

F00589

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic Survey

Field No. N/A

Registry No. F00589

LOCALITY

State Washington

General Locality Commencement Bay

Sublocality Port of Tacoma

2010

CHIEF OF PARTY

Dan Jacobs

LIBRARY & ARCHIVES

DATE

<p style="text-align: center;">U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION</p> <p style="text-align: center;">HYDROGRAPHIC TITLE SHEET</p>	<p>REGISTRY No</p> <p style="text-align: center;">F00589</p>
<p>INSTRUCTIONS – The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.</p>	<p>FIELD No: N/A</p>
<p>State <u>Washington</u></p> <p>General Locality <u>Commencement Bay</u></p> <p>Sub-Locality <u>Port of Tacoma</u></p> <p>Scale <u>1:10,000</u> Date of Survey <u>7/19/2010</u></p> <p>Instructions dated <u>3/30/2010</u> Project No. <u>S-N909-NRT3-10</u></p> <p>Vessel <u>S1212</u></p> <p>Chief of party <u>Dan Jacobs</u></p> <p>Surveyed by <u>Dan Jacobs</u></p> <p>Soundings by <u>Kongsberg EM3002 Multibeam Echosounder</u></p> <p>SAR by <u>Adam Argento</u> Compilation by <u>Martha Herzog</u></p> <p>Soundings compiled in <u>Feet</u></p>	
<p>REMARKS: <u>All times are UTC. UTM Zone 10</u></p> <p><u>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. Revisions and end notes in red were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non sequential.</u></p> <p><u>All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via http://www.ngdc.noaa.gov/.</u></p>	

Descriptive Report to Accompany Hydrographic Survey F00589

Project S-N909-NRT3-10
Commencement Bay, Washington
Scale 1:10,000
July 19, 2010
NOAA NRT3 (S1212)

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Project Instructions S-N909-NRT3-10 dated March 30, 2010 and all other applicable direction¹, with the exception of deviations noted in this report. The registry number for this project is F00589. The survey area is Commencement Bay in the state of Washington. This survey corresponds to sheet “A” in the sheet layout provided with the Project Instructions. S-N909-NRT3-10 answers the request by the Regional Navigation Manager and Puget Sound Pilots Association to investigate two areas in Commencement Bay.¹ The request in Hylebos Waterway is to verify the existence of a 25.4 foot sounding on the edge of a federally maintained waterway. The request in Sitcom Waterway is to collect bathymetry along a new pier face. See graphic below, Figure 1.

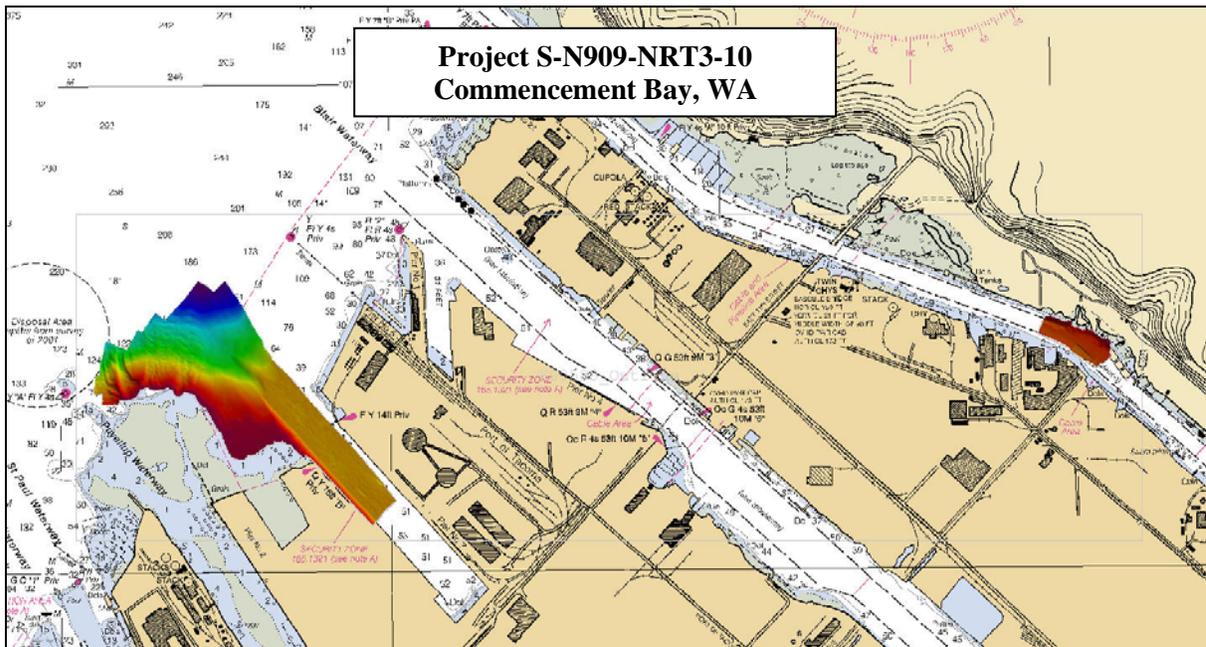


Figure 1: Survey Area (chart 18453).

¹ NOS Hydrographic Surveys Specifications and Deliverables (April 2010), OCS Field Procedures Manual for Hydrographic Surveying (April 2010), and all Hydrographic Surveys Technical Directives issued through the dates of data acquisition.

Complete multibeam echosounder (MBES) coverage was achieved in the survey area in waters 4 meters and deeper. A total of 7.7 linear nautical miles were surveyed for the two project areas which totaled .15 square nautical miles. See Table 1.

Shoreline Verification was not assigned to this project. MCD is currently applying a GC to the charts.

Data Acquisition Type on Survey Launch S1212	Mileage (lnm)	Total
MBES (mainscheme)	7.70	7.70
Total Area Surveyed (sq. nm)	-	.15

Table 1: Statistics, F00589.

Data acquisition for F00589 was conducted on July 19, 2010 (DN 200) in Commencement Bay Washington. Figure 2 illustrates the two survey outlines which comprised F00589.

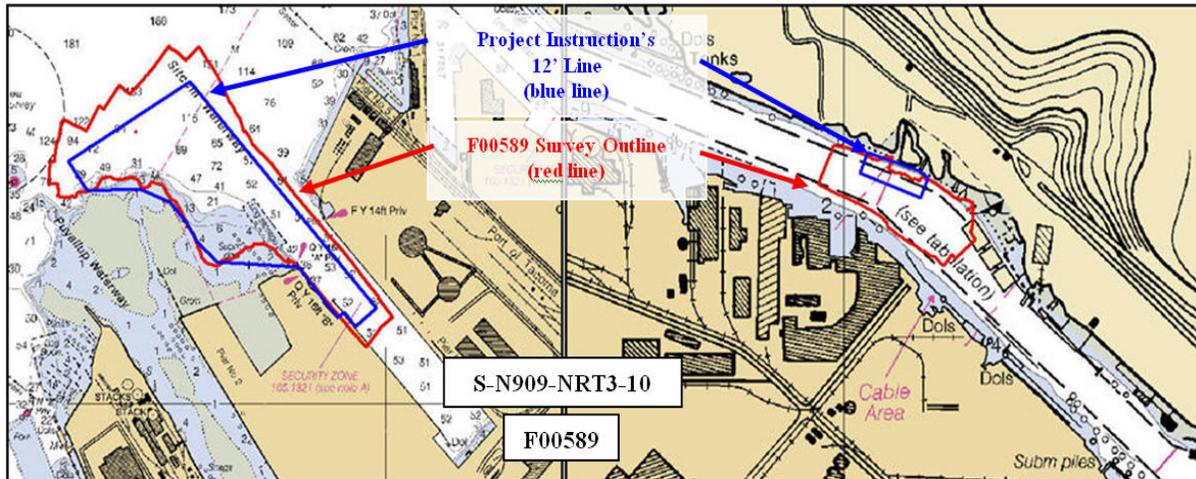


Figure 2: F00589 Survey limits and outline (chart 18453).

B. DATA ACQUISITION AND PROCESSING

A complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods can be found in the *S-N909-NRT3-10 Data Acquisition and Processing Report (DAPR)*, submitted under separate cover. Items specific to this survey, and any deviations from the DAPR are discussed in the following sections.

Final Approved Water Levels have been applied to this survey. See Section C for additional information.

B.1. Vessel and Equipment

Data for this survey were acquired by the following vessel listed in Table 2.

Hull Number	Name	Length	Draft	Acquisition Type
S1212	SeaArk	30 ft	.65m	Kongsberg EM 3002 echo sounder, Klein 3000 side scan sonar.

Table 2. Data acquisition vessel and systems for F00589.

Sound speed profiles were measured in accordance with the Specifications and Deliverables using SEACAT SBE-19+ profiler.

Multibeam vessel navigation and attitude data were measured and recorded using Applanix POS/MV 320 system, version 4.

A complete description of survey vessels, hardware, and software systems is included in the *S-N909-NRT3 DAPR*.

No unusual vessel configurations were used for data acquisition.

B.2. Quality Control

Crosslines

Crosslines were not performed for this survey.²

Final Uncertainty

Uncertainty values of submitted, finalized grids are calculated in Caris using the “Greater of the Two” of total propagated uncertainty and standard deviation (scaled to 95%). Except areas where soundings were designated, uncertainty of all finalized grids fall below the IHO levels as described in the NOS Specifications and Deliverables. See Figure 3 and 4.

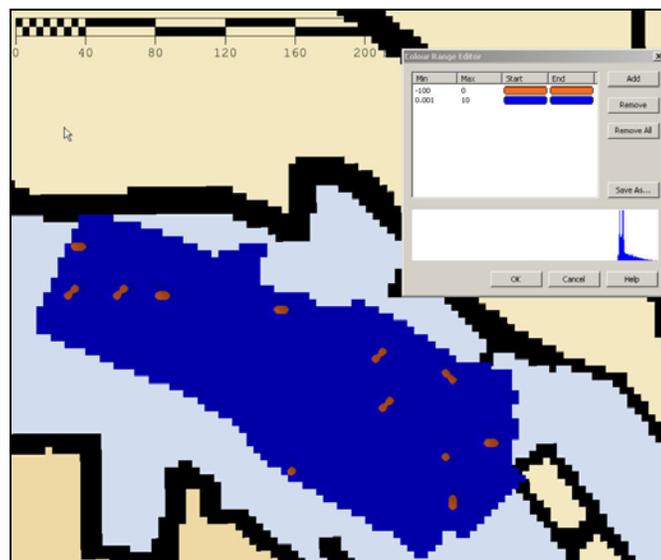


Figure 3: Hylebos Waterway IHO-ness

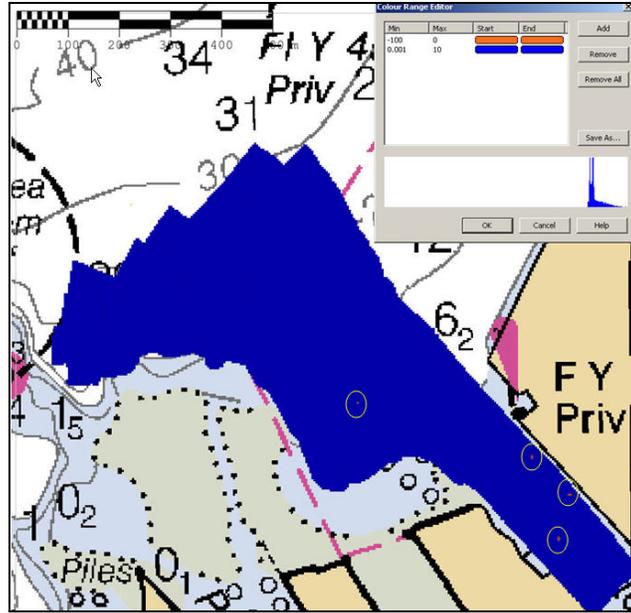


Figure 4: Sitcom Waterway IHO-ness

Junctions

No contemporary surveys junction with F00589.

Quality Control Checks

MBES quality control checks were conducted as discussed in the quality control section of the DAPR.

Data Quality Factors

Sound Speed Artifacts

Minor, outer beam sound speed artifacts were evident in bathymetry collected near the mouth of the Puyallup River and adjacent to the entrance of the Sitcom Waterway. Typical discrepancies measured .1-.2 meters. Careful effort was made to hold sound speed errors to a minimum in this area by taking multiple sound velocity casts. Still, characteristic “smiles” and “frowns” indicative of inaccurate sound speed corrections were discovered during Caris Subset editing. Such soundings were rejected. See figure 5.

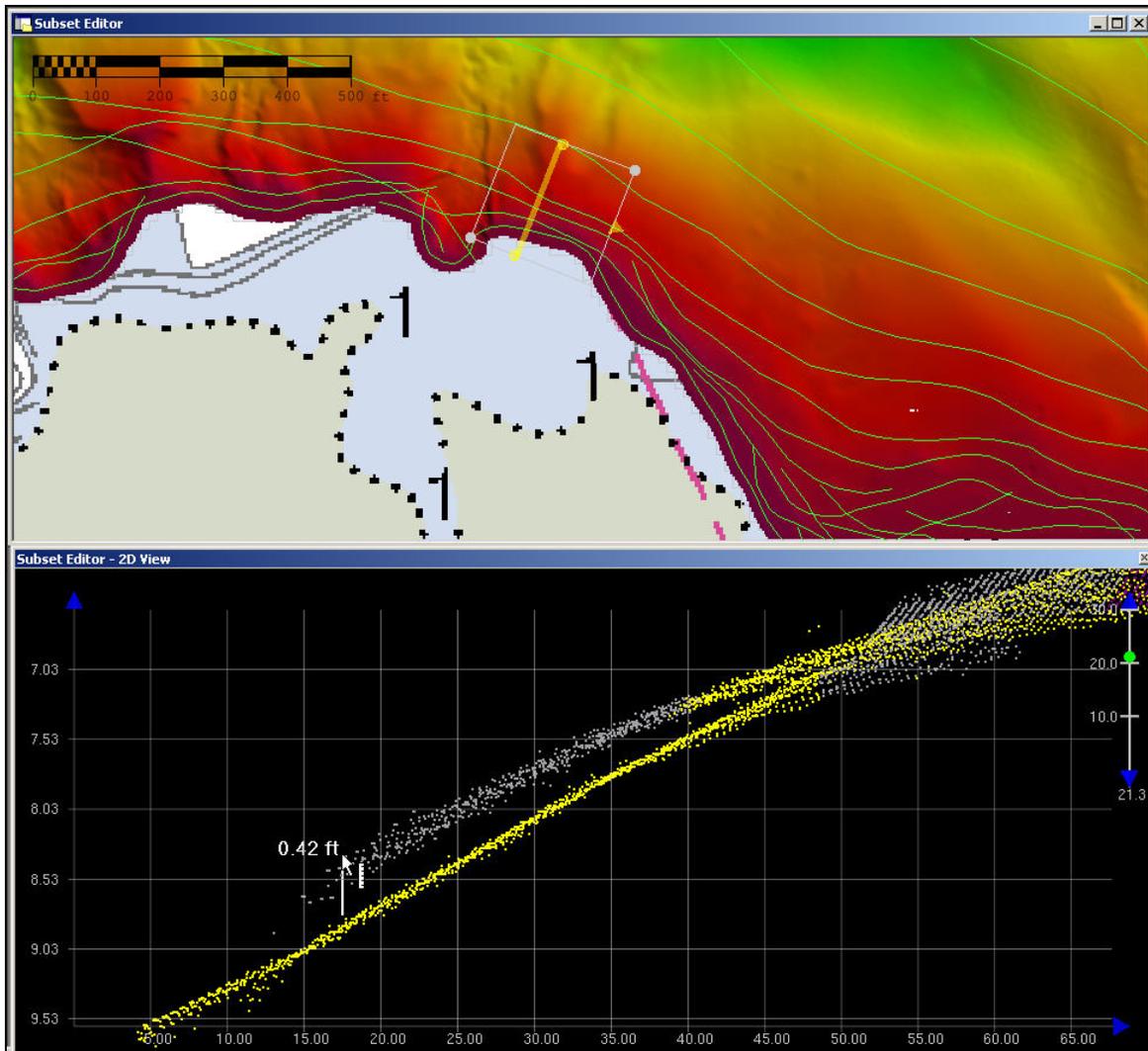


Figure 5: Minor Sound Speed Artifacts near Puyallup River. Rejected soundings in grey.

Environmental Conditions

No significant environmental conditions were observed on this day of survey.

Coverage Assessment

Complete MBES coverage in the Sitcom Waterway (Figure 6) was achieved within the assigned survey limit area and shoreward to the 4 meter contour. Within the Sitcom Waterway proper, multibeam data was collected along the new northwest pier face as required per project instructions. Email correspondence to the Puget Sound Pilots Association pertaining to these soundings can be found in Appendix V of this report.³

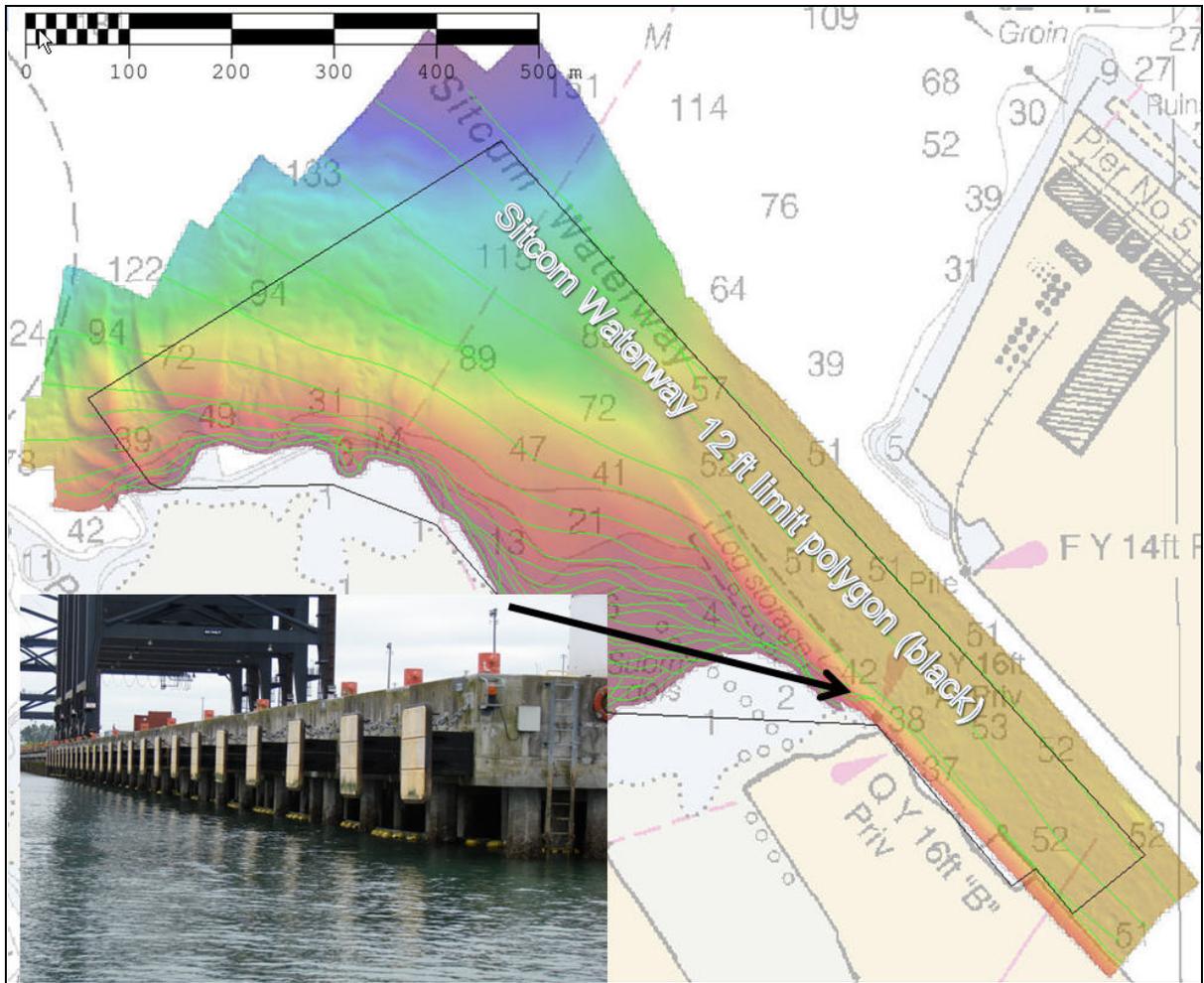


Figure 6: Sitcom Waterway survey coverage and new pier face location.

Complete MBES coverage for the Hylebos Waterway was not attained within the 12-foot survey limit area owing to the existence of a temporary floating dock depicted in the red box, Figure 7. However, complete MBES within the federally maintained channel of this area was obtained.



Figure 7: Temporary dock impeding full survey coverage, Hylebos Waterway.

Unusual Conditions

No unusual conditions were encountered during the survey that affected the expected accuracy and quality of survey data.

B.3. Corrections to Echo soundings

Data reduction procedures for survey F00589 conform to those detailed in the *S-N909-NRT3-10 DAPR*.

B.4. Data Processing

Data processing procedures for survey F00589 conform to those detailed in the DAPR. Data were processed using CARIS HIPS & SIPS v7.0, Service Pack 1, Hotfix 4, updated to Hotfix 5 when released. Additional processing details regarding Total Propagated Uncertainty (TPU/TPE) and CUBE Surfaces and Parameters utilized, along with any the deviations from the processing procedures outlined in the DAPR are discussed below.

TPU VALUES:

The survey specific parameters used to compute TPU in CARIS for F00589 are listed in Table 3.

Tide values:	Measured	0.01 m	Zoning	0.11 m
Sound Speed Values:	Measured	0.50 m/s	Surface	0.3 m/s

Table 3: F00589 CARIS TPU Parameters

Two separate field sheets were created for F00589. Field Sheet *F00589_A* encompassed the Sitcum Waterway, and *F00589_B* bounded the smaller Hylebos Waterway. Final BASE surface resolutions and depth ranges were set according to Table 4 below. CUBE BASE surfaces were processed with parameters specific to each resolution specified in the file CUBEParams_NOAA.xml submitted with the project. Submission Field Sheet and BASE Surface structure are shown in Figure 6.⁴

Depth Range (m)	Resolution (m)
0-23	1
20-52	2
46-115	4

Table 4: Depth range and BASE surface resolutions for F00589.

In areas where multibeam data was acquired on charted cultural features (pilings, piers, etc) that were above MLLW, all data were rejected on the feature itself to more accurately represent the seafloor below these features.

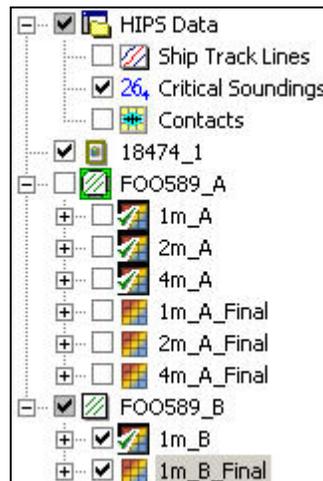


Figure 8: Field sheet and BASE surfaces submitted with F00589.

C. VERTICAL AND HORIZONTAL CONTROL

Project S-N909-NRT3-10 did not require static GPS observations or other horizontal control work, and all tide corrections were generated from CO-OPS maintained tide stations. Thus, no Horizontal and Vertical Control Report will be submitted.

C.1. Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS (DGPS) was the sole method of positioning. The differential corrector beacons utilized for this survey are given in Table 5.

Location	Frequency	Operator	Priority
Robinson Point, WA	323 kHz	USCG	Primary

Table 5: Differential Corrector Sources for F00589.

C.2. Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) station in Tacoma, WA (944-6484) serves as datum control for the survey area including determination at each subordinate station.

No tertiary gauges were required.

As per the Project Instructions, all data were reduced to MLLW using the final approved water levels (smooth tides) from the Tacoma, WA station (944-6484) by applying tide file 9446484.tid and time and height correctors through the zone corrector file N909NRT32010CORP.zdf. Preliminary zoning was accepted as the final zoning for the project. It will not be necessary for the Pacific Hydrographic Branch to reapply the final approved water levels (smooth tides) to the survey data during final processing. See Figure 9.

The request for Final Approved Water Levels for F00589 was submitted to CO-OPS on July 25, 2010 in accordance with the Field Procedures Manual (FPM), dated April, 2010. The Final Tide Note was received on July 29, 2010.⁵ This documentation is included in Appendix IV.

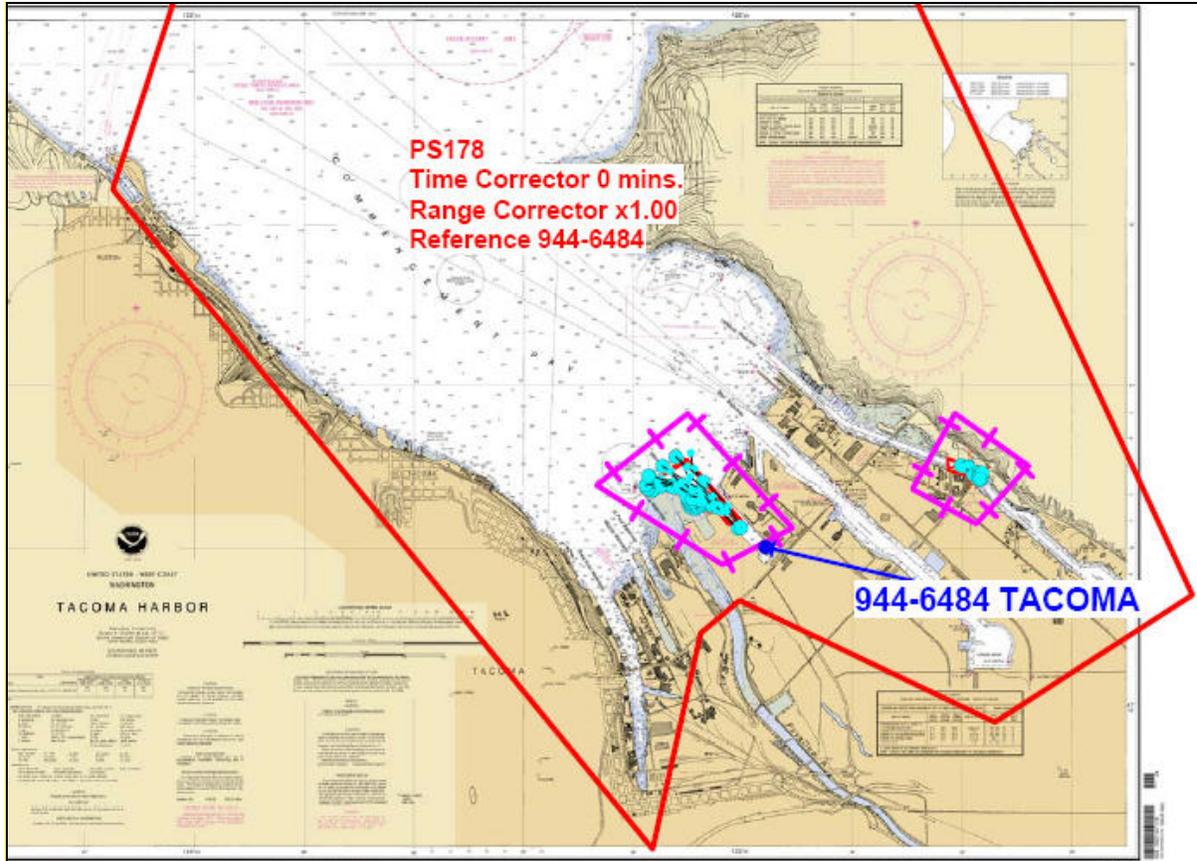


Figure 9: Tide Zone N909NRT32010CORP, for F00589 Field Sheet.

D. RESULTS AND RECOMMENDATIONS

D.1. Chart Comparison

D.1.a. Survey Agreement with Chart

Chart comparison procedures were followed as outlined in section 4.5 of the FPM and section 8.1.3-D.1 of the HSSDM, utilizing CARIS HIPS and SIPS 7.0 software program.

Survey F00589 was compared with the following chart, Table 6.

Chart	Scale	Edition and Date	Local Notice to Mariners Applied Through
18453	1:15,000	26th Ed, July 10	6/22/2010

Table 6: Chart compared with F00589.

Chart 18453

F00589 soundings were generally within 1 meter of charted (18453) soundings in the Sitcum Waterway. Soundings to the north and west of Sitcum Waterway, in close proximity to the Puyallup River's mouth, tended to be shoaler by a meter or more.⁶ Green circles in Figure 10

indicate where soundings are within 1 meter of charted soundings. Soundings circled in red indicate survey soundings which are a meter or more shoaler than charted soundings.

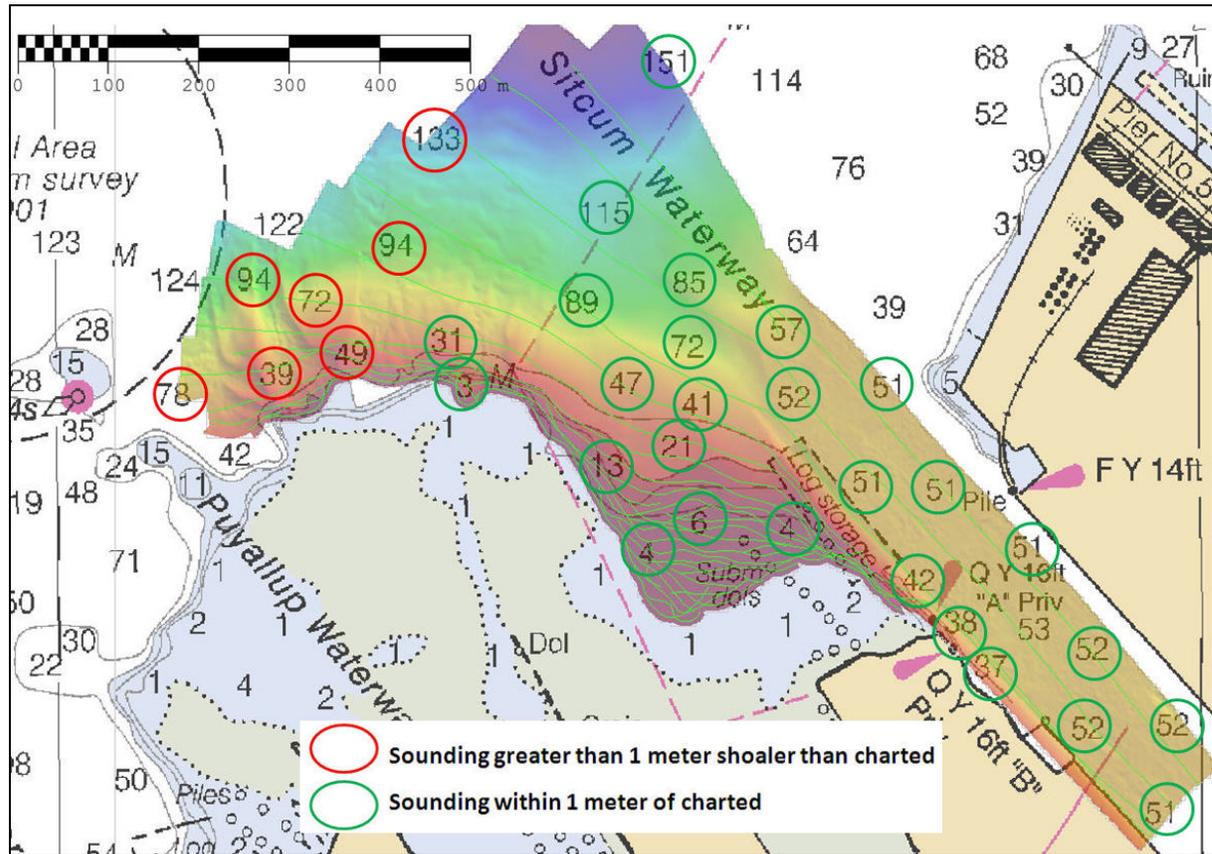


Figure 10: F00589 charted depth / sounding comparison (chart 18453).

A visual comparison was made between a 6 foot interval contour layer and Chart 18453. The contour layer and chart showed good general agreement within the Sitcum Waterway proper. In the vicinity of the mouth of the Puyallup River, evidence of near shore sediment accretion and scouring were discovered as depicted by Figure 11.

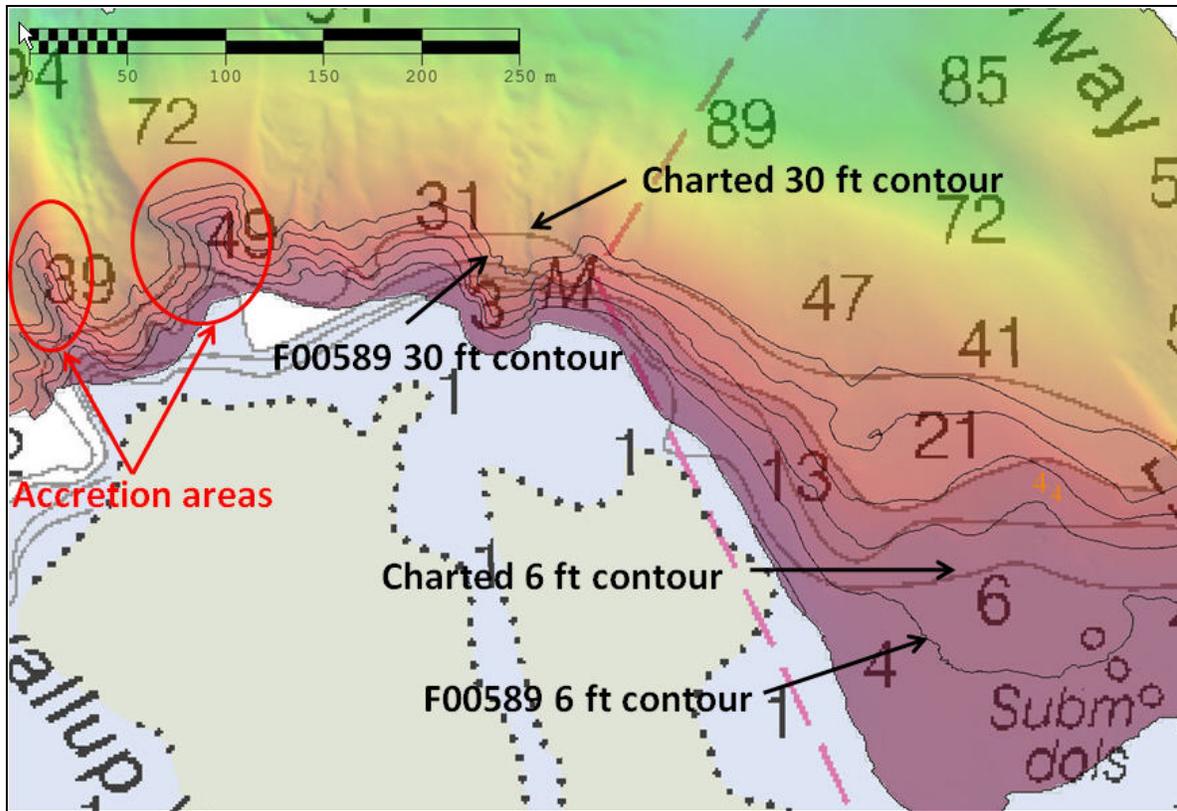


Figure 11: F00589 Contour Layer compared with charted contours

Within the Hylebos Waterway, F00589 soundings exhibited excellent agreement with Chart 18453. USACE controlling depths for this area are highlighted in Figure 12. A shoal biased, 7 meter radius sounding layer (2 meter base surface) was generated for comparison against the middle half and outside quarter depths in this channel. Figure 13, a chartlet of the Hylebos Waterway was submitted to the Northwest Navigation Manager, the Puget Sound Pilots Association and USACE.⁷

HYLEBOS WATERWAY							
TABULATED FROM SURVEYS BY THE CORPS OF ENGINEERS - SURVEYS TO JUN 2009 AND NOS SURVEY FROM APR 2009							
CONTROLLING DEPTHS FROM SEAWARD IN FEET AT MEAN LOWER LOW WATER (MLLW)					PROJECT DIMENSIONS		
NAME OF CHANNEL	LEFT OUTSIDE QUARTER	MIDDLE -HALF OF CHANNEL	RIGHT OUTSIDE QUARTER	DATE OF SURVEY	WIDTH (FEET)	LENGTH (NAUT. MILES)	DEPTH MLLW (FEET)
COMMENCEMENT BAY TO E. 11TH ST. BRIDGE	20.0	29.0	28.0	4,5,6-09	200	1.0	30
THENCE TO BEND	20.0	29.0	25.0	4,5-09	200	0.5	30
THENCE TO LOWER TURNING BASIN	17.0	28.0	28.0	4,5-09	300-200	0.35	30
LOWER TURNING BASIN	27.9	28.8	35.0	6-04; 4,5-09	200-510	0.24	30
THENCE TO UPPER TURNING BASIN	28.0	31.0	33.0	4,5-09	200	0.35	30
UPPER TURNING BASIN	25.5	23.0	23.0	4-99; 4,5-09	200-760	0.28	30

NOTE - CONSULT THE CORPS OF ENGINEERS FOR CHANGES SUBSEQUENT TO THE ABOVE INFORMATION

Figure 12. Hylebos Waterway USACE Controlling Depths, Chart 18453.

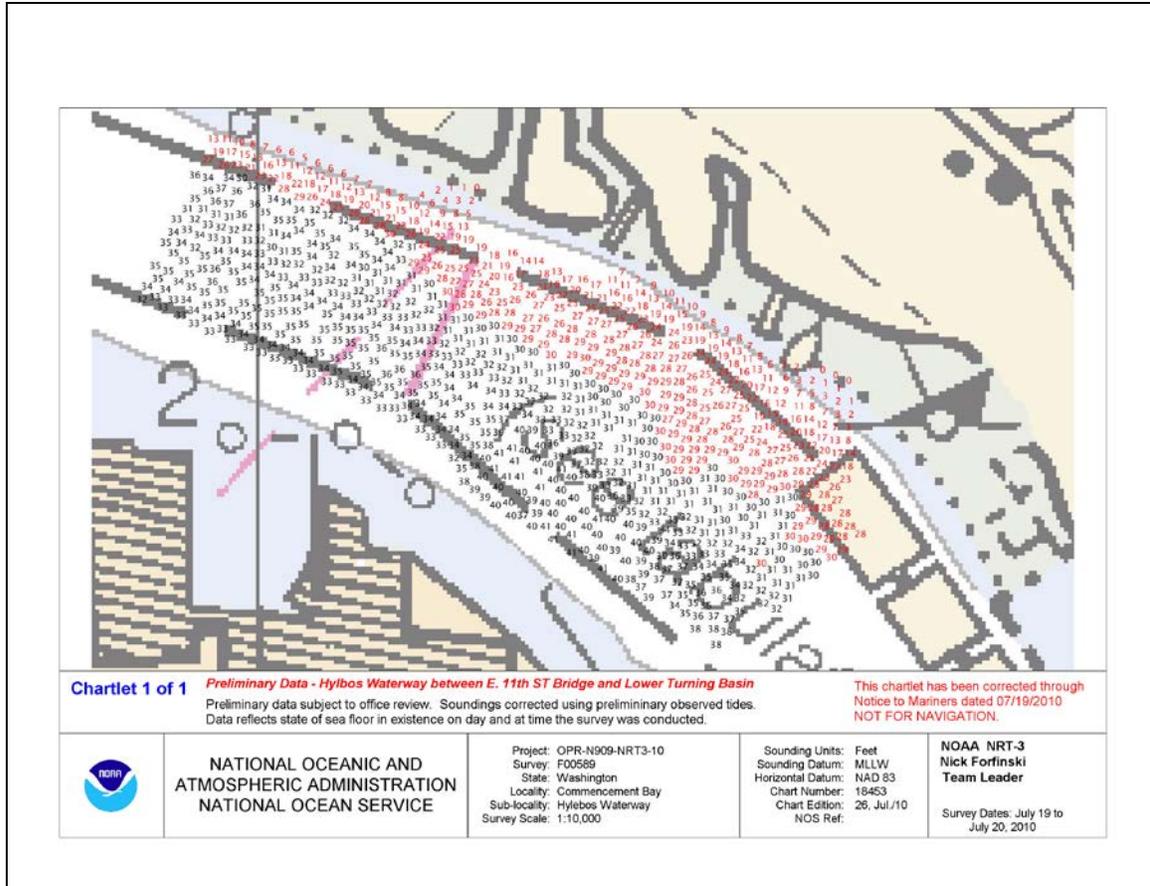


Figure 13: F00589 Hylebos Waterway Soundings

The Hydrographer recommends that survey soundings supersede all prior survey and charted depths in the common area.

D.1.b. Automated Wreck and Obstruction Information System (AWOIS) Items

No AWOIS items were assigned for F00589.

D.1.c. Other Investigated Features

Additional Items

NRT3 acquired additional data outside the Hylebos Waterway project area when tug operations temporarily obstructed that locality. Approximately 100 meters southeast of the Hylebos Waterway project area, a rectangular object was discovered in SWMB data. The object may be the remains of a sunken dock or a ramp. It dimensions are 8 meters wide and 28 meters long with a shoalest depth of approximately 2 meters. On account of its close proximity to the shore (9 meters) the shoalest depth on this object is not deemed dangerous to navigation. The object has been scaled E with a 2.6 vertical exaggeration value in Figure 14.

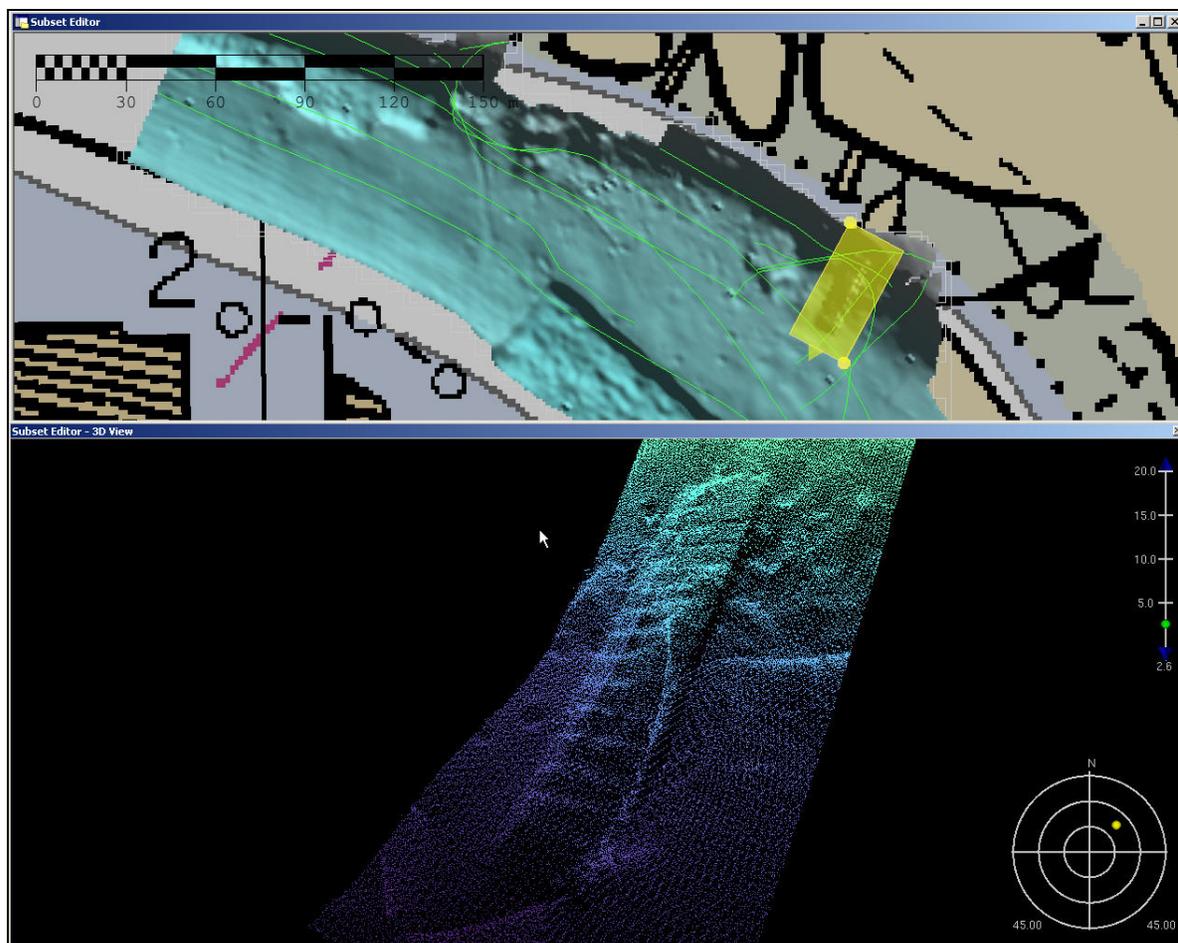


Figure 14: F00589 Rectangular object discovered.

D.1.d. Dangers to Navigation

A 16.7 foot sounding in the Hylebos Waterway was **mistakenly** categorized as a DTON on August 16, 2010. That sounding was erroneously compared to an older USACE controlling depth tabulation from 2004 which listed the left, outside quarter depth as 26.8 feet. The current (April, 2009) USACE tabulated depth for that area is 17 feet (Figure 12).

Presently, the Marine Charting Division has held off processing the DTON and is awaiting further details from Navigation Manager Gary Nelson and USACE representative Robert M. Parry. Gary Nelson is recommending that MCD updates the tabulated depth to 16.7 feet.⁸ Email correspondence pertaining to this DTON is included in the Supplemental Survey Records and Correspondence folder.⁹

The original DTON submission package is included in Appendix I.¹⁰ A description of the DTON is included in the Survey Feature Report in Appendix II.

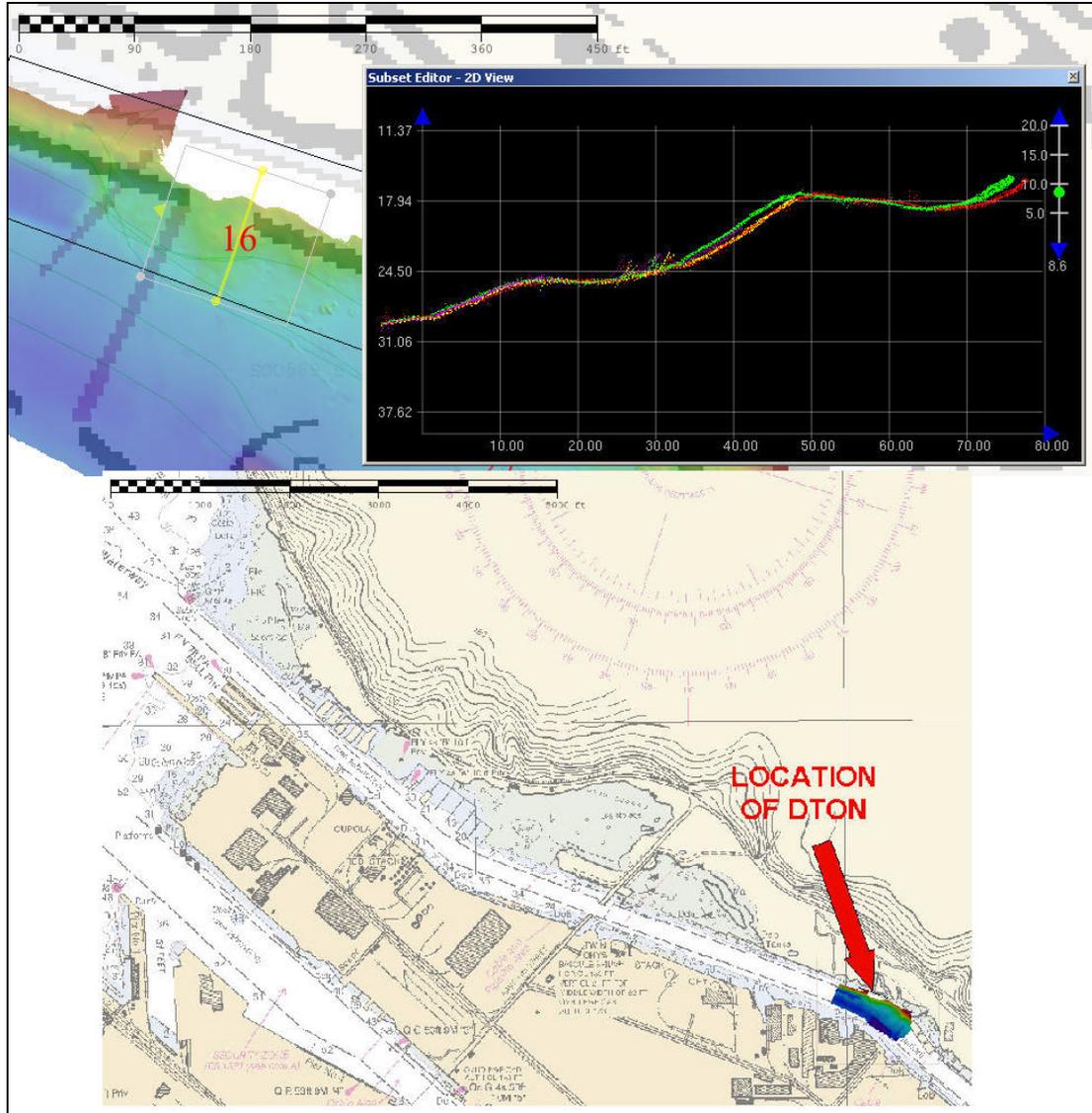


Figure 15: Sounding mistakenly categorized as DTON, Hylebos Waterway in Chart 18453.

D.2. Additional Results

No additional results.

D.2.a. Shoreline Verification

Shoreline verification was not assigned for this project.

D.2.b. Prior Survey Comparison

A prior survey comparison was not performed.

D.2.c. Aids to Navigation

No Aids to Navigation were assigned for this project.

D.2.d. Overhead Features

There are no overhead features within the limits of survey F00589.

D.2.e. Submarine Cables and Pipelines

F00589 included one cable area 700 meters northwest of the Hylebos Waterway's Lower Turning Basin. A possible cable trench for this feature is approximately .4 meters deep and trends north-northwest. See figure 16.

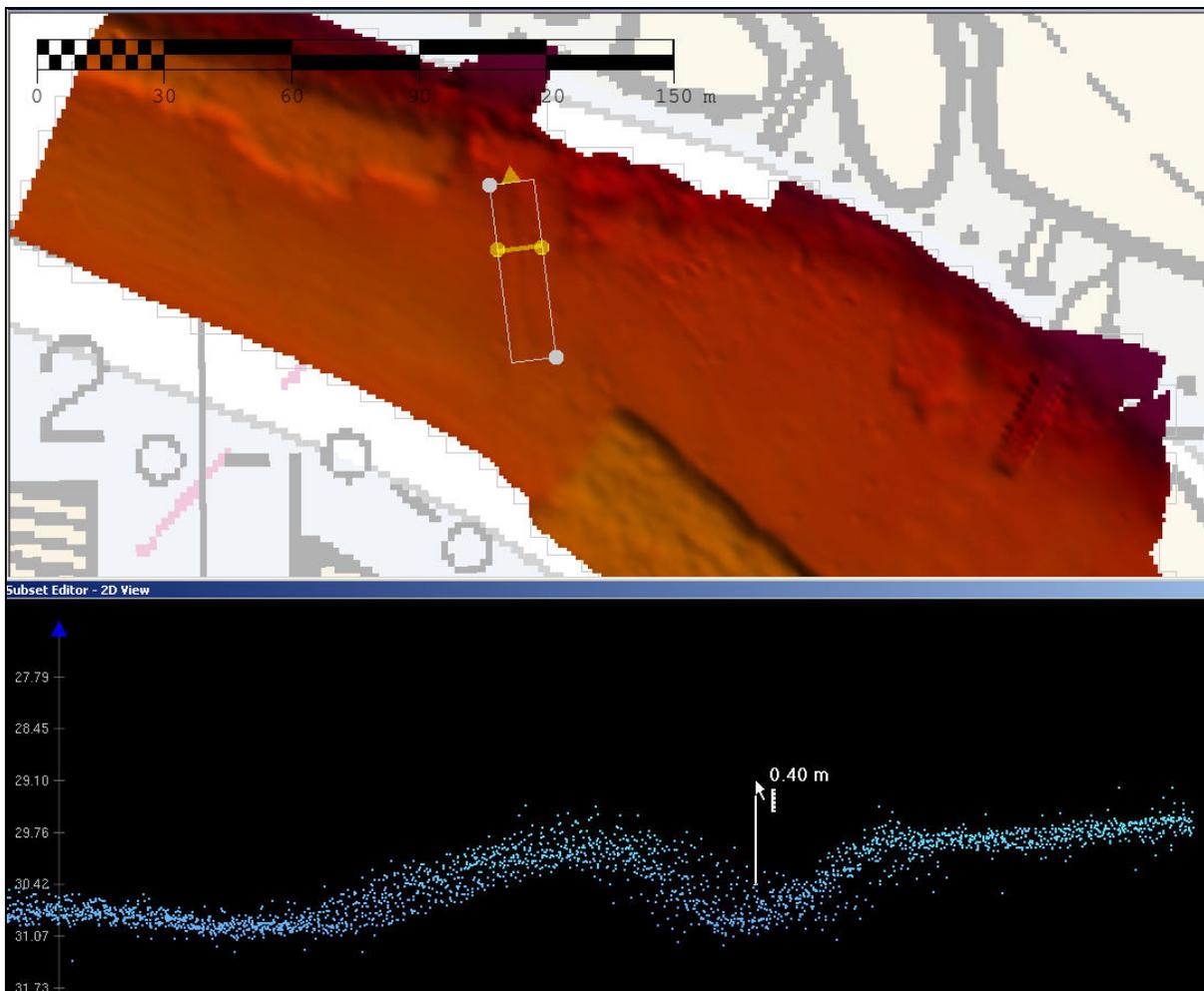


Figure 16: F00589 possible underwater cable trench (Chart 18435).

The hydrographer recommends retaining the cable area as charted.

D.2.f. Ferry Routes

No ferry routes are in the vicinity of the project areas.

D.2.g. Bottom Samples

Bottom samples were not assigned for survey F00589.¹¹

E. APPROVAL

As Chief of Party, Field operations for hydrographic survey F00589 were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports. The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual (April 2010 edition), Field Procedures Manual (April 2010 edition), Standing and Project Instructions, and all HSD Technical Directives issued through June 2010. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required. All data and reports are respectfully submitted to N/CS34, Pacific Hydrographic Branch.

Listed below are supplemental reports submitted separately that contain additional information relevant to this survey:

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Data Acquisition and Processing Report For S-N909-NRT3-10	<i>Submitted with this report</i>	N/CS34

Approved and Forwarded:

Dan Jacobs
I am approving this document
2010.12.08 14:39:18 -08'00'

Dan Jacobs
Acting Team Lead, NOAA NRT3

Revisions Compiled During Office Processing and Certification

- ¹ F00589 was submitted to the Pacific hydrographic Branch for review and compilation.
- ² Although there were no crosslines, the HCell data is adequate to supersede charted data.
- ³ The correspondence is appended to this report.
- ⁴ A 2 meter combined surface was used for compilation of the HCell.
- ⁵ The Final Tide Note is appended to this report.
- ⁶ Concur. Chart per HCell data.
- ⁷ The submitted chartlet is appended to this report with the supplemental correspondence.
- ⁸ This 16 foot sounding has been applied to the chart.
- ⁹ The correspondence is appended to this report.
- ¹⁰ The DTON Report is appended to this report.
- ¹¹ One bottom type has been blue noted to be retained in the HCell.

F00909 DTON Report

Registry Number: F00589
State: Washington
Locality: Comencement Bay
Sub-locality: Hylebos Waterway
Project Number: S-N909-NRT3-10
Survey Date: 07/19/2010

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
18453	25th	10/01/2007	1:15,000 (18453_1)	USCG LNM: 05/18/2010 (06/22/2010) NGA NTM: 02/26/2000 (07/10/2010)
18474	8th	10/01/2003	1:40,000 (18474_1)	[L]NTM: ?
18445	32nd	08/01/2007	1:80,000 (18445_8) 1:40,000 (18445_7)	[L]NTM: ?
18448	34th	07/01/2006	1:80,000 (18448_1)	[L]NTM: ?
18440	29th	09/01/2007	1:150,000 (18440_1)	[L]NTM: ?
18003	20th	11/01/2006	1:736,560 (18003_1)	[L]NTM: ?
18007	33rd	02/01/2009	1:1,200,000 (18007_1)	[L]NTM: ?
501	12th	11/01/2002	1:3,500,000 (501_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_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	5.08 m	47° 16' 29.0" N	122° 22' 55.4" W	---

1 - Danger To Navigation

1.1) Profile/Beam - 1309/76 from f00589 / nrt3_s1212_em3002 / 2010-200 / f00589000_2355

DANGER TO NAVIGATION

Survey Summary

Survey Position: 47° 16' 29.0" N, 122° 22' 55.4" W
Least Depth: 5.08 m (= 16.66 ft = 2.777 fm = 2 fm 4.66 ft)
TPU (±1.96σ): **THU (TPEh)** ±1.379 m ; **TVU (TPEv)** ±0.279 m
Timestamp: 2010-200.23:57:02.006 (07/19/2010)
Survey Line: f00589 / nrt3_s1212_em3002 / 2010-200 / f00589000_2355
Profile/Beam: 1309/76
Charts Affected: 18453_1, 18445_7, 18474_1, 18445_8, 18448_1, 18440_1, 18003_1, 18007_1, 501_1, 530_1, 50_1

Remarks:

Found 16 foot sounding in a supposed 26.8 foot maintained channel. Chart 18543.

Feature Correlation

Address	Feature	Range	Azimuth	Status
f00589/nrt3_s1212_em3002/2010-200/f00589000_2355	1309/76	0.00	000.0	Primary

Hydrographer Recommendations

DTON.

Cartographically-Rounded Depth (Affected Charts):

- 16ft (18453_1)
- 2 ¾fm (18448_1, 18440_1, 18003_1, 18007_1, 530_1)
- 2fm 4ft (18445_7, 18474_1, 18445_8)
- 5.1m (501_1, 50_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: QUASOU - 1:depth known

SORDAT - 20100719

SORIND - US,US,nsurf,F00589

TECSOU - 3:found by multi-beam

VALSOU - 5.079 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

[Image file H:/Projects/S-N909-NRT3-10/FOO589/Descriptive Report/Appendices/I
DTON_Reports/DTON_01.jpg does not exist.]

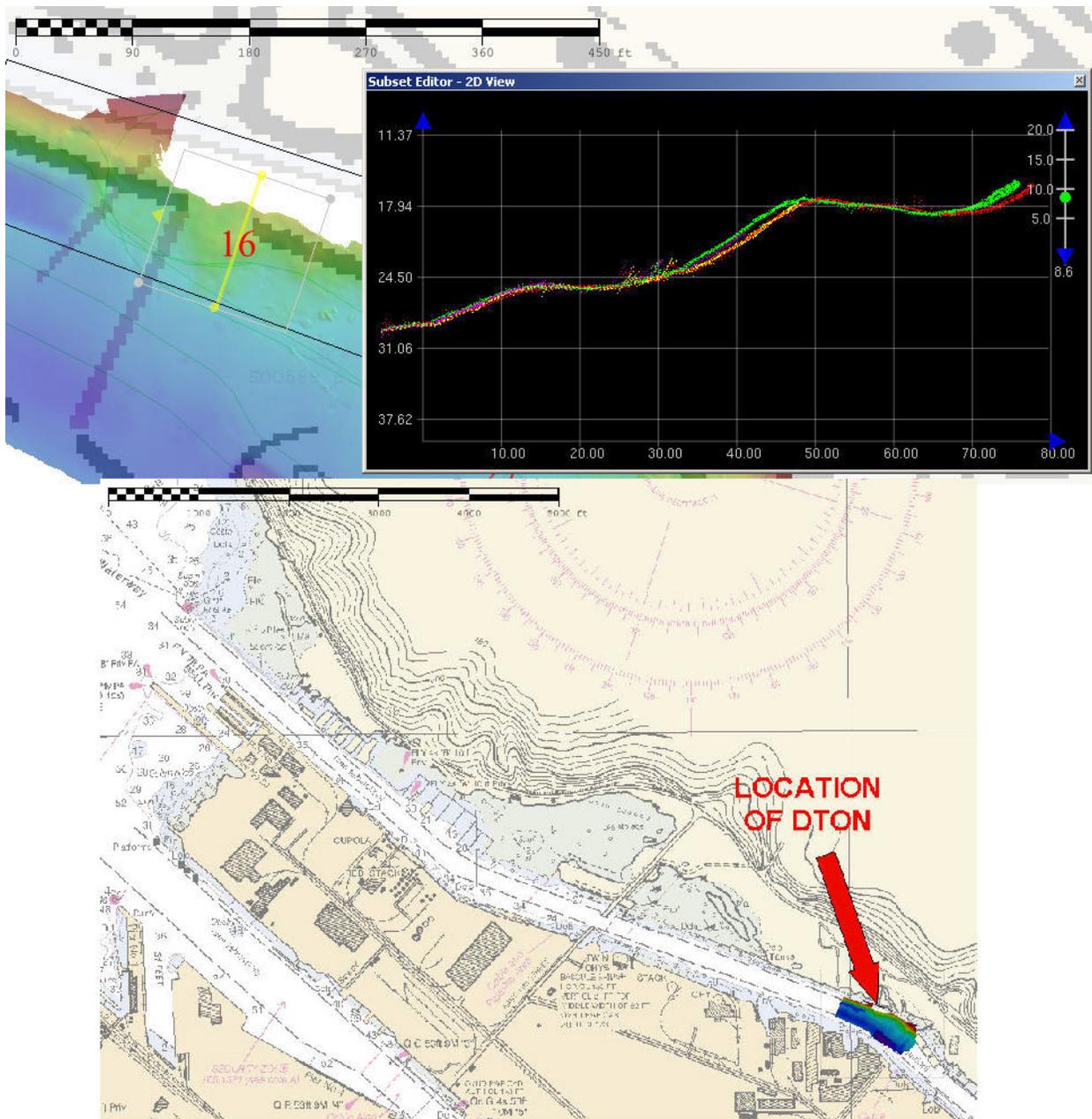


Figure 1.1.1



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : July 29, 2010

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: S-N909-NRT3-2010
HYDROGRAPHIC SHEET: F00589

LOCALITY: Hylebos and Sitcom Waterways, Commencement Bay, WA
TIME PERIOD: July 19, 2010

TIDE STATION USED: 944-6484 Tacoma, WA
Lat. 47° 16.0'N Long. 122° 24.7' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.331 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project S-N909-NRT3-2010, F00589 on July 19, 2010

Please use the zoning file "N909NRT32010CORP" submitted with the project instructions for S-N909-NRT3-2010. Zone PS178 is the applicable zone for F00589.

Refer to attachments for zoning 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).

Note 2: The datum at 9446484 Tacoma, WA has been updated since Project Instructions were written. The MLLW value was adjusted from 0.174m to 0.177m above station datum. The difference of 0.003m should not affect the preliminary zoning.

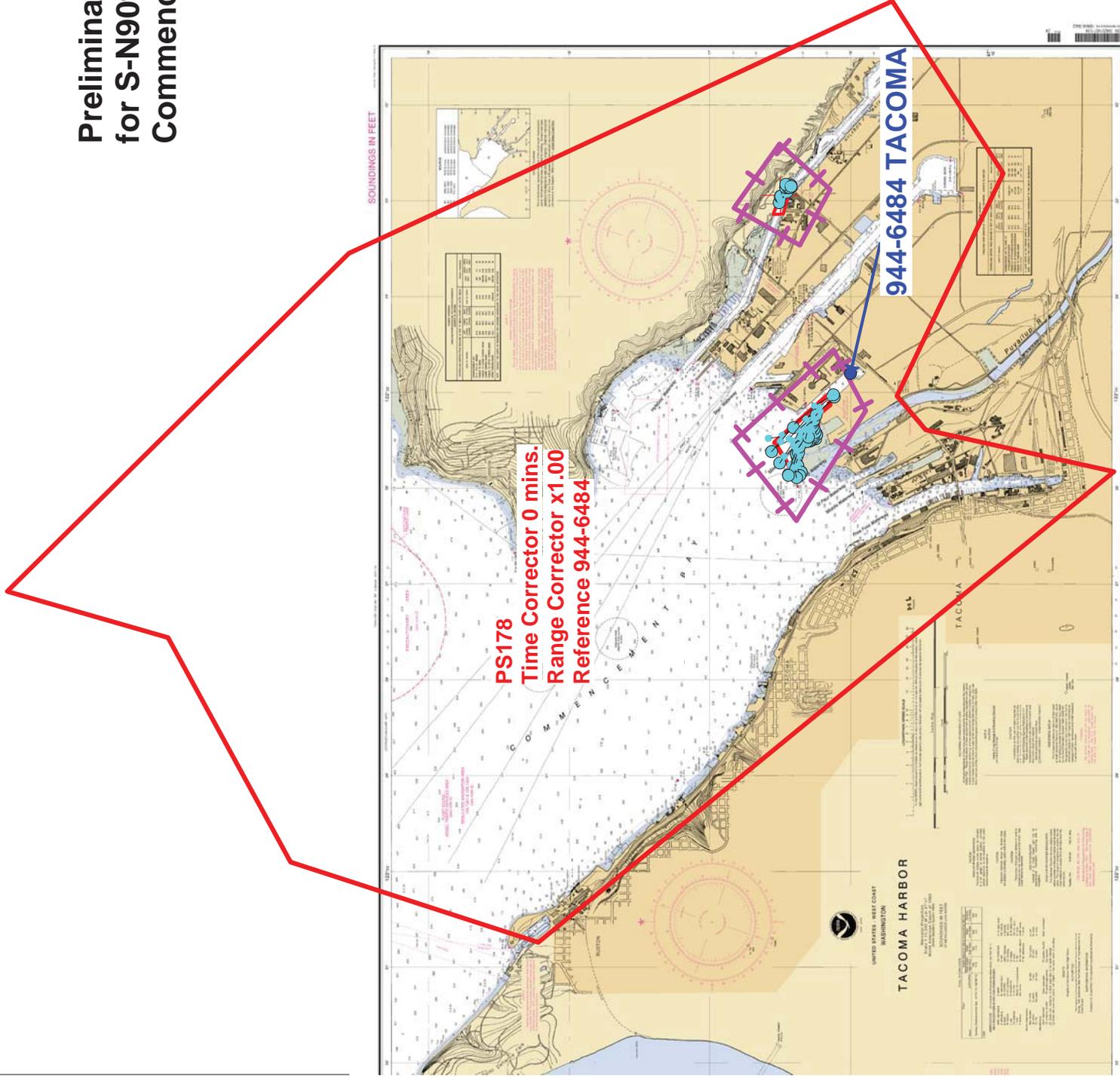
Peter J. Stone

Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=NOAA/NOS/CO-OPS,
ou=Oceanographic Division, email=peter.stone@noaa.gov, c=US
Date: 2010.08.02 07:42:10 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION



Preliminary as Final Tidal Zoning for S-N909-NRT3-2010, F00589 Commencement Bay, WA



PS178
Time Corrector 0 mins.
Range Corrector x1.00
Reference 944-6484

944-6484 TACOMA

From Gary Nelson <Gary.Nelson@noaa.gov>

Sent Thursday, August 19, 2010 9:18 am

To Dan.Jacobs@noaa.gov

Cc "Law >> \"Lawrence.T.Krepp\" <Lawrence.T.Krepp@noaa.gov>

Subject Re: [Fwd: F00589]

Attachments vCard(gary_nelson)

1K

Dan,

It turns out the Puget Sound Pilots are concerned about the area. They do know there is a shoal there and try to avoid it but, they do not know the extent. They do not feel a Danger to Navigation needs to be issued - the new tabulated depth covers the issue. I will suggest MCD update the tabulated depth to 16.7'

The Pilots would really like to see a sounding plot of the shoal - the shoal sounding and surrounding sounding in the turn area. Could you put together a page size sounding plot of the area (in charting units - ft)? A MapInfo Workspace would work.

Thanks,

Gary

> Roger That. Thanks Gary.

>

> ----- Original Message -----

> From: Gary Nelson <Gary.Nelson@noaa.gov>

> Date: Monday, August 16, 2010 3:34 pm

> Subject: Re: [Fwd: F00589]

> To: Dan.Jacobs@noaa.gov

> Cc: Larry Krepp <Lawrence.T.Krepp@noaa.gov>

>

>

>

>> Dan,

>>

>> I don't think it is a big problem. I'll discuss the issue with MCD

>> and

>> the Pilots. I know they were very interested in having an extra foot

>> or

>> two. The difference between 16' and 17' may be important. Just need

>> to

>> let them know there are 3"s less than tabulated.

>>

>> Thanks,

>>

>> Gary

>> > Thanks Larry,

>> >

>> > I did let the USACE rep (robert.m.parry@usace.army.mil) on our

>> project instructions know about the sounding via email on 12AUG and

>> gave him a screen grab of the shoal. Didn't hear back from him yet so

>> thought we'd error on the side of caution and proceed with the DtoN anyway.

>> >

>> > Gary, sorry. I'll try to be in contact with you more next time

>> before submitting. Looks like it opened a big can of worms.
>> >
>> > Regards,
>> >
>> > Dan Jacobs
>> > NRT3
>> >
>> > ----- Original Message -----
>> > From: Larry Krepp <Lawrence.T.Krepp@noaa.gov>
>> > Date: Monday, August 16, 2010 12:14 pm
>> > Subject: [Fwd: F00589]
>> > To: Dan Jacobs <Dan.Jacobs@noaa.gov>, Barry Jackson
>> <Barry.Jackson@noaa.gov>, Ian Colvert <Ian.Colvert@noaa.gov>,
>> Christopher Hare <Christopher.Hare@noaa.gov>
>> >
>> >
>> >
>> >> NRT3,
>> >>
>> >> FYI. Submit this one to PHB.
>> >>
>> >> Larry
>> >> ----- Original Message -----
>> >>
>> >>
>> >> From Jeffrey Ferguson <Jeffrey.Ferguson@noaa.gov>
>> >>
>> >>
>> >> Date Mon, 16 Aug 2010 15:12:27 -0400
>> >>
>> >>
>> >> To "Christopher, Hare" <Christopher.Hare@noaa.gov>, Lawrence T
>> Krepp
>> >> <Lawrence.T.Krepp@noaa.gov>
>> >>
>> >>
>> >> Cc Kyle Ward <Kyle.Ward@noaa.gov>, Richard T Brennan
>> >> <Richard.T.Brennan@noaa.gov>, Gary Nelson <Gary.Nelson@noaa.gov>
>> >>
>> > Subject F00589
>> >
>> >> NRB,
>> >>
>> >> Survey F00589, NRT3 in Commencement Bay, WA - I'd like to request
>> >>
>> >> that
>> >> the survey be submitted to PHB, instead of AHB as currently
>> stated in
>> >>
>> >> survey tracker and in the project instructions.
>> >>

>> >> PHB as part of their Nav Manager assistance duties have been
>> working
>> >>
>> >> closely with the port and pilots and are intimately familiar with
>> the
>> >>
>> >> area, issues and purpose of the survey.
>> >>
>> >> Let me know if you have any questions/concerns with this request.
>> >>
>> >> Many thanks,
>> >> Jeff
>> >>
>>
>>

From [president <president@pspilots.org>](mailto:president@pspilots.org)

Sent Monday, August 23, 2010 8:01 am

To Dan.Jacobs@noaa.gov

Subject RE: Hylebos waterway shoaling

Dan, thanks for the overlay.... it is a big help. It looks like the channel is okay for the moment and will need to be monitored over time. We usually run ships in there 33-35 feet so shoaling is a concern....

Regards, Andy

Capt. Frantz A. Coe (Andy)
President
Puget Sound Pilots
101 Stewart Street, Suite 900
Seattle, Washington 98101
(206) 518-5444
president@pspilots.org
www.pspilots.org

-----Original Message-----

From: Dan.Jacobs@noaa.gov [[mailto: Dan.Jacobs@noaa.gov](mailto:Dan.Jacobs@noaa.gov)]

Sent: Monday, August 23, 2010 7:49 AM

To: president@pspilots.org

Cc: Gary.Nelson@noaa.gov; Nick Forfinski; Lawrence.T.Krepp; Christopher Hare

Subject: Hylebos waterway shoaling

Good day,

I'm Dan Jacobs, a field technician with NOAA's Navigation Response Team 3. Last month our team visited the the Hylebos Waterway near the Port of Tacoma to verify reported shoaling at the bend, between the E 11th St Bridge and the Lower Turning Basin.

One sounding just on the inside edge of the channel measured 16.7 feet with our Multibeam Echosounder. The shoal appears to be migrating into the federally maintained channel.

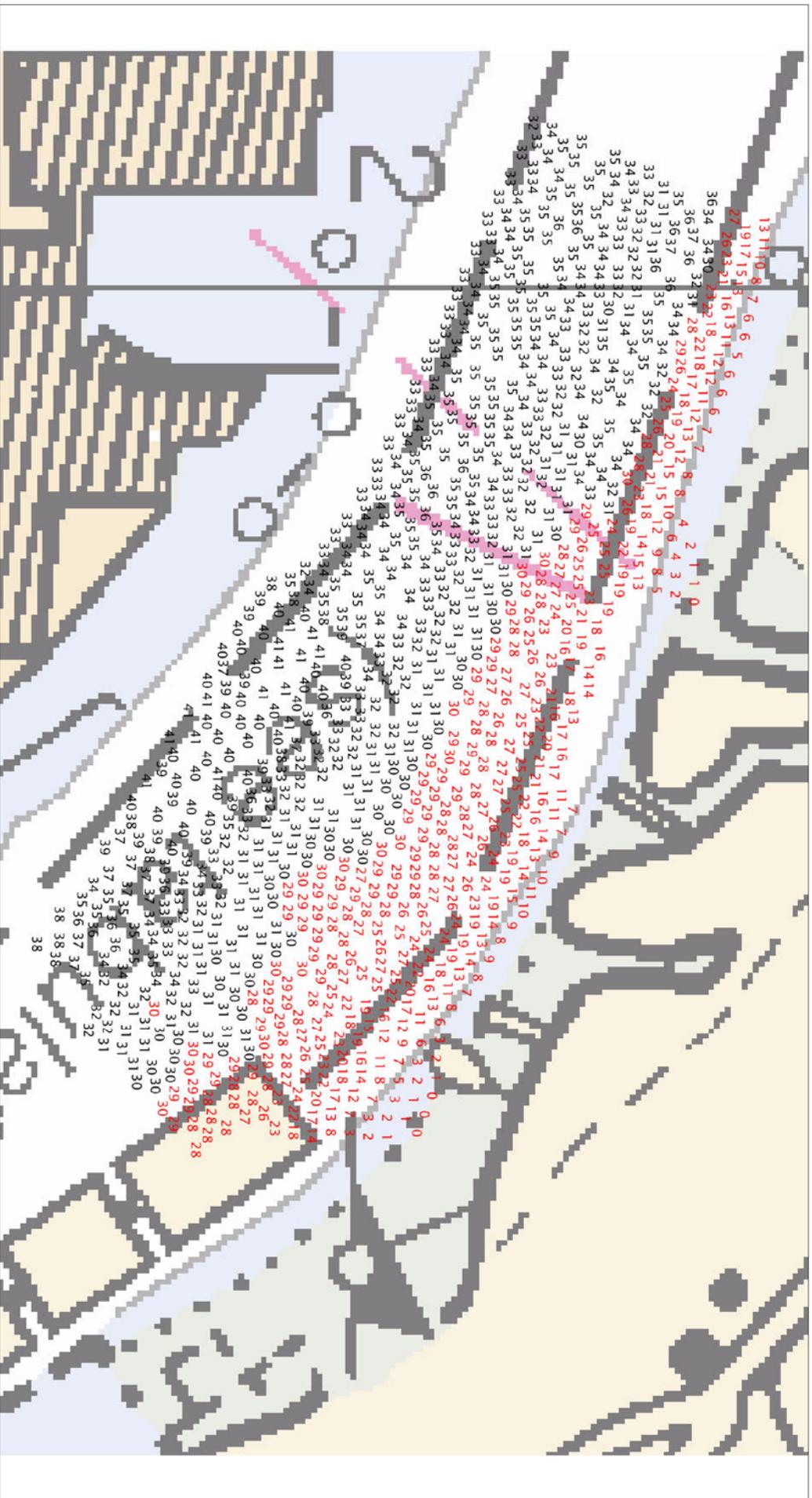
Attached is a plot of soundings for that area. It should be noted that the Army Corps of Engineers has tabulated the depths for this area (outside left quarter of channel) be 17 feet. Our hope is that this sounding plot will lend perspective to the trend of shoaling in this area.

On the attached chartlet (chart 18453), the area of interest is overlain with current (19July2010) soundings in feet. Soundings 30 feet and less are color coded red. Soundings over 30 feet are color coded black.

Please don't hesitate to call me at 206 402 2500. Also, NOAA's Regional Navigation Manager, Gary Nelson can be reached at 206 526 6835.

Best Regards,

Dan Jacobs
Physical Science Technician
NOAA/Navigation Response Team 3



Chartlet 1 of 1

Preliminary Data - Hylbs Waterway between E. 11th ST Bridge and Lower Turning Basin
 Preliminary data subject to office review. Soundings corrected using preliminary observed tides.
 Data reflects state of sea floor in existence on day and at time the survey was conducted.

This chartlet has been corrected through
 Notice to Mariners dated 07/19/2010
NOT FOR NAVIGATION.



**NATIONAL OCEANIC AND
 ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SERVICE**

Project: OPR-N909-NRT3-10
 Survey: F00589
 State: Washington
 Locality: Commencement Bay
 Sub-locality: Hylbs Waterway
 Survey Scale: 1:10,000

Sounding Units: Feet
 Sounding Datum: MLLW
 Horizontal Datum: NAD 83
 Chart Number: 18453
 Chart Edition: 26, Jul/10
 NOS Ref:

**NOAA NRT-3
 Nick Fortinski
 Team Leader**
 Survey Dates: July 19 to
 July 20, 2010

From <Dan.Jacobs@noaa.gov>

Sent Thursday, October 7, 2010 2:33 pm

To president@pspilots.org

Subject a few new soundings in Sitcum

Attachments [Sitcum_Soundings_for_pilots_10mrad.jpg](#)

2.6MB

Good day,

Attached is a recent sounding plot of the Sitcum Waterway collected by NOAA's Navigation Response Team 3. New soundings (the smaller numbers overlain on chart 18453) were acquired along the new pier face last July per the request of NOAA's Regional Navigation Manager, Gary Nelson (gary.nelson@noaa.gov).

Also, our survey team collected soundings to the north and west of Sitcum Waterway to define the extents of a shoal near the Puyallup Waterway's mouth.

-Our soundings were in good, general agreement with Charted (18453) soundings in the Sitcum Waterway.

-Some minor shoaling however is evident at the mouth of the Puyallup Waterway.

Also, to keep you abreast of a recent change in personnel, Matthew Ringel has now assumed Gary Nelson's position as NOAA's Regional Navigation Manager for the Northwest locale. His contact information is as follows:

LT Matthew Ringel (NOAA CORPS)

Phone 206 526 6835

matthew.ringle@noaa.gov

Thanks again,

Dan Jacobs

Acting Team Lead, NOAA/NRT3

Phone 206 402 2500

F00589 HCell Compilation Report

Martha Herzog, Physical Scientist
Pacific Hydrographic Branch

1.0 Specifications, Standards and Guidance Used in HCell Compilation

HCell compilation of survey F00589 used:

Office of Coast Survey HCell Specifications: Version: 6.1
Processing Branches Standards for HCell Compilation, Version 1.0

2.0 Compilation Scale

Depths and features for HCell F00589 were compiled to the largest scale raster charts shown below:

Chart	Scale	Edition	Edition Date	NTM Date
18453	1:15,000	26th	07/01/2010	07/30/2011

The following ENC's were also used during compilation:

Chart	Scale
US5WA22M	1:15,000

3.0 Soundings

A survey-scale sounding (SOUNDG) feature object layer was built from the 2-meter Combined Surface in CARIS BASE Editor. A shoal-biased selection was made at 1:7,000 survey scale using a Radius Table file with values shown in the table, below.

Shoal Limit (m)	Deep Limit (m)	Radius (mm)
0	10	3
10	20	4
20	50	4.5
50	200	5

In CARIS BASE Editor soundings were manually selected from the high density sounding layers (SS) and imported into a new layer (CS) created to accommodate chart density depths. Manual selection was used to accomplish a density and distribution that closely represents the seafloor morphology.

4.0 Depth Contours

Depth contours at the intervals on the largest scale chart are included in the *_SS HCell for MCD raster charting division to use for guidance in creating chart contours. The metric and fathom equivalent contour values are shown in the table below.

Chart Contour Intervals in Feet from Chart 18453	Metric Equivalent to Chart Feet, Arithmetically Rounded	Metric Equivalent of Chart Feet, with NOAA Rounding Applied	Feet with NOAA Rounding Applied	Feet with NOAA Rounding Removed for Display on F00589_SS.000
0	0	.2286	0.125	0
6	1.288	2.0574	6.75	6
12	3.6576	3.8862	12.75	12
18	5.4864	5.715	18.75	18
30	9.144	9.3726	30.75	30

Contours have not been deconflicted against shoreline features, soundings and hydrography, as all other features in the *_CS file and soundings in the *_SS have been. This may result in conflicts between the *_SS file contours and HCell features at or near the survey limits. Conflicts with M_QUAL representing MLLW, should be expected. HCell features should be honored over *_SS.000 file contours in all cases where conflicts are found.

5.0 Meta Areas

The following Meta area objects are included in HCell F00589:

M_QUAL

The M_QUAL area object was constructed on the basis of the limits of the hydrography.

6.0 Features

Features addressed by the field units are delivered to PHB where they are deconflicted against the hydrography and the largest scale chart. These features, as well as features to be retained from the chart and features digitized from the Base Surface, are included in the HCell. The geometry of these features may be modified to emulate raster chart scale.

7.0 Spatial Framework

7.1 Coordinate System

All spatial map and base cell file deliverables are in an LLDG geographic coordinate system, with WGS84 horizontal, MHW vertical, and MLLW (1983-2001 NTDE) sounding datums.

7.2 Horizontal and Vertical Units

DUNI, HUNI and PUNI are used to define units for depth, height and horizontal position in the chart units HCell, as shown below.

Depth Units (DUNI):	Feet
Height Units (HUNI):	Feet
Positional Units (PUNI):	Meters

During creation of the HCell in CARIS BASE Editor and CARIS S-57 Composer, all soundings and features are maintained in metric units with as high precision as possible. Depth units for soundings measured with sonar maintain millimeter precision. Depths on rocks above MLLW and heights on islets above MHW are typically measured with range finder, so precision is less. BASE Editor and S-57 Composer units and precision are shown below.

Sounding Units: Meters rounded to the nearest millimeter
 Spot Height Units: Meters rounded to the nearest decimeter

See the HCell Reference Guide for details of conversion from metric to charting units, and application of NOAA rounding.

8.0 Data Processing Notes

There were no significant deviations from the standards and protocols given in the HCell Specification and HCell Reference Guide.

9.0 QA/QC and ENC Validation Checks

PHB HCells are subjected to QA checks in S-57 Composer prior to exporting to the final HCell (000) file. dKart Inspector is then used to further check the final data set for conformity with the S-58 ver. 2 standard (formerly Appendix B.1 Annex C of the S-57 standard). All tests are run and warnings and errors investigated and corrected unless they are MCD approved as inherent to and acceptable for HCells.

10.0 Products

10.1 HSD, MCD and CGTP Deliverables

CS HCell, Chart Units, Soundings and features compiled to chart scale.	F00589_CS.000
SS HCell, Chart Units, Soundings and Contours compiled to survey scale.	F00589_CS.000
HCell Report for MCD RNC Division.	F00589_HR.pdf
Descriptive Report including end notes compiled during office processing, the HCell Compilation Report, supplemental items, and signature Approval page.	F00589_DR.pdf
Features Listing	F00589_FL.txt
Survey Outline for SURDEX	F00589_Outline.gml and F00589_Outline.xsd
DAPR	S-N909-NRT3-2010-DAPR.pdf

11.0 Software

CARIS HIPS Ver. 7.0	Inspection of Combined BASE Surfaces.
CARIS BASE Editor Ver. 3.2	Creation of soundings and bathy-derived features, creation of the meta area objects, and Blue Notes; Survey evaluation and verification; Initial HCell assembly.
CARIS S-57 Composer Ver. 2.2	Final compilation of the HCell, make corrections to geometry and build topology, apply final attributes, export the HCell, and perform preliminary QA tests.
CARIS GIS 4.4a	Setting the sounding rounding variable for conversion of the metric HCell to NOAA charting units with NOAA rounding. (For Fathoms and Feet chart units HCells only.)
CARIS HOM Ver. 3.3	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding. (For Fathoms and Feet chart units HCells only.)
CARIS Plot Composer	Generate plots of CARIS Session files used for QC.
HydroService AS, dKart Inspector Ver. 5.1, SP 1	Validation of the final *_CS.000 HCell file.

12.0 Contacts

Inquiries regarding this HCell content or construction should be directed to:

Martha Herzog
Physical Scientist
Pacific Hydrographic Branch
Seattle, WA
206-526-6730
Martha.herzog@noaa.gov

APPROVAL SHEET
F00589

Initial Approvals:

The survey evaluation and verification has been conducted according to branch processing procedures and the HCell compiled per the latest OCS HCell Specifications.

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, S-57 classification and attribution of soundings and features, cartographic characterization, and verification or disproof of charted data within the survey limits. The survey records and digital data comply with OCS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.

I have reviewed the HCell, accompanying data, and reports. This survey and accompanying digital data meet or exceed OCS requirements and standards for products in support of nautical charting except where noted in the Descriptive Report.