



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

Project Instructions

Date Submitted: April 2, 2014

Platform: NOAA Ship *Rainier*

Project Number: RA-14-01 (OMAO)
OPR-P136-RA-14 & OPR-P377-RA-14 (OCS)

Project Title: Survey of North Coast of Kodiak Island

Project Dates: April 7, 2014 to September 30, 2014

Prepared by: _____ Dated: _____
LCDR Michael Gonsalves, NOAA
Chief, Operations Branch
Hydrographic Surveys Division
Office of Coast Survey

Approved by: _____ Dated: _____
Jeffrey Ferguson
Chief, Hydrographic Surveys Division
Office of Coast Survey

Approved by: _____ Dated: _____
Captain Wade J. Blake, NOAA
Commanding Officer
Marine Operations Center – Pacific



I. Overview

A. Brief Summary and Project Period

This survey is scheduled to begin in April 2014 and end in September 2013. 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 91 DAS scheduled for this project, 91 DAS are funded by a Line Office Allocation. This project is estimated to exhibit a medium Operational Tempo.

C. Operating Area

The project area is located along the North Coast of Kodiak Island, AK. A map 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
Fandel, Christy	PS			F	NOAA	US
Faulkes, Tyanne	PS	6/2/2014	7/3/2014	F	NOAA	US
Froelich, Grant	PS	7/7/2014	7/24/2014	M	NOAA	US
Herzog, Martha	PS	4/7/2014	5/2/2014	F	NOAA	US
Hick, Lucy	PS	9/8/2014	9/19/2014	F	NOAA	US
Holmberg, Peter	PS	9/8/2014	9/30/2014	M	NOAA	US
Morgan, Nicholas	LT, NOAA	7/28/2014	9/4/2014	M	NOAA	US
Ramsay, Jessica	Contractor	7/28/2014	8/14/2014	F	Contractor	US
Wozumi, Toshi	PS	5/5/2014	5/23/2014	M	NOAA	US

G. Administrative

1. Points of Contacts:

Principal Investigator:

LCDR Michael Gonsalves
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:

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

Chief Scientist:

CDR Richard T. Brennan, NOAA
Commanding Officer, NOAA Ship *Rainier*
2002 SE Marine Science Drive
Newport, OR 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/>

II. Operations

For this project, the Commanding Officer will act as the Chief Scientist. Therefore, the Commanding Officer will be responsible for ensuring the scientific staff are trained in planned

operations and are knowledgeable of project objectives and priorities and for ensuring all operations conform to the ship's accepted practices and procedures.

A. Project Itinerary

DEP: 4/7/2014	Mon	Newport, OR	RA-14-01 Leg 1
ARR: 4/18/2014	Fri	Kodiak, AK	OPR-P136 North Coast of Kodiak Island, AK
DEP: 4/21/2014	Mon	Kodiak, AK	RA-14-01 Leg 2
ARR: 5/2/2014	Fri	Kodiak, AK	OPR-P136 North Coast of Kodiak Island, AK
DEP: 5/5/2014	Mon	Kodiak, AK	RA-14-01 Leg 3
ARR: 5/16/2014	Fri	Kodiak, AK	OPR-P136 North Coast of Kodiak Island, AK
DEP: 5/19/2014	Mon	Kodiak, AK	RA-14-01 Leg 4
ARR: 5/23/2014	Fri	Kodiak, AK	OPR-P136 North Coast of Kodiak Island, AK
DEP: 6/23/2014	Mon	Homer, AK	RA-14-01 Leg 5
ARR: 7/3/2014	Thu	Kodiak, AK	OPR-P136 North Coast of Kodiak Island, AK
DEP: 8/18/2014	Mon	Kodiak, AK	RA-14-01 Leg 6
ARR: 9/4/2014	Thu	Kodiak, AK	OPR-P136 North Coast of Kodiak Island, AK
DEP: 9/8/2014	Mon	Kodiak, AK	RA-14-01 Leg 7
ARR: 9/19/2014	Fri	Kodiak, AK	OPR-P136 North Coast of Kodiak Island, AK
DEP: 9/22/2014	Mon	Kodiak, AK	RA-14-01 Leg 8
9/30/2014	Tue	Underway	OPR-P136 North Coast of Kodiak Island, AK

B. Staging and Destaging

Office of Coast Survey personnel will deliver a Tide Buoy dockside on August 14, 2014, and recover on September 30, 2014. Ship's force will be needed for craning the gear on and off the vessel.

C. Operations to be Conducted:

Hydrographic survey operations per the appended project instructions using four 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

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.

Dive operations are anticipated in support of the installation, servicing and removal of subordinate water level stations. 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 shortages

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 multibeam 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)

1. Tide Buoy
 - a. Dimensions
 - i. Diameter: 0.6m
 - ii. Weight: 156 lbs.
 - iii. Telemetry: Iridium (WiFi available)
 - b. Charging Requirements
 - i. Standard 120V AC outlet
 - ii. 12 hours charge time
 - iii. 60 "D-Cell" Lithium non-rechargeable batteries (Supplied by Coast Survey)
 - c. Assembly / Hardware
 - i. 11mm torque wrench
 - ii. 12 bolts around equator
2. 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 shall 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

OPR-P377-RA-14, Southern Alaska Peninsula

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 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 Principal Investigator 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.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 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, Revised: 02 JAN 2012) 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 e-mail 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 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-P136-RA-14, North Coast of Kodiak Island, AK
2. Piggyback Project Instructions: OPR-P377-RA-14, Southern Alaska Peninsula, AK

Hydrographic Survey Project Instructions

Project Name:	North Coast of Kodiak Island, AK
Project Number:	OPR-P136-RA-14
Assigned Field Unit:	NOAA Ship <i>Rainier</i>
Assigned Processing Branch:	Pacific Hydrographic Branch
Signed Date:	04/02/2014
Project Instructions Version:	Final
Planned Acquisition Time:	Start Date: 04/2014 End Date: 09/2014
Delivery Dates:	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, which will support Kodiak's large fishing fleet and increasing levels of passenger vessel traffic. This project will cover approximately 195 square nautical miles of Emerging Critical and Priority 1 areas 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. Data from surveys is intended to supersede all prior survey data in the common area.
NOS Hydrographic Surveys Specifications and Deliverables Manual (HSSD), April 2013
NOS Field Procedures Manual for Hydrographic Surveying (FPM), April 2013
Hydrographic Survey Technical Directive (HTD): 2013-4, 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: Kodiak Island, AK						
Registry Number	Priority	Sublocality	State or Territory	Scale	Estimated SNM	Instructions
H12688	1	Kizhuyak Bay	Alaska	40000	17	
H12689	2	Afognak Strait and Whale Passage	Alaska	15000	24	
H12690	3	Kupreanof Strait	Alaska	40000	25	
H12691	4	Viekoda Bay	Alaska	40000	32	
H12692	5	Entrance to Viekoda Bay	Alaska	40000	30	
H12693	6	Cape Uganik to Raspberry Cape	Alaska	40000	45	
H12694	7	West of Raspberry Island	Alaska	40000	31	

Coverage & Limits:	
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: Complete Coverage	
Instructions:	
Coverage Water Depth	Coverage Required
Inshore limit to 8 meters water depth	25 m spaced Set Line Spacing Single Beam Echosounder (SBES) or Multibeam Echosounder (MBES) with concurrent backscatter
Greater than 8 meters water depth	MBES with concurrent Backscatter

Assigned Tasks

Acknowledgement:
Acknowledge receipt of these instructions and submit any comments or questions via email to Lucy Hick at Lucy.Hick@noaa.gov.

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.

Automated Wreck and Obstruction Information System (AWOIS) Items:

Investigate AWOIS items in accordance with section 2.2.2.2 and 2.5.4.1 of the FPM.

<i>Number of AWOIS items provided for <u>Full Investigation</u>:</i>	0
<i>Number of AWOIS items provided for <u>Information Only</u>:</i>	2

Maritime Boundary Points (MBPs):

Investigate Maritime Boundary Points in accordance with section 3.5.6 of the FPM.

<i>Number of MBPs provided for <u>Full Investigation</u>: (when safety permits, search inshore of the NALL line for these maritime boundary features)</i>	21
<i>Number of MBPs provided for <u>Information Only</u>:</i>	32

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:

Use only the latest editions of the largest scale NOS charts covering the project area. Compare 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>
16576	80000	4	09/2003	09/02/2003	09/27/2003
16594	78900	13	04/1998		
16597	80000	9	03/2005	03/08/2005	03/19/2005

Affected ENCѕ

<i>ENC Name</i>	<i>Scale</i>	<i>Edition</i>	<i>Update Application Date</i>	<i>Issue Date</i>	<i>Preliminary</i>
US4AK5BM	80000	2	04/05/2011	04/05/2011	NO
US4AK5PE	78900	4	07/08/2011		YES
US4AK5QE	80000	4		06/03/2013	YES

Coast Pilot:

Review and make recommendations for changes to the Coast Pilot for this area. Coast Pilot excerpts can be downloaded from the Coast Pilot website (<http://www.nauticalcharts.noaa.gov/nsd/cpdownload.htm>). Submit the revised Coast Pilot section or a report stating no changes are recommended, via email to Coast.Pilot@noaa.gov and ocs.ndb@noaa.gov with a courtesy copy to the HSD OPS project planner and the appropriate Processing Branch. The report should be submitted as soon as possible following field work for the project. 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. 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>
H12512	40000	2012	NOAA Ship <i>Rainier</i>	N
H12496	40000	2012	NOAA Ship <i>Rainier</i>	E
H12495	40000	2012	NOAA Ship <i>Rainier</i>	E

Progress Reports:

Email monthly progress reports in accordance with section 5.2.2.2.1 of the FPM to progress.sketches@noaa.gov with a copy to the chief of the assigned Processing Branch. The submittal is due within 5 days after the end of each month.

Survey Outlines:

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

Horizontal Control Requirements:

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

Vertical Control Requirements:

Comply with the horizontal 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.

NWLON Gauges

<i>Operating Water Level Station</i>	<i>Station ID</i>
Kodiak Island	945-7292
Seldovia	945-5500

Subordinate Gauges

<i>Operating Water Level Station</i>	<i>Station ID</i>	<i>Leveling Required</i>	<i>Installation Required</i>	<i>Pre-Existing Benchmarks</i>
Uzkosti	945-7376	YES	YES	YES
Nachalni Island	945-7407	YES	YES	YES
W. Slope of Raspberry Island	945-AAAA	YES	YES	NO
Terror Bay	945-BBBB	YES	YES	NO

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 other submerged or visible cultural features inside the limit of survey shall be verified. All features with attribute asgmt populated with 'Assigned' shall be addressed even if they are inshore of NALL. Preliminary analysis of the nautical chart and imagery was conducted at HSD OPS. For reference, prior survey features are provided in S57 format. See section 3.5.5.2.2 of the FPM.

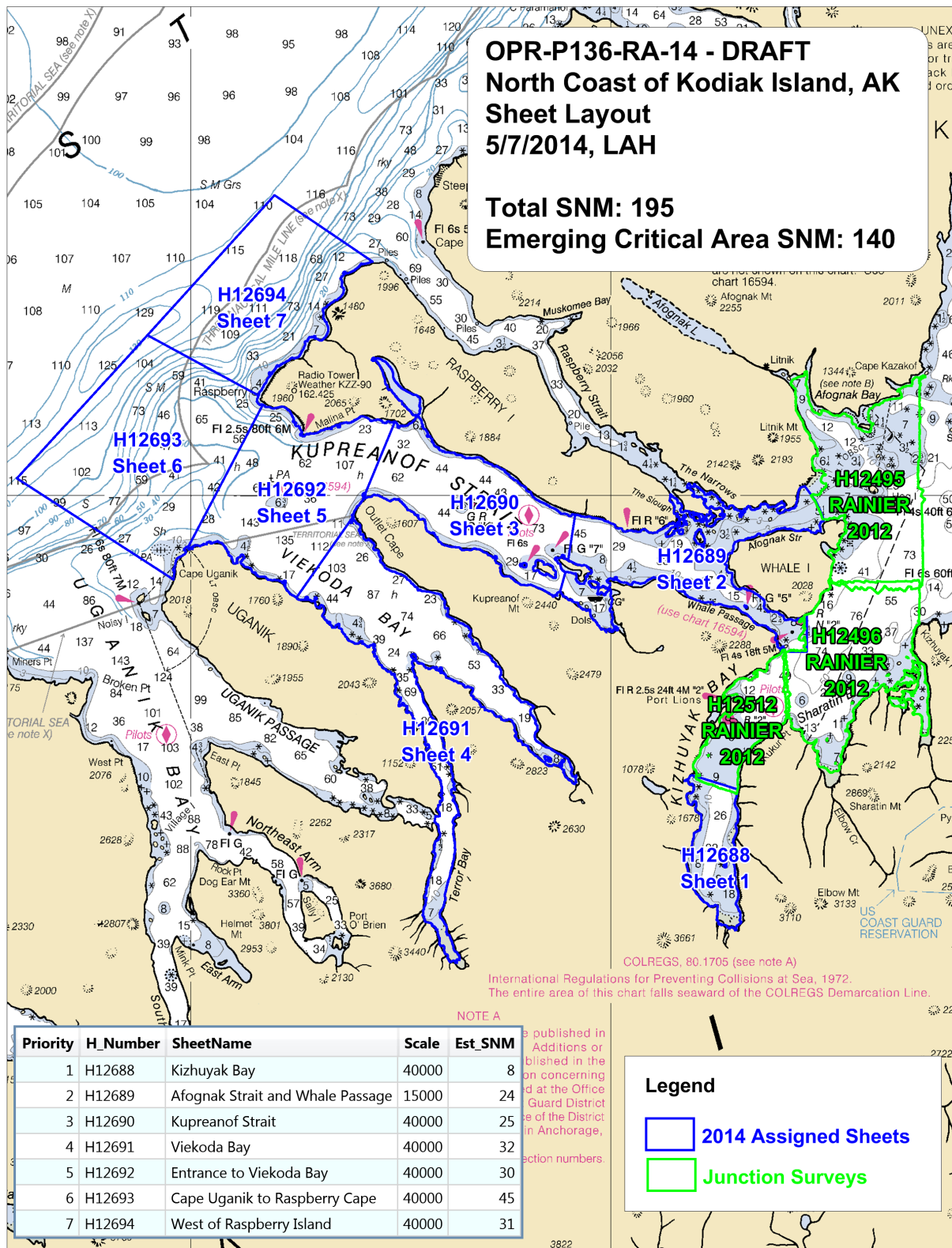


Figure: 1 - OPR-P136-RA-14 Sheet Layout

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).

NOAA Navigation Manager, AK

LT Matthew Forney / LT Timothy Smith

Phone: 907-271-3327

Fax: 206-491-8913

Email: Matthew.Forney@noaa.gov / timothy.m.smith@noaa.gov

Obligation: Mandatory

Seventeenth U.S. Coast Guard District, Commander (DPW)

Robert McCormick

Phone: 907-463-2272

Fax:

Email: Robert.P.McCormick@uscg.mil

Obligation: For Reference

U.S. Army Corps of Engineers Alaska District, Office of the District Engineer

James E. Adair

Phone: 907-753-5632

Fax:

Email: James.E.Adair@usace.army.mil

Obligation: For Reference

Southwest Alaska Pilots Association

Captain Jeff Pierce

Phone: 907-235-8783

Fax:

Email: swpilots@gci.net

Obligation: For Reference

State Marine Archaeologist

Judith Bittner

Alaskan Department of Natural Resources

Phone: 907-269-8715

Fax:

Email: judy.bittner@alaska.gov

Obligation: For Reference

WATER LEVEL INSTRUCTIONS

OPR-P136-RA-2014 North Coast Kodiak Island, AK

(02/26/2014 DW)

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 April 2013, and OCS Field Procedures Manual (FPM), dated May 2013. 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/Team Leader before interrupting the acquisition of water level data for the NWLON gauges mentioned above for any reason during periods of hydrography.

1.2.2. The Hydro Hot List (HHL)

Please contact CO-OPS' Hydrographic Planning Team (HPT) at nos.coops.hpt@noaa.gov and CO-OPS' 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(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®, etc)	Comment
Seldovia	9455500	Control	NWLON	
Kodiak	9457292	Control	NWLON	
Uzkosti	9457376	Subordinate	Hydro	
Nachalni	9457407	Subordinate	Hydro	
W. Raspberry Island	945AAAA	Subordinate	Hydro	Station ID TBD
Terror Bay	945BBBB	Subordinate	Hydro	Station ID TBD

Table 1: All stations that need to be added to the HHL in support of P136-RA-2014

This project requires a subordinate installation. Therefore, please contact OET and HPT via e-mail at least three business days before the subordinate stations are installed and send the site report listing the DCP and sensor serial numbers and GOES satellite information so that stations can be configured in the database and also can be added to HHL. For station removal, inform OET and HPT 3 business days prior to the actual removal of a station and confirm with OET upon final station removal.

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 not 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.

1.3. Tide Reducer Stations

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

The NWLON stations Seldovia, AK (9455500) and Kodiak, AK (9457292), 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 Seldovia, AK (9455500) and Kodiak, AK (9457292) 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

For this project, it will be necessary to install and continuously operate water level measurement systems (tide gauges) at one or more approved subordinate station locations. These subordinate stations identified for hydrography or photogrammetry are required to be installed to provide the tidal datums, water level reducers, refinement of final zoning, and harmonic constituents for predictions needed to meet NOS hydrographic specifications' accuracies as well as to support other NOAA objectives. The stations listed in Section 1.2. will provide control for datum computations at subordinate stations by using the NOS method of comparison of simultaneous observations.

A 30-day minimum of continuous data acquisition is required for all required subordinate station installations. If the data is collected for less than 30 days at the required subordinate stations, then according to the operating guidelines and business rules, CO-OPS may not publish tidal datums and bench marks sheet. This means CO-OPS may not be able to provide smooth tides (tide reducers) for less than 30 days of valid and good data. Since all data including water level data collected for hydrographic or photogrammetry surveys is used to derive products that support various NOS multipurpose applications, collection of minimum of 30-days of data is a crucial requirement.

For all subordinate stations, data must be collected throughout the entire survey period in specified areas for which they are applicable, from 4 hours before to 4 hours after the period of hydrography and not less than 30 continuous days. If the subordinate tide gauges are required to support the TCARI process, then all the gauges are required to collect the data for the entire period of the survey (in addition to the 30 day requirement) because the TCARI tidal grid is developed based upon all the gauges. This is necessary not only to facilitate the computation of an accurate datum reference as per NOS hydro graphic specifications (<http://www.nauticalcharts.noaa.gov/hsd/specs/specs.htm>), but also to ensure a functional data set that meets CO-OPS' multi-purpose products use and dissemination standards.

Additionally, supplemental and/or back-up stations may also be necessary based upon the complexity of the hydrodynamics and/or the severity of environmental conditions at the project area. If the Commanding Officer (or Team Leader) determines that additional or alternative water level stations are necessary to those required by CO-OPS, then he or she must coordinate with CO-OPS to obtain CO-OPS' approval and to define the timing and location of the additional or alternative subordinate station(s). For all subordinate stations that are approved and installed, minimum 30 continuous days of data must be collected throughout the entire survey period for which they are applicable. If the minimum 30-day data collection requirement is not met, CO-OPS may not be able to provide the tide reducers for the survey.

Since NOS uses the data and products derived from the operational NOS Hydrographic Surveys Program, installation of training gauges is discouraged during the operations. Also for training purposes, only Temporary Bench Marks (TBM) shall be installed and permanent bench marks shall not be installed. CO-OPS will not publish water level datums on TBM and CO-OPS is not required to provide data processing for training gauges. Any gauges required for providing tide reducers either via TCARI or discreet tidal zoning shall not be considered training gauges.

All additions and modifications to the original subordinate gauge installation requirements shall be documented via an amendment to the Project Instructions. Delivery of the amended Project Instructions to OCS's Hydrographic Surveys Division Operations Branch will signify CO-OPS' approval of the additions and/or modifications to the gauge installations requirements.

The following subordinate stations are required:

<u>Station Number</u>	<u>Station Name</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
9457376*	Uzkosti Point, AK	57° 55.7'	152° 48.7'
9457407*	Nachalni Island, AK	57° 58.7'	152° 55.5'
		<u>Approximate Latitude (N)</u>	<u>Approximate Longitude (W)</u>
945AAAA **	W. Slope Raspberry Island, AK	58° 04.9'	153° 23.5'
945BBBB **	Terror Bay, AK	57° 42.3'	153° 11.3'

* Historical water level station information has been provided for these stations.

** Conduct reconnaissance of the area to establish a suitable location for the placement of the water level gauge and provide the CO-OPS personnel listed in Section 1.2.1 with the proposed name and location. CO-OPS/ED will confirm this and then assign a station number. **Do not install these subordinate gauges prior to receiving assigned station numbers. If it is necessary to change the location of a gauge by more than ¼ mile from its assigned location and a station number has already been assigned, then contact CO-OPS/Engineering Division personnel at nos.coops.oetteam@noaa.gov prior to the installation of the gauge.**

1.3.3. Tide Component Error Estimation

The estimated tidal error contribution to the total survey error budget in the vicinity of North Coast of Kodiak Island, AK is 0.67 meters at the 95% confidence level, and includes the estimated gauge measurement error, tidal datum computation error, and tidal zoning error. Based on this analysis, subordinate stations Uzkosti Point, AK (9457376), Nachalni Island, AK (9457407), Western Slope of Raspberry Island, AK (945AAAA) and Terror Bay, AK (945BBBB) are required. 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.

1.3.4. GOES Satellite Enabled Subordinate Stations

In the event that water level stations with Geostationary Operational Environmental Satellite (GOES) capability are utilized, information about the station is needed at CO-OPS so that the station(s) can be configured in CO-OPS' Data Management System (DMS) before GOES data transmission is started. A minimum of two weeks prior to initiating data transmission, please contact CO-OPS' Operational Engineering Team (OET) at nos.coops.oetteam@noaa.gov and CO-OPS' Hydrographic Planning Team (HPT) at nos.coops.hpt@noaa.gov and provide the station number, platform ID, transmit time and channel. In addition, FAX a copy or email a digital copy of the site report before beginning transmission.

Whenever a station number needs to be assigned, the field party should provide the latitude and longitude of the location where a tide gauge will be installed to the CO-OPS' Operational Engineering Team (OET) at nos.coops.oetteam@noaa.gov and CO-OPS' Hydrographic Planning Team (HPT) at nos.coops.hpt@noaa.gov at least 3 days before the installation. OET will assign a new tide station number and provide that promptly (within 1 business day) to the field party.

GOES data transmissions must use a message format identical to the format currently implemented in NOS' Next Generation Water Level Measurement System (NGWLMS). Refer to Section 1.1. for information on the NGWLMS data format. The document, **NGWLMS GOES MESSAGE FORMATTING**, found under the Publications option of the CO-OPS web site at <http://tidesandcurrents.noaa.gov/> will give an explanation of the NGWLMS GOES message format.

The following preliminary satellite antenna pointing angles are provided for the stations in Sections 1.3.1. to facilitate GOES satellite transmission. Complete GOES information will be provided after the station location is finalized and reported to CO-OPS/Engineering Division (ED). If a suitable site for transmitting via satellite cannot be found within the required area, then a station should be established within the area and the data downloaded onto diskette/CD and forwarded to CO-OPS/ED. As a backup for all stations, data must be forwarded to CO-OPS/ED on diskette.

<u>STATION</u>	<u>GOES West</u>
9457376	ELEV. 22.3° AZIMUTH(T) 159.2°
9457407	ELEV. 22.3° AZIMUTH(T) 159.2°
945AAAA	ELEV. 22.1° AZIMUTH(T) 158.6°
945BBBB	ELEV. 22.5° AZIMUTH(T) 158.8°

1.3.5. Benchmark Recovery and GPS Requirements

Recover all historical bench marks at each required subordinate water level station. If a total of five benchmarks cannot be found, install the number of benchmarks necessary for the subordinate station to have the total five benchmarks. In the event of a new station with no historical marks, installation of a minimum of five bench marks will be required. Third-order levels from the tide staff or sensor to a minimum of five bench marks (including the primary bench mark) are

required at the beginning and end of the survey period. See Section 1.1. for clarification of requirements.

1.3.5.1. Hand held GPS latitude and longitude positions on all historical subordinate water level station bench marks are required. In addition, one of the subordinate water level station bench marks shall be selected for high accuracy static differential GPS observations to obtain ties between the tidal datums and GPS derived datums. Refer to Section 1.1 for further details on the GPS positioning requirements.

1.3.6. Operate the water level stations listed in Section 1.3.1. of these Project Instructions for the following hydrographic area(s) or zone(s):

<u>Station Number</u>	<u>Hydrographic Area(s) or Zone(s)</u>
9457292	Zones SWA274, SWA291, SWA292, SWA293, SWA294, SWA295, SWA296, SWA297, SWA298, SWA299, SWA300
9457376	Zones SWA275, SWA276, SWA277, SWA278, SWA279, SWA280, SWA281, SWA282, SWA283, SWA284, SWA285
9457407	Zones SS22, SS149, SS150, SS151, SS153, SS154, SS155, SWA286, SWA287, SWA288, SWA289, and SWA290
945AAAA	Zones SS15, SS17, SS18, SS19, SS20, SS21, and SS27
945BBBB	Zones SS23, SS24, and SS30

1.4. Discrete Tidal Zoning

1.4.1. The water level stations at Seldovia, AK (9455500) and Kodiak, AK (9457292) are the reference station for preliminary tides for hydrography in the North Coast of Kodiak Island, AK. The time and height correctors listed below for applicable zones should be applied to the preliminary data at Seldovia, AK (9455500) and Kodiak, AK (9457292) 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>
-------------	---------------------------------	------------------------	--

SS15	0	x0.75	9455500
SS17	0	x0.74	9455500
SS18	-6	x0.74	9455500
SS19	-6	x0.75	9455500
SS20	0	x0.75	9455500
SS21	0	x0.74	9455500
SS22	+6	x0.73	9455500
SS23	-6	x0.75	9455500
SS24	-6	x0.76	9455500
SS27	-6	x0.73	9455500
SS30	0	x0.76	9455500
SS149	+6	x0.71	9455500
SS150	+6	x0.7	9455500
SS151	+6	x0.69	9455500
SS153	+6	x0.68	9455500
SS154	0	x0.66	9455500
SS155	0	x0.65	9455500
SWA273	+18	x1.11	9457292
SWA273A	+12	x1.08	9457292
SWA274	0	x1.11	9457292
SWA274A	0	x1.08	9457292
SWA275	+30	x1.47	9457292
SWA276	+24	x1.44	9457292
SWA277	+18	x1.41	9457292
SWA278	+12	x1.38	9457292
SWA279	+12	x1.35	9457292
SWA280	+12	x1.32	94572929
SWA281	+12	x1.29	9457292
SWA282	+6	x1.26	9457292
SWA283	+6	x1.23	9457292
SWA284	+6	x1.2	9457292
SWA285	+6	x1.17	9457292
SWA286	+36	x1.47	9457292
SWA287	+36	x1.44	9457292
SWA288	+36	x1.41	9457292
SWA289	+36	x1.38	9457292
SWA290	+30	x1.35	9457292
SWA291	+30	x1.32	9457292
SWA292	+30	x1.29	9457292
SWA293	+30	x1.26	9457292
SWA294	+30	x1.23	9457292
SWA295	+24	x1.2	9457292
SWA296	+18	x1.17	9457292
SWA297	+18	x1.14	9457292
SWA298	0	x1.08	9457292
SWA299	0	x1.11	9457292
SWA300	+6	x1.14	9457292

1.4.2. Polygon nodes and water level corrections referencing Seldovia, AK (9455500) and Kodiak, AK (9457292) are provided in CARIS® format denoted by a *.zdf extension file name.

NOTE: The tide corrector values referenced to Seldovia, AK (9455500) and Kodiak, AK (9457292) are provided in the zoning file “P136RA2014CORP” 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 MapInfo® representation of West longitude

“Preliminary” data for the control water level stations, Seldovia, AK (9455500) and Kodiak, AK (9457292), 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, created in MapInfo® and Adobe PDF, are provided in both digital format to assist with the zoning in section 1.4.1.

1.4.4 Final Zoning

Upon completion of project OPR-P136-RA-2014, 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 . 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 processing branch 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.

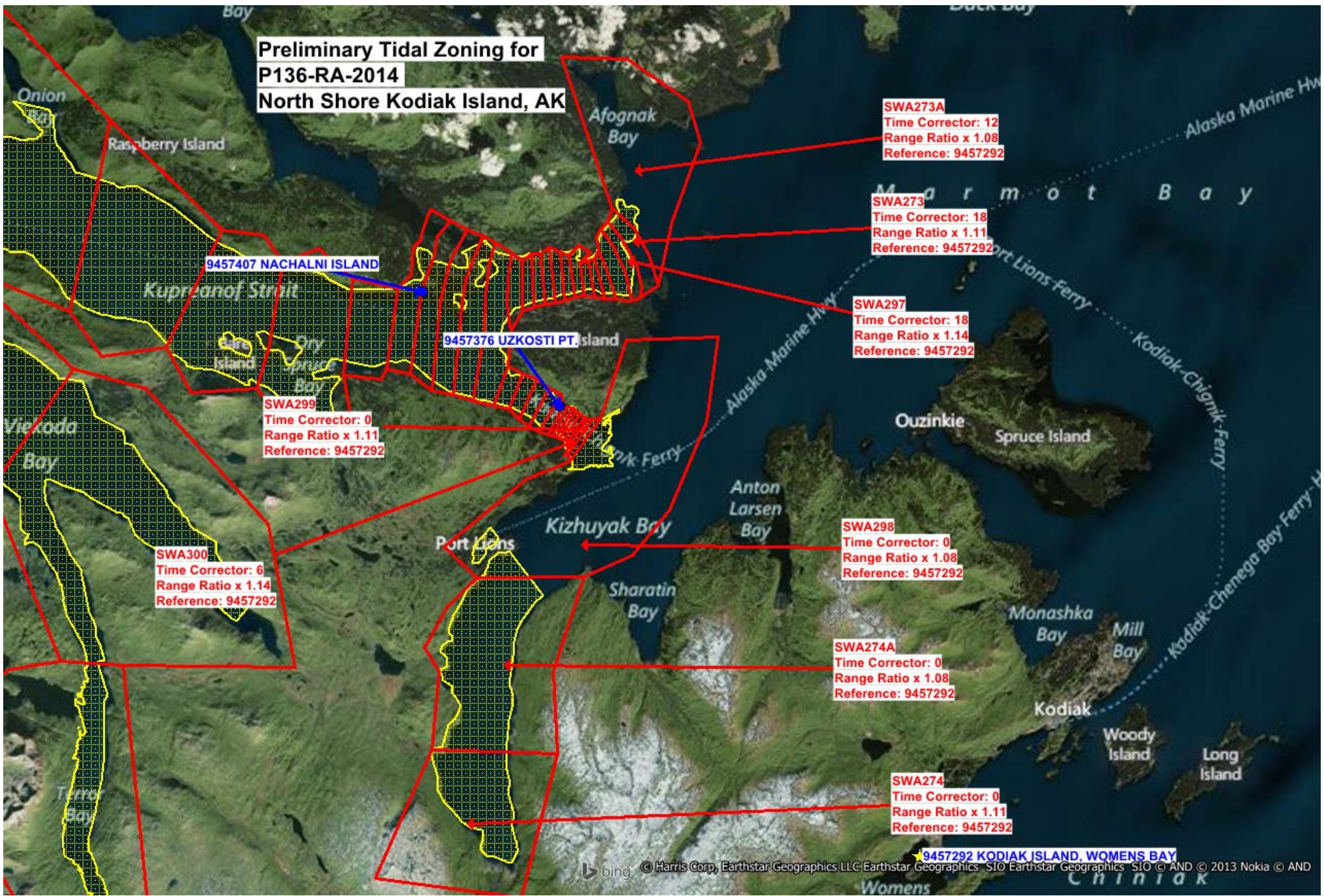
1.6 Water Level Records

Submit water level data, such as leveling records, field reports, and any other relevant data/reports, including the data downloaded onto diskette/CD as specified in the latest version of the NOS Specifications and Deliverables document.

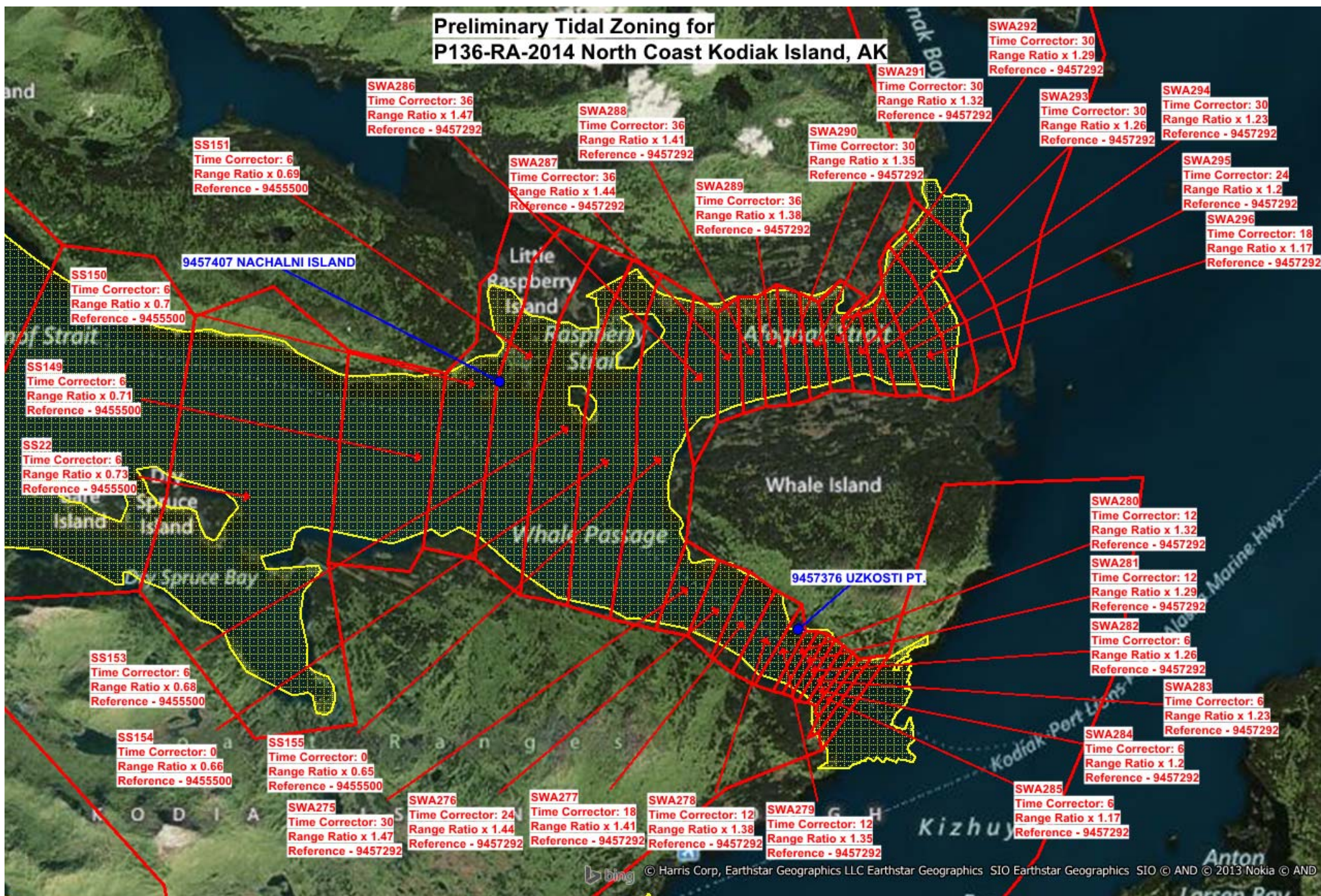
1.6.1 Water level records should be forwarded to the following address:

NOAA/National Ocean Service/CO-OPS
Chief, Engineering Division
N/OPS1 - SSMC4, Station 6531
1305 East-West Highway
Silver Spring, MD 20910

**Preliminary Tidal Zoning for
P136-RA-2014
North Shore Kodiak Island, AK**



Preliminary Tidal Zoning for P136-RA-2014 North Coast Kodiak Island, AK



**Preliminary Tidal Zoning for
P136-RA-2014**

North Coast of Kodiak Island, AK

9455500 SELDOVIA, COOK INLET

SS27
Time Corrector: -6
Range Ratio x 0.73
Reference - 9455500

SS17
Time Corrector: 0
Range Ratio x 0.74
Reference - 9455500

SS15
Time Corrector: 0
Range Ratio x 0.75
Reference - 9455500

945AAAA WESTERN SHORE, RASPBERRY ISLAND

SS19
Time Corrector: -6
Range Ratio x 0.75
Reference - 9455500

SS20
Time Corrector: 0
Range Ratio x 0.75
Reference - 9455500

SS18
Time Corrector: -6
Range Ratio x 0.74
Reference - 9455500

SS23
Time Corrector: -6
Range Ratio x 0.75
Reference - 9455500

SS24
Time Corrector: -6
Range Ratio x 0.76
Reference - 9455500

SS21
Time Corrector: 0
Range Ratio x 0.74
Reference - 9455500

SS30
Time Corrector: 0
Range Ratio x 0.76
Reference - 9455500

945BBBB Terror Bay

Hydrographic Survey Project Instructions

Project Name:	Southern Alaska Peninsula, AK
Project Number:	OPR-P377-RA-14
Assigned Field Unit:	NOAA Ship <i>Rainier</i>
Assigned Processing Branch:	Pacific Hydrographic Branch
Signed Date:	04/04/2014
Project Instructions Version:	Final
Planned Acquisition Time:	Start Date: 05/2014 End Date: 08/2014
Delivery Dates:	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 project will cover approximately 175 square nautical miles of critical areas as identified by the 2012 NOAA Hydrographic Survey Priorities (NHSP).
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 (HSSD), April 2013
NOS Field Procedures Manual (FPM), April 2013
Hydrographic Survey Technical Directive (HTD) 2013-4: 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: Southern Alaska Peninsula, AK						
<i>Registry Number</i>	<i>Priority</i>	<i>Sublocality</i>	<i>State or Territory</i>	<i>Scale</i>	<i>Estimated SNM</i>	<i>Instructions</i>
H12662	1	Delta Pt Lagoon to Lenard Harbor	Alaska	40000	26	
H12663	2	Kaslakan Pt to Vodapoini Pt	Alaska	40000	26	
H12664	3	Fox Island and Vicinity	Alaska	40000	27	
H12665	4	Thin Pt to West Cape	Alaska	40000	23	
H12661	5	Deer Passage	Alaska	40000	20	The area within the inset of Chart 16549 shall be surveyed at a survey scale of 1:10000. The remaining area shall be surveyed at a survey scale of 1:40000.
H12658	6	Indian Head to Kitchen Anchorage	Alaska	40000	13	
H12659	7	Slavna Pt and Vicinity	Alaska	40000	15	
H12660	8	East Approaches to Deer Passage	Alaska	40000	25	

Coverage & Limits:	
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: Complete Coverage	
Instructions:	
<i>Coverage Water Depth</i>	<i>Coverage Required</i>
Inshore limit to 8 meters water depth	25 m spaced Set Line Spacing SBES or MBES with Time Series Backscatter
Greater than 8 meters water depth	Multibeam with Time Series Backscatter

Assigned Tasks

Acknowledgement:

Acknowledge receipt of these instructions and submit any comments or questions via email to Christina Fandel at christina.fandel@noaa.gov.

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.

Maritime Boundary Points (MBPs):

Investigate Maritime Boundary Points in accordance with section 3.5.6 of the FPM.

<i>Number of MBPs provided for <u>Full Investigation</u>: (when safety permits, search inshore of the NALL line for these maritime boundary features)</i>	4
<i>Number of MBPs provided for <u>Information Only</u>:</i>	6

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:

Use only the latest editions of the largest scale NOS charts covering the project area. Compare 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>
16549	80000	16	03/2010	03/16/2010	03/20/2010

Affected ENCѕ

<i>ENC Name</i>	<i>Scale</i>	<i>Edition</i>	<i>Update Application Date</i>	<i>Issue Date</i>	<i>Preliminary</i>
US5AK55M	5000		05/20/2013		YES
US4AK55M	80000		05/20/2013		YES

Coast Pilot:

Review and make recommendations for changes to the Coast Pilot. Coast Pilot excerpts can be downloaded from the Coast Pilot website (<http://www.nauticalcharts.noaa.gov/nsd/cpdownload.htm>). Submit the revised Coast Pilot section or a report stating no changes are recommended, via email to Coast.Pilot@noaa.gov and ocs.ndb@noaa.gov with a courtesy copy to the HSD OPS project planner and the appropriate Processing Branch. The report should be submitted as soon as possible following field work for the project. 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. 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>
H11932	10000	2008	NOAA Ship <i>Rainier</i>	SE
H11904	10000	2008	NOAA Ship <i>Rainier</i>	E
H12581	20000	2013	NOAA Ship <i>Rainier</i>	N

Progress Reports:

Email monthly progress reports in accordance with section 5.2.2.2.1 of the FPM to progress.sketches@noaa.gov with a copy to the chief of the assigned Processing Branch. The submittal is due within 5 days after the end of each month.

Survey Outlines:

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

Horizontal Control Requirements:

Comply with the horizontal control requirements in section 3 of the HSSD. An overview map of the CORS stations that fall within the survey extents of this survey is included at the end of these project instructions.

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.

NWLON Gauges

<i>Operating Water Level Station</i>	<i>Station ID</i>
King Cove	945-9881

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). The CSF was compiled from the preliminary ENC's US4AK55M and US5AK55M which had GC1651 and GC 1652 applied. The horizontal accuracy of each GC is reported at the 95% confidence level. Preliminary analysis of the nautical chart and imagery from Google Earth was conducted at HSD OPS. All other submerged or visible cultural features inside the limit of survey shall be verified. All features with attribute asgnmt populated with 'Assigned' shall be addressed even if they are inshore of NALL. For reference, prior survey features are provided in S57 format. See section 3.5.5.2.2 of the FPM.

<i>GC Number</i>	<i>Horizontal Position Accuracy</i>
10651	10 meters
<i>GC Number</i>	<i>Horizontal Position Accuracy</i>
10652	10 meters

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).

NOAA Navigation Manager, AK

LT Timothy Smith

NOAA

Phone: 907-271-3327

Fax: 206-491-8913

Email: timothy.m.smith@noaa.gov

Obligation: Mandatory

Seventeenth U.S. Coast Guard District, Commander (DPW)

Jim Helfinstine

USCG

Phone: 907-463-2268

Fax:

Email: James.N.Helfinstine@uscg.mil

Obligation: For Reference

U.S. Army Corps of Engineers Alaska District, Office of District Engineer

James E. Adair

USACE

Phone: 907-753-5632

Fax:

Email: James.E.Adair@usace.army.mil

Obligation: For Reference

Southwest Alaska Pilots Association

Captain Jeff Pierce

Phone: 907-235-8783

Fax:

Email: swpilots@gci.net

Obligation: For Reference

Alaska State historical Preservation Officer (SHPO)

Judith E. Bittner

Alaska DNR, Office of History and Archaeology

Phone: 907-269-8715

Fax:

Email: judith.bittner@alaska.gov

Obligation: For Reference

OPR-P377-RA-14

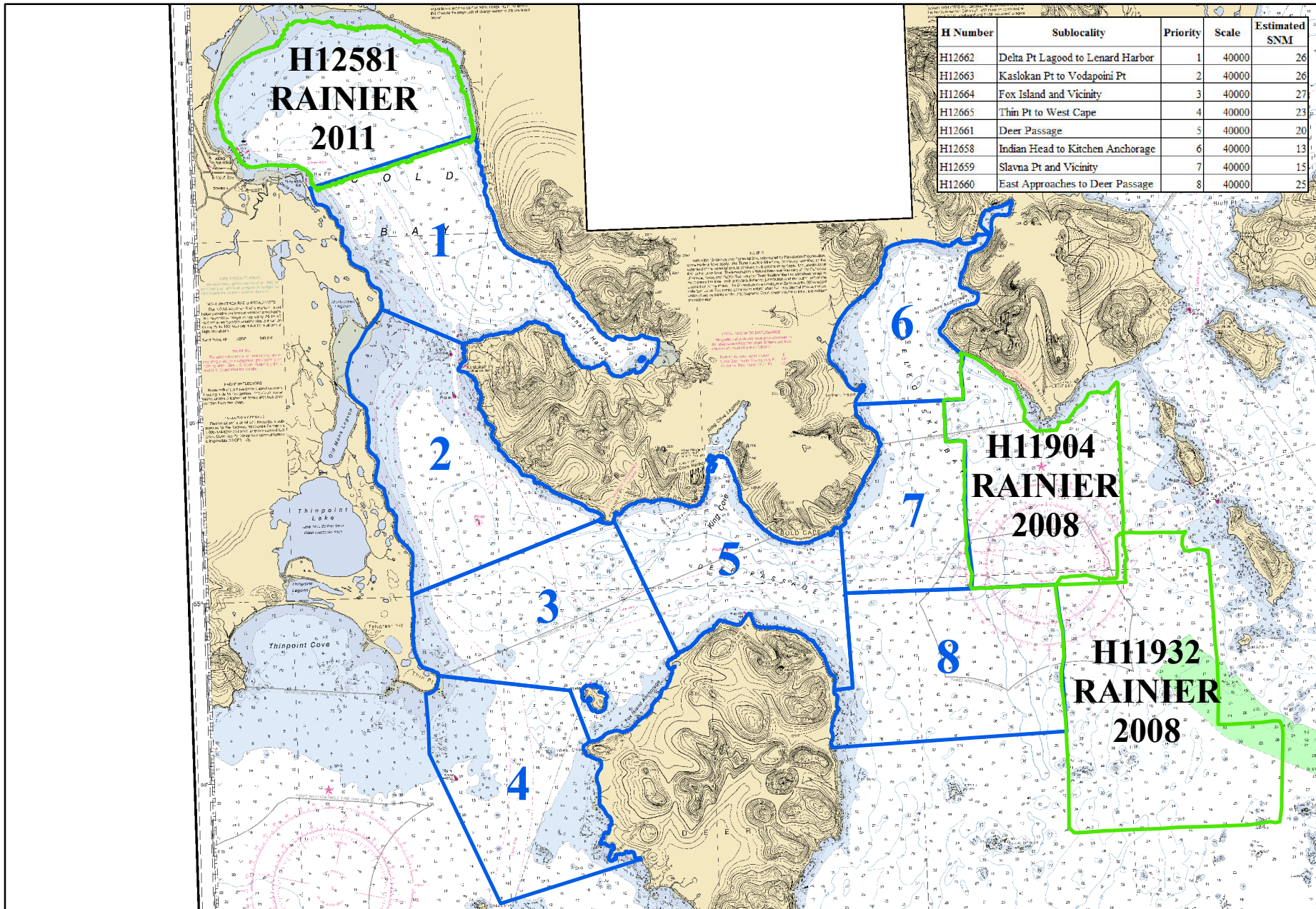
Southern Alaska Peninsula, AK

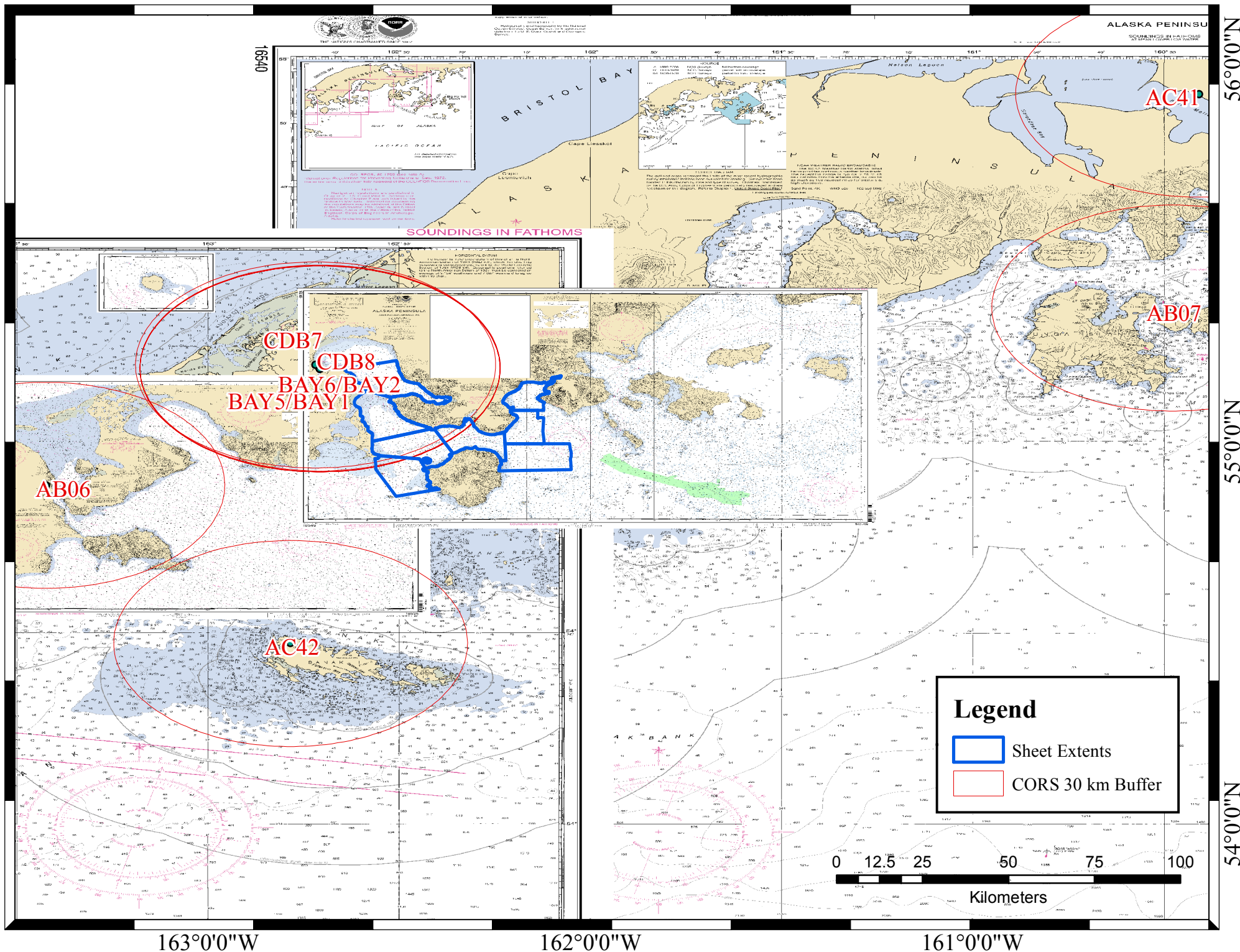
Sheet Layout

04/14/2014

Actual SNM: 175

Critical Area SNM: 175





WATER LEVEL INSTRUCTIONS

**OPR-P377-RA-2014 Southern Alaska Peninsula, AK
(03/13/2014 DW)**

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 April, 2013, and OCS Field Procedures Manual (FPM), dated May, 2013. 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 CO-OPS' Hydrographic Planning Team (HPT) at nos.coops.hpt@noaa.gov and CO-OPS' 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(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 [®] , etc)	Comment
King Cove	9459881	Control	NWLON	

Table 1: All stations that need to be added to the HHL in support of OPR-P377-RA-2014

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 assure that the verified data is correctly downloaded, please select a data that is more than 7 days prior to the day of interest in the ‘From’ field on the CO-OPS website.

1.3. Tide Reducer Stations

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

The NWLON station King Cove, AK (9459881), 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 King Cove, AK (9459881) 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

The estimated tidal error contribution to the total survey error budget in the vicinity of Southern Alaska Peninsula, AK is 0.20 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.

1.3.4. 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. This section is not applicable for this project.

1.4. Discrete Tidal Zoning

1.4.1. The water level station at King Cove, AK (9459881) is the reference station for preliminary tides for hydrography in Southern Alaska Peninsula, AK. The time and height correctors listed below for applicable zones should be applied to the preliminary data at King Cove, AK (9459881) 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>
SWA218	0	x0.97	9459881
SWA218A	0	x0.99	9459881
SWA218B	+6	x1.04	9459881
SWA218C	+12	x1.06	9459881
SWA218D	+6	x1.08	9459881
SWA218G	0	x0.99	9459881
SWA220	0	x0.93	9459881

1.4.2. Polygon nodes and water level corrections referencing King Cove, AK (9459881) are provided in CARIS® format denoted by a *.zdf extension file name.

NOTE: The tide corrector values referenced to King Cove, AK (9459881) are provided in the zoning file “P377RA2014CORP” 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 MapInfo® representation of West longitude.

“Preliminary” data for the control water level station, King Cove, AK (9459881), 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, created in MapInfo® and Adobe PDF, 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-P377-RA-2014, 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 . 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.

Preliminary Tidal Zoning for OPR-P377-RA-2014
Southern Alaska Peninsula, AK

