F00741

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	F00741

LOCALITY

State(s):	Oregon Washington
General Locality:	Columbia River, WA and OR
Sub-locality:	Vancouver Upper and Lower Anchorages

2018

CHIEF OF PARTY
Michelle M. Levano, LTJG/NOAA

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

REGISTRY NUMBER:

HYDROGRAPHIC TITLE SHEET

F00741

INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State(s):	**Oregon Washington**
General Locality:	**Columbia River, WA and OR**
Sub-Locality:	**Vancouver Upper and Lower Anchorages**
Scale:	**10000**
Dates of Survey:	**08/07/2018 to 08/13/2018**
Instructions Dated:	**07/26/2018**
Project Number:	**S-N918-NRT3-18**
Field Unit:	**NOAA Navigation Response Team 3**
Chief of Party:	**Michelle M. Levano, LTJG/NOAA**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	**Multibeam Echo Sounder Backscatter**
Verification by:	**Pacific Hydrographic Branch**
Soundings Acquired in:	**meters at Mean Lower Low Water**

Remarks:

Any revisions to the Descriptive Report (DR) applied during office processing are shown in red italic text. The DR is maintained as a field unit product, therefore all information and recommendations within this report are considered preliminary unless otherwise noted. The final disposition of survey data is represented in the NOAA nautical chart products. All pertinent records for this survey are archived at the National Centers for Environmental Information (NCEI) and can be retrieved via https://www.ncei.noaa.gov/. Products created during office processing were generated in NAD83 UTM 10N, CRD. All references to other horizontal or vertical datums in this report are applicable to the processed hydrographic data provided by the field unit.

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Descriptive Report to Accompany Survey F00741

Project: S-N918-NRT3-18

Locality: Columbia River, WA and OR

Sublocality: Vancouver Upper and Lower Anchorages

Scale: 1:10000

August 2018 - August 2018

NOAA Navigation Response Team 3

Chief of Party: Michelle M. Levano, LTJG/NOAA

A. Area Surveyed

This hydrographic survey was acquired in accordance with the requirements defined in the Project Instruction S-N918-NRT3-18. F00741 survey area includes the Lower and Upper Vancouver Anchorages, which are large ship anchorages critical for shipping flow up and down river (Figure 1).

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
45° 43' 49.62" N 122° 46' 28.34" W	45° 37' 32.27" N 122° 41' 43" W

Table 1: Survey Limits

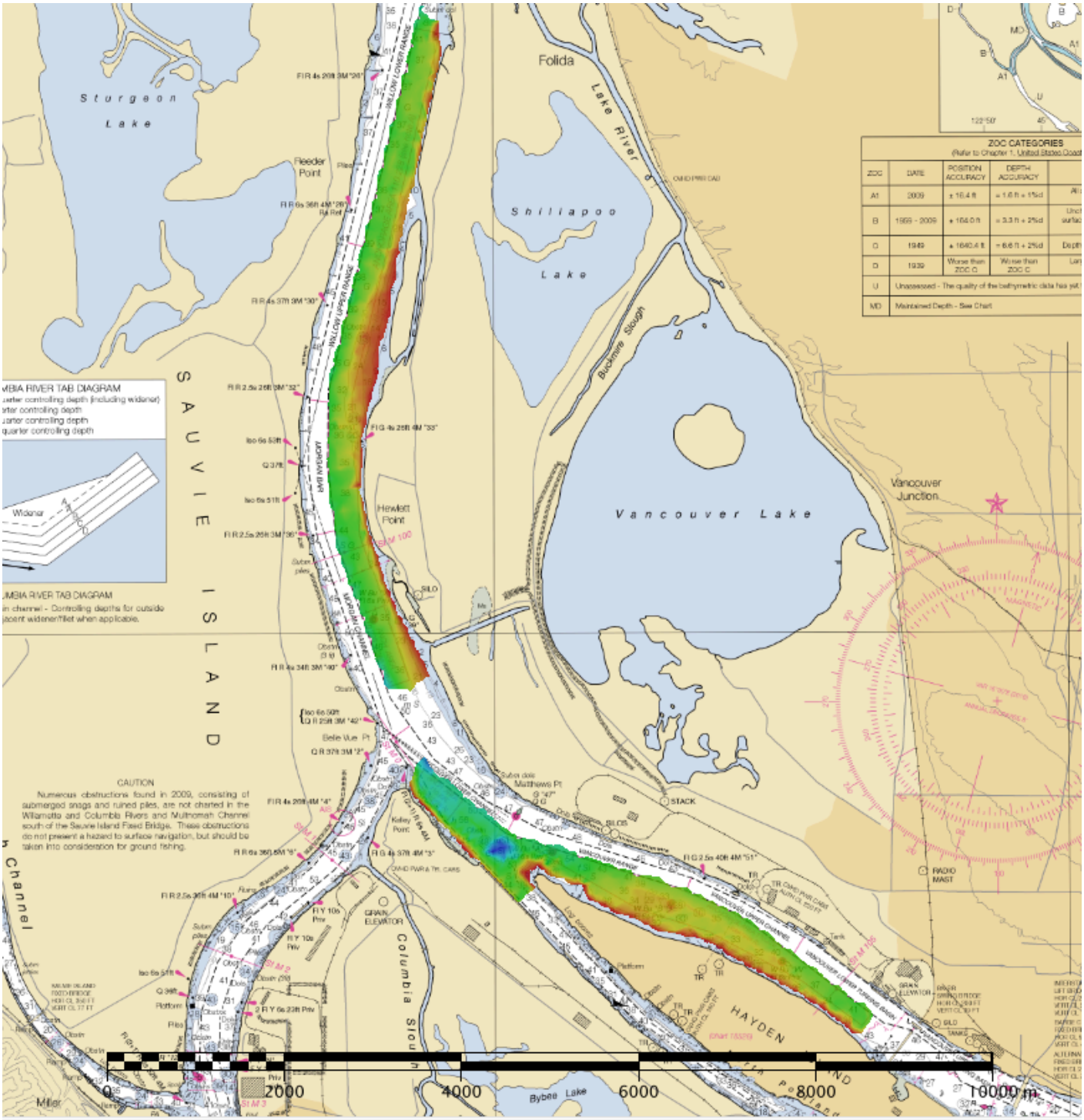


Figure 1: Overview of anchorage areas surveyed (Chart 18525).

Data was acquired to the survey limits in accordance with the requirements in the Project Instructions and the National Ocean Service (NOS) 2018 Hydrographic Surveys Specifications and Deliverables (HSSD).

A.2 Survey Purpose

The Columbia River Steamship Operators' Association, Inc. (CRSOA) and the Columbia River Pilots (COLRIP) request that NOAA's Office of Coast Survey collect multibeam bathymetric data of the Columbia River anchorages. The Vancouver Upper and Lower Anchorages include the area surroundingTerminal 6 of the Port of Portland and the western entrance to North Portland Harbor.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Data acquired in F00741 meet multibeam echo sounder (MBES) coverage requirements for object detection, as required by the HSSD. This includes crosslines (see Section B.2.1), NOAA allowable uncertainty (see Section B.2.10), and density requirements (see Section B.2.11).

The surface was analyzed using the HydrOffice QC Tools Grid QA feature (Figure 2). Density requirements for F00741 were achieved with at least 99.5% of surface nodes containing five or more soundings as required by HSSD Section 5.2.2.3.

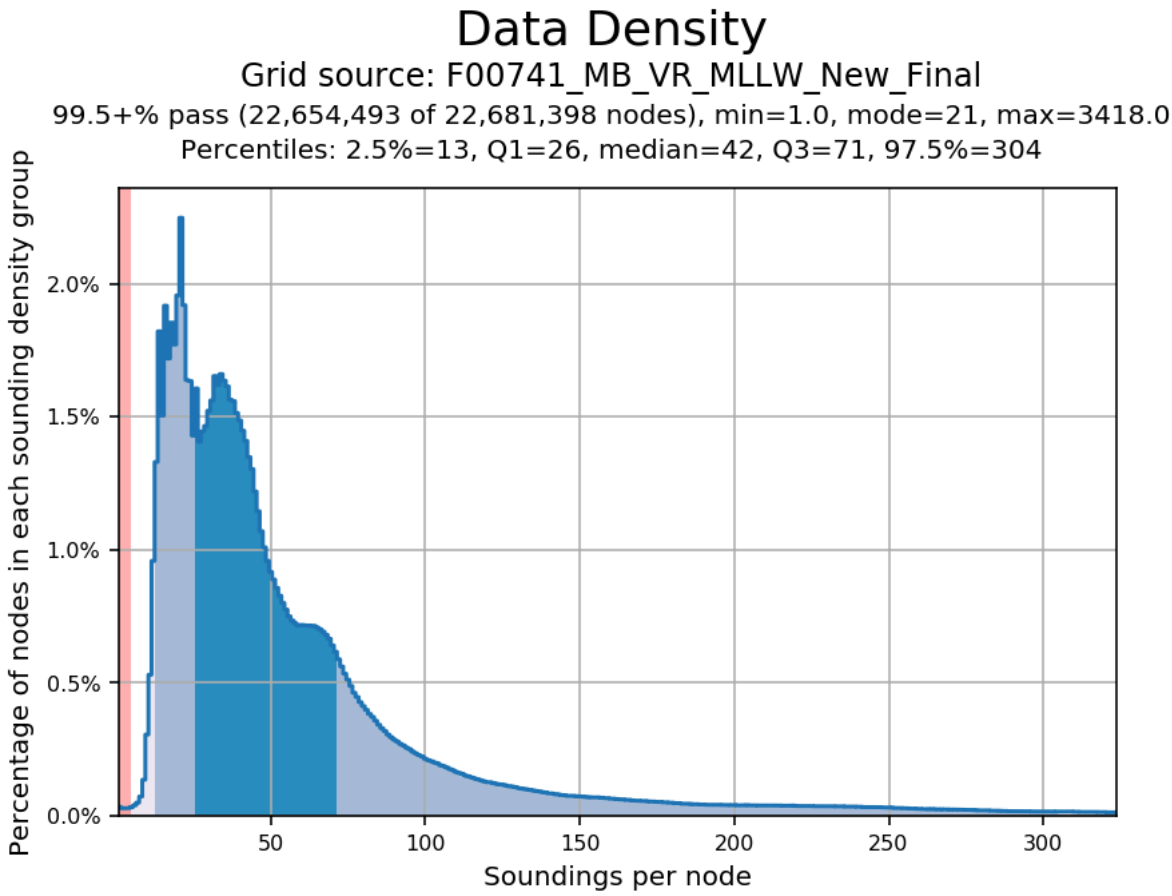


Figure 2: Pydro derived histogram plot showing HSSD object detection compliance of F00741 MBES within the finalized CUBE surface

A.4 Survey Coverage

The following table lists the coverage requirements for this survey as assigned in the project instructions:

Water Depth	Coverage Required
All waters in the survey area	Object Detection Coverage (Refer to HSSD Section 5.2.2.2)

Table 2: Survey Coverage

Complete multibeam coverage was achieved within the limits of hydrography as defined in the project instructions with some exceptions. The following are some examples of areas that do not meet the coverage requirement.

There are 123 holidays in F00741, the majority of which do not fall within the sheet limits. 25 holidays are within the boundaries and are due to moored barges, vessels, and operator oversight (Figure 3 and 4).

There are several areas where the 12 foot contour or sheet limits are not met due to the proximity of the shoreline and safety concerns (Figure 5 and 6). Additionally, there were some locations were coverage falls inshore of the NALL due to the location of pier faces, barges, and safe water (Figure 7).

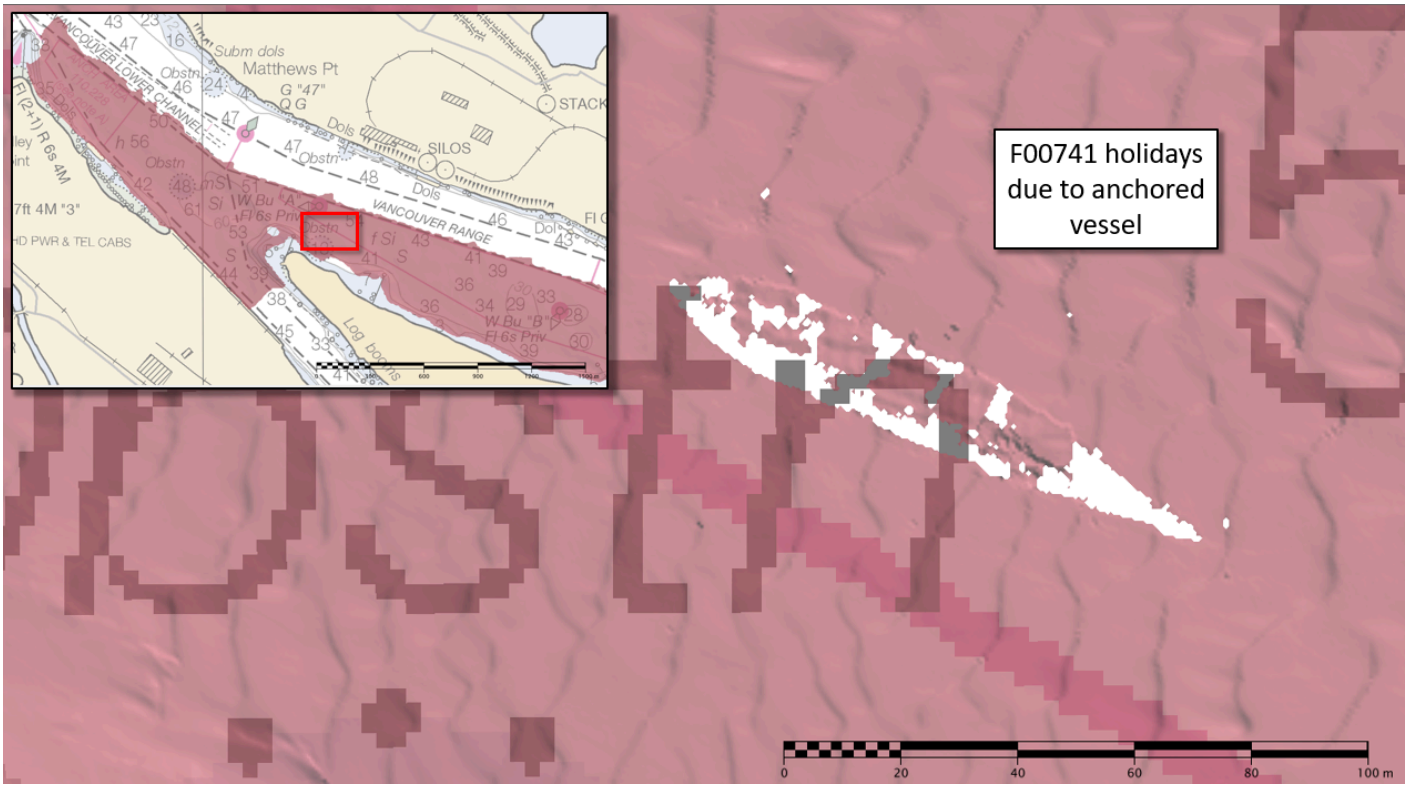


Figure 3: An example of several holidays due to anchored vessels as discussed in section A.4.

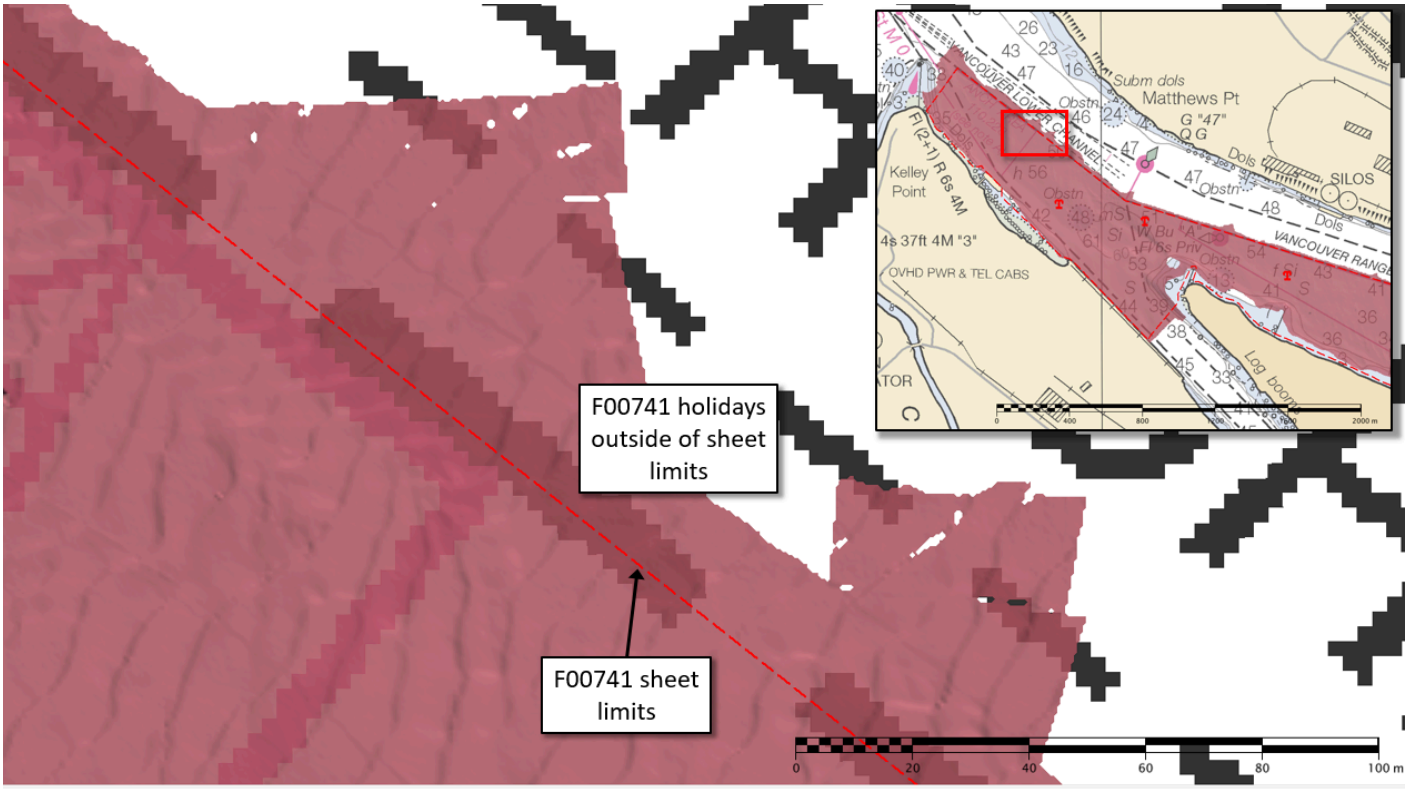


Figure 4: Examples of holidays in overlap coverage outside of sheet limits.

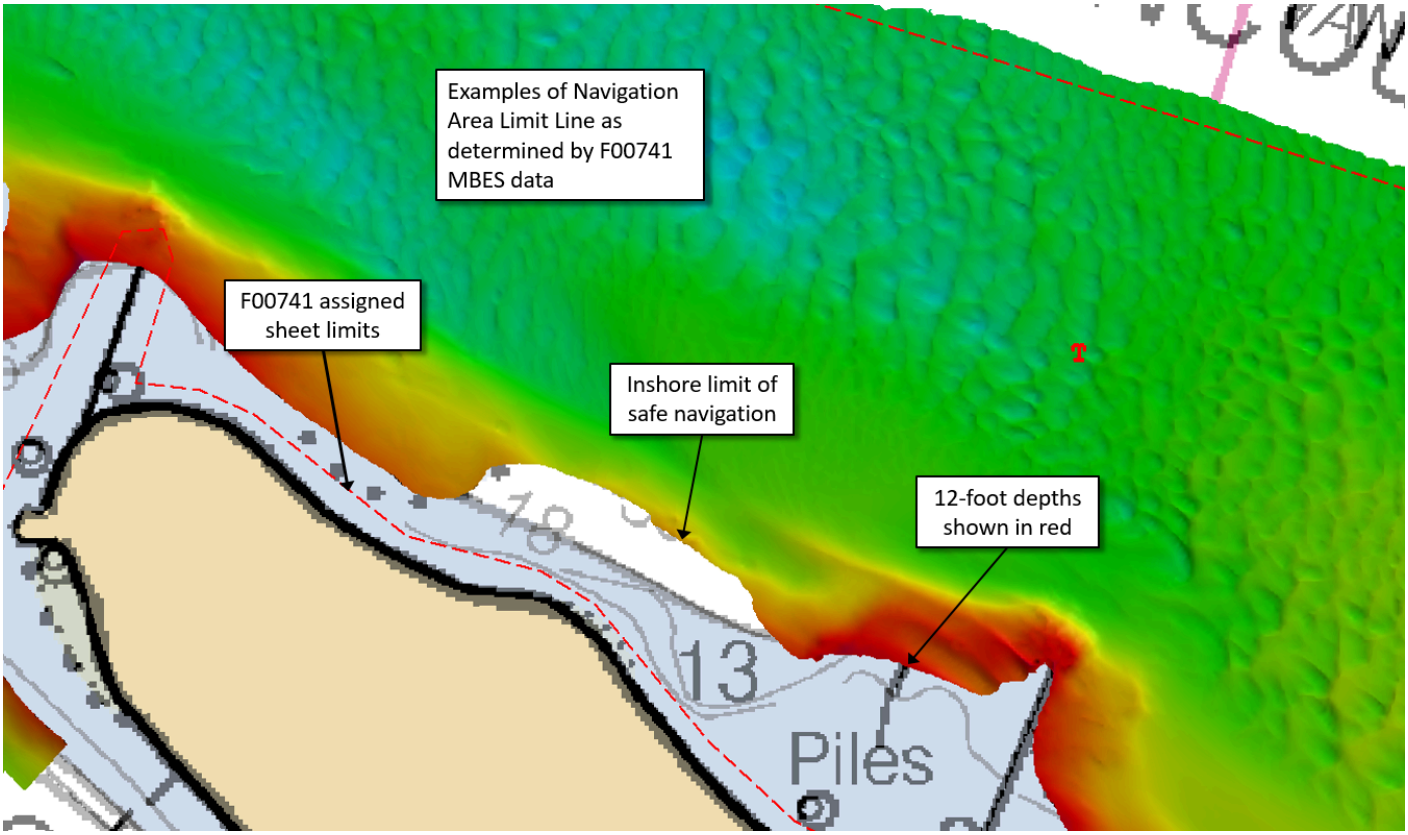


Figure 5: Examples of NALL determination due to barges.

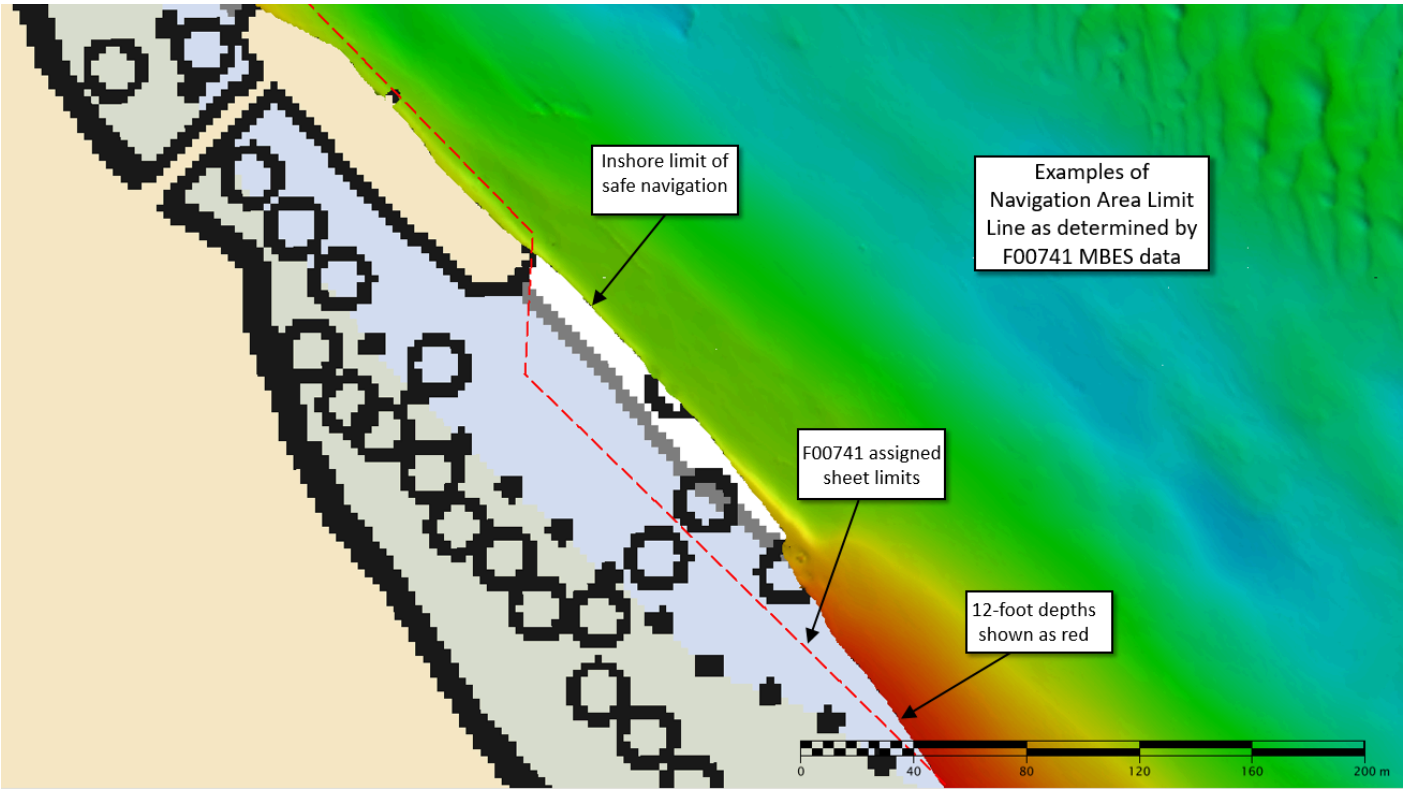


Figure 6: Examples of NALL determination due to pier pilings.

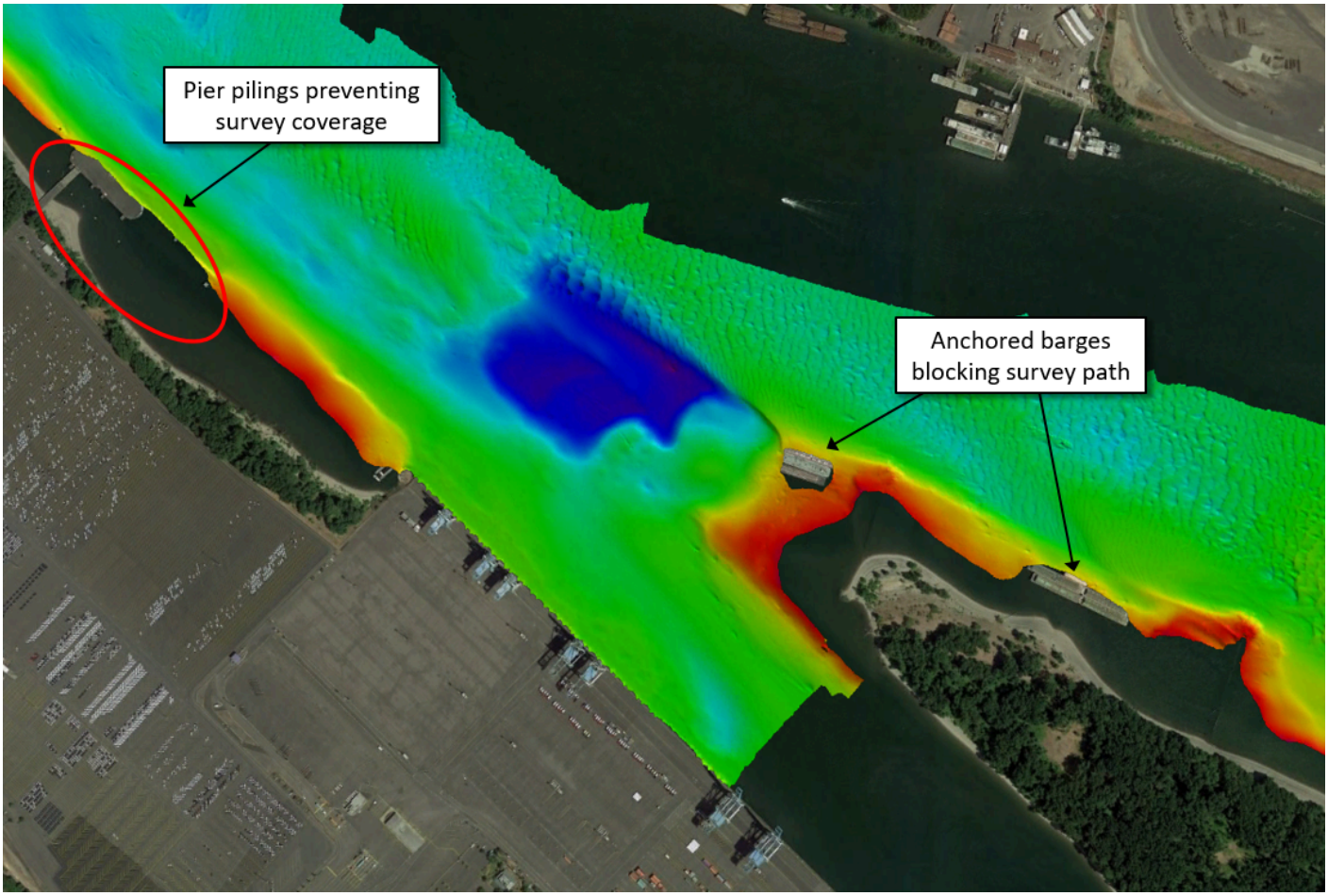


Figure 7: MBES coverage and obstacles preventing survey completion. (Google Aerial Imagery)

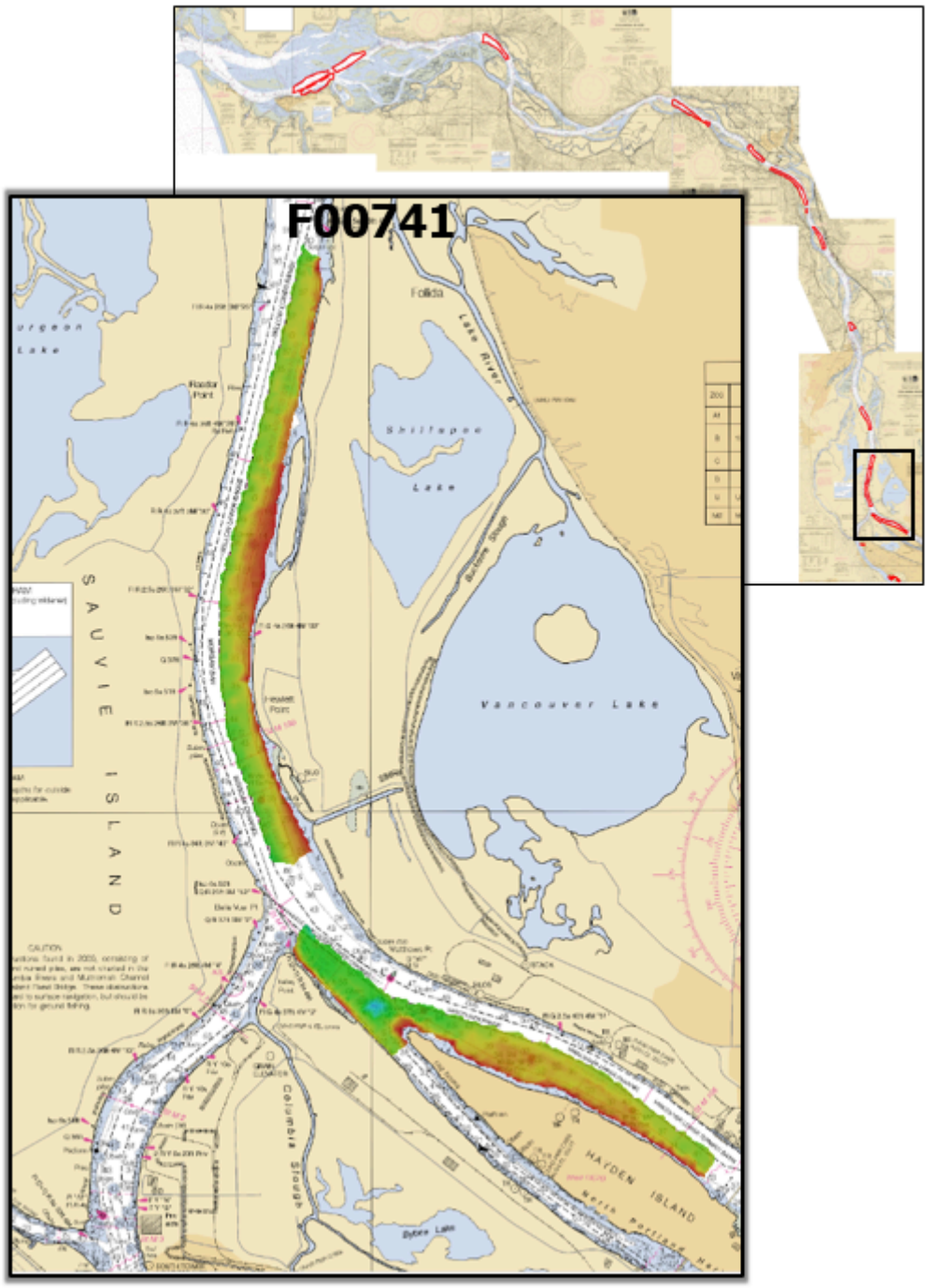


Figure 8: Relative location of F00741 in the Columbia and. Red areas are the sheet limits to other assigned areas in the S-N918-NRT3-18 project.

A.6 Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey:

	HULL ID	*S3006*	*2801*	*2803*	*Total*
LNM	**SBES Mainscheme**	0	0	0	0
	MBES Mainscheme	2.57	9.80	110.02	122.39
	Lidar Mainscheme	0	0	0	0
	SSS Mainscheme	0	0	0	0
	SBES/SSS Mainscheme	0	0	0	0
	MBES/SSS Mainscheme	0	0	0	0
	SBES/MBES Crosslines	0	3.55	6.64	10.20
	Lidar Crosslines	0	0	0	0
Number of Bottom Samples					8
Number Maritime Boundary Points Investigated					0
Number of DPs					0
Number of Items Investigated by Dive Ops					0
Total SNM					1.7

Table 3: Hydrographic Survey Statistics

The following table lists the specific dates of data acquisition for this survey:

Survey Dates	Day of the Year
08/07/2018	219
08/08/2018	220

Survey Dates	Day of the Year
08/09/2018	221
08/10/2018	222
08/11/2018	223
08/13/2018	225

Table 4: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the Data Acquisition and Processing Report (DAPR) for a complete description of data acquisition and processing systems, survey vessels, quality control procedures for S3006 and RA_Launches, and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the DAPR are discussed in the following sections.

B.1.1 Vessels

The following vessels were used for data acquisition during this survey:

Hull ID	***S3006***	***2803***	***2801***
LOA	34 feet	28 feet	28 feet
Draft	4 feet	3.6 feet	3.6 feet

Table 5: Vessels Used

Figure 9: NRT S3006

Figure 10: 2801 RA-4

Figure 11: 2803 RA-3

In conjunction with Navigation Response Team 3, NOAA Ship RAINIER provided launches RA-3 and RA-4 to assist with data collection on S-N918-NRT3-18. All data for survey F00741 was acquired by RA-3, RA-4, and S3006. The vessels acquired multibeam depth soundings, sound speed profiles, and bottom samples.

B.1.2 Equipment

The following major systems were used for data acquisition during this survey:

Manufacturer	Model	Type
Kongsberg Maritime	EM 2040C	MBES
Applanix	POS MV 320 v5	Positioning and Attitude System
AML Oceanographic	MicroX SV	Sound Speed System
YSI	CastAway-CTD	Conductivity, Temperature, and Depth Sensor
Kongsberg Maritime	EM 2040	MBES
Sea-Bird Scientific	SBE 19plus	Conductivity, Temperature, and Depth Sensor
Teledyne RESON	SVP 70	Sound Speed System
Applanix	POS MV 320 v4	Positioning and Attitude System

Table 6: Major Systems Used

Equipment listed above was used on S3006, RA-3 and RA-4.

B.2 Quality Control

B.2.1 Crosslines

Multibeam crosslines were collected by RA-3, and RA-4 across a variety of depth ranges, water masses, and days (Figure 12).

Crosslines were collected, processed and compared in accordance with Section 5.2.4.2 of the HSSD. A Variable Resolution (VR) surface was created of only mainscheme lines, and a second VR surface was created of only crosslines. A difference surface was generated in Pydro Explorers Compare Grids tool by subtracting the crossline only surface from the mainscheme surface (mainscheme- crosslines= difference surface). From the difference surface, the following statistics were derived. The mainshceme only, crossline only, and difference surface are included in the submission of this survey as Digital Data.

The coloring represents areas where the TVUmax error tolerance in exceeded; red, orange and yellow colors represent areas where mainscheme data is deeper than crossline data; the blue shades represent where crossline data is deeper than mainscheme data (Figure 13). In total, 99.5% of the total number of nodes pass the TVUmax test between F00741 mainscheme and crossline data (Figure 14). For F00741 respective depths, the difference surface was compared to the allowable NOAA uncertainty standards (Figure 15 and

16). Statistics show the mean difference between the depths derived from mainscheme F00741 data and crossline data was 0.10 meters, with crossline data being shoaler/deeper.

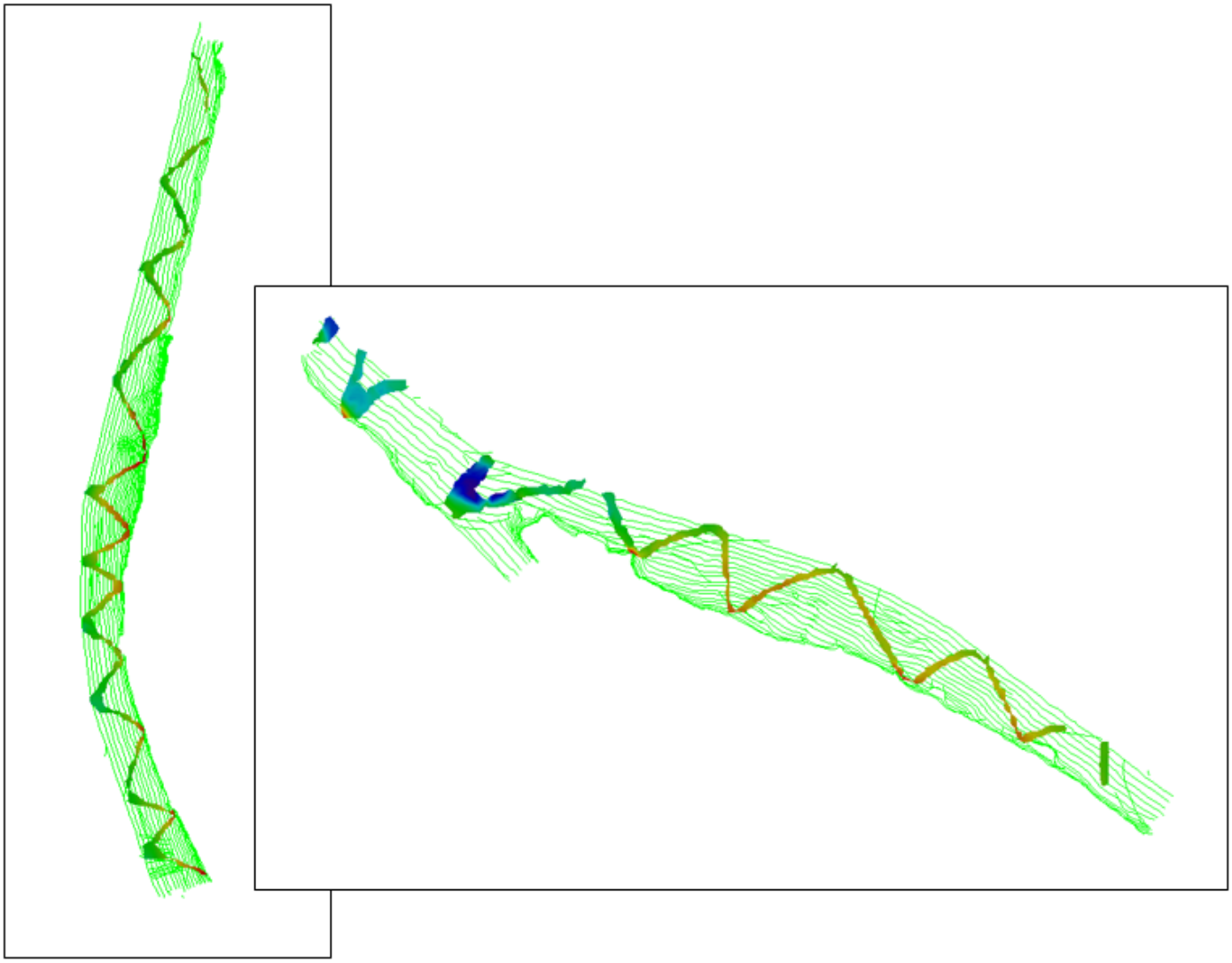


Figure 12: F00741 crossline coverage overlaid on mainscheme track lines showing good temporal and geographic distribution.

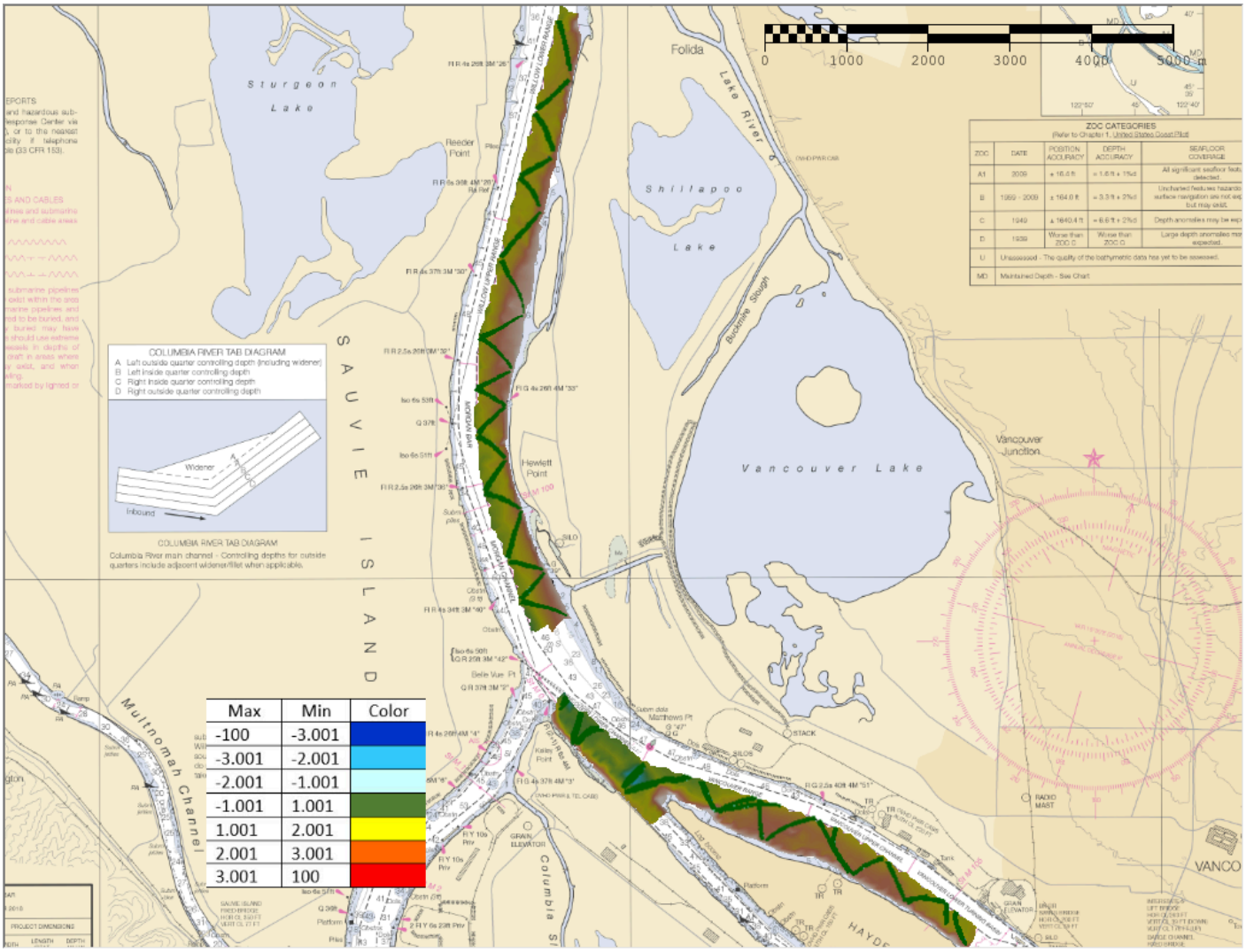


Figure 13: Depth differences between F00741 mainscheme and crossline data as compared to NOAA allowable uncertainty standards for the associated depths.

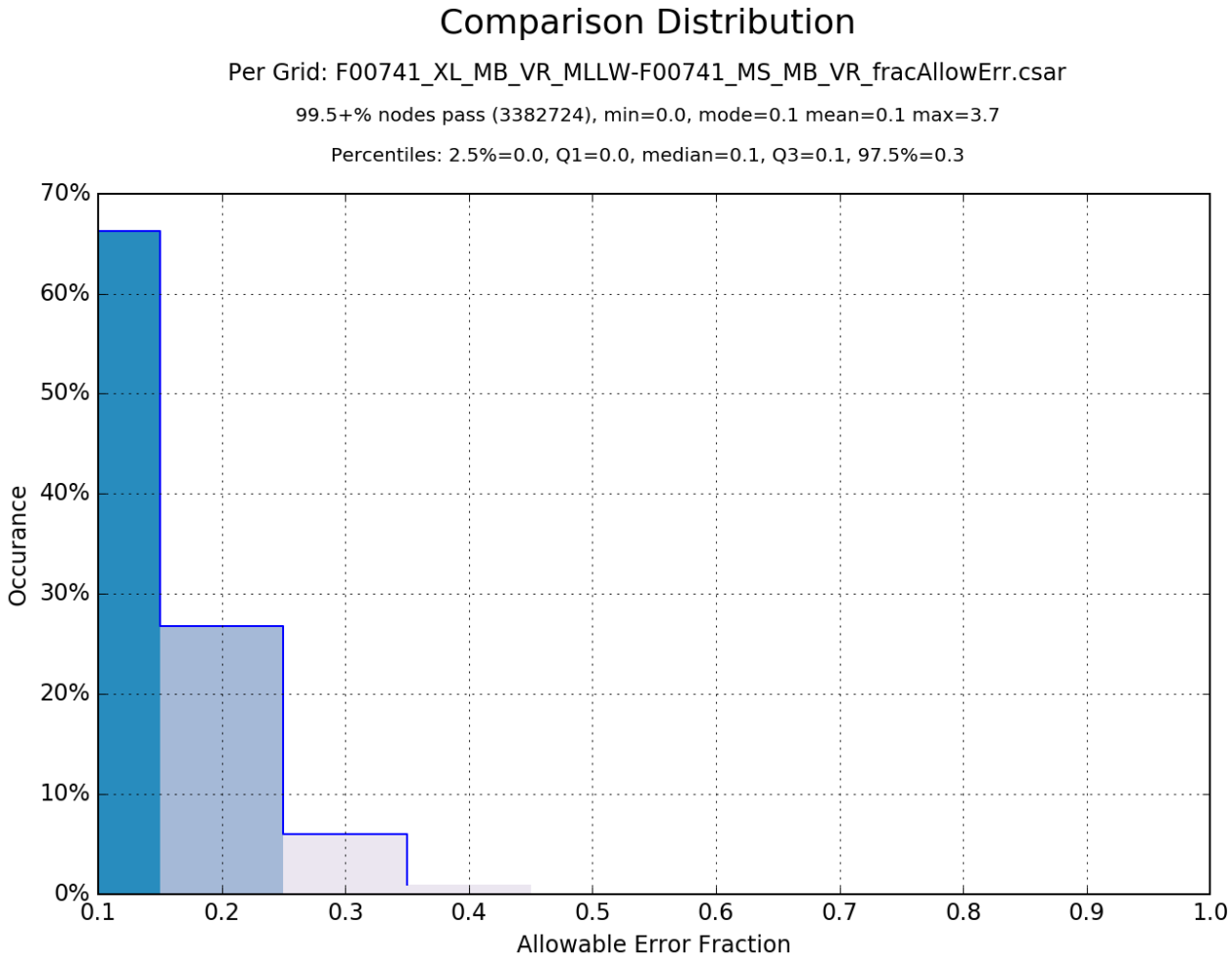
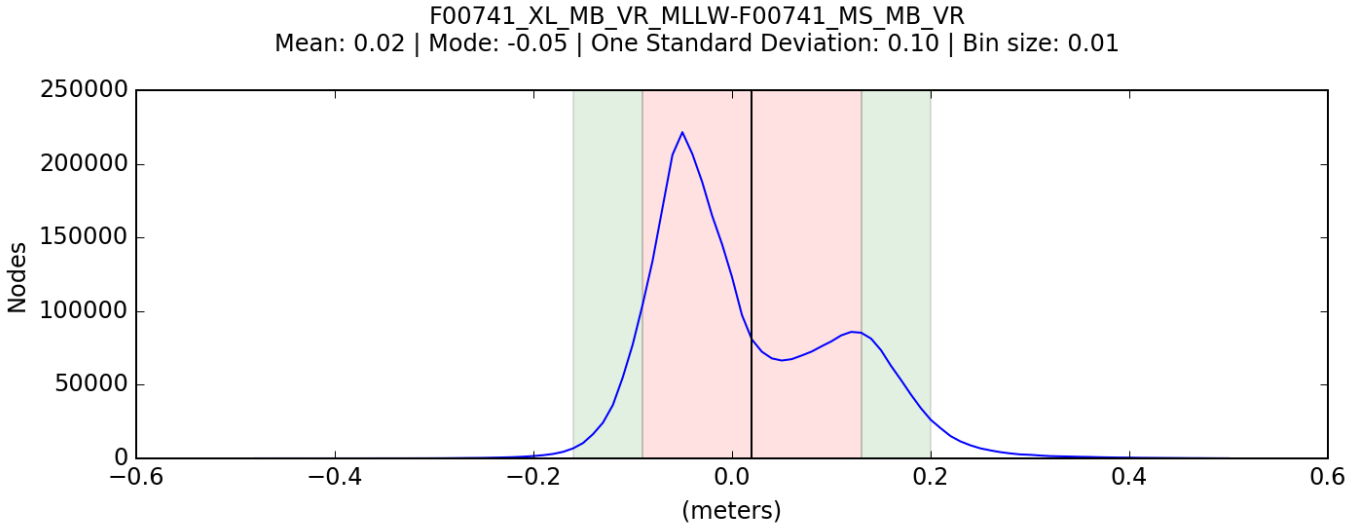
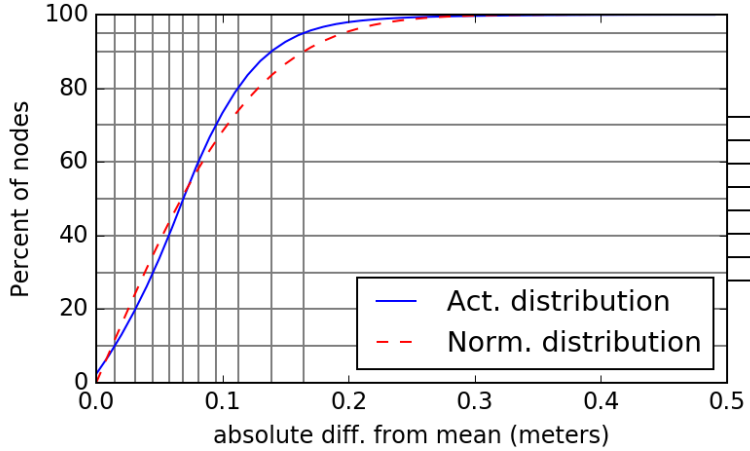


Figure 14: Histogram plot utilizing the magnitude (absolute value) of the Allowable Error Fraction to show the indication of what percentage of the total number of comparisons pass the TVUmax test.





Percent of nodes	Deviation (m)
50%	+/- 0.07
60%	+/- 0.08
70%	+/- 0.09
80%	+/- 0.11
90%	+/- 0.14
95%	+/- 0.16

Figure 15: The statistic and distribution summary plot of the difference between F00741 mainscheme and crossline data.

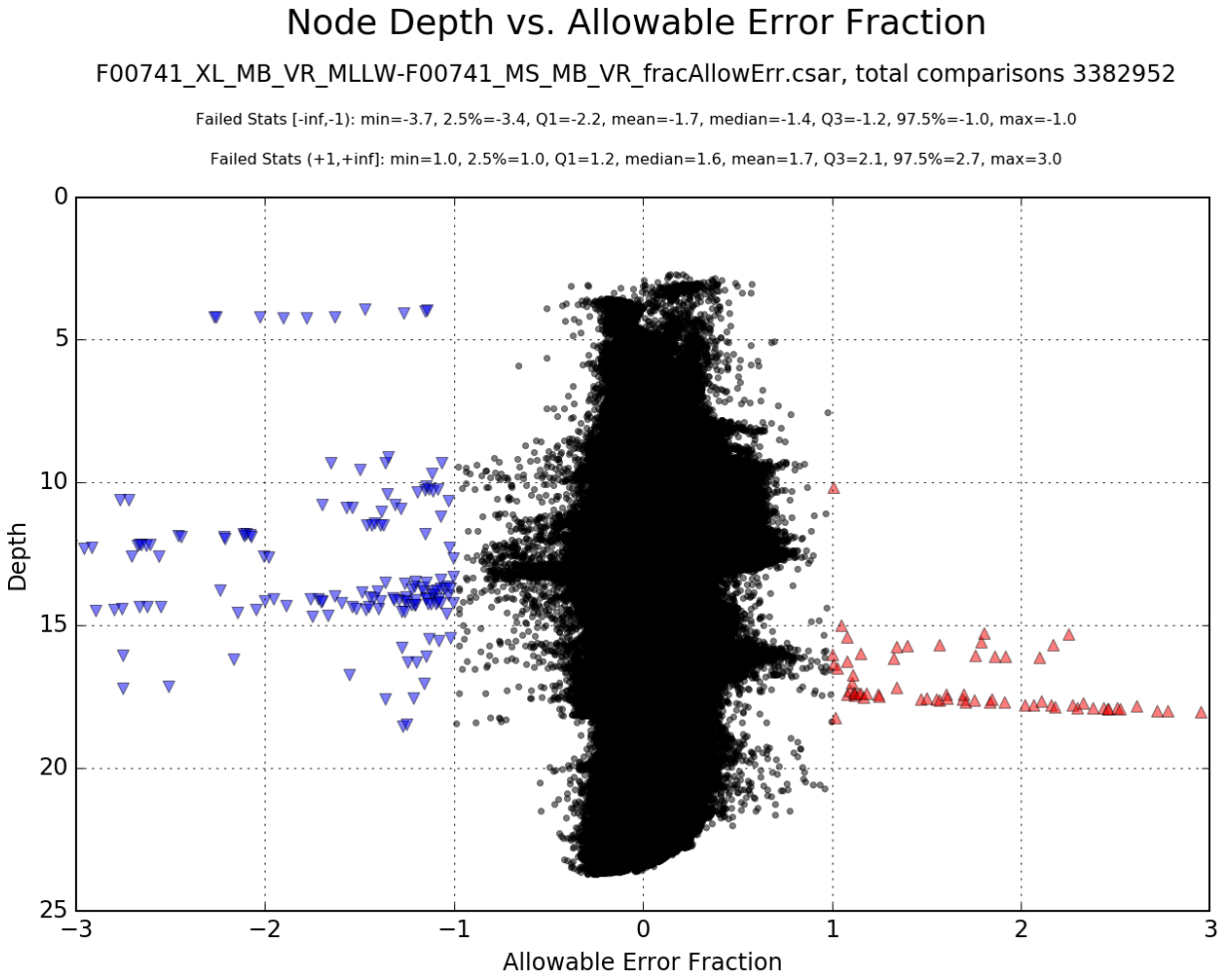


Figure 16: The depth dependent plot of the Allowable Error Fraction, with values between and including +/- 1 representing passing comparisons

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Method	Measured	Zoning
ERS via VDATUM	0.0 meters	0.12 meters

Table 7: Survey Specific Tide TPU Values.

Hull ID	Measured - CTD	Measured - MVP	Surface
S3006	1.0 meters/second	N/A meters/second	0.15 meters/second
2801	3.0 meters/second	N/A meters/second	0.5 meters/second
22803	3.0 meters/second	N/A meters/second	0.5 meters/second

Table 8: Survey Specific Sound Speed TPU Values.

The uncertainty statistics were calculated using Pydro Explorer's QC Tool's Finalized CSAR QA application. Total Propagated Uncertainty (TPU) values for F00741 were derived from a combination of fixed values for equipment and vessel characteristics, as well as field assigned values for sound speed uncertainties. The uncertainty for the VDatum model was provided to the field unit. A visual inspection of the Uncertainty layer revealed the areas of higher uncertainty occurred in the outer beams of survey lines, over the snags on the sea floor, and around data gaps located within F00741.

In addition to the usual a priori estimates of uncertainty, some real time and post processed uncertainty sources were also incorporated into the depth estimates of the survey. Real-time uncertainties from the Kongsberg MBES sonars were incorporated and applied during post processing. Uncertainties associated with vessel roll, gyro, and navigation were applied real-time. F00741 utilized kinematic (RTK) positioning service. The recorded delayed heave Applanix files included an estimate of the heave uncertainty and were applied during post processing. All of the aforementioned uncertainties were applied in CARIS. F00741 is an ellipsoidally referenced survey (ERS) and the tidal component was accomplished via separation model. Additional information about RTK and the separation model are located in section C.1 and C.2 of this document.

The surface was analyzed using the HydrOffice QC Tools Grid QA feature to determine compliance with specifications. Overall, 99.5% of nodes within the surface meet NOAA Allowable Uncertainty specifications for F00741 (Figure 17).

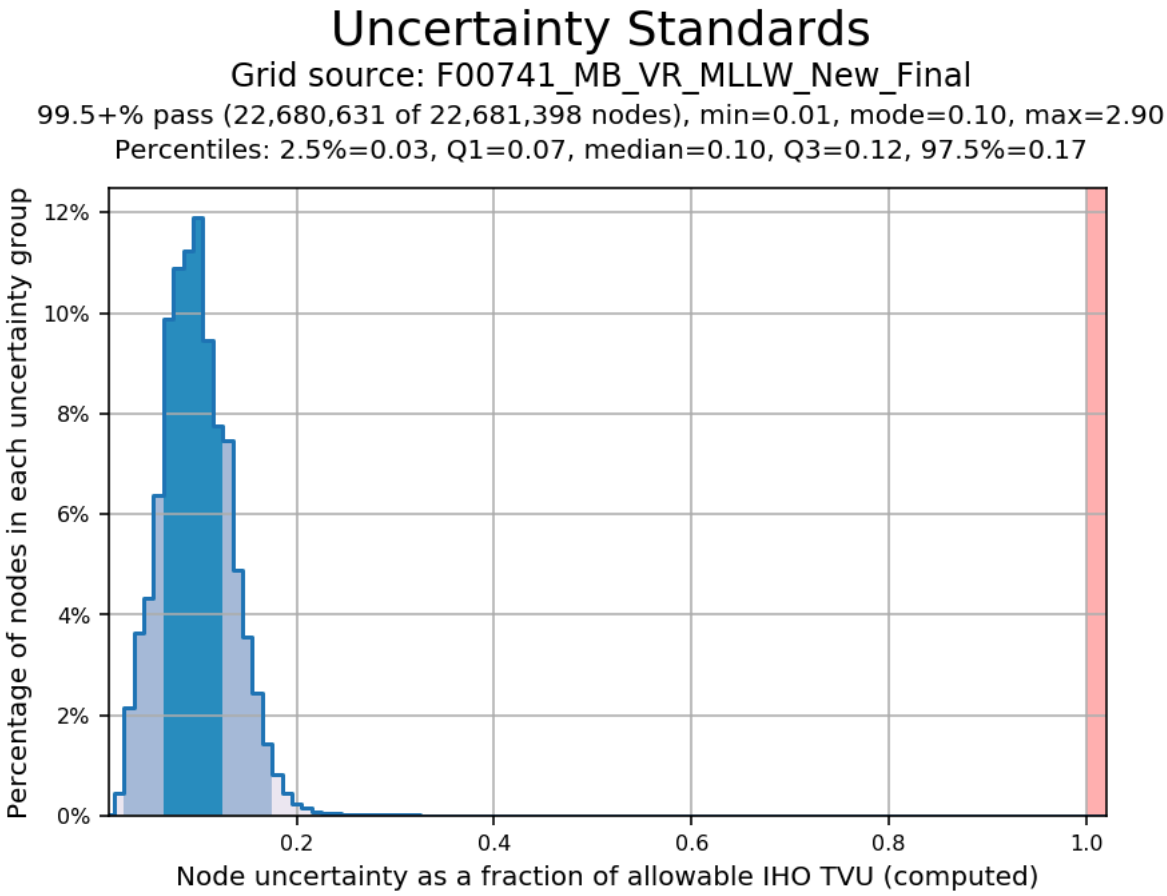


Figure 17: Pydro derived histogram plot showing HSSD uncertainty standards compliance of F00741 finalized VR surface

B.2.3 Junctions

There are no contemporary surveys that junction with this survey.

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in the quality control section of the DAPR.

B.2.5 Equipment Effectiveness

There were no conditions or deficiencies that affected equipment operational effectiveness.

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: At least every four hours

Sound Speed Cast Frequency: Sound Velocity Profiles (SVP) casts were taken at least once every four hours in the deepest water nearest to the active survey area and when there was a change in sound speed values over varying depths (Figure 18). The SVP casts were applied to the MBES lines in CARIS using the "nearest in distance within time of 4 hours" method.

Figure 18: F00741 sound speed cast locations.

B.2.8 Coverage Equipment and Methods

All equipment and survey methods were used as detailed in the DAPR.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All data reduction procedures conform to those detailed in the DAPR.

B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Raw backscatter data is logged as .all file for delivery to NOAA's Pacific Hydrographic Branch. NOAA's Navigation Response Branch field units are waived from producing backscatter mosaics for the 2018 field season. All equipment and survey methods were used as detailed in the DAPR.

B.5 Data Processing

B.5.1 Primary Data Processing Software

The following software program was the primary program used for bathymetric data processing:

Manufacturer	Name	Version
Caris	HIPS/SIPS	10.3.3

Table 9: Primary bathymetric data processing software

The following Feature Object Catalog was used: NOAA Profile V_5_7.

B.5.2 Surfaces

The following surfaces and/or BAGs were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
F00741_MB_CDR_VR	CARIS VR Surface (CUBE)	Variable Resolution	1.2 meters - 25.2 meters	NOAA_VR	Object Detection
F00741_MB_CDR_VR_Final	CARIS VR Surface (CUBE)	Variable Resolution	1.2 meters - 25.2 meters	NOAA_VR	Object Detection

Table 10: Submitted Surfaces

The survey was carried out to meet the Object Detection MBES Coverage requirements as defined by Section 5.2.2 of the 2018 Hydrographic Survey Specifications and Deliverables.

QC Tools in Pydro Explorer was used to analyze the surfaces for fliers. There were 0 indentified fliers on the finalized surface.

C. Vertical and Horizontal Control

Field installed tide and GPS stations were not utilized for this survey. There is no HVCR report included with the submission of F00741.

C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

<u>ERS Datum Transformation</u>

The following ellipsoid-to-chart vertical datum transformation was used:

Method	Ellipsoid to Chart Datum Separation File
ERS via VDATUM	NAD83-mllwCRD_Geoid09.csar

Table 11: ERS method and SEP file

Sounding elevations relative to the ellipsoid were collected through Ellipsoidal Referenced Survey (ERS) with post-processing of the daily logged POSPac data to create a statistical best estimate of trajectory (SBET) file, as detailed in the DAPR, All of F00741 meets HSSD vertical accuracy requirements.

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD 83).

The projection used for this project is Universal Transverse Mercator (UTM) Zone 10.

RTK

Precise Positioning-Real Time Extended (PP-RTX) processing methods were used in Applanix POSpac MMS 8.3 software to produce SBETs for post-processing horizontal correction. All of F00741 meets HSSD horizontal accuracy requirements.

D. Results and Recommendations

D.1 Chart Comparison

The chart comparison was made using a CARIS sounding and contour layer derived from the finalized VR surface. The contours and sounders were overlaid on the chart and compared for general agreement and to identify areas of significant change.

D.1.1 Electronic Navigational Charts

The following are the largest scale ENCs, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date
US5OR14M	1:40000	52	12/06/2018	11/08/2018
US5OR15M	1:20000	59	12/06/2018	11/08/2018

Table 12: Largest Scale ENCs

D.1.2 Shoal and Hazardous Features

Two dangers to navigation (DtoN) were identified in the survey area and submitted in two reports (Figure 22 and 23). The DtoN reports and submissions are submitted in the Appendix of this report.

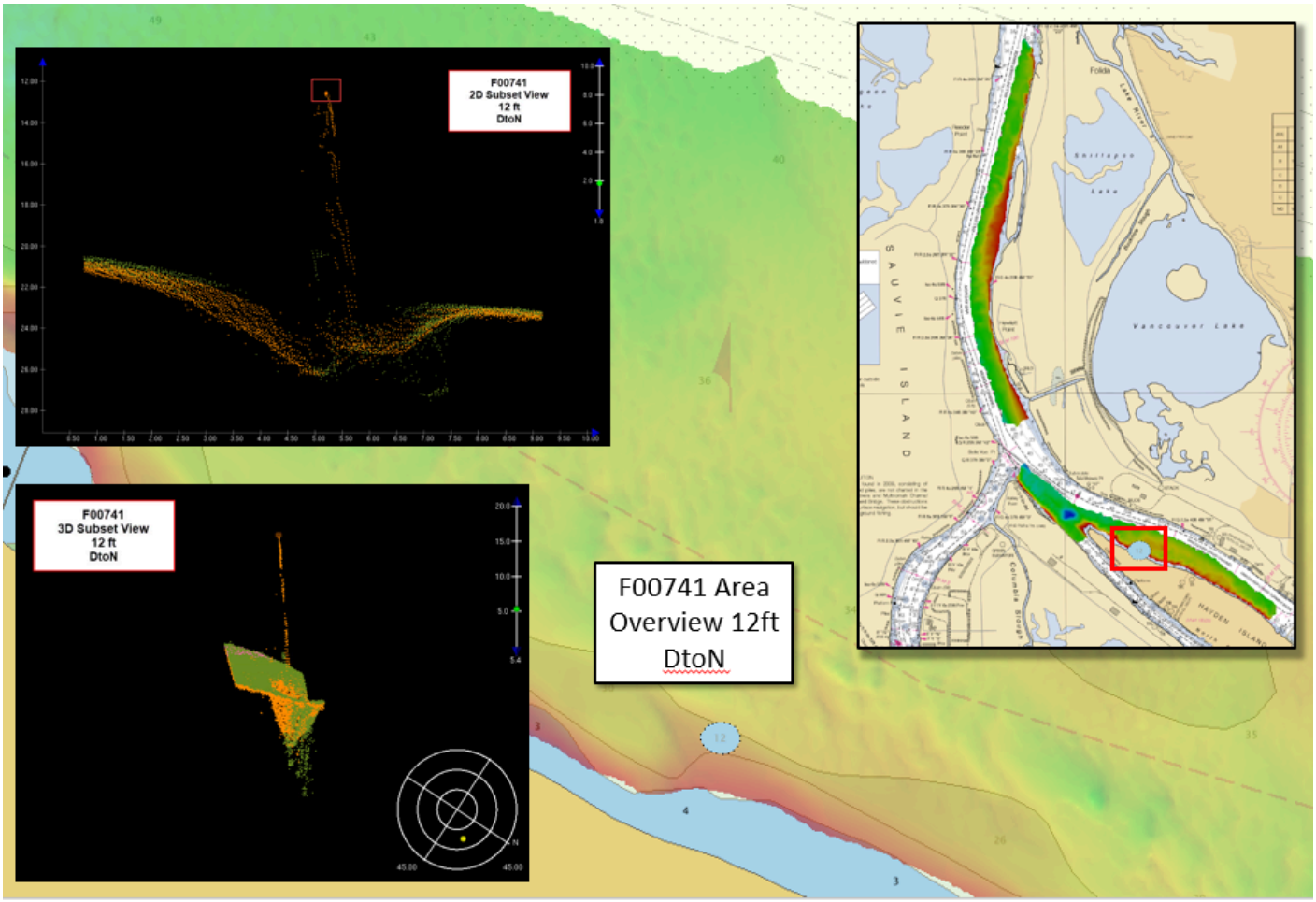


Figure 19: F00741 overview with DtoN location

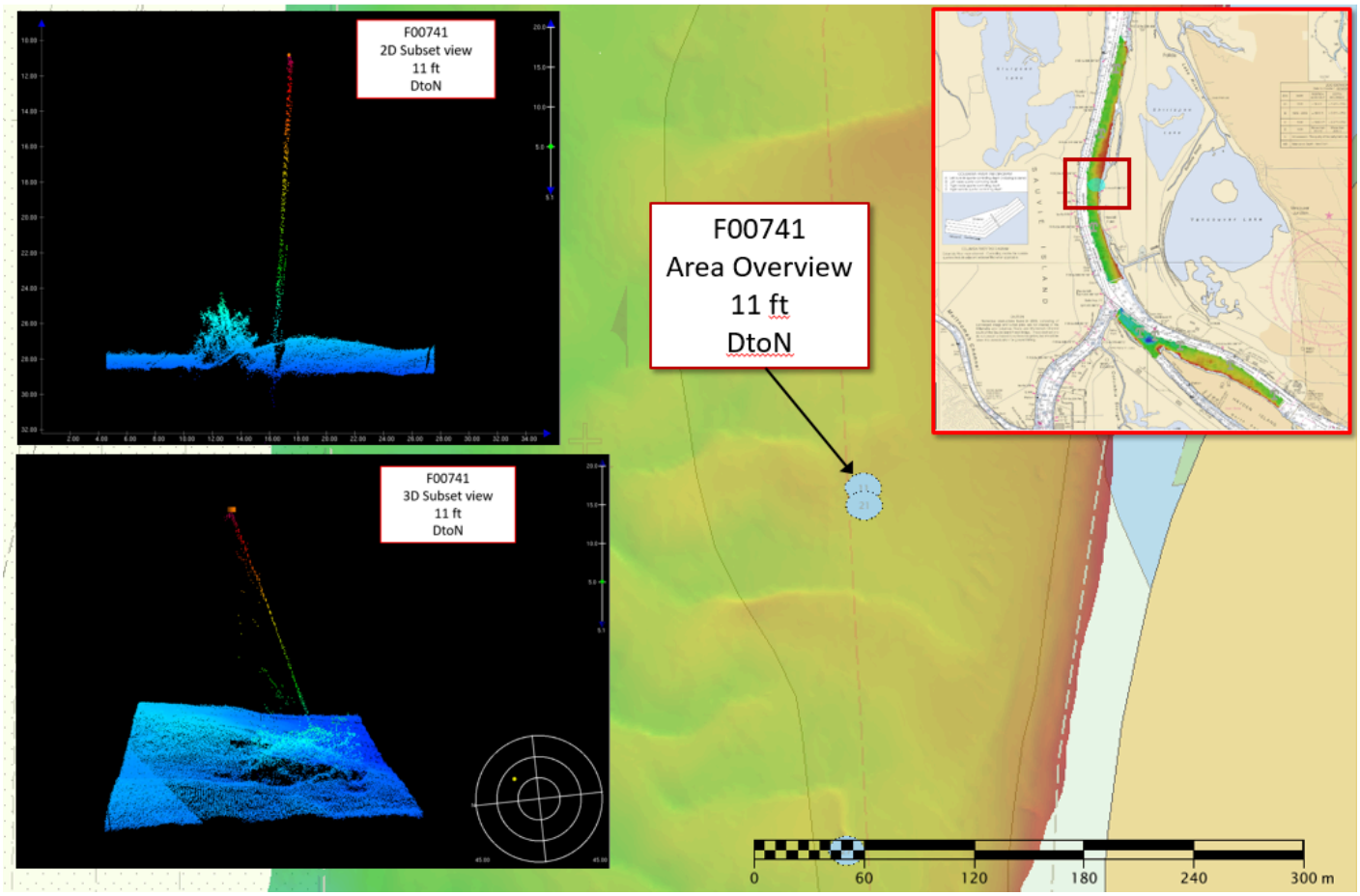


Figure 20: F00741 overview with DtoN location

D.1.3 Charted Features

No charted features exist for this survey.

D.1.4 Uncharted Features

No uncharted features exist for this survey.

D.1.5 Channels

F00741 survey data included the Upper and Lower Vancouver designated anchorages on the Columbia River. The sounding comparisons are discussed in section D.1.1 of this report.

D.2 Additional Results

D.2.1 Aids to Navigation

Five aids to navigation were assigned and investigated in the survey area. Four buoys, all with lights, and one daymark with a beacon were assigned. All five aids were serving their intended purpose and were on station. The structures were all observed but the light characteristics were not seen due to daylight.

D.2.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.2.3 Bottom Samples

Eight bottom samples were conducted in the assigned location. There are no drop camera images submitted with these bottom samples due to a missing GoPro charger. A sample was recieved for all eight locations. Refer to the results included in the F00741 Final Feature File submitted with this report.

D.2.4 Overhead Features

Two sets of power lines were assigned features that cross from Hayden Island, OR to Vancouver, WA. Both features were verified but there was no ability to obtain an accurate height estimation (Figure 24).

Figure 21: Overhead power lines on F00741.

D.2.5 Submarine Features

No submarine features exist for this survey.

D.2.6 Platforms

No platforms exist for this survey.

D.2.7 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.8 Abnormal Seafloor or Environmental Conditions

Large sand waves occur in a significant portion of the survey area. Most waves are within 3-4 meters high and run perpendicular to the water flow of the river (Figure 25).

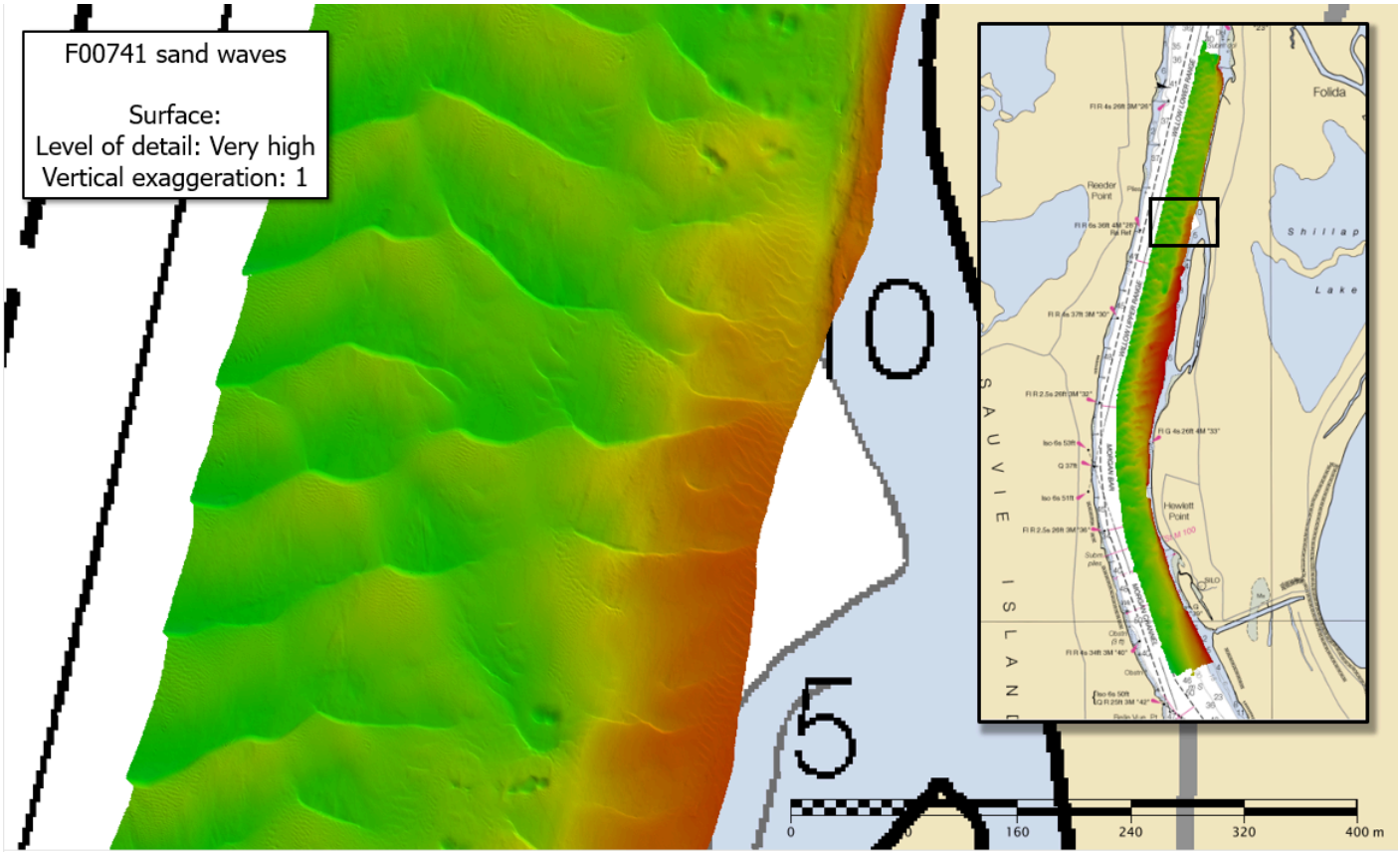


Figure 22: Sand waves present in F00741 survey area.

D.2.9 Construction and Dredging

No present or planned construction or dredging exist within the survey limits.

D.2.10 New Survey Recommendations

No new surveys or further investigations are recommended for this area.

D.2.11 ENC Scale Recommendations

No new insets are recommended for this area.

E. Approval Sheet

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 Descriptive 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 Specifications and Deliverables, Field Procedures Manual, 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 Descriptive Report.

Report Name	Report Date Sent
Data Acquisition and Processing Report	2019-03-19
Coast Pilot Report	2018-12-17

Approver Name	Approver Title	Approval Date	Signature
Michelle M. Levano, LTJG/NOAA	Chief of Party	05/03/2019	Digitally signed by LEVANO.MICHELLE.MARIE.1516645888 Date: 2019.04.30 16:16:40 -07'00'
PST Timothy Wilkinson	Hydrographer	05/03/2019	WILKINSON.TIMOTHY.DAVID.1383074440 Digitally signed by WILKINSON.TIMOTHY.DAVID.1383074440 Date: 2019.05.01 09:57:49 -07'00'

F. Table of Acronyms

Acronym	Definition
AHB	Atlantic Hydrographic Branch
AST	Assistant Survey Technician
ATON	Aid to Navigation
AWOIS	Automated Wreck and Obstruction Information System
BAG	Bathymetric Attributed Grid
BASE	Bathymetry Associated with Statistical Error
CO	Commanding Officer
CO-OPS	Center for Operational Products and Services
CORS	Continuously Operating Reference Station
CTD	Conductivity Temperature Depth
CEF	Chart Evaluation File
CSF	Composite Source File
CST	Chief Survey Technician
CUBE	Combined Uncertainty and Bathymetry Estimator
DAPR	Data Acquisition and Processing Report
DGPS	Differential Global Positioning System
DP	Detached Position
DR	Descriptive Report
DTON	Danger to Navigation
ENC	Electronic Navigational Chart
ERS	Ellipsoidal Referenced Survey
ERTDM	Ellipsoidally Referenced Tidal Datum Model
ERZT	Ellipsoidally Referenced Zoned Tides
FFF	Final Feature File
FOO	Field Operations Officer
FPM	Field Procedures Manual
GAMS	GPS Azimuth Measurement Subsystem
GC	Geographic Cell
GPS	Global Positioning System
HIPS	Hydrographic Information Processing System
HSD	Hydrographic Surveys Division

Acronym	Definition
HSSD	Hydrographic Survey Specifications and Deliverables
HSTB	Hydrographic Systems Technology Branch
HSX	Hypack Hysweep File Format
HTD	Hydrographic Surveys Technical Directive
HVCR	Horizontal and Vertical Control Report
HVF	HIPS Vessel File
IHO	International Hydrographic Organization
IMU	Inertial Motion Unit
ITRF	International Terrestrial Reference Frame
LNM	Linear Nautical Miles
MBAB	Multibeam Echosounder Acoustic Backscatter
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NALL	Navigable Area Limit Line
NTM	Notice to Mariners
NMEA	National Marine Electronics Association
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NRT	Navigation Response Team
NSD	Navigation Services Division
OCS	Office of Coast Survey
OMAO	Office of Marine and Aviation Operations (NOAA)
OPS	Operations Branch
MBES	Multibeam Echosounder
NWLON	National Water Level Observation Network
PDBS	Phase Differencing Bathymetric Sonar
PHB	Pacific Hydrographic Branch
POS/MV	Position and Orientation System for Marine Vessels
PPK	Post Processed Kinematic
PPP	Precise Point Positioning
PPS	Pulse per second

Acronym	Definition
PRF	Project Reference File
PS	Physical Scientist
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
RTX	Real Time Extended
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
SSSAB	Side Scan Sonar Acoustic Backscatter
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
TPU	Total Propagated Uncertainty
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDF	Zone Definition File

F00741 Danger to Navigation Report

Registry Number: F00741
State: Oregon
Locality: Columbia River
Sub-locality: Vancouver Upper and Lower Anchorages
Project Number: S-N918-NRT3-18
Survey Date: 08/10/2018

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
18526	58th	09/01/2006	1:20,000 (18526_1)	[L]NTM: ?

* Correction(s) - *source: last correction applied (last correction reviewed--"cleared date")*

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Obstruction	3.66 m	45° 38' 17.6" N	122° 43' 51.9" W	---

1.1) US 0000011890 00001

DANGER TO NAVIGATION

Survey Summary

Survey Position:	45° 38' 17.6" N, 122° 43' 51.9" W
Least Depth:	3.66 m (= 12.00 ft = 2.000 fm = 2 fm 0.00 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2018-222.00:00:00.000 (08/10/2018)
Dataset:	F00741_DtoN.000
FOID:	US 0000011890 00001(022600002E720001)
Charts Affected:	18526_1

Remarks:

OBSTRN/remrks: Snag/pile found in MBES data. Believed snag/pile was once part of a log raft or barge tie off that is no longer in use based on similar near by operations.

Feature Correlation

Source	Feature	Range	Azimuth	Status
F00741_DtoN.000	US 0000011890 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart new obstruction

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

12ft (18526_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	CATOBS - 1:snag / stump
	QUASOU - 6:least depth known
	SORDAT - 20180810
	SORIND - US,US,graph,F00741
	STATUS - 4:not in use

TECSOU - 3:found by multi-beam

VALSOU - 3.658 m

WATLEV - 3:always under water/submerged

Feature Images

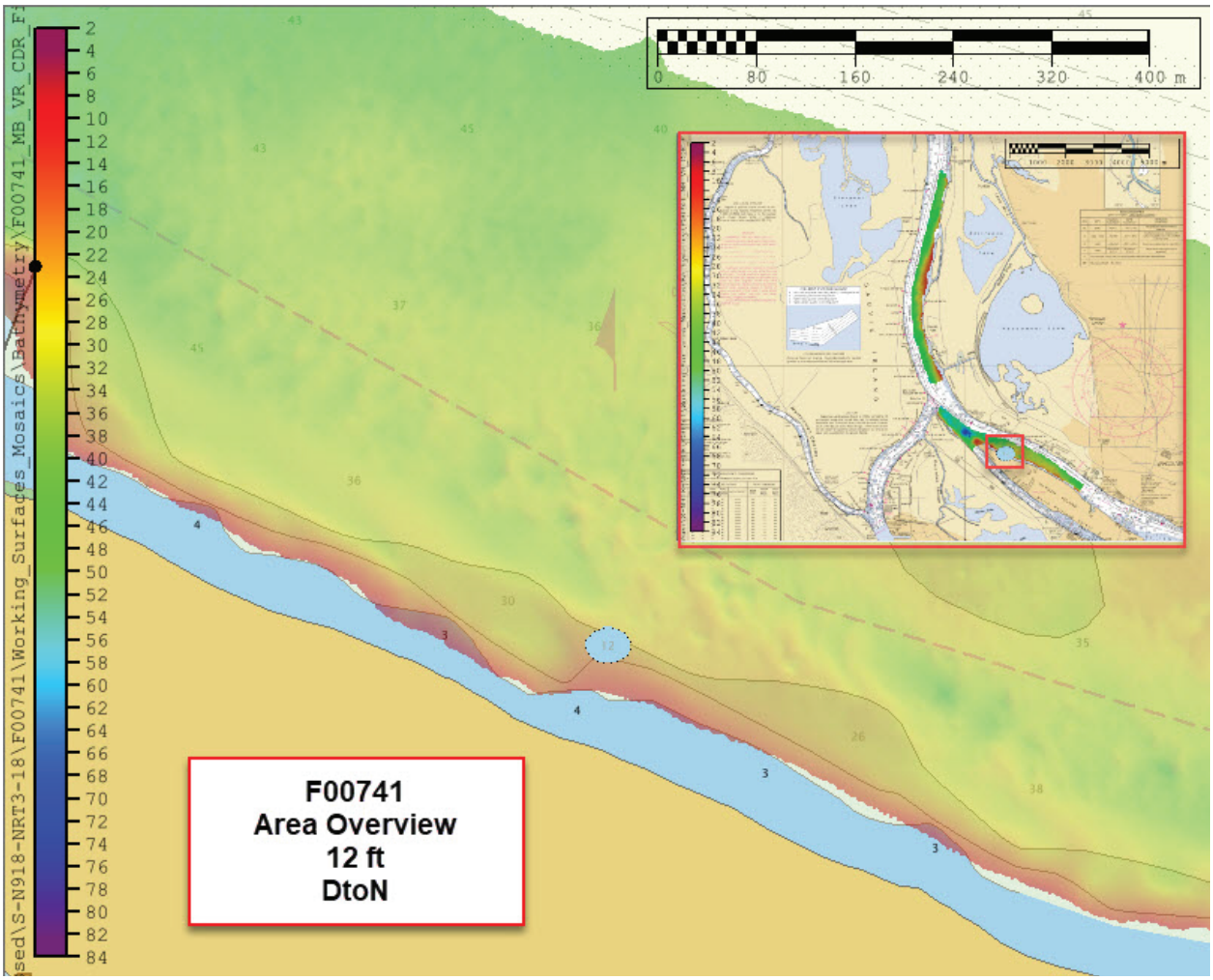
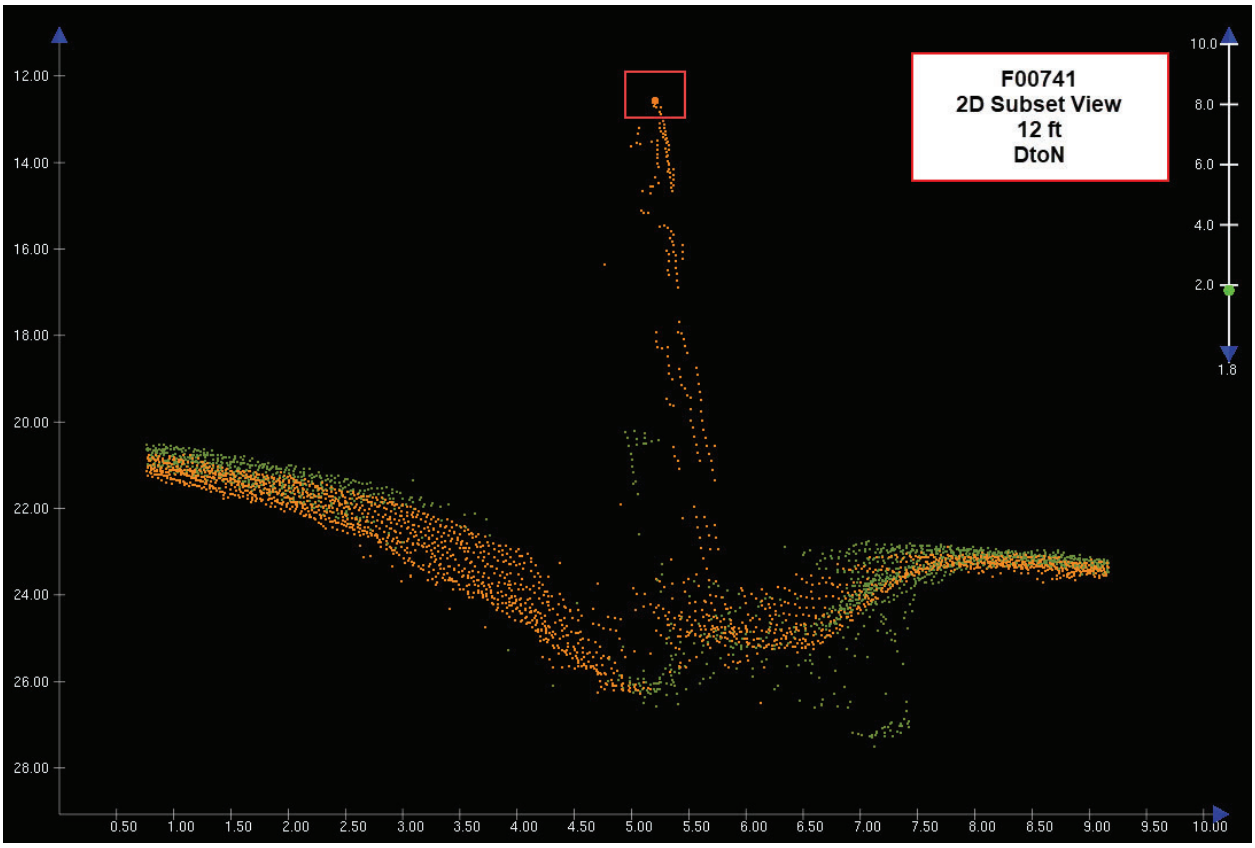


Figure 1.1.1


F00741
2D Subset View
12 ft
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12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
0.50
1.00
1.50
2.00
2.50
3.00
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8.00
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9.50
10.00
10.0
8.0
6.0
4.0
2.0
1.8

Figure 1.1.2

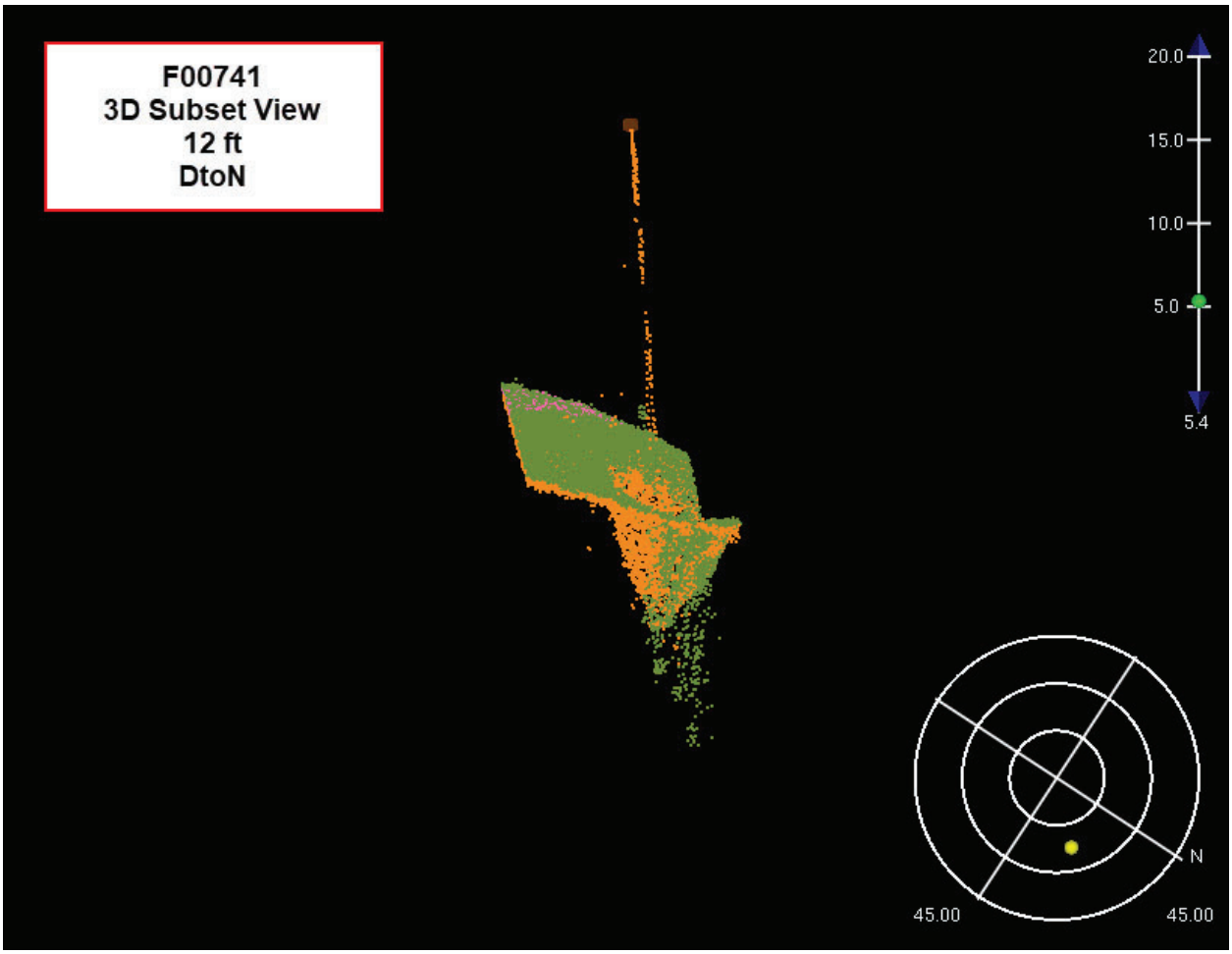


Figure 1.1.3

F00741 Danger to Navigation Report

Registry Number: F00741
State: Oregon
Locality: Columbia River
Sub-locality: Voncouver Upper and Lower Anchorages
Project Number: S-N918-NRT3-18
Survey Date: 08/06/2018

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
18525	35th	07/01/2005	1:40,000 (18525_1)	[L]NTM: ?

* Correction(s) - *source: last correction applied (last correction reviewed--"cleared date")*

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Obstruction	3.27 m	45° 41' 18.8" N	122° 46' 12.8" W	---

1.1) US 0000002199 00001

DANGER TO NAVIGATION

Survey Summary

Survey Position: 45° 41' 18.8" N, 122° 46' 12.8" W

Least Depth: 3.27 m (= 10.74 ft = 1.791 fm = 1 fm 4.74 ft)

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2018-218.00:00:00.000 (08/06/2018)

Dataset: F00741_DtoN_1.000

FOID: US 0000002199 00001(0226000008970001)

Charts Affected: 18525_1

Remarks:

OBSTRN/remrks: Snag/pile found in MBES

Feature Correlation

Source	Feature	Range	Azimuth	Status
F00741_DtoN_1.000	US 0000002199 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart new obstruction

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

11ft (18525_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20180806

SORIND - US,US,graph,F00741

TECSOU - 3:found by multi-beam

VALSOU - 3.275 m

WATLEV - 3:always under water/submerged

Feature Images

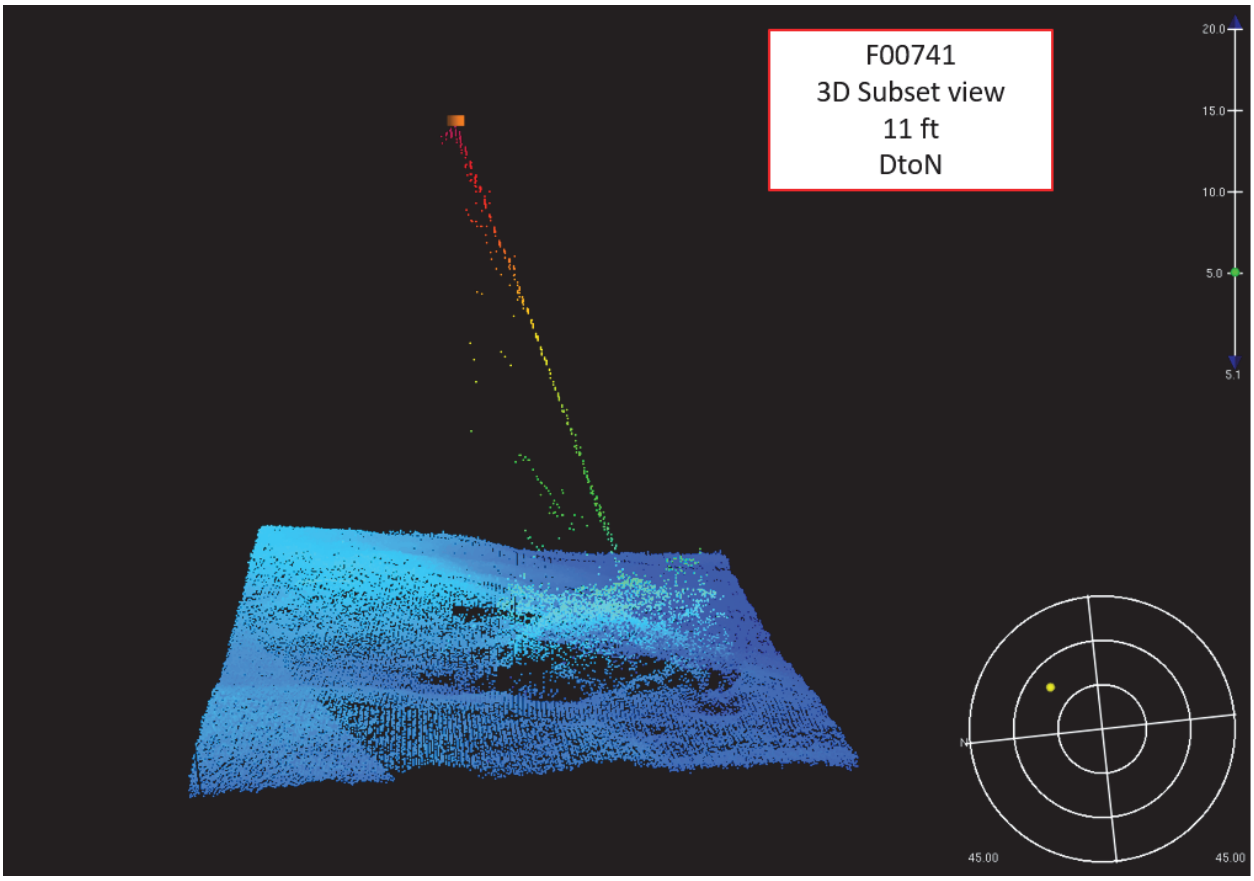
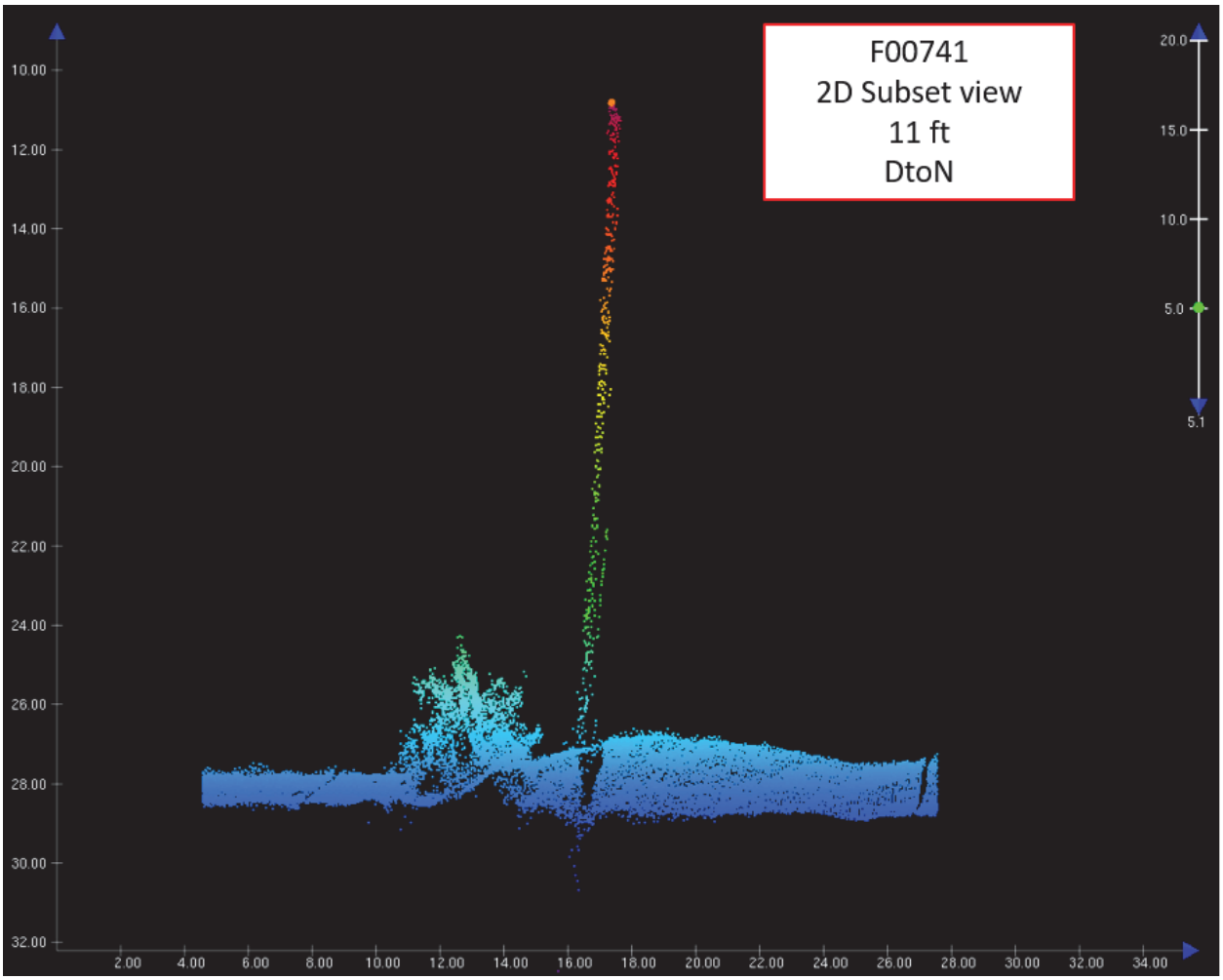


Figure 1.1.1


F00741
2D Subset view
11 ft
DtoN
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
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30.00
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34.00
20.0
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10.0
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5.1

Figure 1.1.2

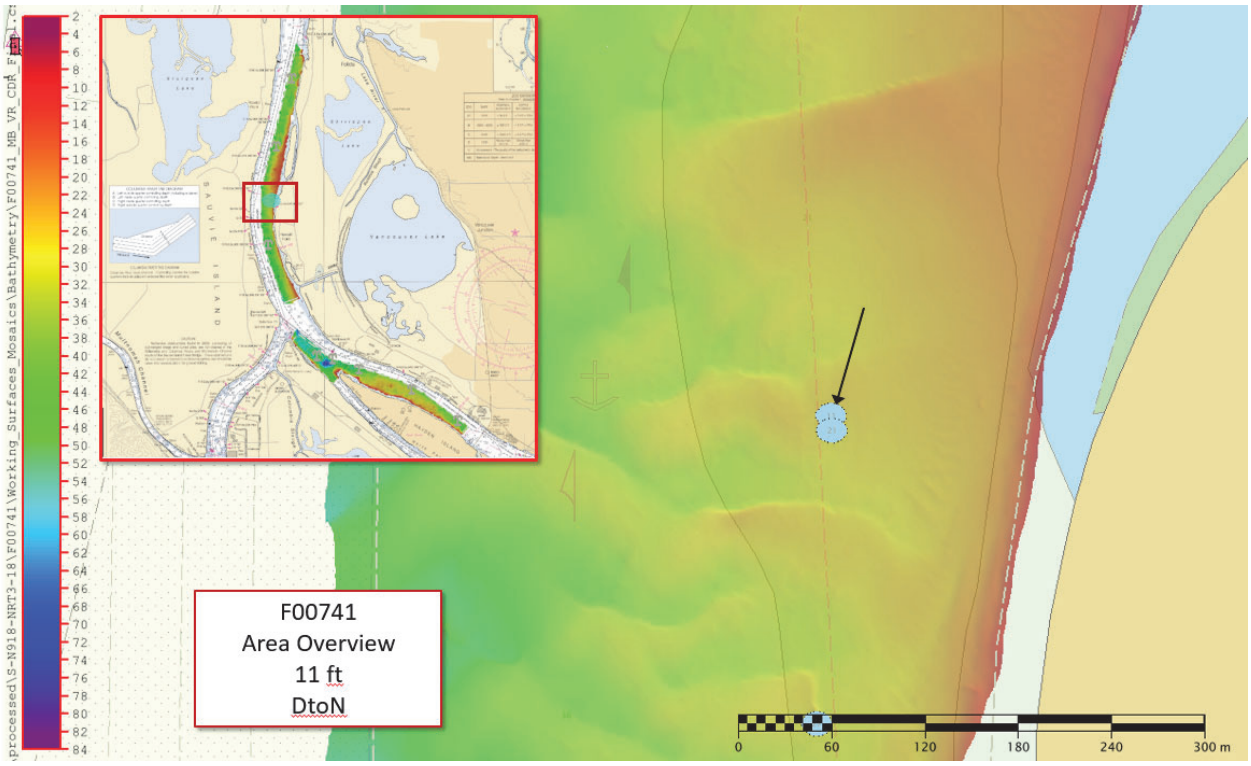


Figure 1.1.3

APPROVAL PAGE

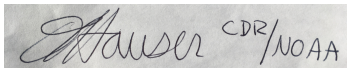
F00741

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

- Descriptive Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Collection of backscatter mosaics
- Processed survey data and records
- Bottom samples
- GeoPDF of survey products

The survey evaluation and verification has been conducted according current OCS Specifications, and the survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.



Digitally signed by HAUSER.OLIVIA.A.1275636009
Date: 2020.10.22 15:21:54 -07'00'

Approved:_____

Commander Olivia Hauser, NOAA
Chief, Pacific Hydrographic Branch