Speed Limits

- Slow speeds (4 – 8 knots) when mapping
- Reduced speeds (<13 knots) when transiting outside of the Great Lakes (**NOTE:** technically this BMP applies only to transits across the ranges of ESA-listed cetaceans, however these ranges cover all OCS operating areas except the Great Lakes – for example see the Blue Whale range at <http://www.nmfs.noaa.gov/pr/pdfs/rangemaps/bluewhale.pdf>)

Echosounder Restrictions

- Avoid using sonar frequencies < 180 kHz when possible
 - Suspend **multibeam** sonar transmissions of < 125kHz, when Southern Resident killer whales or Cook Inlet beluga whale are observed within hearing range (750 yards).
 - If **multibeam** sonar frequencies < 180 kHz must be employed, use echosounders at ≥ 50 kHz frequencies, with the lowest possible power and ping-rate
 - If **single beam** sonar frequencies < 180 kHz must be employed, use echo sounders at ≥ 30 kHz frequencies, with the lowest possible power and ping-rate and a 12° beam angle.
 - If **single beam** sonar frequencies < 30 kHz must be employed, suspend transmissions of 30 kHz or lower when ESA-listed cetacean species (whales, dolphins, and porpoises) are within hearing range (i.e., the 4.2 meter beam width).

Vessel Maintenance Requirements

- Meet all EPA Vessel General Permits and Coast Guard requirements
- Use anti-fouling coatings
- Clean hull regularly to remove aquatic nuisance species
- Avoid cleaners with nonylphenols
- Rinse anchor with high-powered hose after retrieval

Anchoring Restrictions

- Use designated anchorage area when available
- Use mapping data to anchor in mud or sand, to avoid anchoring on corals

- Minimize anchor drag

Visual Monitoring Requirements

- Maintain trained observers aboard all vessels; 100% observer coverage
- Make species identification keys (for marine mammals, sea turtles, corals, abalone, and seagrasses) available on all vessels

Animal Approach Restrictions

- Avoid approaching within 200 yards of cetaceans (whales, dolphins, and porpoises), 500 yards for right whales
- Suspend single beam sonar transmissions of 30 kHz when ESA-listed cetaceans (whales, dolphins, and porpoises) are within hearing range (i.e., within the 4.2 meter beam width).
- Avoid approaching within 100 yards of in-water seals and walrus
- When possible, suspend single beam sonar transmissions when ESA-listed seals and walruses are within hearing range (i.e., within the 4.2 meter beam width).
- Avoid approaching within 50 yards of sea turtles

Discharge Restrictions

- Avoid discharge of ballast water and hull cleaning in designated critical habitat

Appendix A
BMP Specific Locations

OPR-N305-RA-17
Puget Sound, WA
EC Restirctions
3/01/2017

Total SNM - 93

