H11113

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. RA-10-02-03

Registry No. H-11113

LOCALITY

State Alaska

General Locality Sitka Sound

Sublocality North Krestof Sound and Neva Strait

2003

CHIEF OF PARTY
CAPT James C. Gardner, NOAA

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H11113

HYDROGRAPHIC TITLE SHEET

INSTRUCTIONS The hydrographic sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the office.

FIELD NO.
RA-10-02-03

State: Alaska

General Locality: Sitka Sound

Sublocality: North Krestof Sound and Neva Strait

Scale: 1:10,000

Date of Survey: 4/22/2003 - 6/12/2003

Instructions Date: 4/21/2003

Project No.: OPR-O112-RA-03

Vessel: NOAA Ship launches 2121, 2122, 2124, 2125, 2127

Chief of Party: CAPT J. C. Gardner, NOAA

Surveyed by: RAINIER Personnel

Soundings taken by echo sounder: Knudsen 320M, Reson SeaBat 8125, Seabeam/Elac 1180

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Evaluation by: R. Davies

Automated plot by: HP Designjet 1050C

Verification by: R. Davies, E. Domingo

Soundings in: Fathoms and tenths at MLLW

REMARKS: Time in UTC. UTM Projection Zone 8

Revisions and annotations appearing as endnotes were generated during office processing.

All separates are filed with the hydrographic data.

As a result, page numbering may be interrupted or non-sequential

Descriptive Report to Accompany Hydrographic Survey H11113

Project OPR-O112-RA-03
Sitka Sound, Alaska
Scale 1:10,000
April-June 2003
NOAA Ship RAINIER
Chief of Party: Captain James C. Gardner, NOAA

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-O112-RA-03, dated April 21, 2003, and the Draft Standing Project Instructions dated March 21, 2001. The survey area is located from Salisbury Sound, North of Sitka to Sitka Sound Southwest of Sitka. This survey corresponds to sheet "I" in the sheet layout provided with the Letter Instructions.

One hundred percent shallow-water multibeam (SWMB) coverage was obtained in the survey area in waters 8 meters and deeper. In waters from 4 meters to 8 meters, as appropriate for survey, additional coverage was obtained to acquire least depths over features or shoals. Vertical-beam echo sounder (VBES) data were acquired in depths from 4 to 20 meters to define the four-meter curve and to aid in the planning of SWMB data acquisition. [1]
Data acquisition was conducted from April 22 to June 12, 2003 (DN 112 to 163).

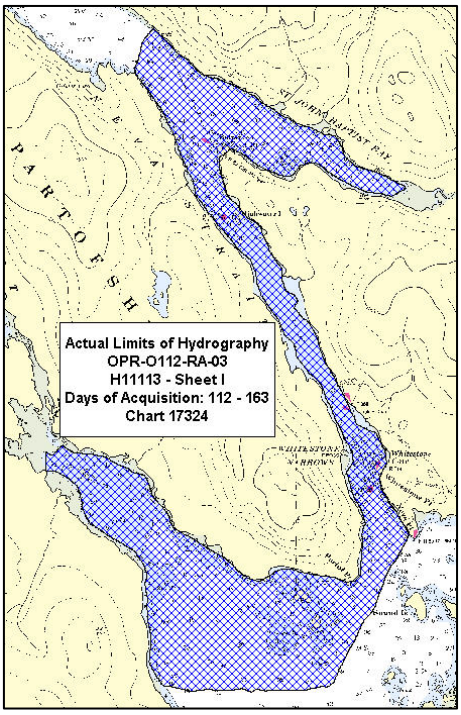

Figure 1. H11113 Survey Limits.

B. DATA ACQUISTION 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 *OPR-O112-RA-03 Data Acquisition and Processing Report* (DAPR), submitted under separate cover. [2] Items specific to this survey, and any deviations from the aforementioned report are discussed in the following sections.

B1. Equipment and Vessels

Data were acquired by RAINIER and her survey launches RA1, RA2, RA4, RA5, and RA7. Vessels RA4 and RA5 were used to acquire shallow-water multibeam (SWMB) soundings and sound velocity profiles. Vessels RA1, RA2, and RA7 were used to acquire vertical-beam echo soundings (VBES) and detached positions (DPs) for shoreline verification. Vessel RA2 was also used to collect bottom samples.

No unusual vessel configurations were used for data acquisition.[3]

B2. Quality Control

Crosslines

Vertical Beam Echo Sounder (VBES) crosslines including buffer lines totaled 32.30 nautical miles, comprising 43.35% of mainscheme hydrography. Crosslines generally agreed within 1 meter of mainscheme hydrography.

Shallow-Water Multibeam (SWMB) crosslines totaled 21.66 nautical miles, comprising 11.49% of SWMB hydrography. The mainscheme bathymetry was manually compared to the XL nadir beams in CARIS subset mode and agreed well with differences averaging approximately 0.5 meter.

A statistical Quality Control Report has been conducted on representative data collected with each system used on this survey and is included in the *OPR-O112-RA-03 DAPR*. All systems collect data that meet IHO order 2 specifications. [4]

Data accuracy standards for this survey have been met.

Junctions

The following contemporary survey junctions with H11113:[5]

Registry #	Scale	Date	Junction side
H11112	1:10,000	2003	North

Survey H11112 junctions well with this survey, a cursory comparison indicates differences are generally less than one fathom. [6]

Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after the application of smooth tides.[7]

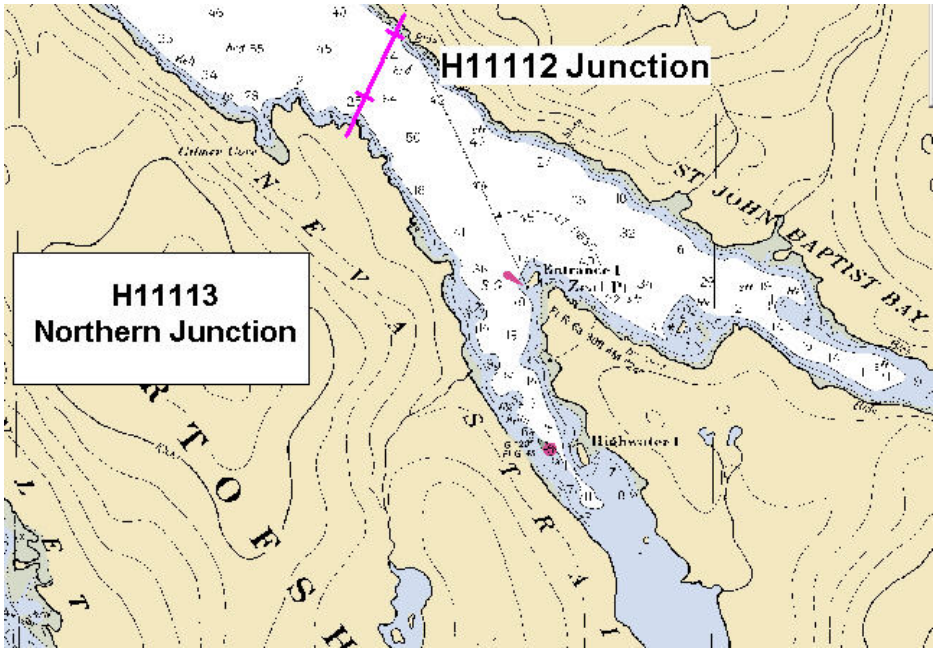

Figure 2. H11113 Junction Surveys.

Data Quality Factors

In the northern most bay of Krestof Sound, SWMB data exhibited the characteristic "smiles" and "frowns" indicative of inaccurate sound velocity corrections. This proved to be problematic in the acquisition; data was rejected and rerun on a different day with a geographically close sound velocity cast. Despite the best efforts of the Hydrographer to conduct sufficient sound velocity casts distributed both spatially and temporally, sound velocity errors were still noticeable in this area. To compensate, the Hydrographer, where possible, rejected soundings obviously in error on the outer beams.[8]

B3. Data Reduction

Data reduction procedures for survey H11113 conform to those detailed in the *OPR-O112-RA-03 DAPR.* [9]

C. VERTICAL AND HORIZONTAL CONTROL

A complete description of vertical and horizontal control for survey H11113 can be found in the *OPR-O112-RA-03 Horizontal and Vertical Control Report*, submitted under separate cover.[10] A summary of horizontal and vertical control for this survey follows.

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. Differential corrections from the U.S. Coast Guard beacon at Biorka Island (305 kHz) were utilized during this survey. Launch-to-launch DGPS performance checks using U.S. Coast Guard beacon Level Island (295 kHz) as the check station were performed weekly in accordance with Section 3.2 of the FPM. Copies of the performance checks are included in the *OPR-O112-RA-03 Horizontal and Vertical Control Report*.

Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) primary tide station at Sitka, AK (945-1600) served as control for datum determination and as the primary source for water level reducers for survey H11113.

RAINIER personnel installed Sutron 8210 "bubbler" tide gauges at the following subordinate stations to provide information for N/OPS1 to determine time and height correctors in accordance with the Project Instructions:

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Station Name	Station Number	Type of Gauge	Date of Installation	Date of Removal
Scraggy Island	945-1805	30-day	April 21, 2003	June 24, 2003
Golf Island	945-1421	30-day	May 8, 2003	June 26, 2003

Table 1. Summary of OPR-0112-RA-03 tide stations established by RAINIER in 2003.

All data were reduced to MLLW using unverified observed tides from station 945-1600 (Sitka, AK) using the tide file 9451600.tid and time and height correctors using the zone corrector file 0112RA2003CORP.zdf.

The Pacific Hydrographic Branch will apply final approved (smooth) tides to the survey data during final processing. A request for delivery of final approved (smooth) tides for survey H11113 was forwarded to N/OPS1 on June 25, 2003. [11] A copy of the request is included in Appendix IV.[12]

D. RESULTS AND RECOMMENDATIONS

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

No AWOIS items were located within the limits of sheet H11113.[13]

D.2 Chart Comparison

Survey H11113 was compared with charts 17324_1 (13th Ed.; March 25, 1989, 1:40,000), chart 17324_2 (13th Ed.; March 25, 1989, 1:20,000). [14]

Chart 17324

Depths from survey H11113 agreed within one to two fathoms of charted soundings on chart 17324_1. In many instances, this survey found shoaler soundings between charted soundings even though agreement at the position of the charted depths was good. This can be attributed to increased bottom coverage using SWMB methods. One charted sounding was shoaler than found on this survey. The charted 24 fathoms 57°13'20.83" N 135°34'10.37" W (465608.17, 6342292.4) was found to be 31 fathoms[15].

Chart 17324 (Inset)

Depths from survey H11113 agreed within one to two fathoms of charted soundings on chart 17324 inset. In many instances, this survey found shoaler soundings between charted soundings even though agreement at the position of the charted depths was good. This can be attributed to increased bottom coverage using SWMB methods. This survey found the channel south of Whitestone Rocks to be slightly wider than charted. The 10 fathom contour is approximately 10 m closer to shore on the west side and approximately 20 m closer to shore on the east side of the channel. This is expected on a steep slope given the greater resolution of SWMB versus the single beam data acquired in prior surveys.

The Hydrographer has determined that data accuracy standards and bottom coverage requirements have been met and survey data are adequate to supersede charted data in their common areas. [16] Final chart comparisons will be made at the Pacific Hydrographic Branch after the application of smooth tides. [17]

D.3 Shoreline

Shoreline Source

Vector photogrammetric projects AK9703A, A9703B, and AK902A were supplied by N/NGS3 in the form of cartographic feature files (CFF). RAINIER conducted limited shoreline verification of the CFF. In the absence of CFF MHW or CFF MLLW RAINIER personnel digitized the largest scale charts in MapInfo and displayed in HYPACK for field verification. In addition, features shown on the current editions of chart 17324 that were not depicted on the shoreline source document were digitized in MapInfo by RAINIER personnel and displayed in Hypack for field verification.[18]

Shoreline Verification

Limited shoreline verification was conducted near predicted low water in accordance with the Standing Project Instructions and FPM sections 6.1 and 6.2. Detached positions (DPs) taken during shoreline verification were recorded in HYPACK and on DP forms, and processed in Pydro. These indicate revisions to features and features not found on the verified shoreline. In addition, annotations describing shoreline were recorded on hard copy plots of digital shoreline. DP forms [19]are included in Section I of the *Separates to be Included with Survey Data.*

A detailed Detached Position and Bottom Sample plot MapInfo format is provided showing all detached positions and bottom samples with notes relating to each feature. The updated shoreline and features are also depicted on the final sounding plot. Verified CFF shoreline that did not require revision is in MapInfo table H11113_Shoreline and shown in black. New MHW features and changes to the MHW shoreline, CFF or charted, are displayed in red on the "H11113_ShorelineUpdates" Mapinfo table. Charted shoreline, when used for reference purposes or when source data were not available, is depicted in the MapInfo table "H11113_Charted_Shoreline." and displayed in brown. Charted (17324) rocks, not included in CFF, were visually verified and included in the MapInfo table "H11113_Charted_Rocks." Field notes made by the Hydrographer, including verification of source features or charted features if no source shoreline was available are submitted in the digital MapInfo file "H11113_ShorelineNotes." [20]

Source Shoreline Changes and New Features

Items for survey H11113, that needed further discussion and are associated with a detached position, have been flagged "Report" in Pydro in H11113.pss.[21] Investigation/survey methods and recommendations are listed in the Remarks and Recommendation tabs. A report with these items was generated, H11113_Shoreline_Report.pdf, and is located in the supplemental correspondence section of the descriptive report appendices, included in the digital data.

Two CFF islets, upon verification, were not islets and therefore the CFF MHW was adjusted to show the accurate shoreline. CFF islet in Neva Straits at 57°15'48.25" N 135°35'06.33" W; (464708.89, 6346844.44) is connected at high water. The CFF MHW was connected to the mainland MHW. The charted (17324) ledge is MLLW (See Photograph 1). [22]

The CFF islet in North Krestof Sound (57°14'30.25" N 135°37'18.52" W; (462434.88, 6344474.64)), is connected at high water. Charted (17324) MHW and MLLW are accurate (See Photograph 2).[23]

Photograph 1. Photo disproval photograph of large CFF islet in Neva Straits (464708.89, 6346844.44).

Photograph 2. Photo disproval photograph of CFF islet in North Krestof Sound (462434.88, 6344474.64).

Charted Features [24]

Charted (17324) rock at 57°17'01.63" N 135°33'11.27" W; (466655.83, 6349111.9) was not found, it was located in a shoal area and could not be reached by boat. Photograph 3 of the area disproves the existence of the charted rock.[25]

Photograph 3. Photo disproval of a rock, looking at low tide in eastern St. John Baptist Bay.

Several charted (17324) ledges were not depicted in CFF shoreline. Those charted (17324) ledges that were accurate were included in the MapInfo table "H11113_Charted_Shoreline." There were several charted (17324) ledges that were not included in CFF and not found visually. Two specific charted ledges (57°14'49.816"N , 135°33'33.599"W (466247.52E , 6345038.95N); 57°14'53.38"N , 135°33'38.444"W (466167.2E , 6345149.82N) in Whitestone Cove were merely rock crumble and beach. A photo below disproves these ledges. These two and other ledge comments were noted in MapInfo table "H11113_Shoreline_Notes." [26]

Photograph 3. Photo disproval of two ledges in Whitestone Cove, view looking south.

Recommendations

The Hydrographer recommends that the shoreline as depicted on the Detached Position and Bottom Sample MapInfo digital file supersede and complement shoreline information compiled on the CFF and charts as noted. [27]

D.4 Dangers to Navigation

No DTONS were found within the sheet limits of H11113. [28]

D.5 Aids to Navigation

Ten aids to navigation (ATONs) were within the limits of survey H11113. All ATONS were found to be correctly charted and serve their intended purpose.[29]

In 2002, RAINIER conducted independent horizontal control activities to obtain third order positioning for two fixed aids to navigation (ATONs) range lights at Whitestone Narrows. Table 2 contains a summary of this information.

Light List Name	Light List Number	Latitude	Longitude
Channel Range Front Light	25120	57° 15' 11.25879" N	135° 34' 4.87635"
Channel Range Rear Light	25125	57° 15' 14.84438" N	135° 34' 6.64266"
Range Angle: Azimuth (deg True): FRNT to REAR 345.0509, REAR to FRNT 165.0505			

Table 2. Static GPS information for Whitestone Narrows Range Lights.

D.6 Miscellaneous

Bottom samples were collected and are depicted on the Detached Position and Bottom Sample Plot. The bottom samples compared well, with a few exceptions, to historical samples listed on the chart.[30]

The MLLW line of the northern most section of Krestof Sound is up to 500 meters offshore. This was found to be accurate, which prevented the CFF shoreline from being verified. VBES were acquired at higher tide as close to shore as possible.[31]

E. APPROVAL

As Chief of Party, I have ensured that standard processing procedures were followed in producing this examination in accordance with the Hydrographic Manual, Fourth Edition, Hydrographic Survey Guidelines, Field Procedures Manual and the NOS Hydrographic Surveys Specifications and Deliverables, as updated for 2003.

The digital data and supporting records have been reviewed by me, are considered complete and adequate for charting purposes, and are approved. All records are forwarded for final review and processing to N/CS34, Pacific Hydrographic Branch.

Survey H11113 is complete and adequate to supersede charted soundings and features in their common areas. [32] No additional work is required for this survey. [33]

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

Title	Date Sent	Office
Data Acquisition and Processing Report for OPR-O-RA-03	10/9/03	N/CS34
Horizontal and Vertical Control Report for OPR-O112-RA-03	9/8/2003	N/CS34
Tides and Water Levels Package for OPR-O112-RA-03	8/1/2003	N/OPS1
Coast Pilot Report for OPR-O112-RA-03	10/10/03	N/CS26

Approved and Forwarded: John W. Humphrey 10-5-03

John W. Humphrey
Commander, NOAA
Commanding Officer

Date

In addition, the following individuals were also responsible for overseeing data acquisition and processing of this survey:

Survey Sheet Manager: Sarah K. Mrozek

Sarah K. Mrozek
Ensign, NOAA

Field Operations Officer: Richard A. Fletcher

Richard A. Fletcher
Lieutenant Commander, NOAA

Revisions Compiled During Office processing and Certification.

[1] Concur
[2] Filed with the project records.
[3] Concur
[4] After office review this survey meets IHO order 1 in depths less than 100 meters and meets IHO order 2 in depths greater than 120 meters.
[5] Survey H11113 also junctions with H11114 (2004) and H11115 (2004).
[6] Concur
[7] All junction surveys compared within 1 fathom or less. The junction with survey H11113 and surveys H11112, H11114 and H11115 are complete. A "Joins" note has been added to the smooth sheets where applicable.
[8] The data was reviewed during office processing and was found acceptable for charting.
[9] Concur
[10] Filed with the project records.
[11] Approved tide note dated December 18, 2003 is attached.
[12] Filed with the hydrographic records.
[13] Concur
[14] Survey H11113 was compared with chart 17323, 14th Edition, dated January 1, 2005.
[15] The charted 24 fathom depth falls in an area that shoals rapidly to the west near two islets surrounded by a ledge. The evaluator recommends compiling this area based on the survey data..
[16] Concur with clarification. The submerged buoy, covered 12 fathoms charted at latitude 57/17/13N, Longitude 135/36/29W was not specifically addressed by the hydrographer and is recommended to be retained on the chart.
[17] With the application of smooth tides, no changes to the comparison were noticed. This survey is adequate to supersede all charted soundings and features except where noted in this report and as noted on the detached position and bottom sample plot.
[18] CFF shoreline map AK9703a was used for the shoreline on this survey. Changes in the CFF shoreline has been drawn in dashed red on the smooth sheet.
[19] File with the hydrographic records.
[20] Shoreline verification conducted by the hydrographer and portrayed on the detached position plot has been analyzed during office processing and shown on the smooth sheet as warranted. A few minor revisions to the CFF shoreline have been shown in dashed red on the smooth sheet. Numerous charted features are shown in brown inshore of the current hydrography. These items were either visually verified to confirm existence and or were not specifically addressed during shoreline verification.
[21] Filed with the hydrographic data.
[22] Concur. Chart as depicted on the smooth sheet.
[23] Concur. Chart as depicted on the smooth sheet.
[24] See endnote 20. Unless there is more current photogrammetric source data, the evaluator recommends these features be retained as charted.
[25] Concur. Chart as depicted on the smooth sheet.
[26] Concur. Chart as depicted on the smooth sheet.
[27] See endnote 20.
[28] Concur
[29] The evaluator recommends that MCD use the latest information to chart aids to navigation.
[30] Concur. Bottom characteristics have been shown on the smooth sheet as positioned by the present survey.
[31] Chart areas as shown on the smooth sheet.
[32] Concur with clarification. Except as noted in this report.
[33] Concur

H11113 Shoreline Report

Registry Number: H11113

State: Alaska

Locality: Krestof Sound

Sub-locality: North Krestof Sound and Neva Strait

Project Number: OPR-O112-RA-03

Survey Dates: 04/22/2003 - 05/04/2003

Charts Affected

Number	Version	Date	Scale
17324	13th Ed.	03/25/89	1:40000
17320	15th Ed.	03/06/99	1:217828
16016	19th Ed.	07/10/93	1:969756
531	21st Ed.	02/02/02	1:2100000
500	7th Ed.	06/01/96	1:3500000
530	30th Ed.	03/23/02	1:4860700
50	5th Ed.	07/30/94	1:10000000

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Sounding	-0.65 m	57.22035581° N	135.57824057° W	---
1.2	Sounding	-3.69 m	57.22259344° N	135.57306006° W	---
1.3	Sounding	-1.12 m	57.28961317° N	135.58499402° W	---

1 - New Features

1.1) Profile/Beam - 2/1 from H11113 / R7NE_2003 / 2003-124 / DP7124

Survey Summary

Survey Position: 57.22035581° N, 135.57824057° W

Least Depth: -0.65 m

Timestamp: 2003-124.18:23:07.000 (05/04/2003)

DP Dataset: H11113 / R7NE_2003 / 2003-124 / DP7124

Profile/Beam: 2/1

Charts Affected: 17324_1, 17320_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

7124675 new ext CFF ldg

CFF shoreline depicted an island with a ledge and two additional reefs offshore located at 57° 13'14.47" N 135°34'39.7" W; (465114.49, 6342099.84). Upon inspection, the two smaller CFF reefs are connected to the ledge extending off of the island, creating one large ledge. A detached position was taken at the extent of the new ledge.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11113/R7NE_2003/2003-124/DP7124	2/1	0.00	000.0	Primary

Hydrographer Recommendations

The ledge is accurately shown digitally in MapInfo tables "H11113_Shoreline_Updates" and "H11113_CFF_Shoreline." Chart as shown in the DPBS plot.

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (17320_1, 16016_1, 530_1)

0fm 2ft (17324_1, 531_1)

-.7m (500_1, 50_1)

Office Notes

Concur, chart ledge and island as shown on the smooth sheet.

1.2) Profile/Beam - 4/1 from H11113 / R7NE_2003 / 2003-124 / DP7124

Survey Summary

Survey Position: 57.22259344° N, 135.57306006° W

Least Depth: -3.69 m

Timestamp: 2003-124.19:01:03.000 (05/04/2003)

DP Dataset: H11113 / R7NE_2003 / 2003-124 / DP7124

Profile/Beam: 4/1

Charts Affected: 17324_1, 17320_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

7124810 hp chd islet

CFF shoreline shows a reef and two rocks located at 57°13'21.299"N , 135°34'22.523"W (465404.43E , 6342308.69N). During shoreline verification it was clear that the two charted (17324) high water lines within the ledge are accurate. The CFF rock located in the southern islet is not the high point, which is depicted with the detached position. The northern CFF rock was an accurate high point of the ledge and has been removed.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11113/R7NE_2003/2003-124/DP7124	4/1	0.00	000.0	Primary

Hydrographer Recommendations

The islet is accurately depicted in MapInfo files "H11113_Shoreline_Updates," "H11113_Charted_Shoreline" and "H11113_CFF_Shoreline." Chart as shown in the DPBS plot.

Cartographically-Rounded Depth (Affected Charts):

-2fm (17320_1, 16016_1, 530_1)

-2fm 0ft (17324_1, 531_1)

-3.7m (500_1, 50_1)

Office Notes

Concur, chart two islets and a ledge surrounding the two islets. See smooth sheet.

Feature Images

Figure 1.2.1

1.3) Profile/Beam - 2/1 from H11113 / R2NE_2003 / 2003-112 / DP2112

Survey Summary

Survey Position: 57.28961317° N, 135.58499402° W

Least Depth: -1.12 m

Timestamp: 2003-112.19:58:38.000 (04/22/2003)

DP Dataset: H11113 / R2NE_2003 / 2003-112 / DP2112

Profile/Beam: 2/1

Charts Affected: 17324_2, 17324_1, 17320_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

2112451 ext CFF reef

CFF shoreline located in the area of 57°17'20.7" N 135°35'04.25" W; (464768.11, 6349717.36) provided two rocks and three small reefs. During visual and single beam inspection it was determined that the CFF rocks were extents of the two reefs.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11113/R2NE_2003/2003-112/DP2112	2/1	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the CFF reefs be extented to the CFF rocks. The CFF and charted rocks should be removed. This reef is accurately depicted digitally in MapInfo tables, "H11113_CFF_Shoreline," "H1113_Charted_Shoreline," "H11113_Charted_Rocks" and "H11113_CFF_Rocks." Chart as shown in the DPBS plot.

Cartographically-Rounded Depth (Affected Charts):

0 ½fm (17320_1, 16016_1, 530_1)

0fm 3ft (17324_2, 17324_1, 531_1)

-1.1m (500_1, 50_1)

Office Notes

Concur, chart area as shown on the smooth sheet.

Feature Images

Figure 1.3.1

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: December 18, 2003

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-O112-RA-2003
HYDROGRAPHIC SHEET: H11113-revised

LOCALITY: Krestof Sound, Alaska
TIME PERIOD: April 22 - June 12, 2003

TIDE STATION USED: 945-1600 Sitka
Lat. 57° 03.1' N Lon. 135° 20.5'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.791 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SEA201A, SEA200

Refer to attachments for zoning information.

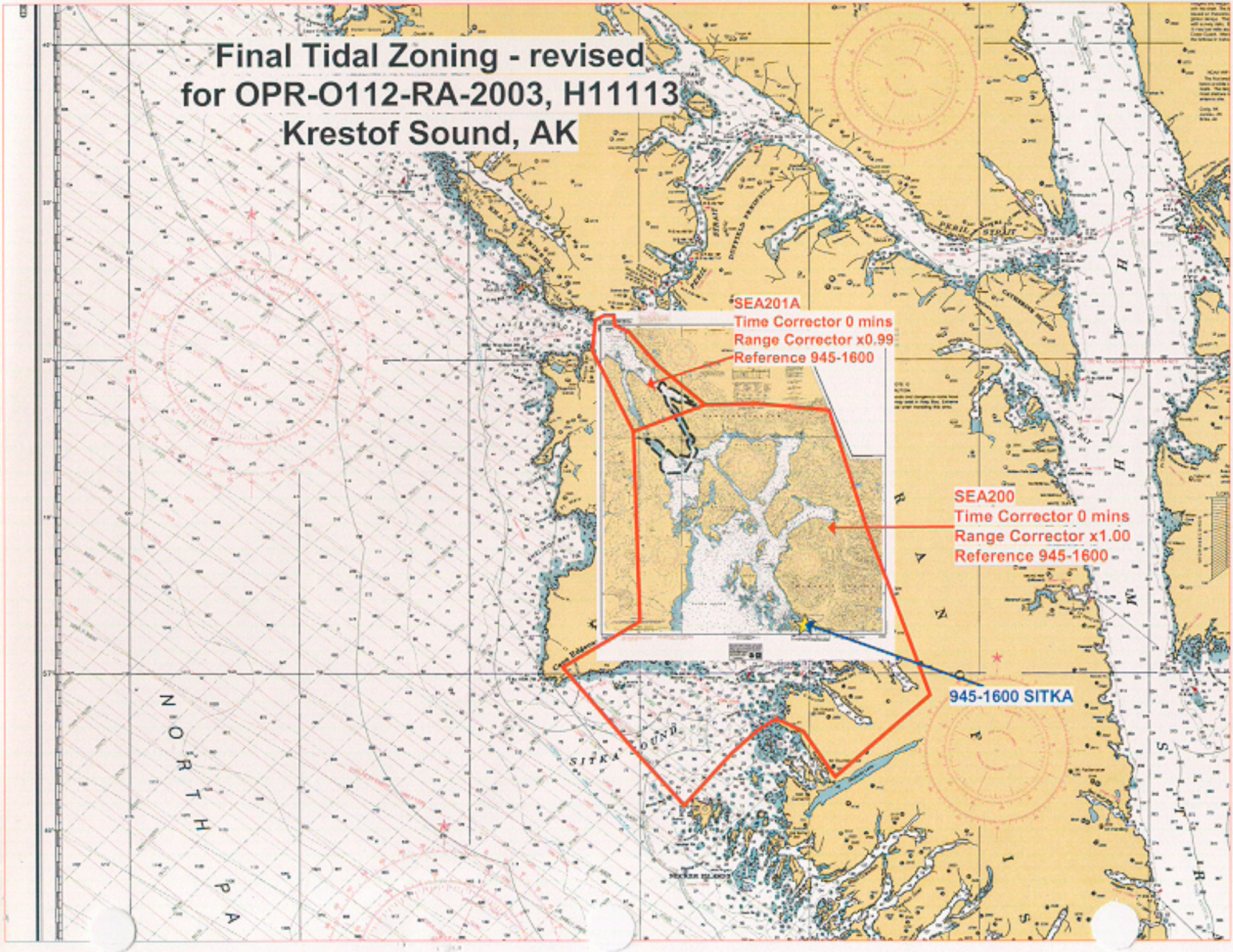
Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the **new 1983-2001 National Tidal Datum Epoch (NTDE).**

For ----------
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

Final tide zone node point locations for OPR-O112-RA-2003, H11113

Format: Tide Station (in recommended order of use)
Average Time Correction (in minutes)
Range Correction
Longitude in decimal degrees (negative value denotes Longitude West),
Latitude in decimal degrees

	Tide Station Order	AVG Time Correction	Range Correction
Zone SEA200	945-1600	0	1.00
-135.578921 56.858887			
-135.484815 56.914845			
-135.434312 56.939104			
-135.398646 56.951288			
-135.345146 56.937479			
-135.283101 56.889312			
-135.096503 56.976245			
-135.219418 57.152377			
-135.294235 57.2785			
-135.435854 57.285735			
-135.536277 57.284567			
-135.677763 57.256337			
-135.665367 57.054404			
-135.816846 57.006056			
-135.678821 56.918667			
-135.578921 56.858887			
Zone SEA201A	945-1600	0	0.99
-135.751821 57.374727			
-135.75757 57.34186			
-135.677763 57.256337			
-135.536277 57.284567			
-135.629869 57.326705			
-135.687406 57.362636			
-135.713991 57.368695			
-135.715543 57.379779			
-135.733426 57.379779			
-135.751821 57.374727			


Final Tidal Zoning - revised
for OPR-O112-RA-2003, H11113
Krestof Sound, AK
SEA201A
Time Corrector 0 mins
Range Corrector x0.99
Reference 945-1600
SEA200
Time Corrector 0 mins
Range Corrector x1.00
Reference 945-1600
945-1600 SITKA
SITKA SOUND
NORTH PA

APPROVAL SHEET
H11113

Initial Approvals:

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The survey records and digital data comply with NOS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.

Bruce Olmstead Date: 5/25/2006

Bruce Olmstead
Cartographic Team
Pacific Hydrographic Branch

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

, CDR/NOAA Date: 15 JUNE 2006

Donald W. Haines
CDR, NOAA
Chief, Pacific Hydrographic Branch

Kyle R. Ward

Digitally signed by Kyle R. Ward
DN: cn=Kyle R. Ward, c=US, ou=HSD, email=Kyle.Ward@NOAA.GOV
Reason: AWOIS and Surf Check Completed
Date: 2006.07.05 10:12:01 -04'00'

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H11113

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
17324	3/10/06	Russ Davis	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via Full application
			Drawing No. of soundings, curves, features from the
			smooth and inset.
17324 (Inset)	3/10/06	Russ Davis	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via Full application
			Drawing No. of soundings, curves and features from the
			smooth sheet.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.