



Project Instruction

Date Submitted: June 8, 2017

Platform: NOAA Ship *Fairweather*

Project Number: FA-17-02 (OMAO)

Project Title: Port Clarence and Vicinity, Alaska

Project Dates: July 5, 2017 to September 8, 2017

Prepared by: _____ Dated: 9 June, 2017
Lieutenant Russell Quintero, NOAA
Chief, Operations Branch
Hydrographic Surveys Division

Approved by: _____ Dated: 9 June, 2017
Captain Richard Brennan, NOAA
Chief, Hydrographic Surveys Division
Office of Coast Survey

Approved by: _____ Dated: _____
Captain Keith Roberts, NOAA
Commanding Officer
Marine Operations Center – Pacific

I. Overview

A. Brief Summary and Project Period

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

B. Days at Sea (DAS)

Of the 60 DAS scheduled for this project, 0 DAS are funded by an OMAO allocation, 60 DAS are funded by a Line Office Allocation, 0 DAS are Program Funded and 0 DAS are Other Agency funded. This project is estimated to exhibit a High Operational Tempo.

C. Operating Area

The project area is located in the vicinity of Port Clarence, Alaska. A map of the project area can be found with the detailed project instructions appended to this document.

D. Summary of Objectives

This project will support the following primary mission:

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

E. Participating Institutions

NOAA Office of Coast Survey

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

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Christina Belton	Physical Scientist	7/5/2017	7/14/2017	Female	NOAA	USA

G. Administrative

1. Points of Contacts:

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

Project Manager:
Jacklyn James
Physical Scientist, Operations Branch
Hydrographic Surveys Division
1315 East West Hwy, #6745
Silver Spring, MD 20910
301-713-2702 x120
Jacklyn.C.James@noaa.gov

Backup Project Manager:
Katrina Wyllie
Physical Scientist, Operations Branch
Hydrographic Surveys Division
1315 East West Hwy, #6708
Silver Spring, MD 20910
301-713-2702 x106
Katrina.Wyllie@noaa.gov

Chief of Party:
Commander Mark Van Waes, NOAA
Commanding Officer, NOAA Ship Fairweather
2002 SE Marine Science Drive
Newport, Oregon 97365-5229
907-254-2842
CO.Fairweather@noaa.gov

2. Diplomatic Clearances

None Required.

3. Licenses and Permits

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

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

II. Operations

The Chief of Party 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:

Western Alaska - Arctic (FA-17-02 - Leg 1)	Kodiak, AK 2017-07-05	Nome, AK 2017-07-14	NOS	10	111
Western Alaska - Arctic (FA-17-02 - Leg 2)	Nome, AK 2017-07-17	Nome, AK 2017-08-04	NOS	19	130
Western Alaska - Arctic (FA-17-02 - Leg 3)	Nome, AK 2017-08-07	Nome, AK 2017-08-25	NOS	19	149
Western Alaska - Arctic (FA-17-02 - Leg 4)	Nome, AK 2017-08-28	Kodiak, AK 2017-09-08	NOS	12	161

B. Staging and Destaging:

None Required

C. Operations to be Conducted:

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

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

D. Dive Plan

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

Dives are not planned for this project.

E. Applicable Restrictions

Conditions which preclude normal operations:

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

III. Equipment

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

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

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

IV. Hazardous Materials

A. Policy and Compliance

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

V. Additional Projects

A. Supplementary ("Piggyback") Projects

No supplementary projects are planned.

B. NOAA Fleet Ancillary Projects

No NOAA Fleet Ancillary Projects are planned.

VI. Disposition of Data and Reports

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

A. Data Classifications: *Under Development*

- a. OMAO Data
- b. Program Data

B. Responsibilities: *Under Development*

VII. Meetings, Vessel Familiarization, and Project Evaluations

- A. Pre-Project Meeting: The Chief of Party and Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship's crew to discuss required equipment, planned operations, concerns, and establish mitigation strategies for all concerns. This meeting shall be conducted before the beginning of the project with sufficient time to allow for preparation of the ship and project personnel. The ship's Operations Officer usually is delegated to assist the Chief of Party 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 shortcomings 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 of Party, and members of the scientific party and is normally arranged by the Operations Officer and Chief of Party.

D. Project Evaluation Report

Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the Principal Investigator. The form is available at

<https://sites.google.com/a/noaa.gov/omao-intranet-dev/operations/marine/customer-satisfaction-survey> and provides a “Submit” button at the end of the form. It is also located at

https://docs.google.com/a/noaa.gov/forms/d/1a5hCCkgIwaSII4DmrHPudAehQ9HqhRqY3J_FXqbJp9g/viewform. 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 of Party. The Chief of Party will be responsible to develop 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 of Party 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 of Party 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 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 the Chief of Party 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 of Party 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 of Party to ensure members of the scientific party report aboard with the proper attire.

D. Communications

A progress report on operations prepared by the Chief of Party may be relayed to the program office. Sometimes it is necessary for the Chief of Party to communicate with another vessel, aircraft, or shore facility. Through various means of communications, the ship can usually accommodate the Chief of Party. Special radio voice communications requirements should be listed in the project instructions. The ship's primary means of communication with the Marine Operations Center is via email and the Very Small Aperture Terminal (VSAT) link. Standard VSAT bandwidth at 128kbs is shared by all vessels staff and the science team at no charge. Increased bandwidth in 30 day increments is available on the VSAT systems at increased cost to the scientific party. If increased bandwidth is being considered, program accounting is required and it must be arranged through the ship's Commanding Officer at least 30 days in advance.

E. IT Security

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

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

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

Fairweather is now CAC enabled, and visitors will need to bring their NOAA CAC for access to workstations.

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-R365-FA-17 Port Clarence and Vicinity, Alaska

Hydrographic Survey Project Instructions

Project Name:	Port Clarence and Vicinity
Project Number:	OPR-R365-FA-17
Assigned Field Unit:	NOAA Ship <i>Fairweather</i>
Assigned Processing Branch:	Pacific Hydrographic Branch
Signed Date:	05/08/2017
Project Instructions Version:	Final
Planned Acquisition Time:	Start Date: 07/2017 End Date: 09/2017
Delivery Dates:	120 days from completion of data acquisition.

Purpose and Location:
<p>Alaska has more miles of coastline than any other state in the United States. As maritime shipping activity in the Arctic increases in use and feasibility, as natural resources are discovered, and access through previously ice-bound routes for shipping becomes more prevalent there is a need to determine a safe route for transit. The retreat of seasonal sea ice in the Arctic has facilitated the steady growth of vessel traffic from commercial shipping, cruise liners, research vessels, commercial and recreational fishing, and, in the long term, oil and gas exploration in the Bering Strait. The Bering Strait is a narrow passage that provides the only marine passage between the North Pacific and Arctic oceans. Port Clarence, located just south of the Bering Strait, was last surveyed in 1951. Port Clarence is one of the only areas that offers protection from storms and is often used as a port of refuge by barge vessels hauling fuel and goods. When seeking refuge from storms, the most protected southern portions of Port Clarence are frequently avoided due to the unknown depths. Additionally, a high priority request was made on behalf of United States Coast Guard (USCG), Crowley Marine Corporation, and Alaska Marine Pilots because of grounding risk. This area has also been identified as a major development priority for Alaska and the Arctic region. The Yukon River is the primary supply tributary for most of interior Western Alaska. Office of Coast Survey has recently leveraged Satellite Derived Bathymetry to produce updates on the bathymetry in the river, and now needs a modern survey of the river mouth, not surveyed since 1899, to ensure the safe and reliable delivery of these supplies to remote communities. Surveying the Bering Strait Corridor will ensure safe and secure transit in the most heavily trafficked routes for local traffic, based on AIS data. These surveys will encompass 3,000 square nautical miles (SNM) and will enable Coast Survey to create new, larger scale, nautical charts. Survey data from these projects is intended to supersede all prior survey data in the common area.</p>
Supporting Documents:
Hydrography shall consist of Navigable Area Surveys in accordance with the following support documents.
NOS Hydrographic Surveys Specifications and Deliverables Manual (HSSD), March 2017
NOS Field Procedures Manual for Hydrographic Surveying (FPM), April 2014

Hydrographic Survey Technical Directive (HTD): 2017-2 Variable Resolution Bathymetric Grids

Hydrographic Survey Technical Directive (HTD): 2017-3 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: Bering Strait and Vicinity

<i>Registry Number</i>	<i>Sheet Number</i>	<i>Sublocality</i>	<i>State or Territory</i>	<i>Scale</i>	<i>Estimated SNM</i>	<i>Instructions</i>
H12798	1	Northeastern Vicinity of Port Clarence	Alaska	40000	32	
H12799	2	Southwestern Vicinity of Port Clarence	Alaska	40000	42	
H12800	3	Southeastern Vicinity of Port Clarence	Alaska	40000	26	
F00694	4	Approaches to Yukon River	Alaska	40000	56	See Data Handling Requirements Section for more information.
D00206	5	Bering Strait Corridors	Alaska	40000	2844	See Data Handling Requirements Section for more information.

Limits & Coverage:

Inshore Limit: Inshore Limit: The inshore limit of hydrography (for all except F00694) will be the farthest offshore of the following: (1) the 4-meter depth contour (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 or (3) the limits of safe navigation.

Coverage Requirements:

<i>Coverage Water Depth</i>	<i>Coverage Required</i>
H12798, H12799, and H12800: All waters in survey area of Port Clarence	Complete Coverage. Refer to HSSD Section 5.2.2.3
F00694: All waters in survey area of Approaches to Yukon River	Acquire data orthogonally surveying in an intersecting manner so as to create an "argyle" pattern. Acquire additional developments where densification of argyle is appropriate. Refer to HSSD Section 5.2.2.5.2. See Data Handling Requirements Section for more information.
D00206: All waters in survey area of Bering Strait Corridor	500-meter set line spacing. Refer to HSSD Section 5.2.2.5.1. See Data Handling Requirements Section for more information.

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.

Environmental Compliance Requirements

Comply with the marine mammal observation and reporting requirements in HSSD Section 1.5 and Best Management Practices (BMPs) listed at the end of the Project Instructions.

Aids to Navigation (ATONs):

There are no ATONs specifically assigned for this project. Any ATONs located within the survey area should be verified so that they serve their intended purpose in accordance with Section 7.3.5 of the HSSD.

Maritime Boundary Points (MBPs):

Investigate Maritime Boundary Points in accordance with Section 3.5.6 of the FPM and Section 7.2.1 of the HSSD.

<i>Number of MBPs provided for Full Investigation: (when safety permits, search inshore of the NALL line for these maritime boundary features)</i>	
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<i>Number of MBPs provided for Information Only:</i>	28
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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:

Perform a chart comparison in accordance with Section 4.5 of the FPM and Sections 8.1.4 and D.1 of the HSSD. Use only the latest editions of the largest scale NOS charts covering the project area. Resolve any discrepancies identified in the field and explain them in the Descriptive Report. The charts, listed below, were used in the preparation of these project instructions and accompanying project files. Some charts listed may have larger scale sections to which survey data must be compared.

<i>Affected ENC's</i>					
<i>ENC Name</i>	<i>Scale</i>	<i>Edition</i>	<i>Update Application Date</i>	<i>Issue Date</i>	<i>Preliminary</i>
US4AK81M	100000	12	04/27/2016	04/27/2016	NO
US4AK98M	90000	1	11/09/2015	11/09/2015	NO
US3AK80M	400000	8	04/17/2017	04/17/2017	NO
US3AK83M	300000	8	08/26/2015	08/26/2015	NO
US5AK82M	20000	5	03/08/2017	03/08/2017	NO
US2AK95M	1534076	5	02/10/2017	02/10/2017	NO

Coast Pilot:

Perform a Coast Pilot Review as described in HSSD Section 8.1.3.

Dangers to Navigation (DTONs):

Generate DTON reports in accordance with Section 1.5 of the HSSD. DTON reports should be sent to ocs.ndb@noaa.gov with a courtesy copy to the Project Manager. It is of paramount importance that DTONs be reported as soon as possible.

Junctions:

Perform a junction analysis with the prior junctions listed below and current junctions. Refer to HSSD Section 7.2.2.

<i>Registry Number</i>	<i>Scale</i>	<i>Year</i>	<i>Platform</i>	<i>Relative Location</i>
H11274	20000	2005	Terra Surveys, LLC	N
H12232	40000	2010	NOAA Ship <i>Fairweather</i>	NW

Progress Reports:

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

Survey Outlines:

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

Special Data Handling Requirements:

ATTENTION: NOAA Ship Fairweather: F00694 Approaches to Yukon River

The inshore limit shall be defined by the field in regards to safety. Adhere to the Reconnaissance Surveys specification (HSSD Section 5.2.2.5.2). Sound speed profiles shall be collected in accordance with HSSD Section 5.2.3.3. Collect orthogonal survey lines that cross the main channel at approximately 45 degrees. Caution should be taken in that the area is the mouth of a major river, and so likely contains both shifting shoals and notable currents. There is no guarantee that the AIS derived channel is still the deepest part of the survey, nor that it is still entirely passable by the survey launches. Safety shall always take priority over efficiency. Submit a daily report to the project manager outlining areas where further investigation is needed.

ATTENTION: NOAA Ship Fairweather: D00206 Bering Strait Corridor

Coverage required is 500-meter set line spacing per Transit Surveys (HSSD Section 5.2.2.5.1). If time allows, after completion of Approaches to Yukon River, the Port Clarence portion of the project (sheets H12798, H12799, and H12800), and the initial set of widely spaced lines, fill in the gaps to approach 100% coverage.

ATTENTION: NOAA Ship Fairweather: Additional Task: Public Relations

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

Horizontal Control Requirements:

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

PPK

The Port Clarence portion of the project, sheets H12798, H12799, and H12800, has a requirement to acquire survey data vertically referenced to the ellipsoid. At the commencement of survey operations, checklines should be run across the entirety of the Port Clarence sheets (H12798, H12799, and H12800) to confirm the operational status of the field-installed stations, and to measure the anticipated uncertainties of the positioning solution. Any concerns arising from these checklines should be reported back to HSD Operations. The ERS requirement is only for sheets H12798, H12799, and H12800. Refer to ERS Section below for more information.

The Approaches to Yukon and Bering Strait Corridor portion of the project, surveys F00694 and D00206, have a GPS requirement. Comply with the horizontal control requirements in Section 5.2.2.5.2 of the HSSD. Horizontal Control at a minimum shall be stand-alone GPS. The recommendation is DGPS or WAAS.

User-Installed Base Stations

<i>Station</i>	<i>Name</i>	<i>Position</i>	<i>Ellipsoid Height</i>	<i>Rate</i>	<i>Owner/Agency</i>	<i>Requirement</i>
TBD	TBD	65°15'29.96293"N 166°50'50.31446"W	TBD	TBD	TBD	Recommended

Vertical Control Requirements:

Comply with the vertical control requirements in Section 4 of the HSSD. Sheets H12798, H12799, and H12800 will be reduced to datum via the ERS method listed below. Sheets F00694 and D00206 will be reduced via TCARI.

TCARI

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

Ellipsoidally-Referenced Survey

This project has a requirement to acquire survey data vertically referenced to the ellipsoid. Based on analysis of existing infrastructure, this will most likely be achieved through field installed stations using a PPK processing solution and use of either a PMVD or ERZT separation model as determined by the results of the following ERS analysis to realize chart datum via the ellipsoid. At the commencement of survey operations, checklines shall be acquired across the entirety of sheets H12798, H12799, and H12800 to identify any systematic procedural, hardware, or configuration errors prior to the bulk of data acquisition. To determine the quality of the 3D trajectory, the checkline analysis shall be performed between the ERZT separation model and the PMVD separation model. If the field's method of acquiring 3D trajectories and the method of reducing the ellipsoidally referenced data to chart datum is successful, all survey lines shall be delivered with 3D trajectory and associated uncertainty files applied (e.g. SBETs and RMS) and GPS tides computed. If at any point the field unit experiences difficulty in realizing chart datum via the ellipsoid, the field unit shall communicate with the HSD Project Manager for guidance on how to proceed.

NWLON Gauges

<i>Operating Water Level Station</i>	<i>Station ID</i>
Nome, Norton Sound, AK	946-8756
Village Cove, AK	946-4212
Red Dog Dock, AK	949-1094

Orthometric Imagery:

No Orthometric Imagery has been provided for this project.

Shoreline and Nearshore Features:

Conduct shoreline verification using the composite source file (CSF) in accordance with Section 7.3 of the HSSD. All features with attribute 'asgnmt' populated with 'Assigned' shall be addressed even if they are inshore of the HSD Operations delivered NALL, as per HSSD Section 7.3.1. Please contact the HSD Operations Branch Project Manager if there are any questions regarding feature assignment.

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

Backup Project Manager

Katrina Wyllie

NOAA

Phone: 301-713-2700 ext. 106

Fax:

Email: katrina..wyllie@noaa.gov

Obligation: Mandatory

NOAA Navigation Manager, Alaska Region

Lieutenant Matthew Forney

NOAA

Phone: 301-713-2698 x103

Fax:

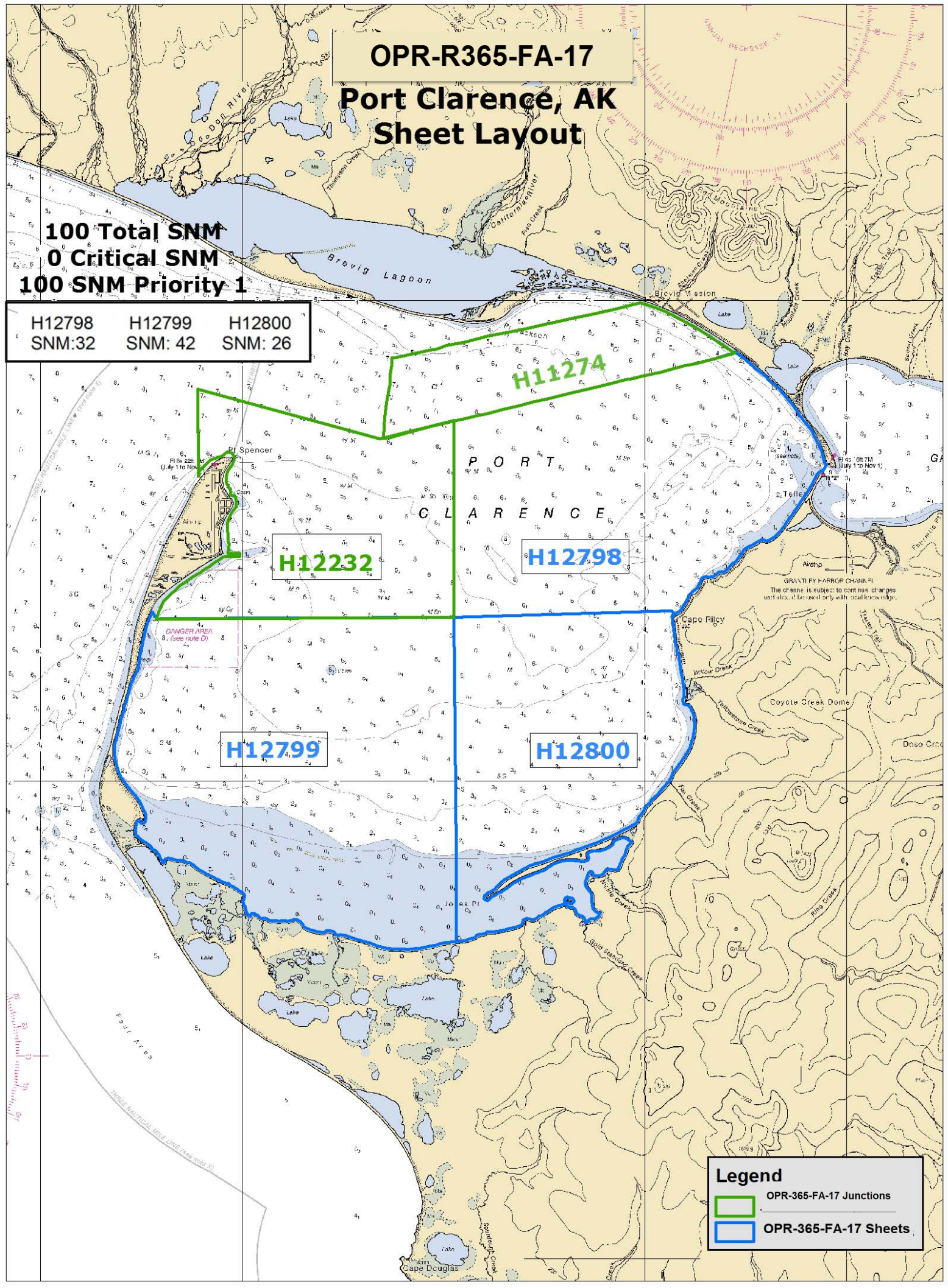
Email: matthew.forney@noaa.gov

Obligation: For Reference

OPR-R365-FA-17 Port Clarence, AK Sheet Layout

100 Total SNM
0 Critical SNM
100 SNM Priority 1

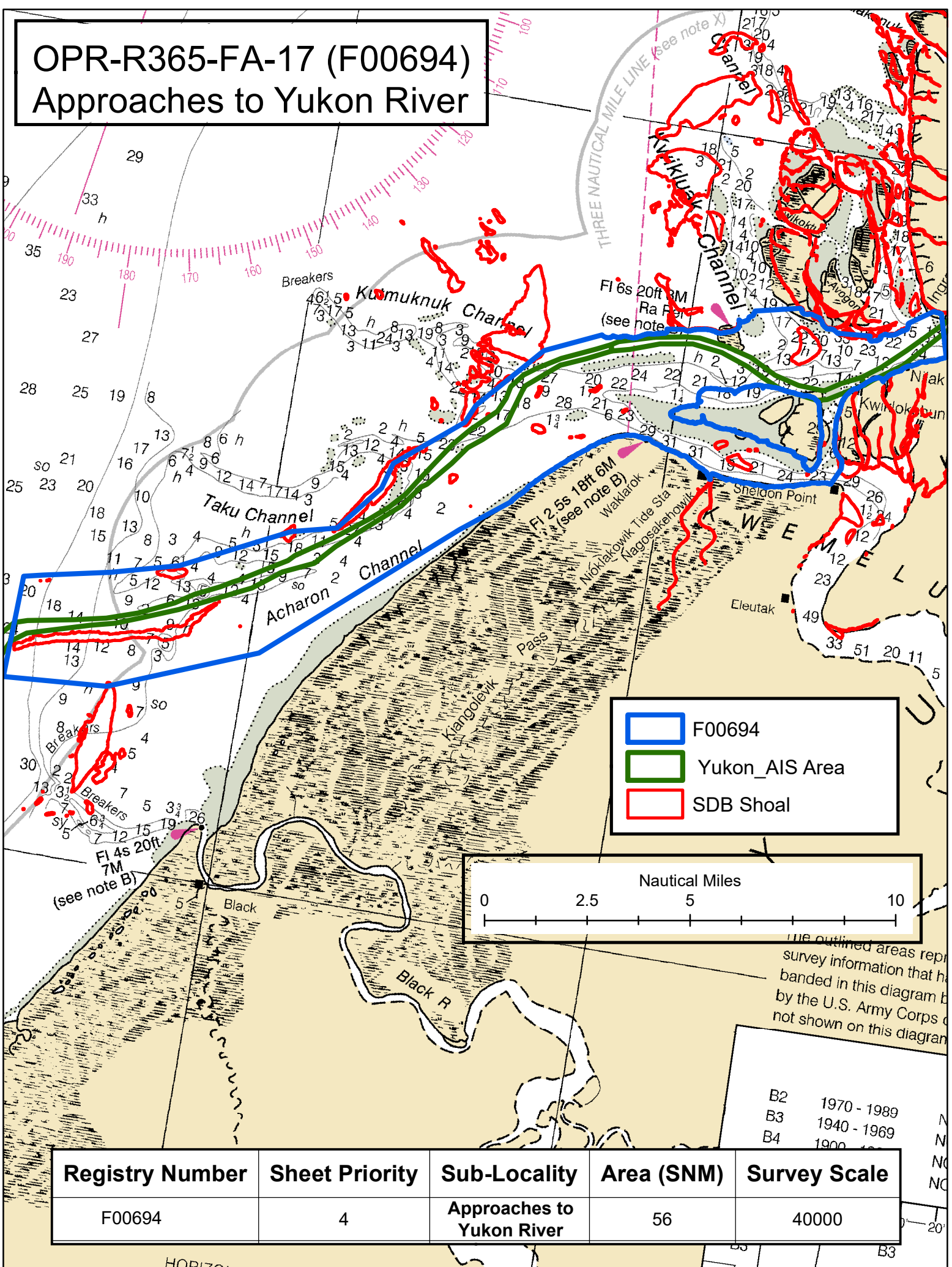
H12798 SNM:32	H12799 SNM: 42	H12800 SNM: 26
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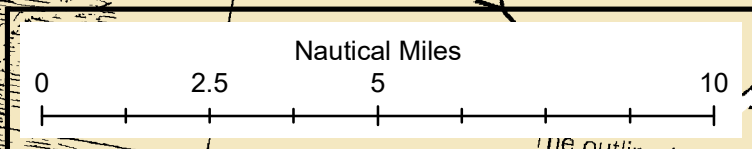
Legend

- OPR-365-FA-17 Junctions
- OPR-365-FA-17 Sheets

OPR-R365-FA-17 (F00694) Approaches to Yukon River



	F00694
	Yukon_AIS Area
	SDB Shoal

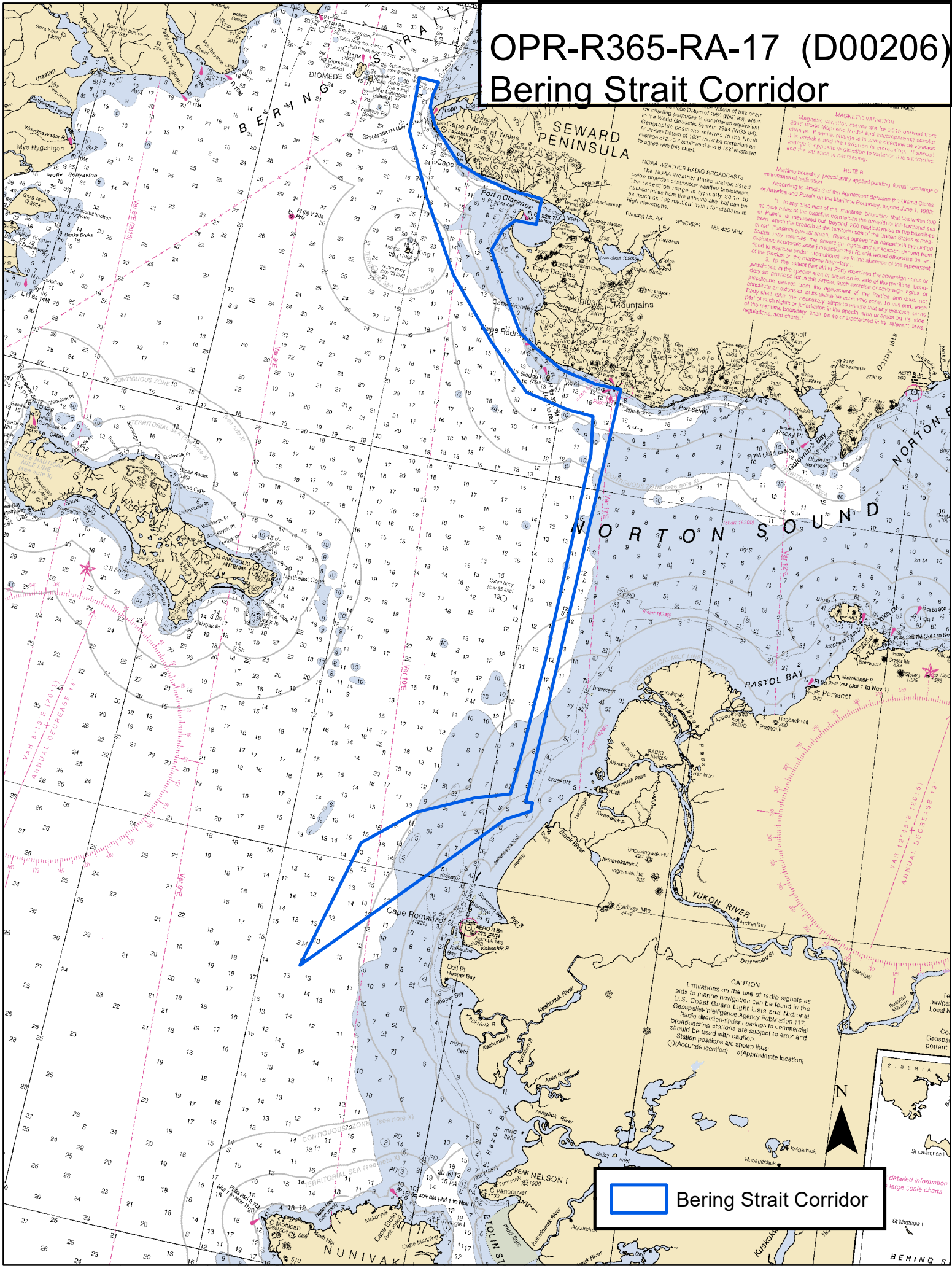


The outlined areas represent survey information that has been included in this diagram by the U.S. Army Corps of Engineers. Areas not shown on this diagram are shown on other sheets.

B2	1970 - 1989
B3	1940 - 1969
B4	1900 - 1939

Registry Number	Sheet Priority	Sub-Locality	Area (SNM)	Survey Scale
F00694	4	Approaches to Yukon River	56	40000

OPR-R365-RA-17 (D00206) Bering Strait Corridor



NOAA WEATHER RADIO BROADCASTS
The NOAA Weather Radio Station listed under previous electronic weather broadcasts includes the reception range is typically 20 to 40 nautical miles from the antenna site, but can be as much as 100 nautical miles for stations at high elevations.

MAGNETIC VARIATION
Magnetic variation curves are for 2019 derived from the World Magnetic Model. Magnetic variation is indicated by a number and the variation is increasing if a number and the variation is decreasing.

NOTE B
Magnetic boundary provisionally applied pending formal acceptance of America and Russia of the Agreement Between the United States of America and Russia of the Maritime Boundary, signed June 1, 1990.
In any area east of the maritime boundary, the United States of America is reserved but beyond 200 nautical miles of the baseline as stated in the boundary area. Russia agrees that heretofore the United States may exercise the sovereign rights that heretofore the United States had exercised under international law that Russia would otherwise claim in the future on the maritime boundary.
In any area west of the maritime boundary, the sovereign rights of the United States of America are reserved. In any area east of the maritime boundary, the United States of America agrees to exercise the sovereign rights of the United States of America in accordance with the provisions of the Agreement.

CAUTION
Limitations on the use of radio signals as aids to marine navigation can be found in the Coast Guard Light Lists and National Radio Direction-Finder Listings to Publication 117. Broadcasting stations are subject to error and should be used with caution.
Station positions are shown thus:
○ (Approximate location) ◐ (Proximate location)

Bering Strait Corridor

N

For detailed information large scale charts

INTERIM BEST MANAGEMENT PRACTICES (BMPs) FOR HYDROGRAPHIC SURVEYS

The following BMPs are based on the Endangered Species Act (ESA) mitigation and monitoring measures agreed to between the OCS Hydrographic Surveys Division (HSD) and the NMFS Office of Protected Resources (OPR-ESA) and documented in the April 30, 2013 Biological Opinion¹ and in a May 12, 2017 Letter of Concurrence for revised speed limits.² They were adopted in the context of the ESA, but include BMPs for marine mammals listed in the ESA (“depleted” under MMPA). OCS follows these BMPs during all OCS hydro work while MMPA compliance is underway. In all cases BMPs will be communicated to ship and boat crews via project instructions. Contractors will additionally be made aware of BMPs via contract RFPs.

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

Vessel Speed Limits

- Vessels over 65 feet in overall length are limited to a speed of 13 knots or less at all times, unless a slower speed limit applies to the area (e.g., posted speed limits for the protection of manatees).
- Vessels of 65 feet in overall length or less are limited to a speed of 13 knots or less while mapping, unless a slower speed limit applies to the area.

Echo sounder Restrictions

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

Vessel Maintenance Requirements

- Meet all EPA Vessel General Permits and Coast Guard requirements
- Use anti-fouling coatings
- Clean hull regularly to remove aquatic nuisance species

¹ http://www.nmfs.noaa.gov/pr/consultation/opinions/biop_ocs_04302013.pdf

² *Concurrence Letter on Revised Protective Measures to be Followed during Coast Survey Operations*, NMFS Office of Protected Resources, May 12, 2017

- Avoid cleaners with nonylphenols
- Rinse anchor with high-powered hose after retrieval

Anchoring Restrictions

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

Visual Monitoring Requirements

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

Animal Approach Restrictions

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

Survey-specific BMPs (those to be included in project instructions only when the project meets the conditions listed after each restriction):

Vessel Speed Limits

- As required by 50 CFR 224.105, no vessel of 65 feet or greater in overall length may exceed a speed of 10 knots in designated seasonal management areas for the Right whale.

Discharge Restrictions

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

Animal Approach Restrictions

- Avoid cetacean (whales, dolphins, and porpoises) critical habitat, when possible

- When possible, maintain a vessel distance of at least 3 nautical miles (5.5 km) and a land-based distance of 0.5 miles (0.8 km) of Steller sea lion rookeries listed in 50 CFR 223.202 or Marmot Island
 - “1. Minimize transit distance through the identified critical habitat.*
 - 2. When mapping in critical habitat is required, use the highest echo sounder frequencies appropriate for the area conditions.*
 - 3. If mapping areas within 3 nm of a rookery is required, use binoculars (“big eyes”) to observe rookeries from a distance. If sea lions are observed on land, the ship is to remain far offshore, and no near-shore surveys may be conducted on that day. If sea lions are not observed, near-shore surveys may be conducted. During such surveys, maintain a 100 yard distance sea lions at sea. If a sea lion approached the vessel during single beam sonar operations, cease transmission”*

WATER LEVEL INSTRUCTIONS
S-R945-FA-17 PARS Yukon-Nome-Port Clarence-Bering Strait Corridors
(05/03/2017 CU)

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 2017, and OCS Field Procedures Manual (FPM), dated April 2014. Specifically reference Chapter 4 of the HSSD and Sections 1.5.8, 1.5.9, 2.4.3, and 3.4.2 of the FPM.

1.2. Vertical Datums

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

1.2.1. Water Level Data Acquisition Monitoring

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

1.2.2. The Hydro Hot List (HHL)

Please contact the CO-OPS/Hydrographic Planning Team (HPT) at nos.coops.hpt@noaa.gov and the Operational Engineering Team (OET) at nos.coops.oetteam@noaa.gov at least three business days before survey operations begin, and within 1 business day after survey operations are completed so that the appropriate CO-OPS National Water Level Observation Network (NWLON) control water level stations 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 station numbers. The notification must be sent to both teams as OET is responsible for configuring the stations in the CO-OPS data base and HPT manages the addition and removal of stations from the HHL.

Station	Station ID	Control or Subordinate	Type (NWLON, PORTS®, etc.)	Comment
Village Cove, AK	9464212	Control	NWLON	
Nome, AK	9468756	Control	NWLON	
Red Dog Dock, AK	9491094	Control	NWLON	

Table 1: All stations that need to be added to the HHL in support of R945-FA-2017

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

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

1.3. Operating Tide Reducer Stations

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

The NWLON stations Village Cove, AK (9464212), Nome, AK (9468756) and Red Dog Dock, AK (9491094), 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 Village Cove, AK (9464212), Nome, AK (9468756) and Red Dog Dock, AK (9491094), by NOAA’s FAIRWEATHER personnel.

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

1.3.2. Subordinate Station Requirements

No subordinate water level stations are required for this project, however, supplemental and/or back-up water level stations may be necessary depending on the complexity of the hydrodynamics and/or the severity of the environmental conditions of the project area. The installation and continuous operation of water level measurement systems (tide gauges) at subordinate station locations is left to the discretion of

the Commanding Officer (or Team Leader), subject to the approval of CO-OPS. If the Commanding Officer (or Team Leader) decides to install additional water level stations, then a 30-day minimum of continuous data acquisition is required. For all subordinate stations, data must be collected throughout the entire survey period for which they are applicable, and not less than 30 continuous days. This is necessary to facilitate the computation of an accurate datum reference as per NOS standards.

1.3.3. Tide Component Error Estimation

This section is not applicable for this project. Tidal Constituent And Residual Interpolator (TCARI) automatically calculates the error associated with water level interpolation. This error is incorporated into the residual/harmonic solutions and included in the Total Propagated Error (TPE) for the survey. Uncertainty values input into TCARI model are 2-sigma. Pydro will automatically supply 1-sigma values to CARIS when computing uncertainty.

1.3.4. GOES Satellite Enabled Subordinate Stations

This section is not applicable for this project.

1.3.5. Benchmark Recovery and GPS Requirements

This section is not applicable for this project.

1.3.6. Residual Water Level Station(s) Data

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

The operating stations at Village Cove, AK (9464212), Nome, AK (9468756) and Red Dog Dock, AK (9491094), will provide residuals for this project and must remain in operation during all periods of hydrography.

<u>Station Number</u>	<u>Station Name</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
9464212	Village Cove, AK	57° 7.5'	170° 17.1'
9468756	Nome, AK	64° 29.7'	165° 26.4'
9491094	Red Dog Dock, AK	67° 34.5'	164° 3.8'

1.4. Tidal Constituent and Residual Interpolation (TCARI)

1.4.1. For hydrography in the area of PARS Yukon-Nome-Port Clarence-Bering Strait Corridors, apply the TCARI grid “R945FA2017.tc” supplied in conjunction with the water level data from Section 1.3.6 to produce a seamless tide correction. Refer to the TCARI Field SOP for detailed TCARI instructions.

1.4.2. This section is not applicable for this project.

1.4.3. TCARI Graphic

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

1.4.4. TCARI Final Solutions

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

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

1.6 Water Level Records

This section is not applicable for this project.

★9491094 RED DOG DOCK

Preliminary TCARI Grid
for S-R945-FA-2017
PARS Yukon-Nome-
Port Clarence-
Bering Strait Corridors

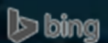
★9468756 NOME, NORTON SOUND

Norton Sound

Bering Sea

Bristol

★9464212 VILLAGE COVE, ST. PAULS HARBOR



OPR-R365-FA-17 PUBLIC COMMUNICATION REQUIREMENT

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

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

The length of the blog post should be as long as required to effectively communicate the main idea, but ideally run about 1,000 words. The absolute maximum is 2,500 words.

See the blog at <https://noaacoastsurvey.wordpress.com> for examples of writing styles.

Consult with Coast Survey communications staff

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

In most cases, giving a photo credit is at your discretion. For example, if you are using a photograph taken and provided by a NOAA employee while on official duty, that photograph will be considered the property of NOAA and may be used freely with or without credit. The same holds true if you obtained a photograph from another federal agency. However, as a courtesy, you may give a photo credit. (**REMINDER:** You could be violating the Marine Mammal Protection Act if you disturb animals while taking photos of them. It is against the law to harass mammals, and harassment is defined very broadly to include “causing disruption of behavioral patterns.”)

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