D00197

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Survey

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	D00197

LOCALITY

State(s):	Alaska
General Locality:	Corridor between Aleutian Islands and Bering Strait
Sub-locality:	USCG-Proposed PARS Corridor

2015

CHIEF OF PARTY
CDR David J. Zezula, NOAA

LIBRARY & ARCHIVES

Date:

Descriptive Report Summary to Accompany **D00197**	
Project	OPR-R976-FA-15
Survey	D00197
State	Alaska
Locality	Corridor between Aleutian Islands and Bering Strait
Sub Locality	USCG-Proposed PARS Corridor
Scale of Survey	1:40,000
Sonars Used	Kongsberg EM-710
Horizontal Datum	North American Datum of 1983 (NAD83)
Vertical Datum	Mean Lower Low Water (MLLW)
Vertical Datum Correction	Verified Observed Tides
Projection	Latitude-Longitude (NAD83) - UTM Zone 3N
Field Unit	Fairweather S220
Survey Dates	06/16/2015-09/05/2015
Chief of Party	CDR David J. Zezula, NOAA
Remarks	***The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Any revisions to the Descriptive Report (DR) generated during office processing are shown in bold, red italic text. The processing branch maintains the DR as a field unit product, therefore, all information and recommendations within the body of the DR are considered preliminary unless otherwise noted. The final disposition of surveyed features is represented in the OCS nautical chart update products. All pertinent records for this survey, including the DR, are archived at the National Centers for Environmental Information (NCEI) and can be retrieved via http://www.ncei.noaa.gov/.***

Based on the data, the dates of acquisition were from 06/16/2015 – 09/04/2015.

A. Area Surveyed

This hydrographic survey was acquired in accordance with the requirements defined in the Project Instruction OPR-R976-FA-15. All requirements set forth in the NOS Field Procedures Manual for Hydrographic Surveying (FPM) dated May 2014; Hydrographic Survey Technical Directives (HTD) 2013-5 and 2015-1 were met. NOS Hydrographic Surveys Specifications and Deliverables Manual (HSSD) dated April 2015, section 5.2.2.4.2 Trackline Specifications for Reconnaissance Surveys were fully met. . The only diversion from the Project Instructions was in the acquisition of sound speed profiles. Cast times ranged from every two hours to every 12 hours with the approval of the Project Manager.

See attached correspondence regarding sound speed acquisition frequency.

Data was acquired within the following survey limits:

Northeast Limit	Southwest Limit
66/26/34.26 N	54/23/04.35 N
168/20/31.04 W	165/06/33.60 W

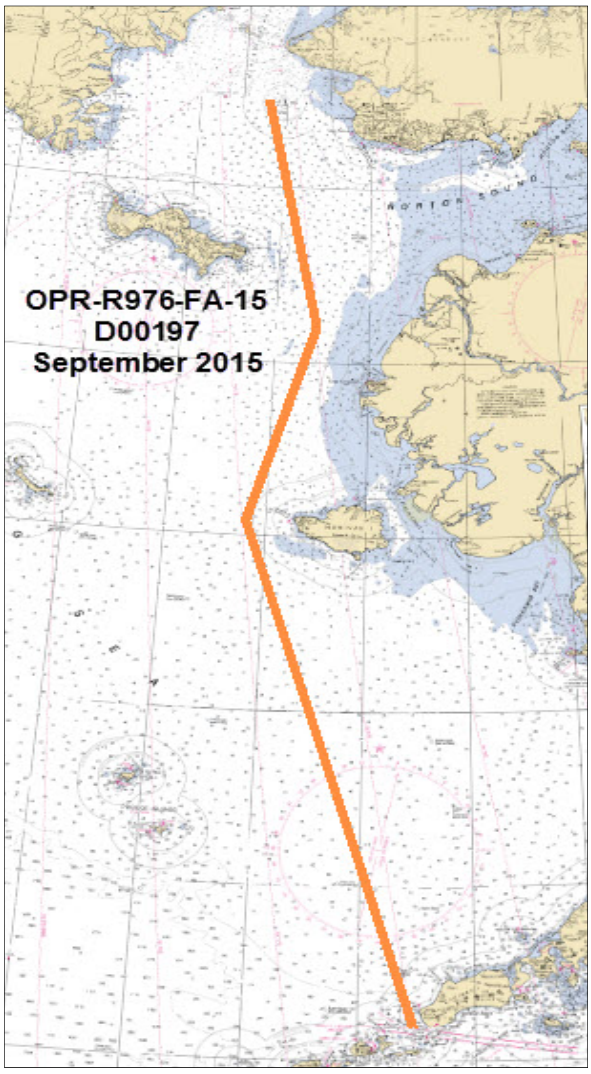


Figure 1: D00197 Survey Outline

B. Survey Purpose

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. The assigned track lines are located within the USCG-proposed Arctic PARS Corridor, a corridor largely lacking in modern hydrographic data.

Data was collected in conjunction with NOAA Ship Rainier, NOAA Ship Ronald H. Brown and USCG Cutter Healy. The survey from NOAA Ship Rainier is archived as D00198.

C. Intended Use of Survey

Data from survey is intended to supersede all prior survey data in the common area.

D. Data Acquisition and Processing

Please reference Data Acquisition and Processing Report OPR-R976-FA-15 for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods.

E. Uncertainty

All data meet the data accuracy specifications as stated in the HSSD. It was found that 96.13% of nodes in the 4m and 89.72% of nodes in the 16m grids meet or exceed NOAA Order 2 specifications for all depths of survey D00197; see figures 2 and 3, and the Standards Compliance Review in Appendix II. To assess vertical accuracy standards, a child layer titled "IHO_2" was created for the 4m and 16m BASE surfaces using the equations stated in section C. 2.1 of the DAPR.

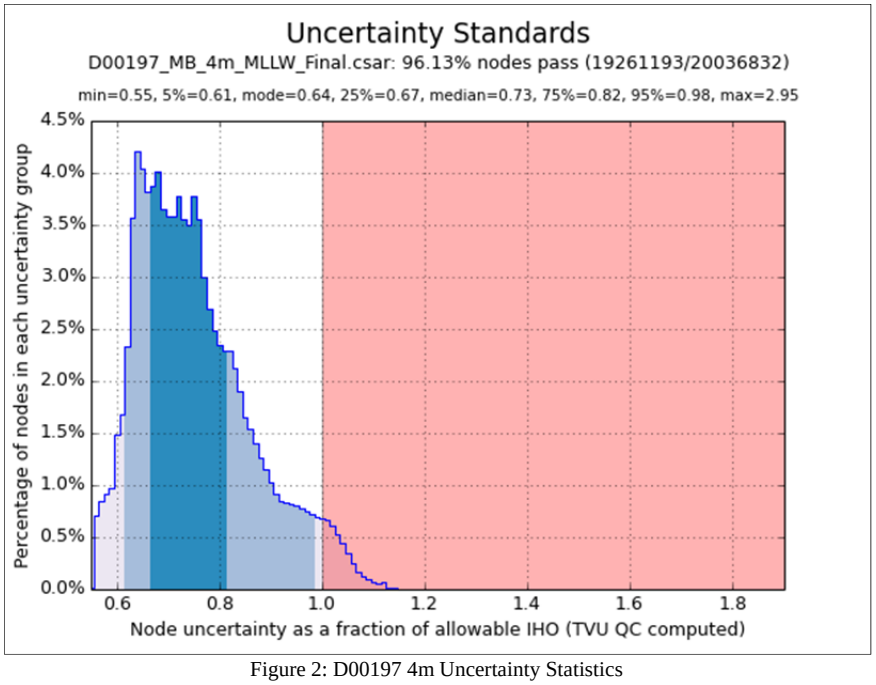


Figure 2: D00197 4m Uncertainty Statistics

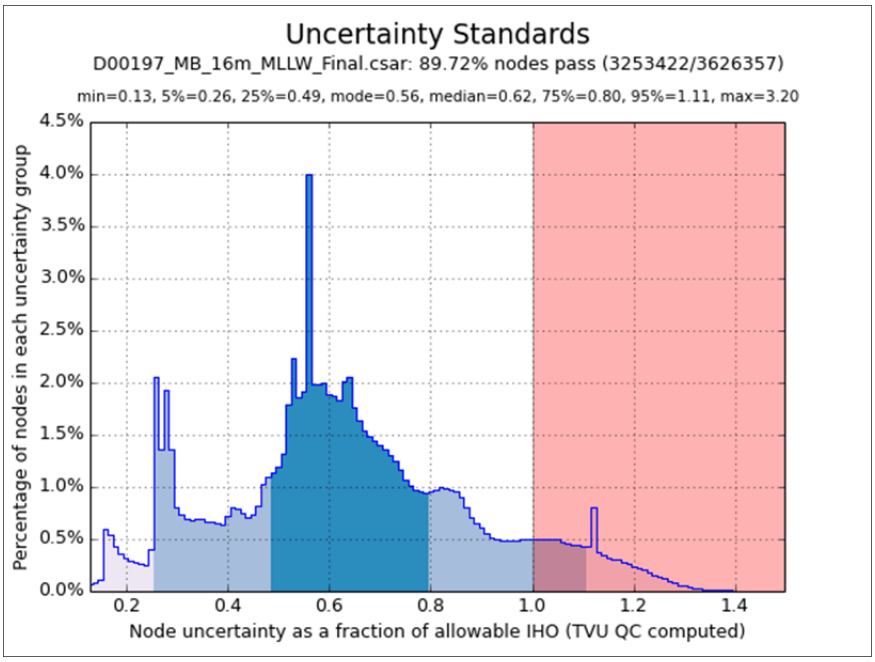


Figure 3: D00197 16m Uncertainty Statistics

F. Results and Recommendations

The following are the largest scale RNC and ENC, which cover the survey area:

Affected Raster Charts

Chart Number	*Scale*	*Edition Number*	*Edition Date*	*LNM Date*	*NM Date*
16005	700000	10	10/2007	04/25/2015	04/21/2015
16006	1534076	35	04/2008	04/25/2015	04/21/2015
16011	1023188	38	08/2012	04/25/2015	04/21/2015
16200	400000	15	10/2014	04/25/2015	04/21/2015
16220	315350	6	05/2013	04/25/2015	04/21/2015
16190	100000	1	05/2013	04/25/2015	04/21/2015
16520	300000	23	08/2008	04/25/2015	04/21/2015
16531	80000	7	02/2002	04/25/2015	04/21/2015

Affected ENCs

ENC Name	*Scale*	*Edition*	*Update Application Date*	*Issue Date*	*Preliminary*
US2AK5FM	1023188	10	11/30/2012	08/06/2014	NO
US2AK92M	700000	7	05/02/2015	11/13/2014	NO
US3AK80M	400000	6	10/11/2013	08/01/2014	NO
US3AK89M	315350	3	04/10/2014	08/04/2014	NO
US4AK8DM	100000	3	04/22/2015	04/22/2015	NO
US3AK61M	300000	17	11/20/2014	11/20/2014	NO
US4AK6FM	80000	8	04/28/2011	06/13/2014	NO

ENC US3AK80M has a scale of 1:350,000 even though corresponding RNC 16200 has a scale of 1:400,000.

Chart 16005

Surveyed soundings generally agree within 1-2fm with charted depths on chart 16005 with one exception. A charted 20fm area SW of Cape Prince of Wales does not appear to be in the location charted. See figure 4.

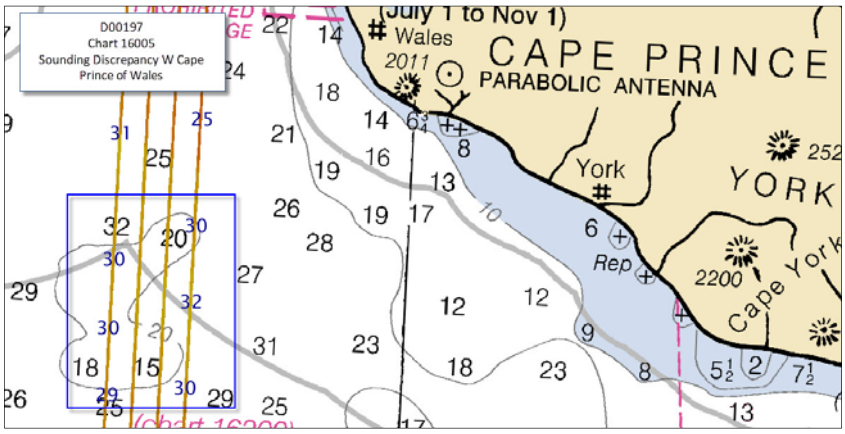


Figure 4: Chart 16005 charted 20fm sounding discrepancy

Chart 16006

Surveyed soundings generally agree within 1-2fm with chart 16006 charted depths with two exceptions noted below. Figure 5 notes a discrepancy in a general shoaling SW of Norton Sound. Charted depths are approximately four to seven fathoms shoaler than surveyed soundings. Figure 6 notes a discrepancy near Scotch Cap where there is a 95fm charted depth. The closest surveyed sounding is 61fm.

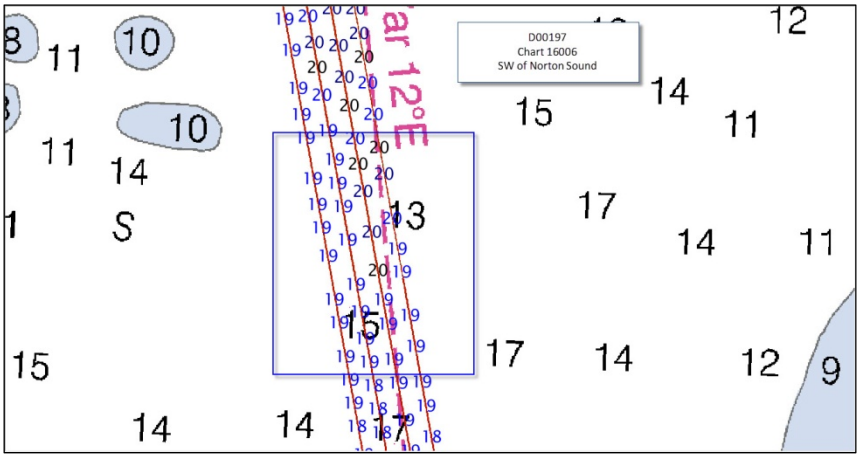


Figure 5: Chart 16006 sounding discrepancy SW of Norton Sound

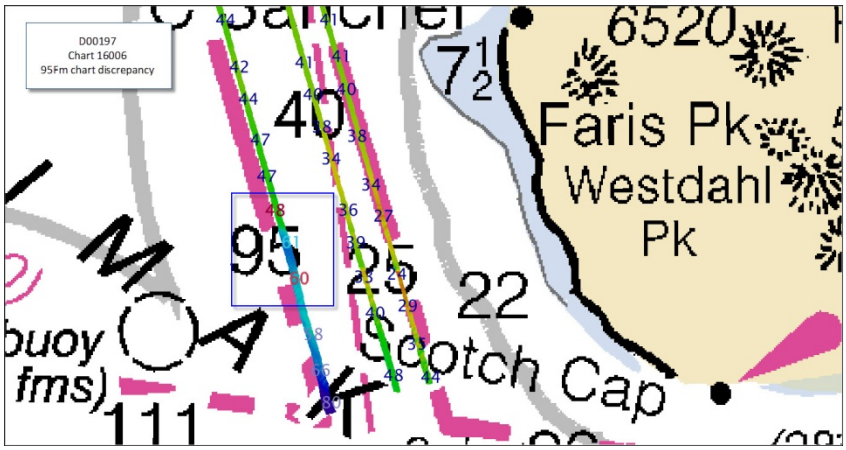


Figure 6: Chart 16006 sounding discrepancy near Scotch Cap in Unimak Pass

Chart 16011
Surveyed soundings generally agree within 1-2fm with chart 16011 charted depths.

Chart 16200
Surveyed soundings generally agree within 1-2fm with chart 16200 charted depths.

Chart 16220
Surveyed soundings generally agree within 1-2m with chart 16220 charted depths.

Chart 16190
Surveyed soundings generally agree within 1-2fm with chart 16190charted depths.

Chart 16520
Surveyed soundings generally agree within 1-2fm with chart 16520 charted depths.

Chart 16531
Surveyed soundings generally agree within 1-2m with chart 16531 charted depths.

See chart descriptions for all affected ENCs.

Submitted Surfaces

The following surfaces were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
D00197_MB_4m_MLLW	CUBE	4m		NOAA 4m	Trackline
D00197_MB_16m_MLLW	CUBE	16m		NOAA 16m	Trackline
D00197_MB_4m_MLLW_Final	CUBE	4m	0-40m	NOAA 4m	Trackline
D00197_MB_16m_MLLW_Final	CUBE	16m	36-320m	NOAA 16m	Trackline
D00197_MB_16m_MLLW_Combined	CUBE	16m	0-320m	NOAA 16m	Trackline

G. Vertical and Horizontal Control

The vertical datum for this project is Mean Lower Low Water. The vertical control method used for survey D00197 was TCARI. A request for final tides was submitted on September 6, 2015. Final tides were received on September 14, 2015 and preliminary zoning was accepted as final. The following National Water Level Observation Network (NWLON) stations served as datum control:

NWLON Gauges

Operating Water Level Station	Station ID
Red Dog Dock, AK	9491094
Nome, AK	9468756
Village Cove, AK	9464212
Unalaska, AK	9462620
Port Moller, AK	9463502

See attached Tide Note dated September 14, 2015.

The horizontal datum for this project is North American Datum of 1983 (NAD83). When out of range of the DGPS beacon, *Fairweather* received WAAS correctors for increased accuracies similar to USCG DGPS stations. WAAS and Differential GPS (DGPS) were the sole methods of positioning. The following DGPS Stations were used for horizontal control:

DGPS Stations
Cold Bay 289kHz

NAD 83 is the horizontal datum used for DGPS. However, WAAS uses WGS84. There is no indication that post-processing was conducted to transform WAAS positions to NAD83. The data is adequate for charting despite the horizontal datum discrepancy.

H. Additional Results

Sound Speed

Fairweather utilized the Brook Ocean MVP 200 system and a SeaBird 19plus CTD for taking sound velocity casts. The SeaBird CTD was used during acquisition on line FA1 due to the loss of the MVP on a previous project. The MVP was replaced upon the ship docking in Nome. Casts were conducted from every 2 hours to every 12 hours. Sound Velocity profiles were sent to the Kongsberg Seafloor Information System (SIS) through Pydro Velocipy after every cast. Some instances occurred that, when casts were post-processed in CARIS HIPS, one line would have two separate casts applied which resulted in an offset. Figures 2 and 3 show an example of a 2m offset and a single line with multiple casts applied.

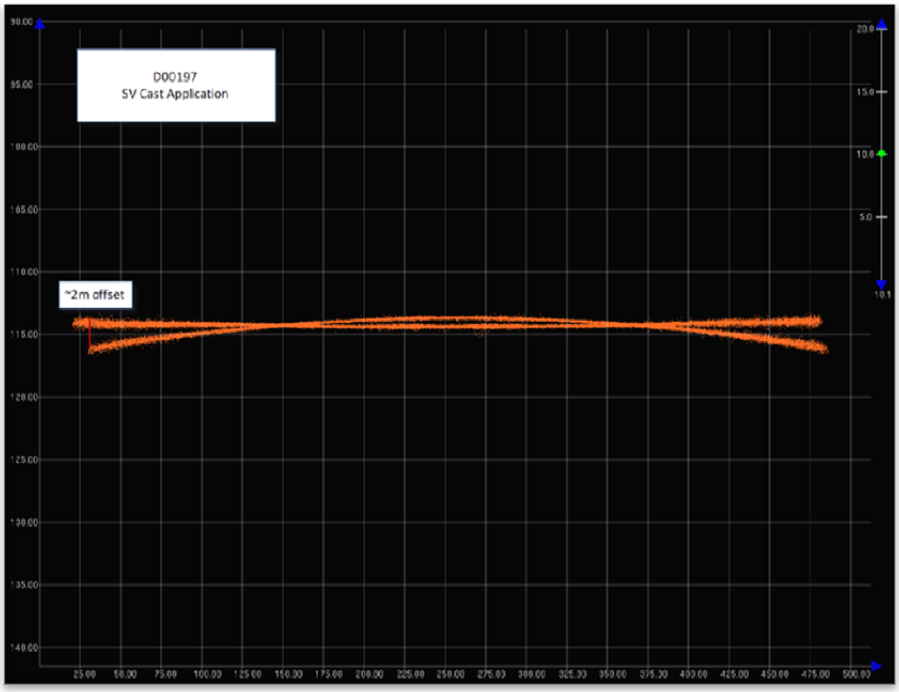


Figure 7. D00197 SV Cast Application Offset

Figure 8. D00197 Survey line with 2 casts

The data is adequate for charting despite the instances of multiple sound speed cast application.

Holidays

Holidays exist in the delivered data due to the acquisition technique of this survey. One exceptional holiday was created when the EM710 lost bottom tracking and the data had to be rejected so as not to affect the surface. See figures 4 and 5 below.

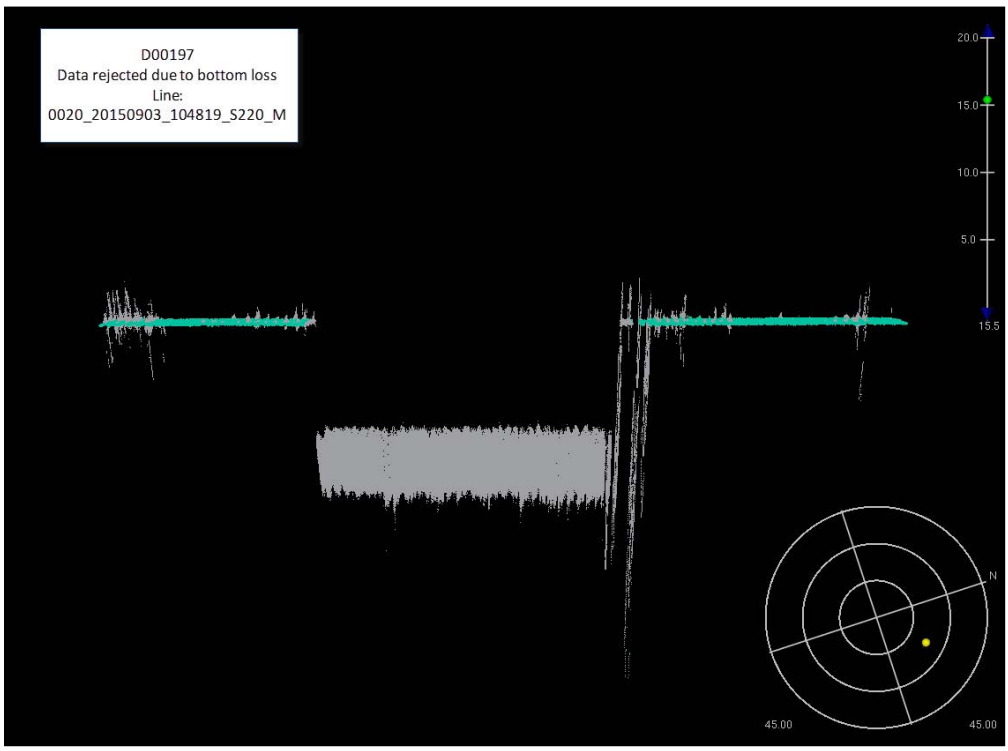


Figure 4: 3D view of rejected data due to bottom loss

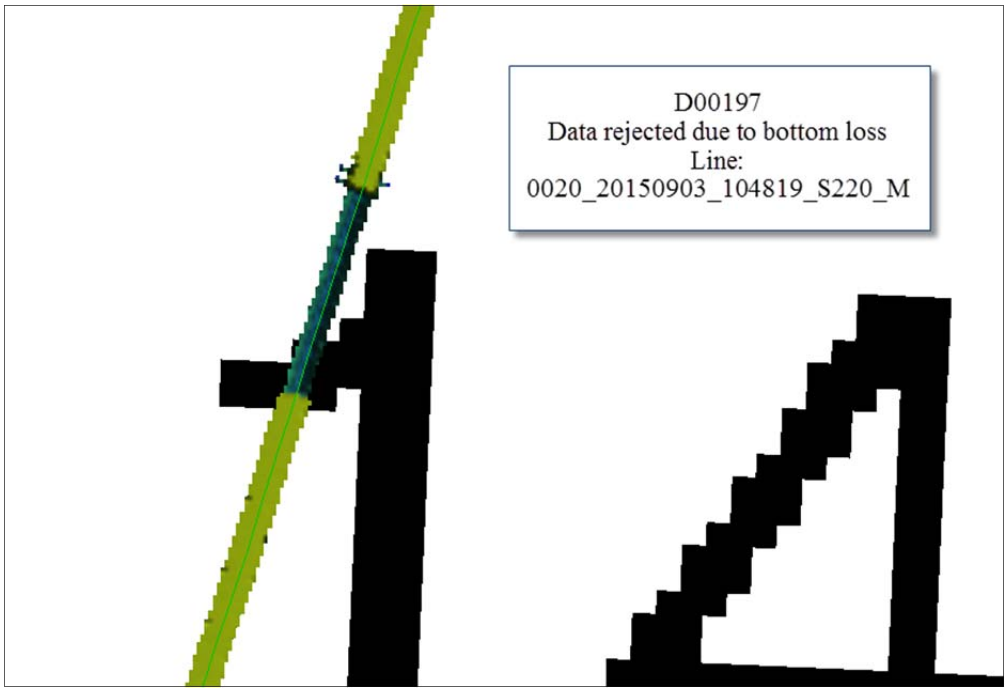


Figure 9: Chart view of bad data due to bottom loss

Given the nature of trackline surveys, holidays are to be expected. The data is adequate for charting.

Sea State

On Dn245, *Fairweather* encountered heavy seas that greatly affected data quality. Numerous blow outs occurred. Data from this day was filtered to 45 degrees from nadir for the affected lines. See figure 6 for example.

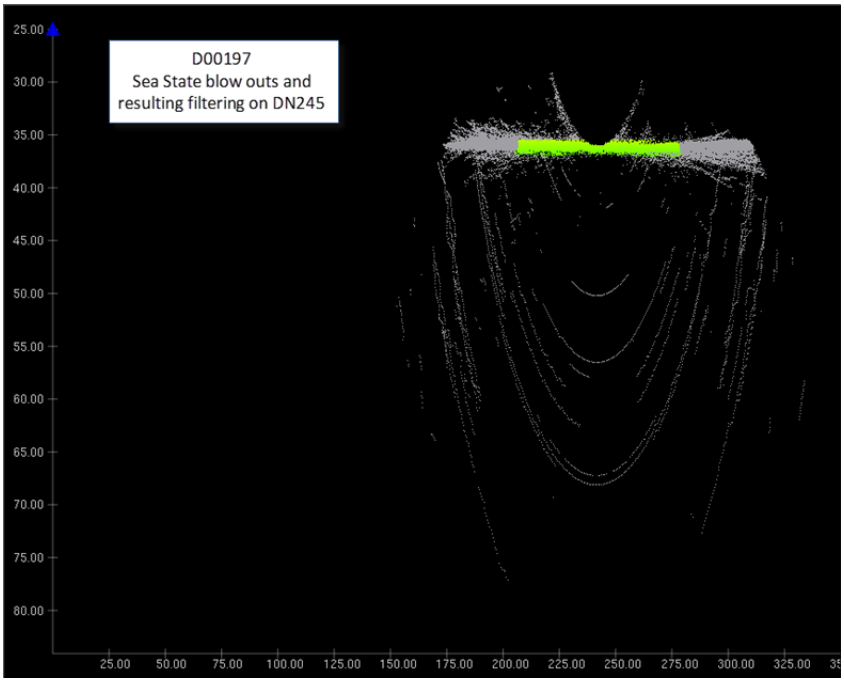


Figure 10: Dn245 blow outs due to sea state and resultant line filtering

The poor quality data from DN 245 was rejected and the remaining data is adequate for charting.

Critical Soundings

Survey D00197 required 38 designated soundings to properly depict the seafloor. Soundings were designated following NOAA specifications for an IHO Order 2 survey. All designated features are at least 1m in height. The majority of soundings fall in a corridor between Nunivak Island and Cape Romanzof as shown in figure 7.

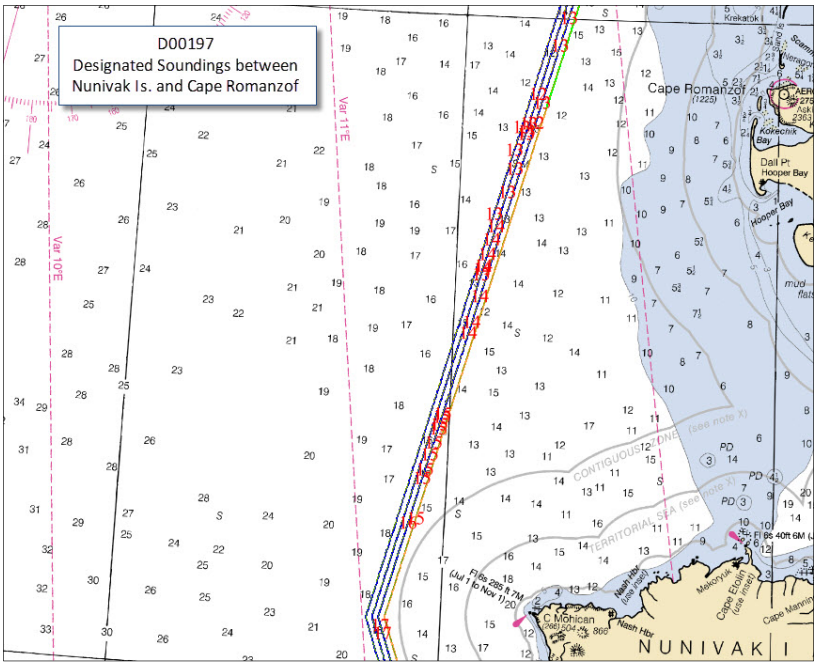


Figure 11: D00197 Designated Soundings concentrated corridor

One designated sounding was determined to be too close to another designated sounding. One designated sounding was determined to be selected on noise. Both were un-designated, and there are now 36 designated soundings.

I. Approval

As Chief of Party, field operations for this hydrographic survey were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports. All field sheets, this Survey Summary Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to the Processing Branch.

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual, Field Procedures Manual, Standing and Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Survey Summary Report.

Report Name	Report Date Sent
Data Acquisition and Processing Report	01 September 2015

Approver Name	Approver Title	Approval Date	Signature
CDR. David J. Zezula	Chief of Party	19 November 2015	David Zezula 2015.11.24 08:51:13 -08'00'
LT. Matthew M. Forney	Operations Officer	19 November 2015	Matthew Forney 2015.11.23 14:35:58 -09'00'
HCST Douglas A. Bravo	Chief Survey Technician	19 November 2015	Douglas Bravo 2015.11.20 09:28:37 -09'00'
HSST Clinton R. Marcus	Sheet Manager	19 November 2015	Digitally signed by Clinton Marcus DN: cn=Clinton Marcus, o=NOAA, ou=Fairweather, email=clinton.r.marcus@noaa.gov, c=US Date: 2015.11.20 09:21:52 -09'00'

UNITED STATES DEPARMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Silver Spring, Maryland 20910

PROVISIONAL TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : September 14, 2015

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-R976-FA-2015
HYDROGRAPHIC SHEET: D00197

LOCALITY: USCG-proposed PARS Corridor, AK
TIME PERIOD: June 16 - September 05, 2015

TIDE STATION USED: Unalaska, AK 9462620
Lat.53° 52.8′ N Long. 166° 32.4' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.011 meters

TIDE STATION USED: Port Moller, AK 9463502
Lat. 55° 59.1' N Long. 160° 34.4' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.921 meters

TIDE STATION USED: Village Cove, AK 9464212
Lat. 57° 07.5' Long. 170° 17.1'
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.938 meters

TIDE STATION USED: Nome, AK 9468756
Lat. 64° 29.7' Long. 165° 26.4'
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.406 meters

TIDE STATION USED: Red Dog Dock, AK 9491094
Lat. 67° 34.5' Long. 164° 03.9'
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.240 meters

REMARKS: RECOMMENDED Grid

Please use the TCARI grid "R976FARA2015_Final.tc" as the final grid for project OPR-R976-FA-2015, D00197, during the time period between June 16 - September 05, 2015.

Refer to attachments for grid information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

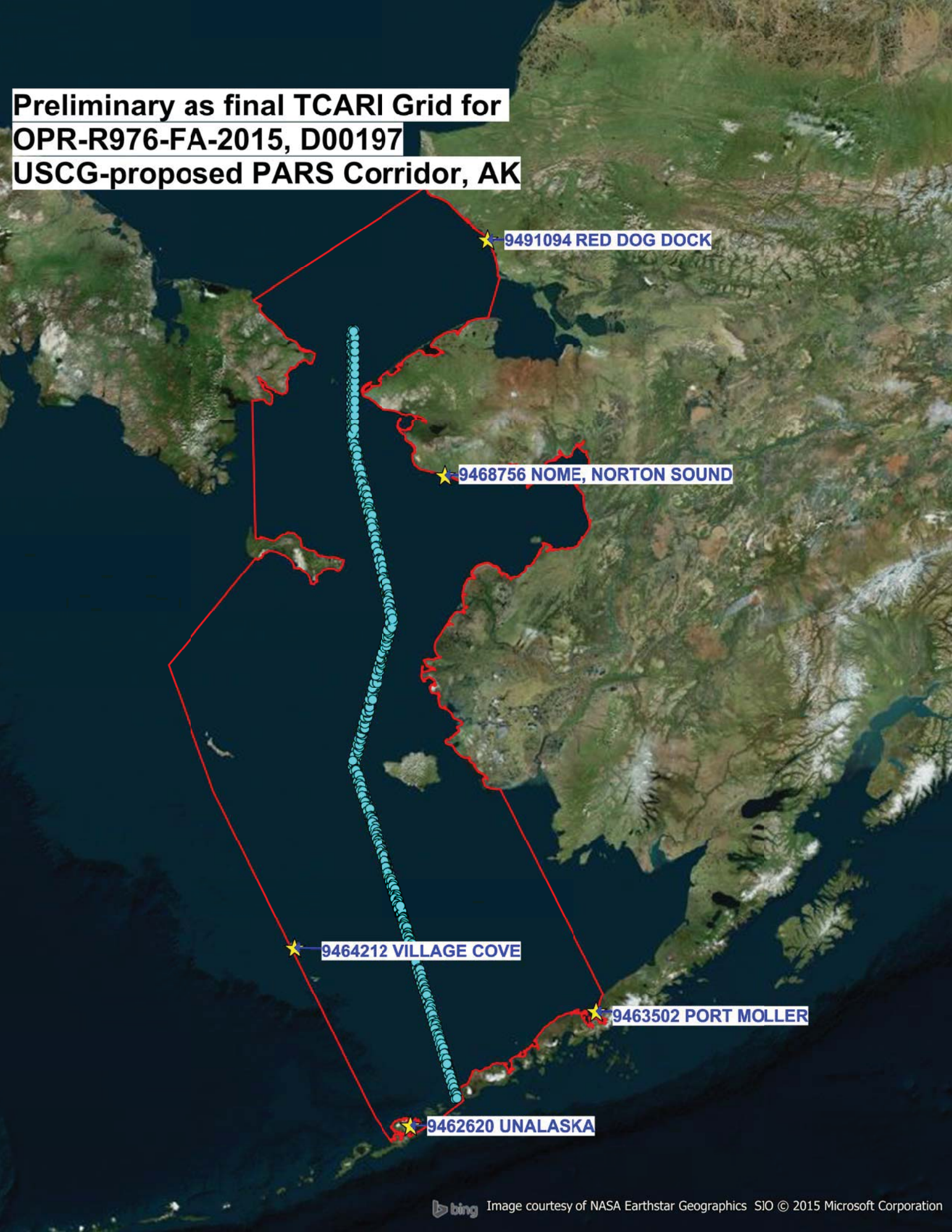
UNITED STATES DEPARMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Silver Spring, Maryland 20910

Note 2: Annual leveling for Nome, AK (9468756) and Red Dog Dock, AK (9491094) was not completed in FY15. A review of the water level data collected during the survey period for this sheet indicates good data quality, however the sensor stability cannot be verified until the most recent set of levels are reviewed. This provisional tide note should be used as the final tide for this sheet and after the leveling information has been received and reviewed, a follow-up memo to OCS will validate the stability of the data. Should the most recent set of levels indicate that the sensor was not stable during the period of survey operations, CO-OPS will immediately provide a revised Tide Note with updated water level reference information.

HOVIS.GERALD.THOMAS.JR.1365860250

Digitally signed by HOVIS.GERALD.THOMAS.JR.1365860250
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOVIS.GERALD.THOMAS.JR.1365860250
Date: 2015.09.14 11:50:07 -04'00'

CHIEF, PRODUCTS AND SERVICES BRANCH


Preliminary as final TCARI Grid for
OPR-R976-FA-2015, D00197
USCG-proposed PARS Corridor, AK
9491094 RED DOG DOCK
9468756 NOME, NORTON SOUND
9464212 VILLAGE COVE
9463502 PORT MOLLER
9462620 UNALASKA
bing
Image courtesy of NASA Earthstar Geographics SIO © 2015 Microsoft Corporation

PARs Survey Requirements - D00197

2 messages

David J. Zezula <co.fairweather@noaa.gov> Sun, Jun 14, 2015 at 7:24 PM
To: Michael Gonsalves <Michael.Gonsalves@noaa.gov>, Katrina Wyllie <Katrina.Wyllie@noaa.gov>
Cc: _OMAO MOP OPS Fairweather <OPS.Fairweather@noaa.gov>, "ChiefST.Fairweather" <chiefst.fairweather@noaa.gov>

HSD OPS, D00197 Proj Mgr.

FA would like to relax the CTD Cast frequency requirements for D00197 Proposed PARS Corridor Survey. We lost our MVP fish this morning with no clear cause. Likely suspects are: age of cable, kelp/debris, fatigue from surveying at high speeds (11 kts), other??? Regardless, we will not be able to put together a new tow fish until we get to Nome on 19 June. We have spares of everything but the bridle. We bent one of our bridles earlier in the leg on the same sheet. If we get a bridle in Nome we will be OK for Kotzebue, but until then we will have to do manual casts.

FA would like to officially request relaxation of the CTD cast frequency for the PARS survey to once every four hours.

Please advise

vr
CDR Zezula
--

David Zezula, CDR/NOAA

Commanding Officer
NOAA Ship Fairweather (S-220)
2002 SE Marine Science Dr.
Newport, OR 97365-5229

(907) 254-2842: Ships Cell
(907) 254-2836: CO Cell
(301) 713-7779: VOIP

www.moc.noaa.gov/fa

Katrina Wyllie - NOAA Federal <Katrina.Wyllie@noaa.gov> Mon, Jun 15, 2015 at 6:54 AM
To: "David J. Zezula" <CO.Fairweather@noaa.gov>
Cc: Michael Gonsalves <Michael.Gonsalves@noaa.gov>, _OMAO MOP OPS Fairweather <OPS.Fairweather@noaa.gov>, "ChiefST.Fairweather" <ChiefST.Fairweather@noaa.gov>

CDR Zezula,

Sorry to hear about the loss of the MVP fish. The request to relax the CTD cast frequency is acceptable. If the CTD manual cast frequency has to be relaxed even further to get to Nome on time, that is also acceptable.

Thank you,
Katrina
[Quoted text hidden]

APPROVAL PAGE

D00197

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NCEI for archive

- D00197_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- D00197_GeoImage.pdf

The survey evaluation and verification has been conducted according current OCS Specifications.

Approved: Digitally signed by HOLMBERG.PETER.SCOTT.1365886101 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOLMBERG.PETER.SCOTT.1365886101 Date: 2016.09.01 08:45:18 -07'00'

Peter Holmberg
Cartographic Team Lead, Pacific Hydrographic Branch

The survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved: FROELICH.GRANT.DANIEL.1272192509 2016.09.01 08:50:43 -07'00'

Grant Froelich
Acting Chief, Pacific Hydrographic Branch