



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:** April 6, 2015

**Platform:** NOAA Ship *Rainier*

**Project Number:** RA-15-03 (OMAO)

**Project Title:** OPR-P183-RA-15  
Approaches to Shumagin Islands

**Project Dates:** August 17, 2015 to September ~~04~~<sup>24</sup>, 2015

Prepared by: \_\_\_\_\_ Dated: 10-Apr-2015  
LCDR Michael O. Gonsalves, NOAA  
Chief, Operations Branch  
Hydrographic Surveys Division

Approved by: \_\_\_\_\_ Dated: 10-Apr-2015  
for CAPT Eric Berkowitz, NOAA  
Chief, Hydrographic Surveys Division  
Office of Coast Survey

Approved by: \_\_\_\_\_ Dated: \_\_\_\_\_  
CAPT Douglas D. Baird, Jr. NOAA  
Commanding Officer  
Marine Operations Center – Pacific



## I. Overview

### A. Brief Summary and Project Period

This survey is scheduled to begin in May 2015 and end in September 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 the survey backlog in the area.

### B. Days at Sea (DAS)

Of the 36 DAS scheduled for this project, All DAS are funded by Line Office Allocation, 0 DAS are program funded. This project is estimated to exhibit a High Operational Tempo.

### C. Operating Area

The project area is located in the Shumagin Islands, Alaska. A map of the project area may be found with the detailed project instructions appended to these instructions.

### D. Summary of Objectives

Hydrographic surveying to support safe navigation. Hydrographic data will be acquired and processed to update nautical charts and all dangers to navigation observed during survey operations will be identified and disseminated.

### E. Participating Institutions N/A

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

<b>Name (Last, First)</b>	<b>Title</b>	<b>Date Aboard</b>	<b>Date Disembark</b>	<b>Gender</b>	<b>Affiliation</b>	<b>Nationality</b>
Holmberg, Peter	PS	9/08/2001	9/24/2015	M	NOAA	USA
Reser, Katie	PS	05/18/2015	06/05/2015	F	NOAA	USA
Fandel, Christina	PS	05/18/2015	06/05/2015	F	NOAA	USA

### 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](mailto:Michael.Gonsalves@noaa.gov)

Project Manager:

Jacklyn James  
Physical Scientist, Operations Branch  
Hydrographic Surveys Division  
1315 East West Hwy, #6709  
Silver Spring, MD 20910  
(301) 713-2702 x120  
[Jacklyn.C.James@noaa.gov](mailto:Jacklyn.C.James@noaa.gov)

Chief Scientist:

CDR Edward J. Van Den Ameele, NOAA  
Commanding Officer, NOAA Ship *Rainier*  
2002 SE Marine Science Drive  
Newport, OR 97365-5229  
(206) 660-8747  
[CO.Rainier@noaa.gov](mailto:CO.Rainier@noaa.gov)

2. Diplomatic Clearances

N/A

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:

DEP	05/18/2015	Mon	Juneau, AK	RA-15-01 Leg 3*
ARR	06/05/2015	Fri	Kodiak, AK	OPR-P183_RA-15 Shumagin Islands
DEP	08/17/2015	Mon	Nome, AK	RA-15-03 Leg 1**
ARR	09/04/2015	Fri	Kodiak, AK	OPR-P183_RA-15 Shumagin Islands
DEP	09/08/2015	Tue	Kodiak, AK	RA-15-03 Leg 2
ARR	09/24/2015	Thu	Kodiak, AK	OPR-P183_RA-15 Shumagin Islands

\*To maintain flexibility, if RA-15-01 concludes prior to the scheduled date, RA-15-03 will be initiated during this leg.

\*\*To maintain flexibility, if weather permits, the RA will continue execution of project RA-15-02 during the leg, rather than RA-15-03.

B. Staging and Destaging:

N/A

C. Operations to be Conducted:

Hydrographic survey operations shall be conducted per the appended NOS/OCS/HSD/OPS project instructions using four survey launches up to 10 hr/day for data acquisition and project field support. The Commanding Officer may elect to run concurrent 24-hr ship survey operations for extended periods of time.

D. Dive Plan

Dive operations may occur to support the installation, servicing, and removal of a subordinate water level station. Due to the dynamic schedule of survey operations, the specific dates of the dives are not known well in advance. All dives will be conducted by ship's personnel. All dive plans, will be prepared and submitted by ship's personnel as soon as reasonable, and in accordance with the requirements and regulations of the NOAA Diving Program.

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. Four 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 shallow and mid water multibeam and/or side scan sonar survey operations.
3. Personnel and staff to 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/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.

D. Radioactive Materials

No Radioactive Isotopes are planned for this project.

#### **V. Additional Projects**

A. Supplementary ("Piggyback") Projects

To increase efficiency and mitigate risk, this project coincides with NOAA Ship Fairweather project FA-15-02. Rainier should maintain constant communications with Fairweather to ensure there is no duplication of effort.

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. The ship's Operations Officer usually is delegated to assist the 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 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.oma.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/noaforms/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](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](mailto: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](mailto:MOP.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-P183-FA-15 Shumagin Islands
2. Piggyback Project Instructions: OPR-P183-RA-15 Shumagin Islands

# Hydrographic Survey Project Instructions

<b>Project Name:</b>	Shumagin Islands
<b>Project Number:</b>	OPR-P183-RA-15
<b>Assigned Field Unit:</b>	NOAA Ship <i>Rainier</i>
<b>Assigned Processing Branch:</b>	Pacific Hydrographic Branch
<b>Signed Date:</b>	04/06/2015
<b>Project Instructions Version:</b>	Final
<b>Planned Acquisition Time:</b>	Start Date: 05/2015 End Date: 09/2015
<b>Delivery Dates:</b>	120 days from completion of data acquisition.

## **Purpose and Location:**

The purpose of this project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products. This area is considered navigationally significant and of critical survey priority. In addition, soundings will support a new, larger scale navigation chart. The project will cover approximately 647 square nautical miles (SNM), of which, 490 SNM are Critical Survey area and 157 SNM are Priority 1 as identified in the 2012 NOAA Hydrographic Survey Priorities (NHSP) document.

## **Supporting Documents:**

Hydrography shall consist of Navigable Area Surveys in accordance with the following support documents. Data from surveys is intended to supersede all prior survey data in the common area.

NOS Hydrographic Surveys Specifications and Deliverables Manual (HSSD), April 2014

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

Hydrographic Survey Technical Directive (HTD): 2015-1 Configuration Management

**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:** Shumagin Islands

<i>Registry Number</i>	<i>Sheet</i>	<i>Sublocality</i>	<i>State or Territory</i>	<i>Scale</i>	<i>Estimated SNM</i>	<i>Instructions</i>
H12758	1	Vicinity of Entranco Point	Alaska	40000	50	
H12759	2	10 NM North of Simeonof Island	Alaska	40000	58	
H12760	3	13 NM Northeast of Simeonof Island	Alaska	40000	60	
H12780	4	8 NM East of Simeonof Island	Alaska	40000	67	
H12781	5	13 NM Southeast of Simeonof Island	Alaska	40000	68	
H12782	6	12 NM South of Simeonof Island	Alaska	40000	77	
H12783	7	5 NM South of Chernabura Island	Alaska	40000	87	
H12784	8	7 NM Southwest of Bird Island	Alaska	40000	96	
H12785	9	10 NM South of Mountain Point	Alaska	40000	84	

**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 line defined by the distance seaward from the MHW line which is equivalent to 0.8 millimeters at the scale of the largest scale nautical chart.

**Coverage Type:** None Specified

<i>Coverage Water Depth</i>	<i>Coverage Required</i>
All waters in survey area	Either: A) Complete MBES with backscatter, OR B) 100% SSS with concurrent set line spacing MBES with backscatter. Note:

<b>Limits &amp; Coverage:</b>	
<i>Coverage Water Depth</i>	<i>Coverage Required</i>
	<p>Complete MBES is sufficient for both determination of least depth identified with SSS and for disproving a feature - 100% SSS is insufficient to disprove a feature. Refer to Section 6.1.2 of the HSSD to confirm proper SSS acquisition parameters. Gaps in SSS coverage should be treated as gaps in MBES coverage and addressed accordingly.</p>

### ***Assigned Tasks***

**Acknowledgement:**

The project manager for this project is Jacklyn James. 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.

**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:**

AWOIS items have been provided for information only. Please refer to the GIS files located within the project folder for reference.

**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 the project manager 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 number and density of samples as originally assigned in the PRF.

**Chart Comparison:**

Use only the latest editions of the largest scale NOS charts covering the project area. Perform a chart comparison in accordance with section 4.5 of the FPM and section 8.1.4, D.1 of the HSSD. 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.

***Affected Raster Charts***

<i>Chart Number</i>	<i>Scale</i>	<i>Edition Number</i>	<i>Edition Date</i>	<i>LNМ Date</i>	<i>NM Date</i>
16556	80000	6	07/2011	03/03/2015	02/14/2015
16540	300000	13	10/2010	03/03/2015	02/14/2015

***Affected ENCѕ***

<i>ENC Name</i>	<i>Scale</i>	<i>Edition</i>	<i>Update Application Date</i>	<i>Issue Date</i>	<i>Preliminary</i>
US4AK58M	80000	8	03/17/2011	03/17/2011	NO
US3AK50M	300000	17	04/09/2014	04/09/2014	NO

**Coast Pilot:**

Review and make recommendations for changes to the Coast Pilot in accordance with section 7.4 of the HSSD. In addition, address any directed questions found in the Coast Pilot Investigation Items document, included with the project files. Submit both documents, or a report stating no changes are recommended, via email to [coast.pilot@noaa.gov](mailto:coast.pilot@noaa.gov) and [ocs.ndb@noaa.gov](mailto:ocs.ndb@noaa.gov) with a courtesy copy to the HSD Operations project manager. Refer to sections 3.5.7 and 5.2.2.2.5 of the FPM for more information.

**Dangers to Navigation (DTONs):**

Generate DTON reports in accordance with the HSSD, section 8.1.3. DTON reports should be sent to [ocs.ndb@noaa.gov](mailto:ocs.ndb@noaa.gov). It is of paramount importance that DTONs be reported as soon as possible.

**Junctions:**

Junction with data from the surveys listed below. Refer to sections 2.2.2.3 and 4.5.2 of the FPM.

<i>Registry Number</i>	<i>Scale</i>	<i>Year</i>	<i>Platform</i>	<i>Relative Location</i>
H12072	40000	2009	NOAA Ship <i>Fairweather</i>	W
H12472	40000	2012	NOAA Ship <i>Rainier</i>	S
H12474	10000	2012	NOAA Ship <i>Rainier</i>	S
H12475	40000	2012	NOAA Ship <i>Rainier</i>	W
H12595	40000	2013	NOAA Ship <i>Rainier</i>	N
H12594	40000	2013	NOAA Ship <i>Rainier</i>	N
H12593	40000	2013	NOAA Ship <i>Rainier</i>	N
H11489	20000	2005	NOAA Ship <i>Fairweather</i>	N
H11472	20000	2005	NOAA Ship <i>Fairweather</i>	N
H12103	10000	2009	TENIX	E

**Progress Reports:**

Submit a weekly acquisition progress report during field operations, no later than Monday (close-of-business), each week of field acquisition, to the assigned HSD Operations project manager with a brief narrative summarizing the past week's activities and the anticipated plans for the coming week. This narrative should discuss such all activities related to mobilization/demobilization, control station installation, and data acquisition progress. Also, discuss any other major issues (e.g. significant weather delays, equipment failures, etc.) that may affect acquisition milestones. In addition, a graphic shall be provided showing an up-to-date coverage map, the project sheet limits, an appropriate chart, and a simple title block indicating the project name and

**Survey Outlines:**

Generate a survey outline in accordance with the HSSD, section 8.1.2. Submit survey outlines to [survey.outlines@noaa.gov](mailto: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.

***Discrete Zoning***

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.

***ERZT***

This project has a requirement to reference the survey data to the ellipse. Based on analysis of existing infrastructure, this will most likely be achieved through a combination of the existing PBO station and up to two field-installed control stations, using a single base processing solution (see image below). At the commencement of survey operations, check lines should be run across the entirety of any sheets for which the PBO station will be used for control, to confirm the operational status of the control station, and to measure the anticipated uncertainties of the single base solution. The results of these check lines should be reported back to HSD Operations. All survey lines shall be delivered with SBET/RMS files applied and GPS tides computed. The field shall be required to test the Ellipsoid Referenced Zoned Tides (ERZT) SOP and provide feedback on the procedures. Should the ERZT method prove successful, then all delivered grids at chart datum shall be derived via the ellipse. Within 60 days of the completion of acquisition, the field unit shall prepare an ERS Capability Memorandum, submitted to HSD Operations, summarizing the degree to which ERS surveying campaign was successful.

***NWLON Gauges***

<i>Operating Water Level Station</i>	<i>Station ID</i>
Sand Point	9459450

**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 even if they are inshore of NALL. 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**

Jacklyn James

NOAA

*Phone:* 301-713-2702 ext. 120

*Fax:*

*Email:* jacklyn.c.james@noaa.gov

*Obligation:* Mandatory

### **Secondary Project Manager**

Patrick Keown

NOAA

*Phone:* 301-713-2702 ext. 125

*Fax:*

*Email:* patrick.keown@noaa.gov

*Obligation:* For Reference

### **NOAA Navigation Manager, Alaska Region**

LT Timothy Smith

NOAA

*Phone:* 907-271-3327

*Fax:*

*Email:* timothy.m.smith@noaa.gov

*Obligation:* For Reference



Sheets within 40km  
of PBO station can  
likely be processed  
via Singlebase.

"AC12"

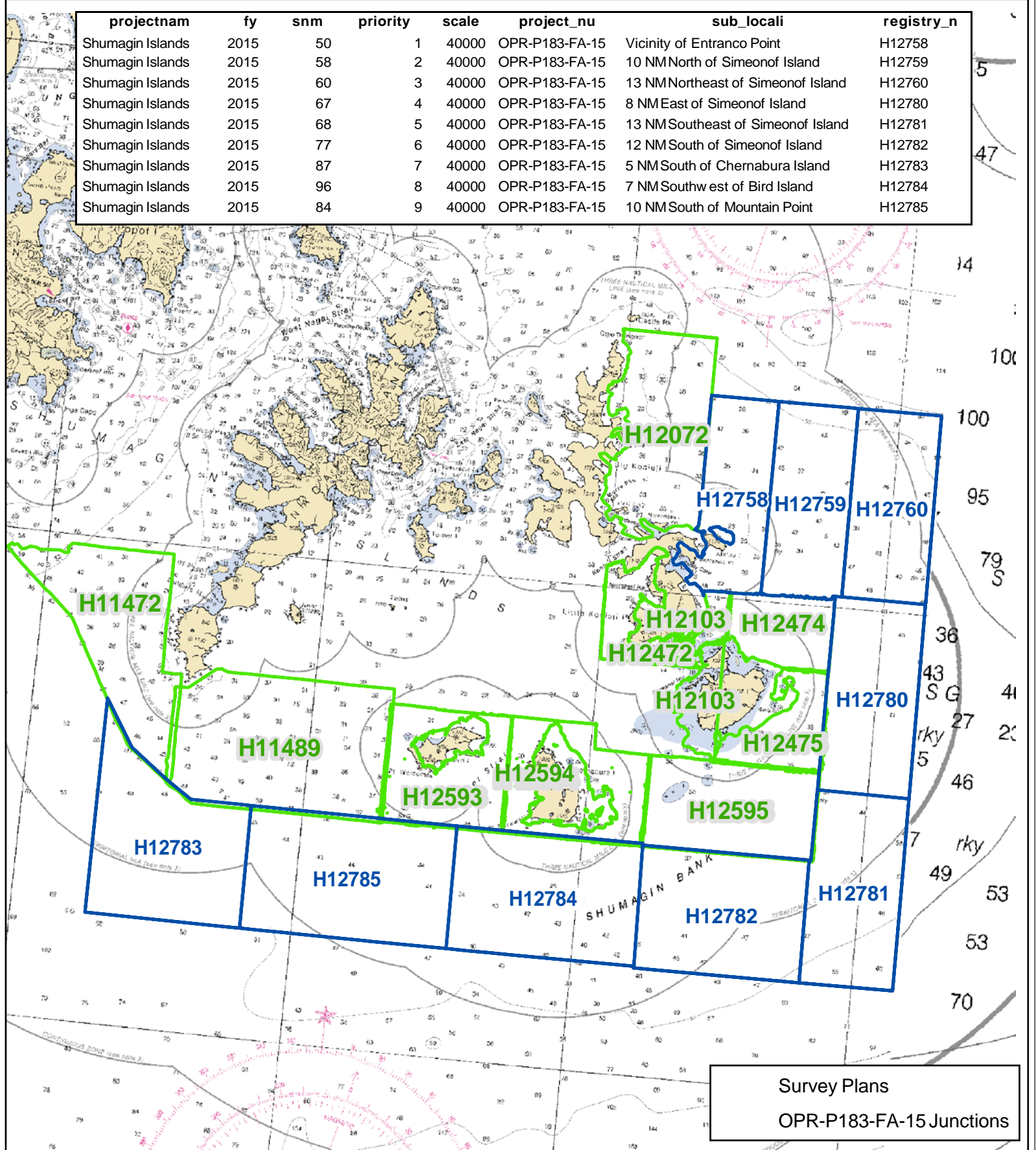
40 km

Sheets outside 40km of  
PBO station will likely  
require field-installed  
control stations.

# OPR-P183-FA-15 Shumagin Islands Sheet Layout 04/6/2015

Total SNM - 647  
Critical - 490  
Priority 1 - 158

projectnam	fy	snm	priority	scale	project_nu	sub_locales	registry_n
Shumagin Islands	2015	50	1	40000	OPR-P183-FA-15	Vicinity of Entranco Point	H12758
Shumagin Islands	2015	58	2	40000	OPR-P183-FA-15	10 NM North of Simeonof Island	H12759
Shumagin Islands	2015	60	3	40000	OPR-P183-FA-15	13 NM Northeast of Simeonof Island	H12760
Shumagin Islands	2015	67	4	40000	OPR-P183-FA-15	8 NM East of Simeonof Island	H12780
Shumagin Islands	2015	68	5	40000	OPR-P183-FA-15	13 NM Southeast of Simeonof Island	H12781
Shumagin Islands	2015	77	6	40000	OPR-P183-FA-15	12 NM South of Simeonof Island	H12782
Shumagin Islands	2015	87	7	40000	OPR-P183-FA-15	5 NM South of Chernabura Island	H12783
Shumagin Islands	2015	96	8	40000	OPR-P183-FA-15	7 NM South west of Bird Island	H12784
Shumagin Islands	2015	84	9	40000	OPR-P183-FA-15	10 NM South of Mountain Point	H12785



Survey Plans  
OPR-P183-FA-15 Junctions



**Preliminary Tidal Zoning for  
OPR-P183-FA-2015  
Shumagin Islands, AK**

★ 9459450 SAND POINT, AK

SWA193A  
Reference 9459450

SWA192  
Reference 9459450

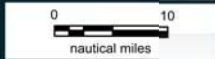
SWA205  
Reference 9459450

SWA193  
Reference 9459450

SWA204  
Reference 9459450

SWA206  
Reference 9459450

SWA217  
Reference 9459450



**WATER LEVEL INSTRUCTIONS**  
**OPR-P183-FA-2015 Shumagin Islands, AK**  
**(02/04/2015 HY)**

**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 April, 2014, 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](mailto: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](mailto: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 CO-OPS' Hydrographic Planning Team (HPT) at [nos.coops.hpt@noaa.gov](mailto:nos.coops.hpt@noaa.gov) and CO-OPS' Operational Engineering Team (OET) at [nos.coops.oetteam@noaa.gov](mailto: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(s), as well as any required subordinate station(s), is/are 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 and subordinate station numbers. The notification must be

sent to both teams as OET is responsible for configuring the station 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 (e.g. NWLON, PORTS <sup>®</sup> , etc)	Comment
Sand Point	9459450	Control	NWLON	

Table 1: All stations that need to be added to the HHL in support of OPR-P183-FA-2015

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](mailto:nos.coops.hpt@noaa.gov), CORMS at [CORMS@noaa.gov](mailto: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](mailto: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. **Tide Reducer Stations**

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

The NWLON station Sand Point, AK (9459450), 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 Sand Point, AK (9459450) 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.

#### **1.4.2. 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**

The estimated tidal error contribution to the total survey error budget in the vicinity of Shumagin Islands, AK is 0.16 meters at the 95% confidence level, and includes the estimated gauge measurement error, tidal datum computation error, and tidal zoning error. It should be noted that the tidal error component can be significantly greater than stated if a substantial meteorological event or condition should occur during time of hydrography.

#### **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.** This section is not applicable for this project.

#### **1.5. Discrete Tidal Zoning**

**1.5.1.** The water level station at Sand Point, AK (9459450) is the reference station for preliminary tides for hydrography in Shumagin Islands, AK. The time and height correctors listed below for applicable zones should be applied to the preliminary data at Sand Point, AK (9459450) during the acquisition and preliminary processing phases of this project. **Preliminary data may be retrieved in one month increments over the Internet from the CO-OPS SOAP web services at <http://opendap.co-ops.nos.noaa.gov/axis/text.html>.** The Commanding Officer (or Team Leader) must notify CO-OPS/ED personnel immediately of any problems concerning the preliminary tides. Preliminary data are six-minute time series data relative to MLLW in metric units on Greenwich Mean Time. For the time corrections, a negative (-) time correction indicates that the time of tide in that zone is earlier than (before) the preliminary tides at the reference station. A positive (+) time correction indicates that the time of tide in that zone is later than (after) the predicted tides at the reference station. For height corrections, the water level heights **relative to MLLW** at the reference station are multiplied by the range ratio to estimate the water level heights relative to MLLW in the applicable zone.



<u>Zone</u>	<u>Time Corrector(mins)</u>	<u>Range Ratio</u>	<u>Predicted Reference Station</u>
SWA192	-18	x1.06	9459450
SWA193	-18	x1.02	9459450
SWA193A	-6	x1.02	9459450
SWA204	-18	x0.98	9459450
SWA205	0	x0.94	9459450
SWA206	-18	x0.94	9459450
SWA217	-6	x0.91	9459450

**1.5.2.** Polygon nodes and water level corrections referencing Sand Point, AK (9459450) are provided in CARIS® format denoted by a \*.zdf extension file name.

**NOTE:** The tide corrector values referenced to Sand Point, AK (9459450) are provided in the zoning file “P183FA2015CORP” for this project and are in the fourth set of correctors designated as TS4. Longitude and latitude coordinates are in decimal degrees. Negative (-) longitude is a representation of West longitude.

“Preliminary” data for the control water level station, Sand Point, AK (9459450), are available in near real-time and verified data will be available on a weekly basis for the previous week. **These water level data may be obtained from the CO-OPS SOAP web services at <http://opendap.co-ops.nos.noaa.gov/axis/text.html>.**

### **1.4.3 Zoning Diagram(s)**

Zoning diagrams are provided in digital format to assist with the zoning in section 1.4.1.

### **1.4.4 Final Zoning**

Upon completion of project OPR-P183-FA-2015, submit a Pydro generated request for final tides, with times of hydrography abstract and mid/mif tracklines attached. Forward this request to [Final.Tides@noaa.gov](mailto:Final.Tides@noaa.gov). Provide the project number, as well as a 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. After review, CO-OPS will send a notice indicating that the tidal zoning scheme sent with the project instructions has been approved for final zoning. If there are any discrepancies, CO-OPS will make the appropriate adjustments and forward a revised tidal zoning scheme to the field group and project manager for final processing.

### **1.5 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.