H10950

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-20-02-00

Registry No. H-10950

LOCALITY

State Alaska

General Locality Northern Clarence Strait

Sublocality Shrubby Island to Key Reef and vicinity

2000

CHIEF OF PARTY
Commander D.R. Herlihy, NOAA

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DATE April 5, 2002

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-10950

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-20-02-00

State: Alaska

General locality: Northern Clarence Strait

Locality: Shrubby Island to Key Reef and Vicinity

Scale: 1:20,000 Date of survey: 4/10/00 - 5/9/00

Instructions dated: March 16, 2000 Project No.: OPR-0327-RA-00

Vessel: RA-1(2121), RA-2(2122),RA-3(2123),RA-4(2124),RA-5(2125),RA-6(2126),RA-7(2127) RAINIER(2120)

Chief of party: Commander Daniel R. Herlihy, NOAA

Surveyed by: RAINIER Personnel

Soundings taken by echo sounder, ~~hand lead, pole~~: Knudsen 320M, RESON 8101MB, SeaBeam 1050D, HF&LF, SeaBeam 1180

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Evaluation by: ~~Protracted by~~: M. Bigelow Automated plot by: HP Design Jet 750C

Verification by: M.Bigelow, R. Mayor, E. Domingo, D. Doles

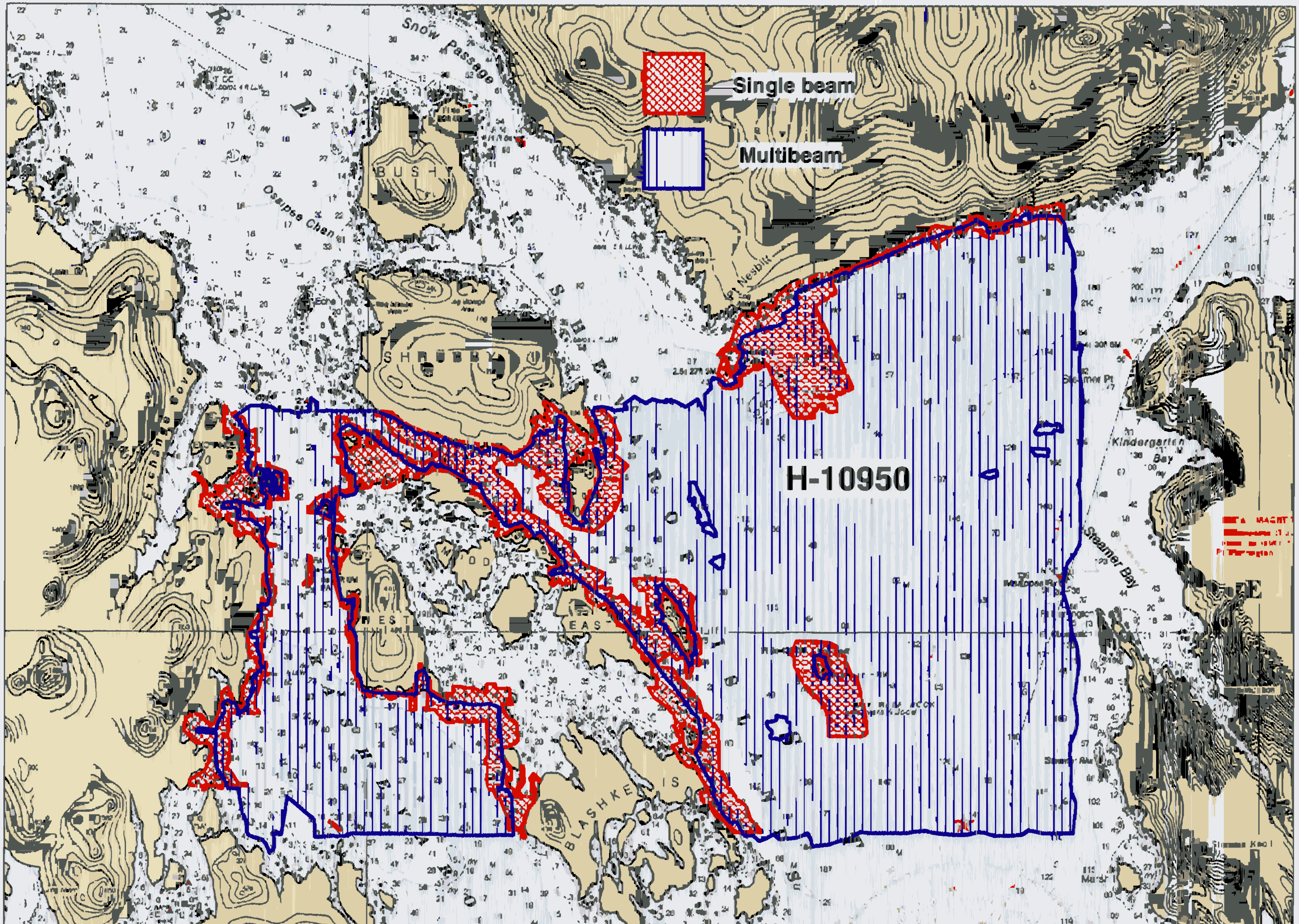
Soundings in fathoms ~~feet~~ at ~~MLW~~ MLLW and tenths

REMARKS: Time in UTC. Revisions and marginal notes in black were generated during office processing. All separates are filed with the hydrographic data, as a result page numbering may be interrupted or non-sequential.

All depths listed in this report are referenced to mean lower low water unless otherwise noted.

AWOIS / SURF 4/3/02 mar

U.S. GOVERNMENT PRINTING OFFICE: 1986 - 652-007/41215



Single beam
Multibeam
H-10950
Snow Passage
Osaipse Chan
Pt Nesbitt
Kindergarten Bay
Steamer Bay
Exchange Cove

Descriptive Report to Accompany Hydrographic Survey H10950

Project OPR-O327-RA-00 Northern Clarence Strait
Scale 1:20,000
April - May 2000
NOAA Ship RAINIER
Chief of Party: CDR Daniel R. Herlihy, NOAA

A. AREA SURVEYED ✓

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-O327-RA-00, dated March 16, 2000, and Draft Standing Project Instructions dated April 6, 1998. Survey H10950 corresponds to Sheet B as defined in the sheet layout. This survey will provide data to supersede charted soundings which originated from Coast and Geodetic Survey (C&GS) hydrographic surveys conducted in the late 1800s and wire drag surveys conducted in the early 1900s, affecting charts 17382 and 17360. The project responds to requests from the Seventeenth U.S. Coast Guard District, Southeast Alaska Pilots Association, and the Alaska Coastwise Pilots Association for contemporary hydrography and a new larger scale chart in the vicinity of Snow Passage and Northern Clarence Strait.

The survey area is located along the northern reaches of Clarence Strait in Southeastern Alaska including the Kashevarof Islands and Kashevarof Passage. The survey's northern limit is latitude 56°16'10"N and the southern limit is latitude 56°07'25"N. The survey's western limit is longitude 133°05'31"W and the eastern limit is longitude 132°44'18"W. 04'05"

Data acquisition was conducted from April 10 to May 09, 2000 (DN 101 to 130).✓

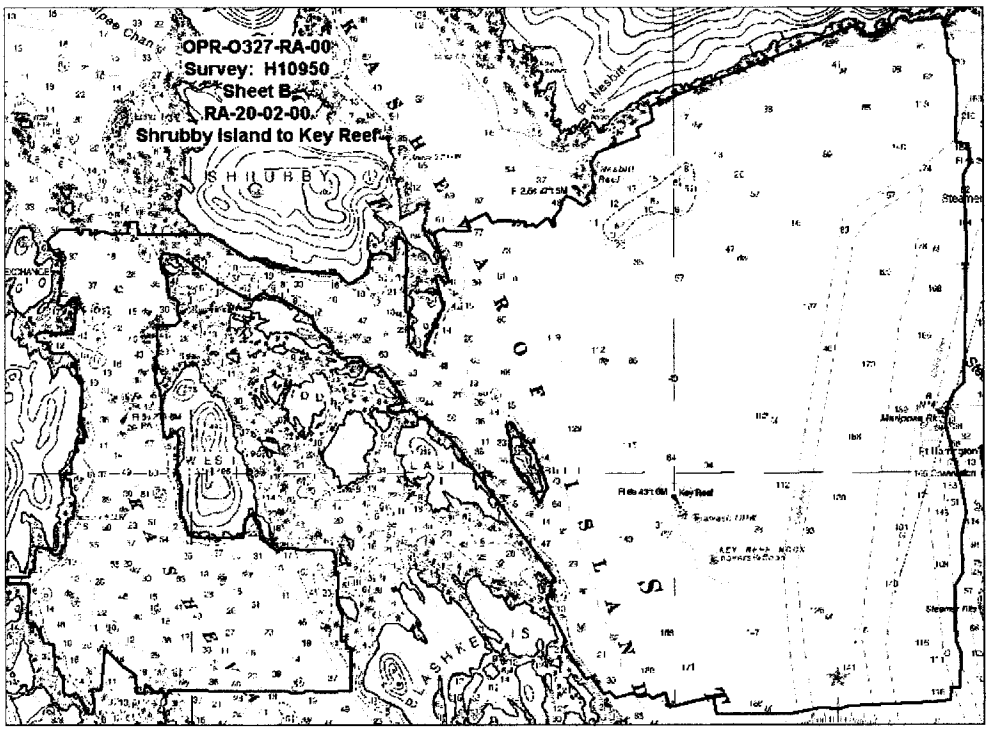


Figure 1. Survey Limits of H10950

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-O327-RA-00 Data Acquisition and Processing Report* submitted under separate cover. Items specific to this survey and any deviations from the aforementioned report are discussed in the following sections.

B.1. Equipment and Vessels ✓

Data were acquired by RAINIER and her survey launches (vessel numbers 2120, 2121, 2122, 2123, 2124, 2125, 2126, and 2127). RAINIER was used to acquire shallow-water and intermediate-depth multibeam soundings, bottom samples, and sound velocity profiles. Vessels 2121, 2123, 2124 and 2126 were used to acquire shallow-water multibeam soundings and sound velocity profiles. Vessels 2121, 2122, 2123, 2124, 2125 and 2126 were used to acquire vertical beam echo soundings. Vessel 2125 was also used to collect bottom samples. Vessel 2127 was used to collect detached positions (DPs) for shoreline verification. No unusual vessel configurations or problems were encountered on this survey.

B.2. Quality Control

Crosslines ✓

Vertical Beam Echo Sounder (VBES) crosslines totaled 13.77 nautical miles, comprising 4.7% of mainscheme hydrography. Crosslines were less than the required 8% as most VBES lines were run in foul areas that were too nearshore to enable crosslines to be run alongshore. The crosslines that were run agreed within 1 meter of mainscheme hydrography. CONCUR

Shallow-Water Mulibeam (SWMB) crosslines totaled 30.56 nautical miles, comprising 6.84% of SWMB hydrography. The Quality Control Report (CARIS HIPS) for the checkline file averaged 80.27214%, with a depth tolerance factor of 0.013 which conforms to International Hydrographic Organization Order 1 specifications detailed in Special Publication S-44, Edition 4, as well as NOS Hydrographic Surveys Specifications and Deliverables Manual. See Appendix V* for the detailed report.

Junctions ✓ SEE EVAL REPORT, SECTION L.

The following contemporary surveys junction with H10950:

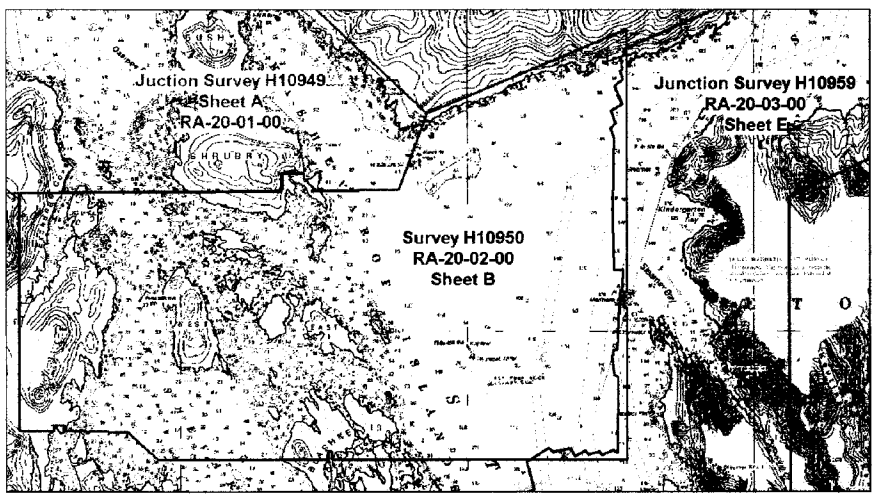


Figure 2. Junction Surveys with H10950

* FILED WITH THE SURVEY DATA

Registry #	Scale	Date	Junction side
H10949	1:20,000	2000	North
H10959	1:20,000	2000	~~West~~ EAST

Surveys H10949 and H10959 junction well with this survey, with differences generally less than 1 – 2 fathoms. CONCUR

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

Data Quality Factors ✓

Following completion of survey operations and departure from the working grounds, it was discovered that RAINIER's motion sensor had been damaged at an undetermined date. This affected the proper performance of the motion sensor, resulting in a loss of quality in data collected by RAINIER's Elac/SeaBeam 1050D multibeam echo sounder. The loss of data quality was evident when examining the data in HDCS Subset Mode. RAINIER took several steps to eliminate problem data and retain quality data. First, several CARIS Quality Control Reports (QCRs) were generated for these data, and outer beams which exhibited poor agreement with crosslines and adjacent data were filtered out of survey lines. Second, data were manually examined and cleaned in HDCS Subset Mode, and data for which agreement and positive resolution was not possible were manually rejected. Lastly, CARIS standard deviation filters were applied for data which were close in agreement, but still fell outside depth accuracy specifications. Although not standard practice, this last procedure was used to process data only in deeper water, generally greater than 100 meters, and was closely tracked to ensure that high points of features were not filtered. As a result of filtering and further rejection of data during post-processing, some holidays in multibeam coverage were created. All holidays were examined to ensure that no shoals were eliminated from the data. The Hydrographer believes that these steps have adequately ensured the quality of multibeam data acquired by RAINIER on this survey. CONCUR

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

B.3. Data Reduction ✓

Except for differences discussed in section B.2, data reduction procedures for survey H10950 conform to those detailed in the *OPR-O327-RA-00 Data Acquisition and Processing Report.*

C. VERTICAL AND HORIZONTAL CONTROL ✓

A complete description of vertical and horizontal control for survey H10950 can be found in the *OPR-O327-RA-00 Vertical and Horizontal Control Report* submitted under separate cover. 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. The U.S. Coast Guard Beacons at Annette Island, AK, Sitka, AK, and Point Gustavus, AK, were the sources of differential correctors. Launch-to-launch DGPS performance checks were performed in accordance with Section 3.2 of the Field Procedures Manual

(FPM). Copies of the performance checks are included in the *Separates to be Included with the Survey Data for OPR-O327-RA-00.*

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 Ketchikan, Alaska (945-0460) will serve as control for datum determination. RAINIER personnel installed Sutron 8200 "bubbler" tide gauges at the following subordinate stations in accordance with the Project Instructions:

Station Name	Station Number	Type of Gauge	Date of Installation	Date of Removal
Bushy Island	945-1074	30-day	20 March 2000	10 May 2000
Point Harrington	945-1005	30-day	21 March 2000	10 May 2000
Burnett Inlet	945-0949	30-day	22 March 2000	25 April 2000
Stikine Strait	945-1124	30-day	24 March 2000	26 April 2000

Raw water level data from these gauges were forwarded to N/OPS1 throughout the project period, with the final package submitted on May 22, 2000 in accordance with Hydrographic Survey Guideline (HSG) 50 and FPM 4.7. The Pacific Hydrographic Branch (PHB) will apply final approved (smooth) tides to the survey data during final processing. A request for delivery of final approved (smooth) tides for survey H10950 was forwarded to N/OPS1 on May 19, 2000 in accordance with FPM 4.8. Field tide notes, final tide notes, and a copy of the "Request for Approved Tides/Water Levels" are included in Appendix IV* of this report.

D. RESULTS AND RECOMMENDATIONS ✓

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

A total of three (3) AWOIS items were within the limits of H10950 and investigated during this survey. Investigation methods, results, and charting recommendations have been entered into the Microsoft Access AWOIS database and are submitted with the digital data. Printouts of the AWOIS Database forms are included in ~~Appendix VI of~~ this report.

D.2. Chart Comparison

SEE EVAL REPORT, SECTION O.

Survey H10950 was compared with chart 17382 (14th Ed.; Apr. 26, 1997, 1:80,000) and Chart 17360 (31st Ed.; Mar. 27, 1999, 1:217,828). ✓

Depths from charts 17382 and 17360 were generally 2-3 fathoms deeper than the current survey depths, although differences of 10-15 fathoms were also noted. A few charted depths were found to be shoaler than the current survey and are addressed below. These areas were fully developed with 100% SWMB. The following comparisons address items not otherwise submitted as dangers to navigation (refer to section D.4):

In the vicinity of a charted 33-fathom sounding on chart 17382 at 56°09'20.03"N, 132°48'15.28"W (E636381.2, N6225564.6), the present survey revealed a depth of 131 fathoms. This significant discrepancy is most likely a result of poor chart compilation. Chart 17360 has a sounding in the same

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location at 133 fathoms which agrees with depths in the area from the present survey. It is worth noting that a 3~~0~~6-fathom shoal exists about 800 meters to the west. CONCUR

In the vicinity of a charted 5¼-fathom sounding at 56°07'57.8"N, 133°01'49.3"W (E622411.6, N6222598.7), the present survey revealed a depth of ~~5¼~~ 5.3 fathoms. CONCUR

In the vicinity of a charted 1¼-fathom sounding at 56°11'17.5"N, 133°01'59.5"W (E622058.8, N6228767.7), the present survey revealed a depth of ~~2¾~~ 2.6 fathoms. CONCUR

D.3. Shoreline SEE EVAL REPORT, SECTION J.

N/NGS3 supplied photogrammetric shoreline data in raster format for TP00567, TP00568, TP00571, TP00572, TP00573, TP00574, TP00577, TP00578, and T-12310 for use as source shoreline. The T-sheet raster images were registered and digitized in MapInfo by RAINIER personnel and the resultant vector data were used in Hypack for field verification. In addition, features shown on the current editions of charts 17382 and 17360 were digitized in MapInfo by RAINIER personnel and displayed in Hypack for field verification.

Shoreline verification was conducted near predicted low water in accordance with the Project Instructions and FPM 6.1 and 6.2. For this survey the general limit of safe navigation of a survey launch was 5-30 meters offshore of apparent low tide. Water depths along this limit of safe navigation were around 4 meters at Mean Lower Low Water (MLLW). Features unreachable by survey launch are the hydrographer's approximate representation of the shoreline.

Detached positions (DPs) taken during shoreline verification were recorded in HYPACK and on DP forms,* and processed in HPS. These indicate revisions to features, and features not found on the T-sheet or chart. In addition, hard copies of applicable T-sheets were taken into the field and annotated by hand to reflect verification of source features and updates to both the chart and T-sheet. DP forms are included in Section V* of the *Separates to be included with Survey Data.*

A detailed Detached Position and Bottom Sample Plot, in both paper copy and 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. CONCUR

Numerous changes and new features were found and are depicted on the final DP plot.* CONCUR

Source Shoreline Changes

T-sheet rocks and islets were often identified as high points or extents of new rocks, ledges, reefs, foul areas or extents of islands or islets. Several exceptions were found:

The T-sheet rock at 56°12'16.6"N, 132°55'03.0"W (E629183.2, N6230803.0), Pos. #22550, was disproved using a 5-minute echosounder and visual search. CONCUR

The T-sheet rock at 56°12'30.3"N, 133°03'00.0"W (E620950.9, N6230986.5), Pos. #70060, was disproved using a 5-minute echosounder and visual search. CONCUR

The T-sheet rock at 56°09'59.0"N, 133°02'39.7"W (E621434.7, N6226319.5), Pos. #24814, was disproved using a 5-minute echosounder and visual search. CONCUR

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The T-sheet rock at 56°08'36.1"N, 133°03'48.6"W (E620319.2, N6223725.0), Pos. #24267, was disproved using a 5-minute echosounder and visual search. CONCUR

The T-sheet rock at 56°10'01.3"N, 132° 52'46.4"W (E631665.1, N6226694.5), Pos. #23444, was disproved using a 5-minute echosounder and visual search. CONCUR

The three T-sheet islets in the vicinity of 56°12'20.29"N, 132°59'57.37"W (E624081.4, N6230676.2) were found to be part of one larger continuous islet and are now delineated by Pos. #51720, 51722, 51723, and 51724. USE SHORELINE MANUSCRIPT GC-10483 AS SHOWN ON THE SMOOTH SHEET TO DEPICT THESE ISLETS.

The two T-sheet islets at 56°11'55.0"N, 133°00'05.5"W (E623991.4, N6229983.5), Pos. #52457, were found to be part of one larger continuous islet. USE SHORELINE MANUSCRIPT GC-10483 AS SHOWN ON THE SMOOTH SHEET TO DEPICT THESE ISLETS.

The T-sheet islet at 56°09'17.1"N, 132°57'26.04"W (E627038.2, N6225264.1), was found to be significantly larger than that depicted on the source shoreline. The island is now delineated by Pos. #52219, 52220, and 52225. These DPs were taken on the ledge extents of the island at low water and are not revisions to the high-water line. The high-water line does appear to be larger than that depicted by the source shoreline. USE SHORELINE MANUSCRIPT GC-10483 AS SHOWN ON THE SMOOTH SHEET TO DEPICT THIS ISLET.

The T-sheet islets and rock in the vicinity of 56°08'59.22"N, 132°57'02.93"W (E627284.8, N6224713.7) were found to be part of one continuous islet that is now delineated by Pos. #52216 and 52217. USE SHORELINE MANUSCRIPT GC-10483 AS SHOWN ON THE SMOOTH

Charted Features (from Charts 17382 and 17360) SHEET TO DEPICT THESE FEATURES.

Charted rocks and islets were often identified as high points or extents of new rocks, ledges, reefs, foul areas or extents of islands or islets. Several exceptions were found: Chart the areas discussed below based on the present survey information.

The charted rock at 56°15'01.3"N, 132°45'54.53"W (E638467.1, N6236190.5), Pos. #22090, was disproved using a 5-minute echosounder and visual search. CONCUR

The charted rock at 56°11'00.4"N, 132°55'48.8"W (E628464.0, N6228425.5), Pos. #50672, was disproved using a 5-minute echosounder and visual search. CONCUR

The charted rock at 56°10'30.2"N, 132°54'41.3"W (E629656.5, N6227527.0), Pos. #23536, was disproved using a 5-minute echosounder and visual search. CONCUR

The charted rock at 56°10'04.24"N, 132°52'42.77"W (E631725.0, N6226786.5), Pos. #23442, was disproved using a 5-minute echosounder and visual search. CONCUR

The charted rock at 56°10'01.3"N, 132°52'46.4"W (E631665.1, N6226694.5), Pos. #23444, was disproved using a 5-minute echosounder and visual search. CONCUR

The charted rock at 56°07'45.7"N, 132°52'13.4"W (E632364.2, N6222520.5), Pos. #50466, was disproved using a 5-minute echosounder and visual search. CONCUR

The charted rock at 56°08'13.64"N, 132°57'01.59"W (E627363.2, N6223233.0), Pos. #52195, was disproved using a 5-minute echosounder and visual search. CONCUR

The charted rock at 56°08'19.05"N, 132°57'00.84"W (E627371.3, N6223400.5), Pos. #52194, was disproved using a 5-minute echosounder and visual search. CONCUR

The charted rock at 56°09'15.6"N, 132°57'03.5"W (E627273.4, N6225147.5), Pos. #52218, was disproved using a 5-minute echosounder and visual search.

The charted rock at 56°11'40.94"N, 133°00'58.54"W (E623089.4, N6229521.0), Pos. #52470, was disproved using a 5-minute echosounder and visual search.

The charted rock at 56°11'49.6"N, 133°00'03.3"W (E624034.2, N6229817.5), Pos. #52456, was disproved using a 5-minute echosounder and visual search.

The charted rock at 56°11'57.74"N, 132°59'30.2"W (E624596.5, N6230084.5), Pos. #52454, was disproved using a 5-minute echosounder and visual search.

The charted rock at 56°12'33.27"N, 133°02'51.24"W (E621101.4, N6231083.0), Pos. #70059, was disproved using a 5-minute echosounder and visual search.

The charted rock at 56°11'35.12"N, 133°03'25.72"W (E620558.0, N6229269.0), Pos. #70046, was disproved using a 5-minute echosounder and visual search.

The charted rock at 56°11'42.86"N, 133°02'33.2"W (E621456.4, N6229533.7), Pos. #70025, was disproved using a 5-minute echosounder and visual search.

The charted rock at 56°11'15.57"N, 133°02'29.44"W (E621545.2, N6228692.0), Pos. #24884, was disproved using a 5-minute echosounder and visual search.

The charted rock at 56°08'08.2"N, 133°03'43.9"W (E620424.5, N6222864.5), Pos. #24208, was disproved using a 5-minute echosounder and visual search.

The charted rock at 56°08'05.3"N, 133°03'46.8"W (E620376.6, N6222772.5), Pos. #24209, was disproved using a 5-minute echosounder and visual search.

The charted rock at 56°07'35.07"N, 133°00'46.4"W (E623518.2, N6221927.5), Pos. #26177, was disproved using a 5-minute echosounder and visual search.

The charted rocks at 56°09'28.38"N, 132°49'30.37"W (E635077.8, N6225781.5), Pos. #50438, was disproved using a 5-minute echosounder and visual search.

The Hydrographer recommends that the shoreline as depicted on the DP and BS plot* and final sounding plot* supersede and complement shoreline information compiled on the T-sheets as noted. These revisions are recorded in the MapInfo digital files named "H10950_Shoreline" and "H10950_Shoreline_Updates". In addition, field notes made by the Hydrographer, including verification of source features and descriptions of shoreline classification, are submitted in the digital MapInfo file "H10950_Shoreline_Notes." Concur

D.4. Dangers to Navigation SEE EVAL. REPORT, SECTION O.

Forty-nine dangers to navigation were found and reported to the Pacific Hydrographic Branch for verification and final submission to the Seventeenth Coast Guard District on September 18, 2000.

A copy of the preliminary Danger to Navigation Reports is included in ~~Appendix I~~ THIS REPORT.

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D.5. Aids to Navigation ✓ SEE EVAL. REPORT, SECTION Q.

Survey H10950 included four aids to navigation (ATONs). Each of the ATONs was found to serve its intended purpose. However, discrepancies between the charted, USCG Light List, and DP positions were found for each of the ATONs. CHARTED POSITION DIFFERENCES DEPICTED ON BOTH LARGE SCALE (17352) AND SMALL (17360) CHARTS.

Whale Passage SG "1" daybeacon (USCG Light List 22477.5) was found to have an approximate difference of 164m between the charted position and the Light List position, a 130m difference between the charted position and the DP position, and a 200m difference between the Light List position and the DP position.

Key Reef Light (USCG Light List 22480) was found to have an approximate difference of 67m between the DP and charted position, a 27m difference between the Light List position and charted position, and a 40m difference between the DP and Light List positions.

Nesbitt Reef Light (USCG Light List 22490) was found to have an approximate difference of 33m between the charted position and the Light List position, a 47m difference between the DP and charted position, and a 38m difference between the DP and Light List positions.

Kashevarof Passage Light (USCG Light List 22495) was found to have 94m difference between the charted position and Light List position, a 20m difference between the DP and charted position, and a 80 meter difference between the DP and Light List positions.

Detached positions were taken on each ATON for check purposes only. No GPS static surveys were conducted for Survey H10950.

D.6. Prior Surveys ✓ SEE EVAL. REPORT, SECTION M.

Survey H10950 was compared with prior surveys H03912 and H03940. No significant discrepancies were found that have not already been addressed in comparisons with charts 17382 and 17360. CONCUR

D.7. Miscellaneous Information ✓

Project Instructions for project OPR-O327-RA-00 required 100% multibeam coverage with the possible exception of regions where there is no indication of shoaling. Near 100% SWMB coverage was obtained during this survey; however some bottom coverage gaps exist and were not addressed due to time constraints. Additionally, small holidays in coverage were created in the post-processing of data and therefore were not avoidable in the field.

Every effort was taken to minimize the impact of not having full bottom coverage. The majority of coverage gaps in the survey area are generally 25 meters or less in width, 100 meters or less in length, within 500 meters of shore or a foul area, or in water greater than 100 meters. Larger holidays were created after inspection of RAINIER's multibeam data revealed problems with the ship's motion sensor. (See Section B2, Data Quality Factors.) Corrupted data were removed accordingly, thereby creating the large holidays.

The most notable of these large holidays is in the vicinity of 56°11'32.7"N, 132°52'31.0"W (E631843.6, N6229527.0) in Clarence Strait, east of the Kashevarof Islands. Several large holidays fall within this area, the largest measuring 1200 meters in length by 250 meters wide. Soundings surrounding these holidays are approximately 80 fathoms shoreward and over 100 fathoms seaward. See Figure 3 below.

Another notable holiday is in the vicinity of 56°08'48.0"N, 132°50'45.6"W (E633819.1, N6224492.8) also in Clarence Strait just east of the Kashevarof Islands. Several large holidays fall within this area, the largest measuring 440 meters wide by 500 meters in length. Soundings surrounding these holidays are approximately 160 fathoms in depth. See Figure 4 below.

All of these holidays were closely examined by the Hydrographer and were not deemed significant to navigation. The size of some of these holidays exceeds the required sounding density at survey scale. As previously mentioned in Section B.2, the data were inspected to ensure that no shoaling exists in these large holidays. In both instances all surrounding depths are greater than 100 fathoms. The Hydrographer believes that coverage was still sufficient to remove the green tint indicating wire drag clearance from chart 17382. Concur

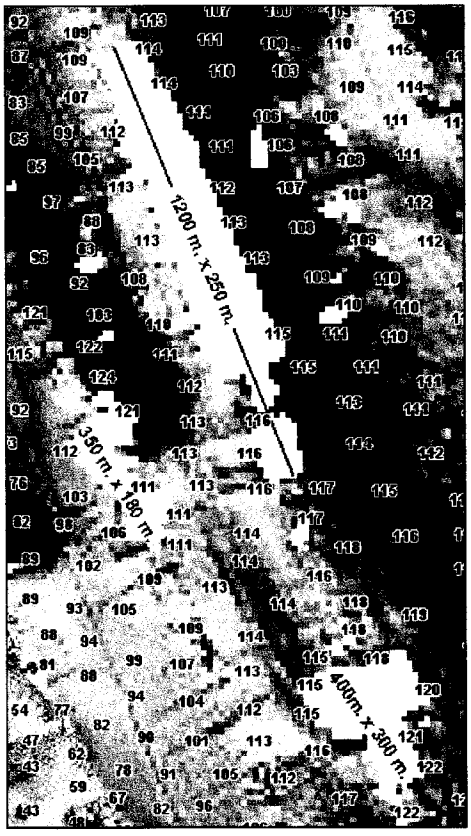


Figure 3. MB Holiday in Clarence Strait.

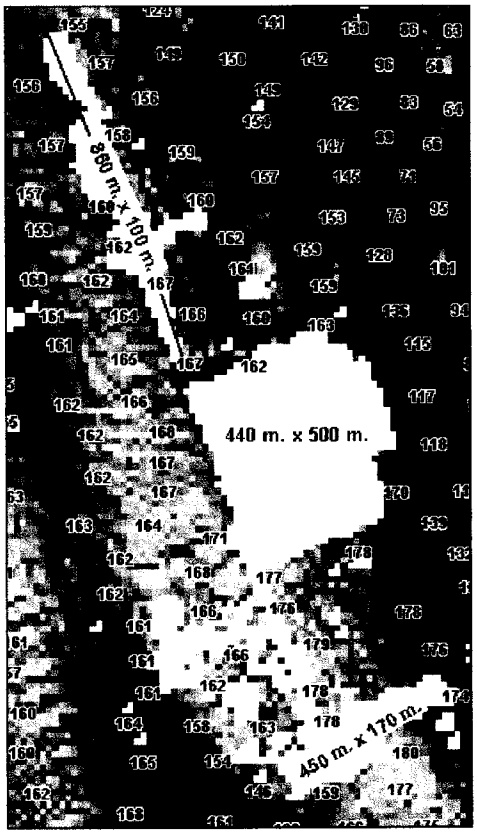


Figure 4. MB Holiday in Clarence Strait.

Recommendations

It is recommended that the scale of future surveys in complex shoal regions with detailed shoreline be 1:10,000 or larger. With the complexity involved in H10950, many difficulties were encountered with data processing and presentation due to the density and volume of data and complex shoreline detail. Concur

Remove the green wire drag tint from charts 17382 ~~and 17360~~ in the area common to survey H10950.

CONCUR.

E. APPROVAL ✓

As Chief of Party, I have ensured that standard field surveying and processing procedures were followed in producing this examination in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; the Field Procedures Manual, and the NOS Hydrographic Surveys Specifications and Deliverables, as updated for 2000.

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 H10950 is complete and adequate to supersede charted soundings and features in their common areas. No additional work is required on this survey specifically. Future survey projects may want to investigate the waters between the Kashevarof Islands and Blashke Island. Given the time constraints placed on Survey H10950, detailed survey and shoreline investigations were not possible. Some vessels (mostly small fishing vessels) were observed taking refuge in the waters within the archipelago. Preliminary investigations show this area to be very complex with numerous rocks and unknown shoals. Therefore, any future survey work in this area should allow ample time for a thorough investigation. It is recommended that a 1:10,000 scale survey be conducted in this area during calendar year 2001. CONCUR

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

Title	Date Sent	Office
Data Acquisition and Processing Report for OPR-O327-RA-00	August 11, 2000	N/CS34
Horizontal and Vertical Control Report for OPR-O327-RA-00	TBD	N/CS34
Tides and Water Levels Package for OPR-O327-RA-00	May 22, 2000	N/OPS1
Coast Pilot Report for OPR-O327-RA-00	TBD	N/CS26

Approved and Forwarded: Daniel R. Herlihy

Daniel R. Herlihy
Commander, NOAA
Commanding Officer

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

Survey Sheet Manager: Daniel K. Karlson

Daniel K. Karlson
Ensign, NOAA

Field Operations Officer: Edward J. Van Den Ameele

Edward J. Van Den Ameele
Lieutenant, NOAA

RECRD 52530 VESSLTERMS OBSTRUCTION CHART 17382 AREA O

CARTOCODE 0067 SNDINGCODE DEPTH

LAT83	56 13 07.45	LONG83	132 50 23.31	NATIVDATUM	31
LATDEC:	56.218736111111	LONDEC:	132.83980833333	GPQUALITY	High
				GPSOURCE	Scaled

PROJECT	OPR-O327	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS		INIT	MCR	ASSIGNED	2/14/00
TECNIQ	MB,ES,DI				

Techniqnote: DETERMINE EXTENT AND DEVELOP CHARTED SHOAL TO VERIFY OR DISPROVE CHARTED DEPTHS
INVESTIGATE AN AREA 750M OUT FROM AN AXIS BETWEEN POS. 56-12-40 N 132-51-28 W AND
56-13-32.5 N 132-49-16.8 W

History:

HISTORY
H-3794/16-- SHOAL AREA SHOWING A CENTRAL 33 FT (5 1/2 FM) SOUNDING IN POS.56-13-03.3N, 132-50-22.5 W (SE AK DATUM). CHARTING SOURCE FOR SOUNDINGS WITHIN 10 FM CURVE OF FEATURE.
H-1782/1886--SOURCE FOR REMAINING SOUNDINGS OUTSIDE THE 10 FM CURVE IN THE OUTLINED AREA OF SHOAL
ENTERED 2/00 MCR

Fieldnote:

INVESTIGATION

DATE(S): 4/11/00 (DN:102), 4/12/00 (DN:103), 4/21/00 (DN:112), 4/23/00 (DN:114), 5/4/00 (DN:125)

VN: 2121 & 2126 TIME: 20:08:08 GMT on DN 114

INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER): 100% SWMB

OBSERVED POSITION: LAT. 56/13/06.63 N LON. 132/50/11.93 W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: 100% SWMB survey conducted in a 2770 meter x 1600 meter square grid disccovered the presence of a 4.9-fathom shoal sounding.

CHARTING RECOMMENDATION (HYDROGRAPHER): Remove charted 5 1/2-fathom sounding and replace with soundings obtained from survey H10950.

EVALUATOR COMMENTS: Concur. Chart 4 fathoms, 5 feet as shown on the smooth sheet.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	52531	VESSLTERMS	SOUNDING	CHART	17382	AREA	O
		CARTOCODE	0130	SNDINGCODE		DEPTH	

LAT83	56 10 53.62	LONG83	132 53 41.6	NATIVDATUM	31
LATDEC:	56.1815611111111	LONDEC:	132.89488888889	GPQUALITY	Med
				GPSOURCE	Scaled

PROJECT	OPR-O327	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	200	INIT	MCR	ASSIGNED	2/14/00
TECNIQ	MB,ES				

Techniqnote

History

HISTORY
H-3740/16-- 8 FM UNVERIFIED SOUNDING FROM DRAG SHEETS SHOWN IN PENCIL ENTERED 2/00 MCR

Fieldnote

INVESTIGATION

DATE(S): 4/12/00 (DN: 103)

VN: 2126 TIME: 17:39:39 GMT

INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER): 100% SWMB

OBSERVED POSITION: LAT. 56/10/51.49 N LON. 132/53/42.28 W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: 100% SWMB survey conducted in a 200 meter search radius discovered the presence of a 7.3-fathom shoal sounding.

CHARTING RECOMMENDATION (HYDROGRAPHER): Remove 8-fathom charted sounding and replace with soundings obtained from survey H10950.

EVALUATOR COMMENTS: Concur. Chart 7 fathoms, 2 feet as shown on the smooth sheet.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	52532	VESSLTERMS	OBSTRUCTION	CHART	17382	AREA	O
		CARTOCODE	0094	SNDINGCODE		DEPTH	

LAT83	56 09 12.4	LONG83	132 49 22.6	NATIVDATUM	31
LATDEC:	56.153444444444	LONDEC:	132.82294444444	GPQUALITY	Med
				GPSOURCE	Scaled

PROJECT	OPR-O327	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS		INIT	MCR	ASSIGNED	2/14/00
TECNIQ	MB, ES, VS, DI				
Techniqnote	CONDUCT A SEARCH 300M OUT FROM AN AXIS BETWEEN POS. 56-09-42.7 N 132-49-43.6 W AND 56-08-36.8 N 132-48-56.7 W . DETERMINE THE EXTENT AND LEAST DEPTHS OF ROCKY SHOAL.				

History

HISTORY
H-1742/1886--ROCKS AWASH SHOWN. NO SOUNDING DATA IN THE AREA, CHARTED NOTATION "AWASH HHW" ON ROCK CHARTED IN 56-09-27.67N 132-49-32.42W (NAD 83) NOT SHOWN. NOTATION "COVERS 3/4 FLOOD ON KEY REEF ROCK CHARTED IN 56-08-58.74 N 132-49-12.09 W ALSO NOT SHOWN. HOWEVER AS THESE FEATURES APPEAR ON THE FIRST EDITION OF CHART 17382 IN 1908, IT IS THE ONLY CHARTING SOURCE DOCUMENTED BY NOS.
ENTERED 2/00 MCR

Fieldnote

INVESTIGATION

DATE(S): 4/11/00 (DN:102)

VN: 2125 TIME: 19:44 - 21:15 GMT

INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER): VBES and Visual Search

OBSERVED POSITION: LAT. LON.

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: Extents of Key Reef and Key Reef Rock were positioned via field shoreline verification. The charted rock "Awash HHW" at 56-09-28.38 N , 132-49-30.37 W (E635077.8 , N6225781.5), was disproved using a 5 minute echosounder and visual search in a grid pattern over a 75 meter radius in water with 5 meters of visibility.

CHARTING RECOMMENDATION (HYDROGRAPHER): Chart limits of Key Reef and Key Reef Rock as depicted on field shoreline verification plots from survey H10950. Remove charted rock "Awash HHW" from Chart 17382.

EVALUATOR COMMENTS: Concur with clarification. Chart the areas of Key Reef and Key Reef Rock as shown on the smooth sheet.

Proprietary

YEARSUNK NIMANUM

Print Record

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations
Marine Operations Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

NOAA Ship RAINIER

September 18, 2000

Commander (mon)
Seventeenth Coast Guard District
Post Office Box 25517
Juneau, Alaska 99802-5517

ADVANCE INFORMATION

Dear Sir or Madam:

It is requested that the following dangers to navigation be included in the Local Notice to Mariners. The NOAA Ship RAINIER positioned these features while conducting hydrographic survey H10950 in Northern Clarence Strait and Southern Stikine Strait, Alaska, in March - May 2000. The dangers are shown graphically on the attached chartlets.

The following dangers to navigation affect the following charts:

Chart	Scale	Edition	Date
17382	1:80,000	14th	26-April-1997
17360	1:217,828	31st	27-March-1999

The positions are on the North American Datum of 1983 (NAD83) datum and depths have been corrected to Mean Lower Low Water (MLLW) using observed water level data.

Feature	Depth (fm)	Latitude (N)	Longitude (W)	Depth (m)
Reef	-0.9	56°11'55.013"	132°54'30.882"	-1.7
Shoal	7.3	56°08'52.205"	132°59'15.020"	13.4
Shoal	4.8	56°09'08.646"	132°58'54.985"	8.9
Shoal	1.8	56°09'06.406"	133°03'06.863"	3.4
Shoal	3.2	56°10'00.478"	133°02'10.153"	5.9
Shoal	2.1	56°09'45.381"	133°02'25.563"	3.9
Shoal	6.9	56°09'43.932"	133°02'07.200"	12.6
Shoal	7.8	56°10'18.873"	133°01'52.854"	14.2
Shoal	2.6	56°10'53.987"	133°00'47.677"	4.9
Shoal	2.9	56°10'18.302"	133°00'26.138"	5.3
Shoal	3.4	56°07'45.062"	132°56'33.719"	6.2
Shoal	1.6	56°08'47.285"	132°57'01.441"	3.0
Shoal	3.8	56°08'49.348"	132°57'41.674"	7.0
Shoal	3.2	56°09'01.851"	132°57'25.745"	5.9
Shoal	4.1	56°09'09.725"	132°57'08.691"	7.6
Shoal	3.8	56°08'58.627"	132°58'05.630"	7.1
Shoal	8.5	56°08'49.548"	132°59'45.626"	15.7
Shoal	5.5	56°08'45.490"	132°49'19.027"	10.2
Shoal	7.2	56°09'16.982"	132°49'38.990"	13.2
Shoal	7.4	56°09'42.565"	132°50'06.147"	13.5
Shoal	9.4	56°09'14.276"	132°52'11.083"	17.2
Shoal	6.8	56°09'22.393"	132°52'35.323"	12.6

Feature	Depth (fm)	Latitude (N)	Longitude (W)	Depth (m)
Shoal	5.9	56°08'09.275"	132°51'56.277"	10.8
Shoal	5.4	56°08'36.378"	132°52'17.161"	9.9
Shoal	3.3	56°09'30.566"	132°52'55.488"	6.1
Shoal	10.9	56°12'29.676"	132°51'38.793"	20.0
Shoal	10.8	56°13'52.667"	132°48'22.369"	19.8
Shoal	8.8	56°12'40.652"	132°51'04.550"	16.2
Shoal	8.8	56°12'51.732"	132°50'00.309"	16.1
Shoal	9.1	56°13'02.633"	132°49'20.256"	16.6
Shoal	2.8	56°11'40.560"	133°01'56.138"	5.2
Shoal	2.6	56°12'41.111"	133°01'23.151"	4.8
Shoal	5.1	56°12'43.374"	133°01'57.518"	9.4
Shoal	2.8	56°12'35.456"	133°00'37.205"	5.1
Shoal	3.9	56°12'05.546"	133°00'14.488"	7.2
Shoal	3.7	56°12'09.196"	132°59'45.139"	6.8
Shoal	2.7	56°12'11.736"	132°59'05.330"	4.9
Shoal	2.8	56°12'15.927"	132°58'46.409"	5.2
Shoal	2.8	56°12'12.593"	132°58'13.310"	5.1
Shoal	0.8	56°12'00.495"	132°57'53.944"	1.5
Shoal	2.8	56°12'32.812"	132°59'38.880"	5.3
Shoal	0.0	56°12'41.812"	132°59'53.196"	0.0
Shoal	9.4	56°11'29.978"	132°54'22.223"	17.3
Shoal	8.6	56°11'47.418"	132°54'15.493"	15.8
Shoal	7.6	56°11'37.774"	132°54'39.364"	13.9
Shoal	0.7	56°12'25.083"	132°55'48.578"	1.3
Shoal	7.8	56°12'21.065"	132°54'30.769"	14.2
Shoal	1.3	56°12'16.127"	132°56'7.721"	2.5
Shoal	4.9	56°13'06.627"	132°50'11.941"	9.0

ADVANCE INFORMATION

This is advance information subject to office review. Questions concerning this letter should be directed to the Chief, Pacific Hydrographic Branch, (206) 526-6835. Refer to survey project O327-RA-00 and Danger to Navigation message RA-06-00. More information on current RAINIER survey projects may be obtained by e-mail; contact the Field Operations Officer at FOO.RAINIER@NOAA.GOV.

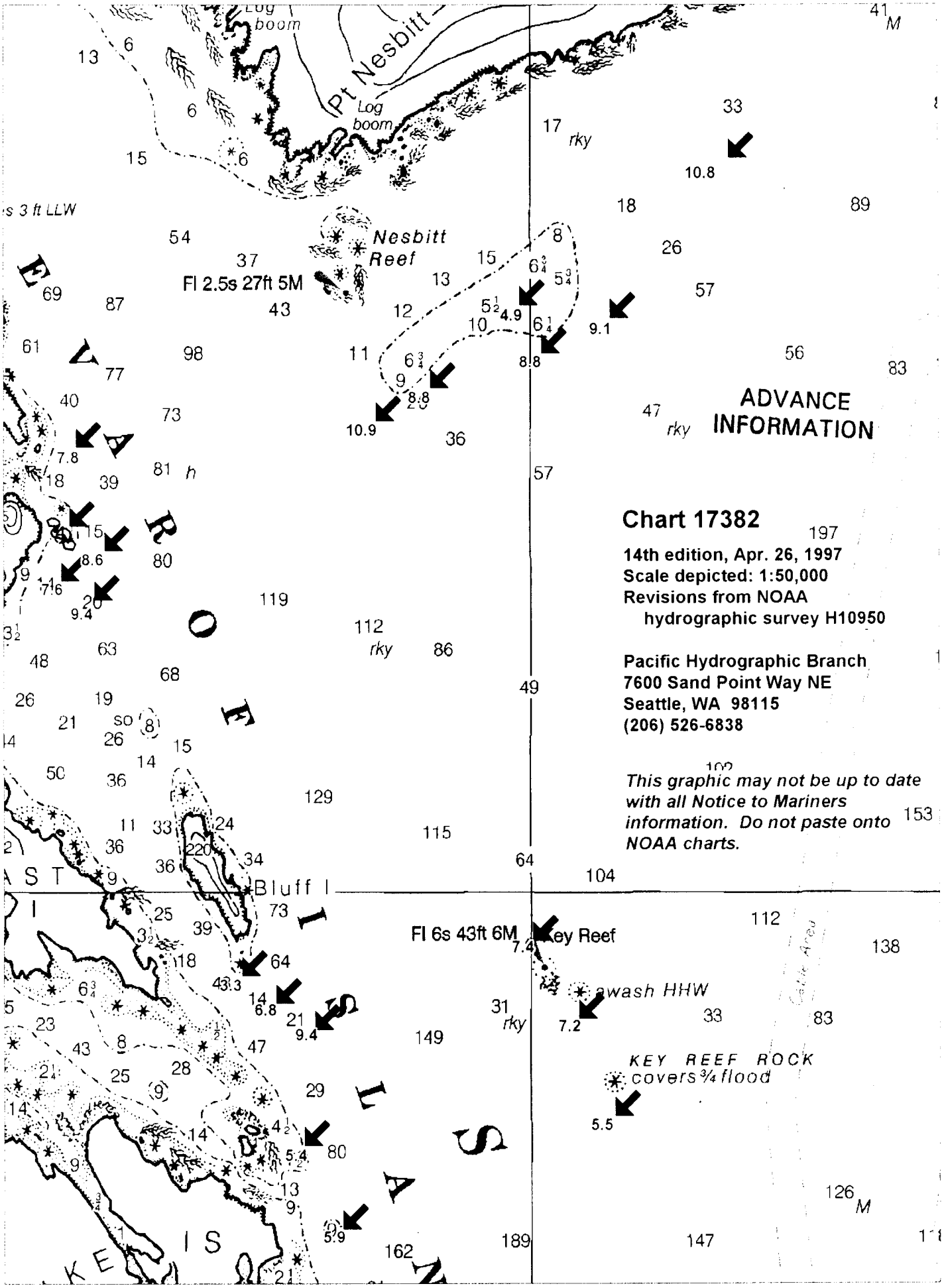
Sincerely,

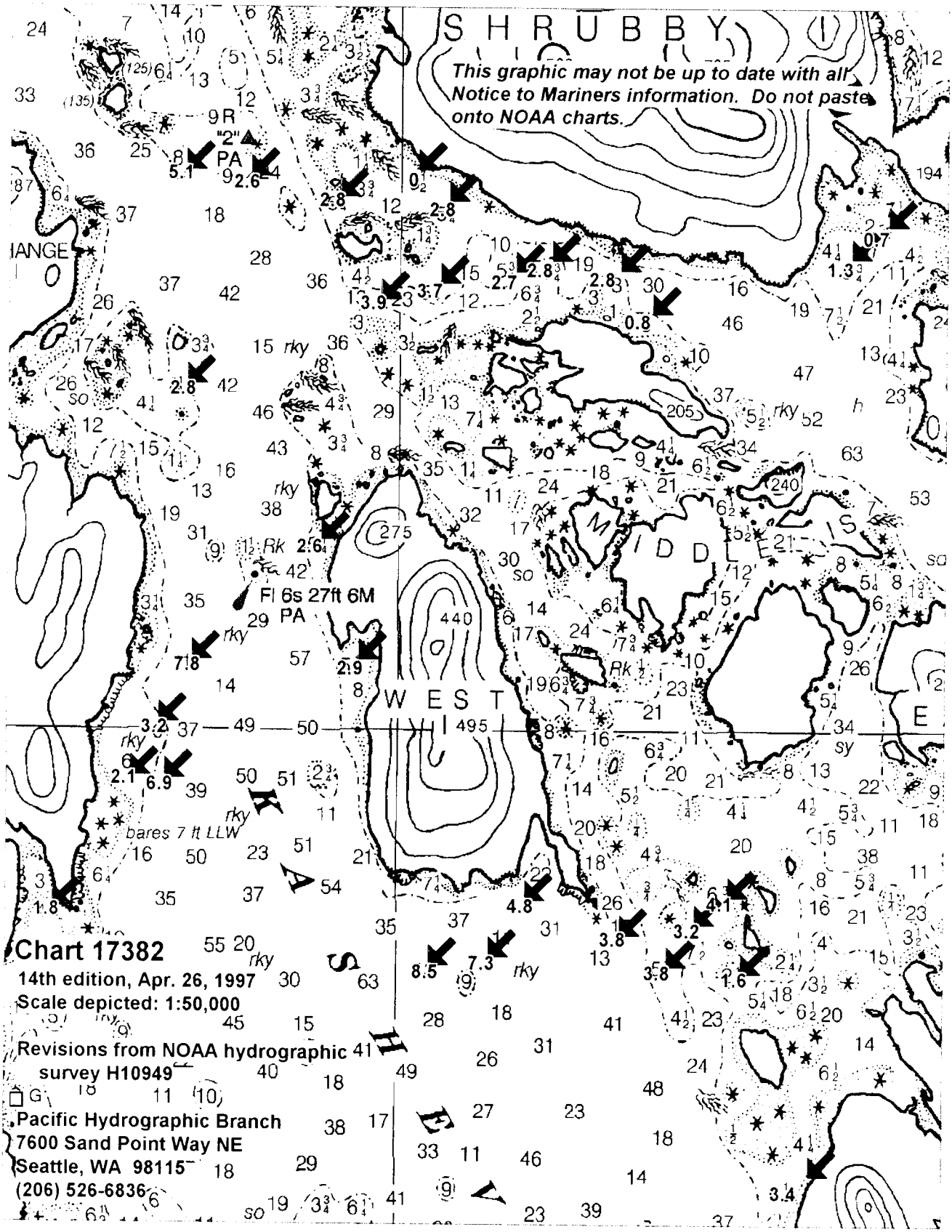
Daniel R. Herlihy

Daniel R. Herlihy
Commander, NOAA
Commanding Officer

Attachment

cc: NIMA
N/CS261
PMC
N/CS34


Log boom
Pt Nesbitt
Log boom
Nesbitt Reef
Fl 2.5s 27ft 5M
ADVANCE INFORMATION
Chart 17382
14th edition, Apr. 26, 1997
Scale depicted: 1:50,000
Revisions from NOAA hydrographic survey H10950
Pacific Hydrographic Branch
7600 Sand Point Way NE
Seattle, WA 98115
(206) 526-6838
This graphic may not be up to date with all Notice to Mariners information. Do not paste onto NOAA charts.
Bluff I
Fl 6s 43ft 6M
Key Reef
awash HHW
KEY REEF ROCK
covers ¾ flood
rky
s 3 ft LLW



ADVANCE
INFORMATION

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: August 9, 2000

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-0327-RA-2000
HYDROGRAPHIC SHEET: H-10950

LOCALITY: Northern Clarence Strait, AK
TIME PERIOD: April 10 - May 10, 2000

TIDE STATION USED: 945-1074 Bushy Island, AK
Lat. 56° 16.6'N Lon. 132° 59.1'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.219 meters

TIDE STATION USED: 945-1005 Point Harrington, AK
Lat. 56° 10.7'N Lon. 132° 41.8'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.582 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SA91, SA92, SA94, SA95, SA97, SA98 & SA99.

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.

Note 2: Use tide data from the appropriate station with applicable zoning correctors for each zone according to the order in which they are listed in the Tidezone corrector files. For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data are not available.

For ----------

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

Final tide zone node point locations for OPR-O327-RA-2000,
Sheet H-10950.

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

	Tide Station Order	AVG Time Correction	Range Correction
Zone SA91			
-132.758279 56.185631	945-1005	0	1.00
-132.786341 56.14964	945-1074	0	1.09
-132.825403 56.114262			
-132.872146 56.083469			
-132.930573 56.055453			
-132.844605 56.033499			
-132.796915 56.060436			
-132.748809 56.093048			
-132.698049 56.13284			
-132.712426 56.163369			
-132.724219 56.169029			
-132.758279 56.185631			
Zone SA92			
-132.705162 56.266155	945-1005	0	0.99
-132.753269 56.2615	945-1074	+6	1.09
-132.745521 56.228489			
-132.758279 56.185631			
-132.724219 56.169029			
-132.705008 56.195694			
-132.671161 56.201236			
-132.68295 56.235755			
-132.705162 56.266155			
Zone SA94			
-132.819909 56.249647	945-1005	0	0.98
-132.820835 56.229545	945-1074	0	1.07
-132.830092 56.20221			
-132.853262 56.169271			
-132.888001 56.137569			

-132.918885 56.117055
-132.991502 56.083463
-132.955125 56.053523
-132.930573 56.055453
-132.872146 56.083469
-132.825403 56.114262
-132.786341 56.14964
-132.758279 56.185631
-132.745521 56.228489
-132.753269 56.2615
-132.819909 56.249647

Zone SA95

-132.819909 56.249647	945-1074	0	1.06
-132.820835 56.229545			
-132.830092 56.20221			
-132.853262 56.169271			
-132.888001 56.137569			
-132.918885 56.117055			
-132.991502 56.083463			
-133.061679 56.127957			
-132.985325 56.156824			
-132.938808 56.176132			
-132.901307 56.202925			
-132.87025 56.235574			
-132.819909 56.249647			

Zone SA97

-133.061679 56.127957	945-1074	0	1.04
-133.078443 56.130625			
-133.052426 56.182742			
-132.972294 56.210027			
-132.932776 56.230532			
-132.896616 56.261345			
-132.870815 56.248432			
-132.87025 56.235574			
-132.901307 56.202925			
-132.938808 56.176132			
-132.985325 56.156824			
-133.061679 56.127957			

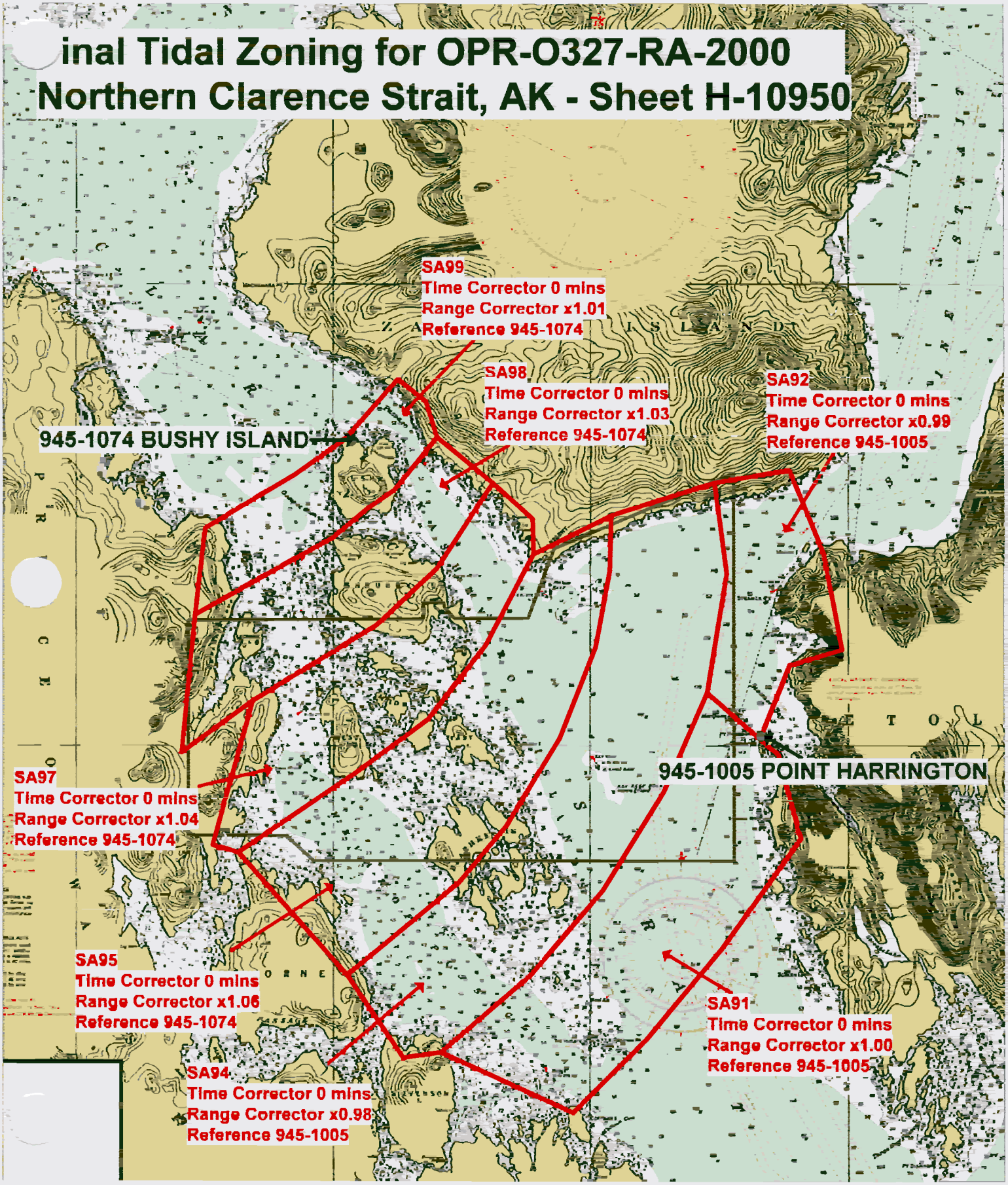
Zone SA98

-132.896616 56.261345	945-1074	0	1.03
-132.932776 56.230532			
-132.972294 56.210027			

-133.052426 56.182742
-133.098402 56.164074
-133.089589 56.213798
-133.00072 56.241537
-132.977659 56.252314
-132.960776 56.258734
-132.932773 56.277983
-132.896616 56.261345

Zone SA99

-132.932773 56.277983	945-1074	0	1.01
-132.939922 56.290819			
-132.958303 56.298823			
-132.992482 56.277293			
-133.025426 56.264231			
-133.083076 56.244973			
-133.089589 56.213798			
-133.00072 56.241537			
-132.977659 56.252314			
-132.960776 56.258734			
-132.932773 56.277983			


inal Tidal Zoning for OPR-O327-RA-2000
Northern Clarence Strait, AK - Sheet H-10950
SA99
Time Corrector 0 mins
Range Corrector x1.01
Reference 945-1074
SA98
Time Corrector 0 mins
Range Corrector x1.03
Reference 945-1074
SA92
Time Corrector 0 mins
Range Corrector x0.99
Reference 945-1005
945-1074 BUSHY ISLAND
945-1005 POINT HARRINGTON
SA97
Time Corrector 0 mins
Range Corrector x1.04
Reference 945-1074
SA95
Time Corrector 0 mins
Range Corrector x1.06
Reference 945-1074
SA94
Time Corrector 0 mins
Range Corrector x0.98
Reference 945-1005
SA91
Time Corrector 0 mins
Range Corrector x1.00
Reference 945-1005

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10950

Name on Survey	A On chart no. 17382	B On previous survey no.	C On U.S. quadrangle maps	D From local information	E On local maps	F P.O. guide or map	G Rand McNally atlas	H U.S. light list	K	
ALASKA (title)	X		X							1
BLASHKE ISLAND	X		X							2
BLUFF ISLAND	X		X							3
BUSHY ISLAND *	X		X							4
CLARENCE STRAIT	X		X							5
EAST ISLAND	X		X							6
EXCHANGE COVE *	X		X							7
EXCHANGE ISLAND	X		X							8
HARRINGTON, POINT *	X		X							9
KASHEVAROF ISLANDS	X		X							10
KASHEVAROF PASSAGE	X		X							11
KEY REEF	X		X							12
KEY REEF ROCK	X		X							13
MIDDLE ISLANDS	X		X							14
NESBITT, POINT	X		X							15
PRINCE OF WALES ISLAND	X		X							16
SHRUBBY ISLAND	X		X							17
WEST ISLAND	X		X							18
ZAREMBO ISLAND	X		X							19
				Approved:						20
										21
				Dennis J. Rasesburg (signature)						22
				Chief Geographer			NOV 17 2000			23
* Plot outside survey										24
limits.										25

NOAA FORM 77-27(H)
(9-83)

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER
H-10950

RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	NA
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	NA

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	2					
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List): NA

PHOTOBATHYMETRIC MAPS (List): NA

NOTES TO THE HYDROGRAPHER (List): NA

SPECIAL REPORTS (List): NA

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	*EVALUATION*	*TOTALS*
POSITIONS ON SHEET			
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS			
VERIFICATION OF SOUNDINGS			
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET			259
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT			38
GEOGRAPHIC NAMES			
OTHER: (Chart Compilation)			79
USE OTHER SIDE OF FORM FOR REMARKS — TOTALS			376

Pre-processing Examination by	*Beginning Date* 09/20/2000	*Ending Date*
Verification of Field Data by Bigelow, B. Olmstead	*Time (Hours)* 259	*Ending Date*
Verification Check by	*Time (Hours)*	*Ending Date*
Evaluation and Analysis by M. Bigelow, B. Olmstead	*Time (Hours)* 38	*Ending Date* 12/13/2001
Inspection by B. Olmstead	*Time (Hours)* 22	*Ending Date* 12/13/2001

U.S. GOVT. PRINTING OFFICE 1983: 764-006/6061

EVALUATION REPORT
H-10950

A. PROJECT

Project information is adequately discussed in the hydrographer's report.

B. AREA SURVEYED

This survey area is very complex and is characterized by isolated rocks, extensive ledges fringing the shoreline and numerous pinnacles that rise rapidly off the bottom to near the surface. Additional information is found in the hydrographer's report, section A. A page-size plot of the area on chart 17382 depicting the specific limits of supersession accompanies this report as Attachment 1.

Depths generally range from two fathoms along the shoreline to over 180 fathoms along the southern and eastern extents of the survey area. The bottom consists mainly of mud and broken shells.

C. SURVEY VESSELS

Survey vessels are adequately discussed in the hydrographer's report.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

The acquisition and processing of data in the field has been adequately discussed in the hydrographer's report and in the Data Acquisition and Processing Report submitted by the ship under separate cover.

Office processing of survey data was conducted using the same Computer Aided Resource Information System (CARIS), and Hydrographic Processing System (HPS) used by the hydrographer. The smooth sheet was compiled with MicroStation 95.

Digital data for this survey exists in the standard HPS format, a database format using the .dbf extension. In addition, the smooth sheet drawing is filed in the MicroStation format, i.e., dgn extension. Copies of these files have been forwarded to the Hydrographic Surveys Division and a backup copy retained at PHB. Database records forwarded are in the Internal Data Format (IDF) and are in compliance with specifications in existence at the time of survey processing.

The drawing files necessarily contain information that is not part of the HPS data set such as geographic names text, line-type data, and minor symbolization. In addition, those soundings deleted from the drawing for clarity purposes remain unrevised in the HPS digital files to preserve the integrity of the original hydrographic data set. Cartographic codes used to describe the digital data are those authorized by the Specifications and Deliverables, April 2000.

The data are plotted using a Universal Transverse Mercator (UTM) projection, Zone 8, and are depicted on a single sheet.

E. SONAR EQUIPMENT

Side scan sonar was not utilized during this survey.

F. SOUNDING EQUIPMENT

Sounding equipment has been adequately discussed in section B.1 of the hydrographer's report. Vertical-beam echo sounder data were collected in near shore and shallow areas that were too shallow for the safe and effective use of vessels equipped with shallow water multibeam system.

G. CORRECTIONS TO SOUNDINGS

Soundings and elevations of features have been reduced to Mean Lower Low Water (MLLW) or Mean High Water (MHW), with approved tide correctors obtained from the Center For Operational Oceanographic Products and

Services. The approved tide correctors are zoned from Bushy Island, Alaska, gage 945-1074 and Point Harrington Alaska, gage 945-1005.

The reducers for single beam survey data includes corrections for dynamic draft, sound velocity, and actual tide. For multibeam survey data, the reducers includes corrections for actual tide, static draft, sound velocity and heave, roll and pitch. These reducers have been reviewed and are consistent with NOS specification.

H. CONTROL STATIONS

Section C of the hydrographer's report contains information concerning horizontal and vertical control used during this survey. A horizontal and vertical control report for OPR-O327 was submitted under separate cover and was included in the project file.

The positions of horizontal control stations used during hydrographic operations are published values based on NAD 83. The geographic positions of all survey data are based on NAD 83. The smooth sheet is annotated with an NAD 27adjustment tick based on values determined with the NGS program NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: -1.283 seconds (-39.694 meters)
Longitude: 6.147 seconds (106.023 meters)

The prior survey work conducted in 1916 in common with the present survey is plotted on the SE Alaskan Datum. To convert from the SE Alaskan Datum to NAD 83, the user must apply a +4.15 seconds corrector to the latitude and a +0.81 seconds to the longitude.

I. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used to control this survey. The maximum (HDOP) allowable limit of 7.5 for a 1:20,000 scale survey was computed for survey operations. There were no positions that exceeded limits in terms of HDOP during this survey and the quality of data obtained is good. The satellite configuration, as indicated by HDOP and number of satellites is monitored on the IDSSS and Trimble displays to ensure position data quality. During Shallow Water MultiBeam (SWMB) data gathering, satellite configuration as indicated by HDOP and the number of satellites, is monitored visually on HYPACK. The final positions are provided by the POS-MV, which combines the DGPS position with inertial navigation information. In the event that the differential GPS corrector signal is lost, the POS-MV will continue to provide positions based on inertial navigation.

NAD 83 is used as the horizontal datum for plotting and position computations.

DGPS performance checks were conducted in the field and found adequate. Additional information concerning specific control system types and calibrations and system checks can be found in the hydrographer's report and in the separates related to horizontal position control and corrections to position data.

J. SHORELINE

Shoreline shown on the smooth sheet originates with multiple sources from the Remote Sensing Division, NGS. T-12310, TP-00567-68, TP-00571-74, and TP-00577-78 were compiled on NAD 27 and used in the field to conduct shoreline verification. The results of that verification are shown on the smooth sheet as depicted on the field plots. Between the fieldwork and office processing, shoreline map GC-10483 was supplied by the Coastal Mapping Program. This shoreline map depicts an interpreted mean high water line and associated foreshore features based on 1997 aerial photography. However, this map was not available to the hydrographer during survey operations. The smooth sheet plot reflects full compilation of GC-10483 and supplemented by the TP maps with features that have been verified in the field.

TP shoreline data was supplied to PHB in raster (*.tif) format, were converted to Intergraph *.cit file formats then digitized using MicroStation. The resulting .dgn files were then referenced and copied into the MicroStation smooth sheet. The GC digital files were supplied to PHB in MapInfo (.tab) format and were converted to MicroStation *.dgn files before being referenced and copied into the MicroStation smooth sheet.

Several revisions to charted foreshore features were noted during this survey. A few charted rocks were identified in the field as part of reefs and or high points of revised newly located ledge extensions. There were no revisions to the mean high water line (MHW).

The shoreline maps and the newly located features portrayed on the smooth sheet should supersede the presently charted information covered by the present survey. Additional information regarding shoreline can be found in the hydrographer's report, section D.3.

K. CROSSLINES

Crosslines are adequately discussed in section B.2 of the hydrographer's report.

L. JUNCTIONS

Survey H-10950 junctions with the following surveys.

Survey	Year	Scale	Area
H-10949	2000	1:20,000	Northwest Limit
H-10959	2000	1:20,000	East Limit

The junctions with survey H-10949 and H-10959 are complete. A few soundings and features from the junction surveys have been transferred to the present survey to better delineate the bottom configuration and inshore areas. A "Joins" note has been added to the smooth sheet where applicable.

M. COMPARISON WITH PRIOR SURVEYS

Raster versions of the prior surveys were used for making comparisons with the current survey. With the exception of H-8946, the legibility of the raster image files is considered fair to poor. The registration was accomplished by matching shoreline and or common identifiable geographic points between the present survey and the prior survey smooth sheets.

Survey	Year	Scale	Datum
H-1742	1886	1:80,000	SE Alaska
H-3912	1916	1:20,000	SE Alaska
H-3940	1916	1:20,000	SE Alaska

The prior surveys listed above were conducted using leadlines, and visual positioning. Considering the data gathering techniques used in 1916, a comparison of depths generally reflects fair agreement. Present survey depths however, reflect a consistent shoal bias generally ranging from 0.5-3.0 fathoms. The clarity of the H-1742 raster is poor and comparison to the smooth sheet was made using the charted soundings to distinguish the prior depths. This prior survey is situated in the eastern limits of the present survey and mostly in deeper water. Sounding discrepancies up to 10 fathoms both shoaler and deeper were noted with the present survey. The depth differences may be attributed to improved positioning and sounding methods employed during the present survey.

Survey	Year	Scale	Datum
H-8946	1967	1:10,000	NAD 27

Prior survey H-8946 covers the extreme southwest portion of the present survey and was conducted using visual positioning and a single beam echo sounder. Differences in depth generally range from 0.3-2 fathoms with the present survey shoal biased. The depth differences are largely attributed to improved positioning and sounding methods employed during the present survey.

Survey	Year	Scale	Datum
H-3794 WD	1916	1:20,000	SE Alaska
H-3904WD	1916	1:20,000	SE Alaska

The prior wire drag surveys listed above cover the central portions of Kashevarof Passage, and those areas offshore of Scrubby Island. Zarembo, Island, and east of the Kashevarof Islands. Except as noted below, there were no conflicts found between the present survey depths and the effective wire drag depths found in 1916.

There were two holidays discussed by the hydrographer, section D.7, that did not contain one- hundred percent bottom coverage within the prior wire dragged areas. Based on the hydrographer's processing of the survey data within the holiday areas, section B.2, the evaluator recommends the supersession of the prior wire drag information within the common area and the removal of the wire drag green tint depicted on chart 17382.

Except as noted above, use of the shallow water multibeam (SWMB) system supplemented by single beam echo sounding systems has provided more accurate and complete depth information than is available from the prior surveys.

Survey H-10950 is adequate to supersede the prior surveys within the area of common coverage.

N. ITEM INVESTIGATIONS

Three (3) AWOIS items were investigated during this survey. The disposition of these features are adequately addressed and entered in the AWOIS database forms included in the hydrographer's report.

N. COMPARISON WITH CHART

Survey H-10950 was compared with the following chart.

Chart	Edition	Date	Scale	Datum
17383	1st	Pending*	1:30,000	NAD 83
17382	14th	Apr. 26, 1997	1:80,000	NAD 83

* Survey H-10950 has been compiled to the 1st edition of chart 17383. Publication is pending.

a. Hydrography

Charted hydrography on chart 17382 originates with the previously discussed prior surveys. These prior surveys have been adequately addressed in the evaluation report section M, the hydrographer's report sections D.2, and D.3 and require no further discussion.

The application of this survey to charts of a scale less than 1:40,000 may require the generalization of features such as ledges, and reefs. The recommended charting disposition of specific ledges or reefs is their depiction as isolated rocks. The application of this survey to charts of a scale greater than 1:40,000 may be accomplished without generalization of features. Features from survey H-10950 have been generalized on chart 17382 along the high water line where applicable. The compilation of this survey to chart 17383 required some generalization of ledges and reefs as isolated rocks..

Additional information regarding charted features can be found in the hydrographer's report, sections D.2 and D.3.

Survey H-10950 is adequate to supersede charted hydrography within the common area.

b. Dangers to navigation

Forty-nine (49) potential dangers to navigation were identified during survey operations. These potential dangers to navigation were reported to the USCG, NIMA, N/CS261 and N/CS34 dated September 18, 2000. A copy this of report is attached. No additional dangers to navigation were identified during office processing.

P. ADEQUACY OF SURVEY

The hydrography contained on survey H-10950 is adequate to:

a. delineate the bottom configuration, determine least depths, and draw the required depth curves;
b. reveal there are no significant discrepancies or anomalies requiring further investigation; and
c. show the survey was properly controlled and soundings are correctly plotted.

With the exception of the following, the hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, the Field Procedures Manual, April 1998 Edition, and the Specifications and Deliverables 2000.

There were two areas defined by the hydrographer as holidays within the survey area. The affected areas are deep (80-164 fathoms) and will have little negative effect on the quality of nautical charts that cover the survey area. Information relating to these areas is discussed in the hydrographer's report, sections B.2 and D.7.

Q. AIDS TO NAVIGATION

There are four (4) fixed aids to navigation located within the survey area. All these aids were found in good condition and adequately serve their intended purpose. However, the hydrographer found some significant differences between the surveyed positions, the chart and the light list. The evaluator contacted the 17th Coast Guard District, Aids to Navigation Branch, and found that the assigned positions for these aids in the USCG ATON database was very close to the present surveyed positions. The evaluator recommends charting these aids to navigation as positioned during the present survey. See the hydrographer's report, section D.5, for more information.

The four aids to navigation as positioned by this survey are listed below.

Light Name	Latitude(N)	Longitude(W)
Whale Passage SG "1"	56/08/14.189	133/03/22/843
Key Reef Light	56/09/35.662	132/49/57.369
Nesbitt Reef Light	56/13/12.668	132/51/49.503
Kashevarof Passage Light	56/10/45.367	133/01/17.809

There were no features of landmark value located within the area of this survey.

R. STATISTICS

Statistics are adequately itemized in the hydrographer's report.

S. MISCELLANEOUS

Miscellaneous information is adequately discussed in the hydrographer's report.

T. RECOMMENDATIONS

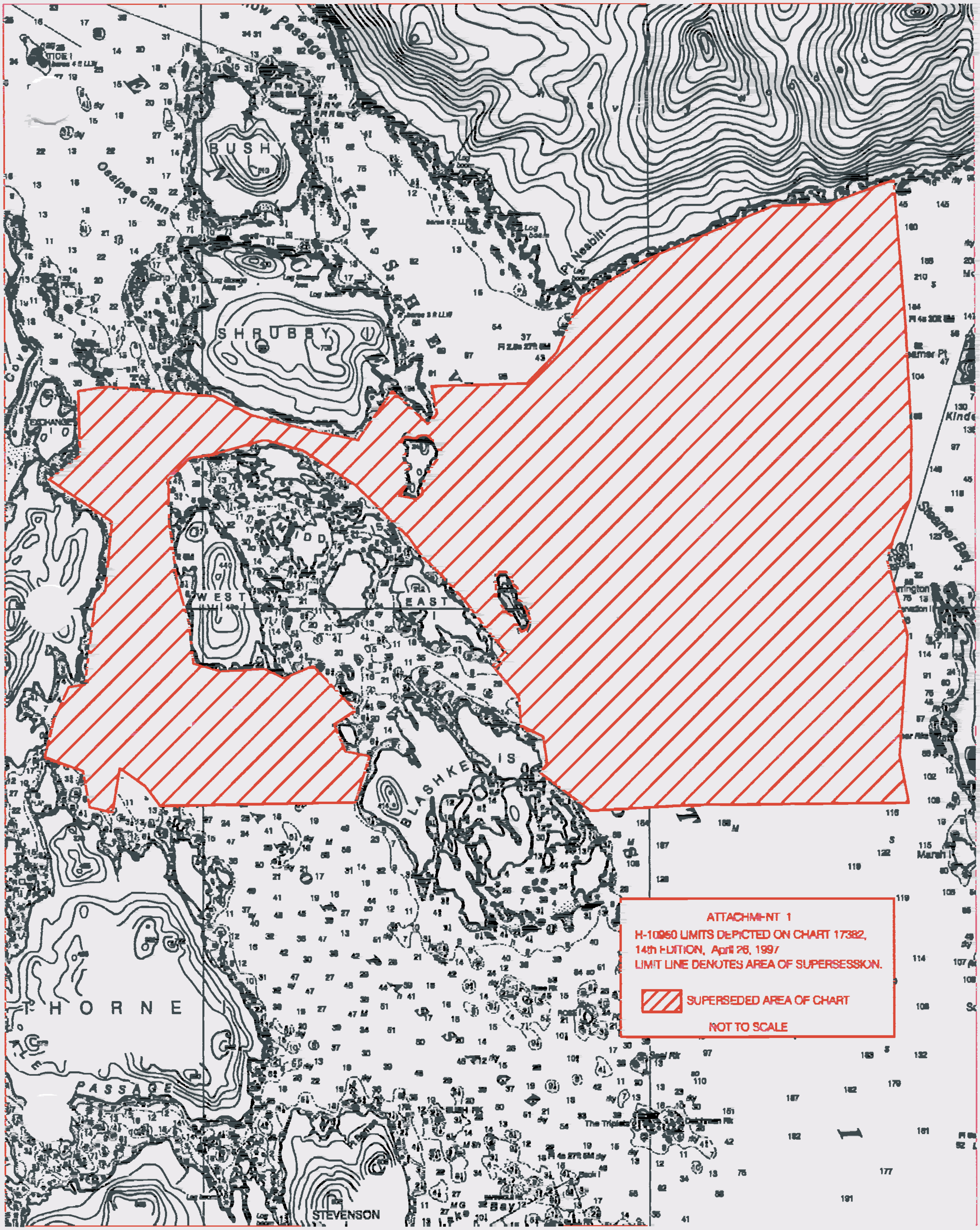
Survey H-10950 is a good hydrographic survey. No additional work is recommended. Additional information is found in the hydrographer's report, sections D.7 and E.

U. REFERRAL TO REPORTS

Referral to reports is adequately discussed in the hydrographer's report.

Bruce A. Olmstead

Bruce A. Olmstead
Cartographer


ATTACHMENT 1
H-10950 LIMITS DEPICTED ON CHART 17382,
14th EDITION, April 26, 1997
LIMIT LINE DENOTES AREA OF SUPERSESSION.
SUPERSEDED AREA OF CHART
NOT TO SCALE
BUSHY
SHRUBBY
Ossipee Chan
Pt Nesbitt
WEST
EAST
BLASHKE IS
THORNE
PASSAGE
STEVENSON
The Triplets
Dutchman Rk

APPROVAL SHEET
H-10950

Initial Approvals:

The completed survey has 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.

Dennis Hill Date: 2-25-02
Dennis Hill
Cartographic Team Leader

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.

Date: 4/2/02
John E. Lowell, Jr.
Commander, NOAA
Chief, Pacific Hydrographic Branch

****

Final Approval

Approved:

for LCDR, NOAA Date: 5 April 02
Samuel De Bow, Jr.
Captain, NOAA
Chief, Hydrographic Surveys Division

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. H-10950

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
17383	7/22/01	B. Olmstead	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. Full application of soundings and features
			from the smooth sheet ✓
17382	7/22/01	B. Olmstead	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. Full application of soundings and features from the
			smooth sheet and thru Chart 17383
			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.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.