

H10975

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-10-04-00

Registry No. H-10975

### LOCALITY

State Alaska

General Locality Shelikof Strait

Sublocality Cape Nukshak to Yugnat Rocks and  
Vicinity

2000

### CHIEF OF PARTY

Commander Daniel R. Herlihy, NOAA

### LIBRARY & ARCHIVES

DATE

May 2, 2002

**HYDROGRAPHIC TITLE SHEET**

**H-10975**

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-10-04-00**

State Alaska

General Locality Shelikof Strait

Sublocality Cape Nukshak to Yugnat Rocks and Vicinity

Scale 1:10,000

Date of Survey 5/25/2000 --6/24/2000

Instructions Date 5/8/2000

Project No. OPR-P164-RA-00

Change #1 6/12/2000

Vessel RA-1(2121) to RA-7(2127)

Chief of Party Commander D. R. Herlihy, NOAA

Surveyed by RAINIER Personnel

Soundings taken by echo sounder, hand lead, pole Knudsen 320M, RESON 8101 MB, SB 1180

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by I. Almacen

Automated plot by HP DesignJet 750C

Verification by E. Domingo, R. Mayor, R. Davies, I. Almacen

Soundings in Fathoms

at

MLLW

REMARKS: Time in UTC. Revisions and marginal notes in black

were generated during office processing. All separates

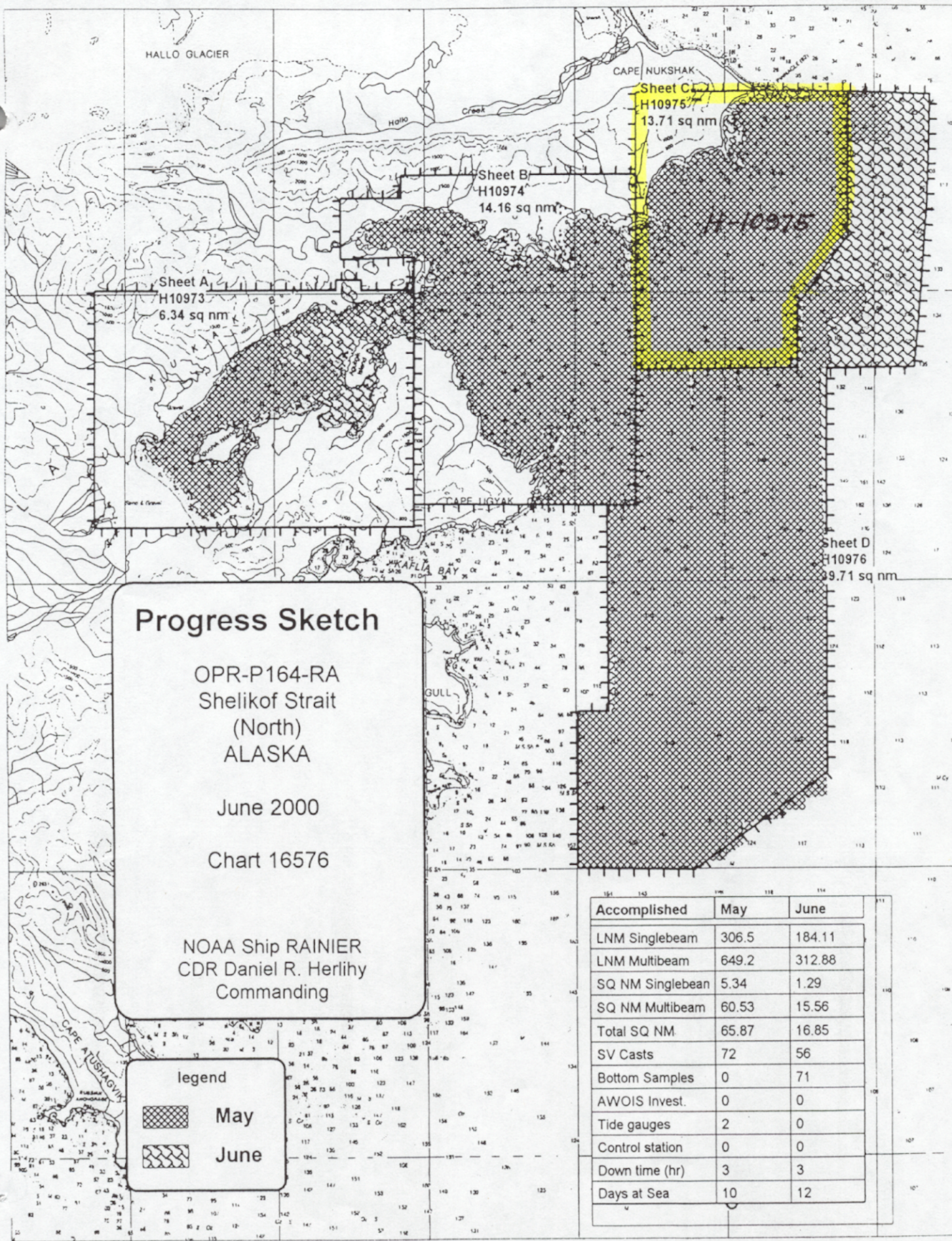
are filed with the hydrographic data. As a result page

numbering may be interrupted or non-sequential.

All depths listed in this report are referenced to

mean lower low water unless otherwise noted.

*AWOIS ✓ SURV by DAS 4-25-02*



## Progress Sketch

OPR-P164-RA  
Shelikof Strait  
(North)  
ALASKA

June 2000

Chart 16576

NOAA Ship RAINIER  
CDR Daniel R. Herlihy  
Commanding

### legend

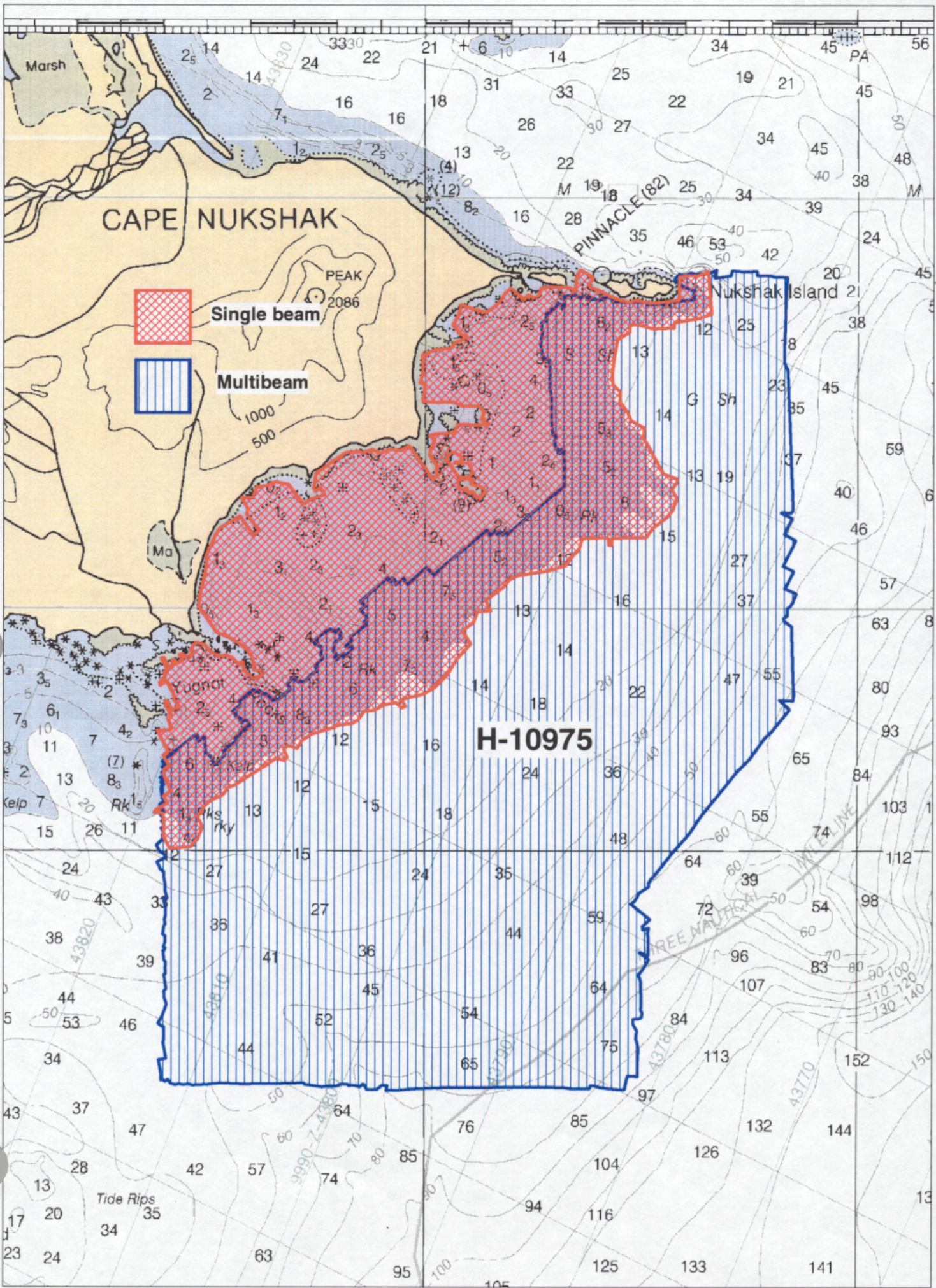


May



June

Accomplished	May	June
LNM Singlebeam	306.5	184.11
LNM Multibeam	649.2	312.88
SQ NM Singlebeam	5.34	1.29
SQ NM Multibeam	60.53	15.56
Total SQ NM	65.87	16.85
SV Casts	72	56
Bottom Samples	0	71
AWOIS Invest.	0	0
Tide gauges	2	0
Control station	0	0
Down time (hr)	3	3
Days at Sea	10	12



# CAPE NUKSHAK



Single beam



Multibeam

H-10975

Marsh

PEAK  
2086

Pinnacle (82)

Nukshak Island

Ma

Yugnat

Kelp

Tide Rips

FREE NAUTICAL WIRE MAILLINE

# Descriptive Report to Accompany Hydrographic Survey H10975

Project OPR-P164-RA-00 Shelikof Strait  
Scale 1:10,000  
May 25-June 24, 2000  
NOAA Ship RAINIER  
Chief of Party: Commander Daniel R. Herlihy, NOAA

## A. AREA SURVEYED ✓

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-P164-RA-00, dated May 8, 2000, <sup>Change #1 dated June 12, 2000</sup> and the Draft Standing Project Instructions dated April 6, 1998. The survey area is located south of Cape Nukshak to Kukak Point, Shelikof Strait, Alaska. The survey's northern limit is latitude  $58^{\circ}23'56.12''$ N and the southern limit is latitude  $58^{\circ}18'35.49''$ N. The survey's western limit is longitude  $154^{\circ}03'52.89''$ W and the eastern limit is  $153^{\circ}55'45.18''$ W.

\* Change 1 dated 6/12/2000.

Data acquisition was conducted from May 25 to June 24, 2000 (DN 146-175). ✓

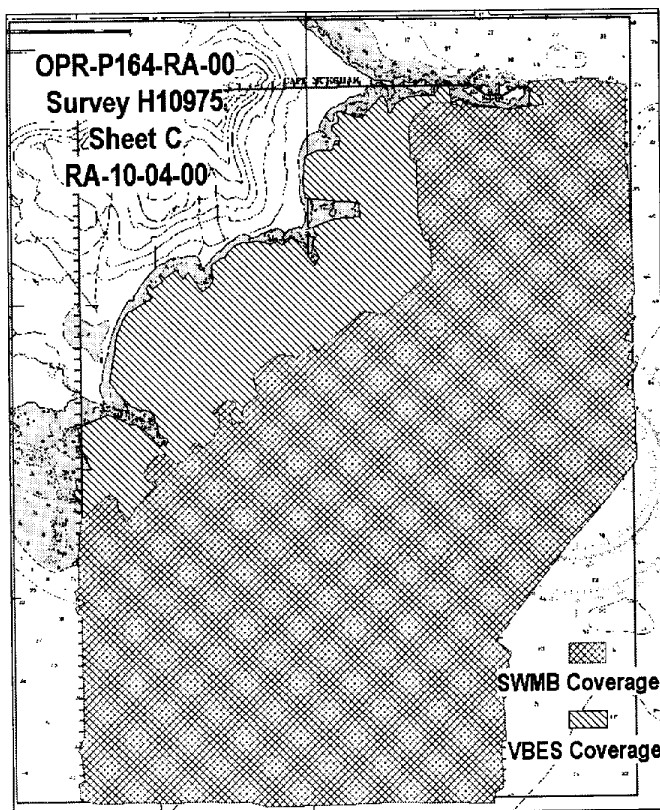


Figure 1: H10975 Survey Area

## B. DATA ACQUISITION AND PROCESSING ✓

A complete description of data acquisition and processing systems, survey vessels, quality control procedures, and data processing methods, can be found in the *OPR-P164-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.

**B1. Equipment and Vessels** ✓

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

**B2. Quality Control** ✓

**Crosslines** ✓

Vertical-beam echo sounder crosslines totaled 15 nautical miles, comprising 10.5% of mainscheme hydrography. Crosslines generally agree within 1 meter of mainscheme hydrography.

Shallow-water multibeam (SWMB) crosslines totaled 17.8 nautical miles, comprising 6.2% of SWMB hydrography. The Quality Control Report (CARIS HIPS) for the checkline file averaged 98.30%, with a depth tolerance of 0.013, which conforms to International Hydrographic Organization Order 1 specifications as detailed in Special Publication S-44, Edition 4, and depth accuracy standards set forth in the National Ocean Service Hydrographic Surveys and Specifications and Deliverables Manual. See Appendix V *\*\** for the detailed report.

**Junctions** ✓ See Eval Rpt., Section L.

There are two contemporary surveys that junction with H10975:

Registry #	Sheet	Scale	Date	Junction Sides
H10974	B	1:10,000	2000	West side ✓
H10976	D	1:20,000	2000	South and East sides ✓

**Soundings from H10974** ✓

Survey H10974 junctions well with this survey. Depths generally agree within one fathom or less. An area foul with kelp and rocks at position 58°20'42.9"N, 154°02'57.6"W (438574.4 E, 6467627.781 N) and extending in an easterly direction is located along the border of this survey and survey H10974. As the majority of the foul area is within the limits of H10974, this foul area is discussed in the Descriptive Report for H10974. *Foul limit lines are transferred on the smooth sheet.*

**Soundings from H10976** ✓

Survey H10976 junctions well with this survey. Depths generally agree within one fathom or less.

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

*\* Filed with the project reports for OPR - P164 - 2000 .*  
*\*\* Filed with the hydrographic data .*

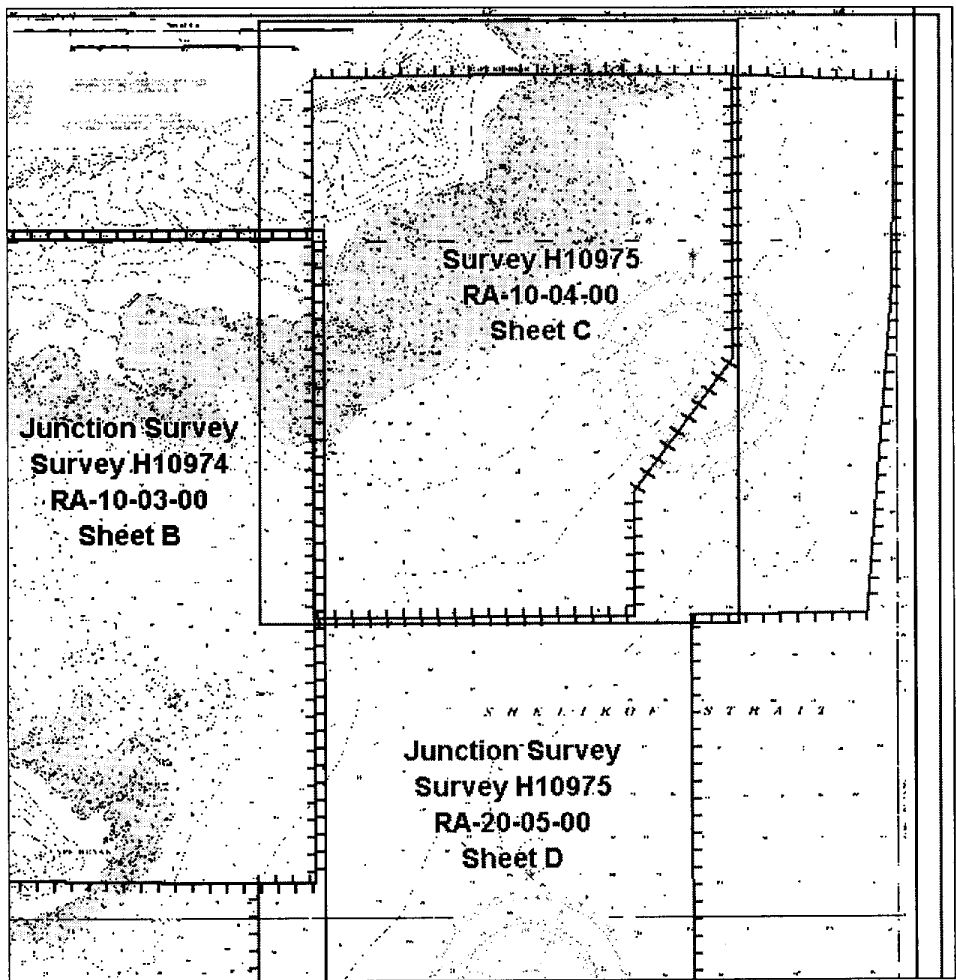


Figure 2: Junction Surveys with H10975

**Data Quality Factors** ✓

Shallow-water multibeam data acquired on DN 174 by VN 2121 and VN 2126 was filtered to 55°, not the standard 60°, to compensate for the existence of significant roll artifacts caused by large swells.

Vertical-beam echo sounder data acquired by VN 2125 on DN 150 were “meaned” during check scanning to compensate for the existence of heave artifacts, also caused by large swells.

During data cleaning in HDCS subset mode, errors in the preliminary tidal zoning scheme were apparent, making subset cleaning difficult due to numerous vertical shifts in the data. These errors were apparent both for predicted tides and observed water level data from the operating primary station at Women's Bay, Kodiak. To facilitate more accurate data cleaning, RAINIER utilized water level data from tertiary gauges installed during this project to correct SWMB soundings to an approximate mean lower-low water datum. For survey H10975, water level correctors from the RAINIER-installed gauge at Nukshak Island were applied to SWMB data in CARIS. RAINIER calculated an approximate mean lower-low water datum by comparing graphs of observed water level data from Nukshak Island to graphs from Womens Bay, Kodiak, and adjusting for the phase differences and shift in datum. These water level correctors were only used in the processing of SWMB data. For the final field sheet, observed water level data from

the primary station at Womens Bay, fully adjusted for the preliminary tidal zoning scheme, were used for water level correctors. ✓

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

**B3. Data Reduction** ✓

During excessing in HP Tools ZoomEdit, character size was increased from 3.5 to 5.0 mm to allow for proper sounding density on the Final Field Sheet. All other data reduction procedures for survey H10975 conform to those detailed in the *OPR-P164-RA-00 Data Acquisition and Processing Report*. \*

**C. VERTICAL AND HORIZONTAL CONTROL** ✓

A complete description of vertical and horizontal control for survey H10975 can be found in the *OPR-P164-RA-00 Horizontal and Vertical Control Report* submitted under separate cover. A summary of horizontal and vertical control for this survey follows.

**Horizontal Control** ✓ *See Eval Rpt., sections H and I*

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS was the sole method of positioning. The US Coast Guard Beacons at Kenai, AK and Kodiak, 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 *OPR-P164-RA-00 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 Kodiak, Alaska (945-7292) 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
Aguchik Island	945-6901	30-day	05/23/2000	06/24/2000
Nukshak Island	945-6717	30-day	05/24/2000	06/30/2000

*Aguchik Is. gage was not used for the reduction of soundings & features.*  
Raw water level data from these gauges were forwarded to N/OPS1 throughout the project period, with the final package submitted on August 18, 2000 in accordance with HSG 50 and FPM 4.7. 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 H10975 was forwarded to N/OPS1 on June 30, 2000 in accordance with FPM 4.8. *Approved Tide Note dated November 17, 2000 is included in this report.*

*\* Filed with the project reports for OPR - P164 - 2000 .*



**D. RESULTS AND RECOMMENDATIONS** ✓

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

No AWOIS items were located within the limits of H10975. *Concur.*

**D.2 Chart Comparison** (*See EVAL RPT., Sec. 0*)

Survey H10975 was compared with chart 16603 (07<sup>th</sup> Ed.; Jan 4, 1992, Scale 1:30,000). ✓

Depths from chart 16603 generally agreed with survey depths within one fathom, with occasional differences of up to three fathoms. These areas were fully developed with 100% shallow-water multibeam. The following comparisons address items not otherwise submitted as dangers to navigation (refer to section D.4 for danger to navigation information). *Soundings shown below are least depths found during multibeam development.*

In the vicinity of a charted sounding of two fathoms (58°22'35.72"N, 153°59'03.54"W; 442431.198 E, 6471059.306 N), survey soundings show 0.7 fathoms. ✓

In the vicinity of a charted sounding of three fathoms, three feet (58°22'06.18"N, 153°58'27.75"W; 442999.392 E, 6470137.298 N), survey soundings show 1.6 fathoms. ✓

In the vicinity of a charted sounding of three fathoms, three feet (58°20'46.76"N, 154°01'58.43"W; 439538.325 E, 6467732.270 N), survey soundings show 2.8 fathoms. ✓

In the vicinity of a charted sounding of three fathoms, two feet (58°21'02.22"N, 154°02'13.08"W; 439307.494 E, 6468214.038 N), survey soundings show 2.8 fathoms. ✓

In the vicinity of a charted sounding of two fathoms, three feet (58°22'01.84"N, 154°00'49.24"W; 440698.276 E, 6470037.046 N), survey soundings show 1.8 fathoms. ✓

In the vicinity of a charted sounding of nine fathoms, five feet (58°22'02.34"N, 153°57'27.69"W; 443973.630 E, 6470004.532 N), survey soundings range from 10.4 to 13.0 fathoms. One hundred percent shallow-water multibeam coverage was acquired in this area. ✓

In the vicinity of a charted sounding of nine fathoms, five feet (58°22'10.45"N, 153°57'15.39"W; 444177.059 E, 6470252.500 N), survey soundings range from 11.3 to 13.9 fathoms. One hundred percent shallow-water multibeam coverage was acquired in this area. *Present survey depths ranging from 8.5 - 9.6 fathoms were found approximately 100 meters north of the charted 9 fathom sounding.*  
 Survey H10975 was compared with chart 16576 (03<sup>rd</sup> Ed.; March 14, 1998, Scale 1:80,000). Depths from chart 16576 generally agreed with survey depths within one fathom. *Concur.* ✓

**D.3 Shoreline** (*See EVAL RPT., Sec. 3*)

**Method of Shoreline Verification** ✓

N/NGS3 supplied photogrammetric shoreline data in raster format for T-13163 and T-13160 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 16576 and 16603 were digitized in MapInfo by RAINIER personnel and displayed in Hypack for field verification. T-Sheet T-13159 was not supplied by N/NGS3. ✓

For this section of shoreline, chart 16603 (07<sup>th</sup> Ed.; Jan 4, 1992, Scale 1:30,000) was digitized and used in Hypack for field verification. *✓ Approximately 500 meters of shoreline is shown in brown from the chart centered at Lat. 58°22'30"N, long. 154°00'15"W. T-13159 is not available during processing.* 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 five to several hundred meters offshore of apparent mean low-water line. Water depths along this limit of safe navigation are approximately four meters at Mean Lower-Low Water (MLLW). Features unreachable by survey launch are depicted on the Detached Position Plot as 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 digitized 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 I 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. *Shoreline verification data has been analyzed during office processing and shown on the smooth sheet as warranted.*  
**Source Shoreline Changes and New Features** ✓

Several changes and new features were found and are depicted on the final Detached Position Plot.

The limits of an area foul with kelp depicted on the T-Sheet at position 58°22'55.81"N, 153°59'14.19"W (442267.302 E, 6471683.137 N) were revised by the Hydrographer. The foul limit was delineated by vessel track line data obtained during shoreline verification. These data were acquired at low tide or as close to low tide as possible. At higher stages of tide, limited penetration with a vertical-beam echo sounder launch was possible, allowing some soundings to be taken in the area. An area foul with rocks is delineated shoreward of the area foul with kelp. This limit was based on detached positions (position # 53210, 70031, 70033, and 70034). Limited penetration by a VBES launch was also possible in this area during higher stages of tide. ✓

The T-Sheet/charted (16603) rock at 58°23'22.69"N, 153°58'07.39"W, (position # 53157; 443364.204 E, 6472498.000 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart. *Concur. Charted rock in close proximity to the presently located ledge. Chart the area based on this survey.*

The T-Sheet/charted (16603) rock at 58°23'23.28"N, 153°58'24.37"W (position # 53161; 443088.799 E, 6472520.999 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart. *Concur. Charted rock in close proximity to the presently located ledge. Chart the area based on this present survey.*

The T-Sheet/charted (16603) rock at 58°22'21.45"N, 153°59'34.69"W (position # 21554; 439796.408 E, 6468613.514 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart. *Concur. Chart the area based on this present survey.*

The T-Sheet/charted (16603) rock at 58°22'20.89"N, 153°59'36.12"W (position # 21553; 439778.192 E, 6468575.993 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area.

*\* Filed with the hydrographic data.*

Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart. *Concur. Chart the area based on the present survey.*

The T-Sheet/charted (16603) rock at 58°20'51.58"N, 154°02'51.5"W (position # 22528; 438677.702 E, 6467894.513 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart. *Concur. (Some feature was discussed on page 9 of this report)*

The T-Sheet/charted (16603) rock at 58°20'36.15"N, 154°02'53.88"W (position # 22517; 438631.705 E, 6467417.999 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart. *Concur.*

A T-Sheet/charted reef at 58°22'24.9"N, 153°59'32.0"W (441963.919 E, 6470731.482 N) was not verified during low water due to inaccessibility. Vertical-beam echo sounder lines were acquired over its location on DN 146, 150 and 173 at higher stages of tide. The least depth in the area was determined to be 0.4 fathoms. Further investigation of the feature was not possible due to the shoal nature of the area. The Hydrographer recommends retaining the reef as charted. *Do not concur. Compile reef as depicted on the present survey.*

A T-Sheet reef at 58°22'26.16N, 153°59'48.42"W (441697.725 E, 6470774.391 N) was not verified during low water due to its inaccessibility. Vertical-beam echo sounder data was acquired in the area on DN 147 and 150. The least depth was determined to be 1.1 fathoms, which agrees with the general depths in the area of 1.4 fathoms. The Hydrographer recommends removing this feature from the chart, and replacement with appropriate soundings from survey H10975. *Concur. Chart the area based on the present survey. Chart the rocks in the vicinity located during this survey.*

On DN 146, 151, and 152, a T-Sheet/charted (16603) reef at 58°22'50.94"N, 153°59'29.18"W (442021.602 E, 6471536.110 N) was investigated. The least depth was determined to be 1.3 fathoms. Vertical-beam echo sounder data were acquired and detached position # 53210 was taken. Depths in the surrounding area range from 3.2 to 0.9 fathoms. The Hydrographer recommends revising the reef to a submerged reef on the chart. *Concur. Chart subm. reef as depicted on the present survey. Carry forward a portion of the reef from prior.*

The T-Sheet/charted (16576) rock at 58°21'15.38"N, 154°01'43.39"W (position # 22554; 439796.408 E, 6468613.514 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart. *Concur. Chart the area based on the present survey.*

The T-Sheet/charted (16576) rock at 58°21'14.16"N, 154°01'44.47"W (position # 22553; 439778.192 E, 6468575.993 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart. *Concur. Chart the area based on the present survey.*

A T-Sheet reef (northern extent located at 58°22'29.82"N, 153°59'46.74"W (441726.695 E, 64700887.175 N) was not located. No reef was visible at the time of shoreline verification. Depths in the area ranged from 0.6 to 2.0 fathoms. A new rock (058°22' 26.55"N, 153°59'51.57"W; position #70036; 441646.694 E, 6470787.211N) was located in the area. The Hydrographer recommends removing the charted reef and charting the new rock, as well as appropriate soundings from survey H10975. *Concur. Chart the area as depicted on the present survey.*

Three T-Sheet/charted rocks (positions 58°22'35.59"N, 153°59'29.14"W; 58°22'35.64"N, 153°59'22.4"W; 58°22'31.45"N, 153°59'44.27"W; 439235.071 E, 6468578.922 N; 442124.773 E, 6471061.326 N; 441767.569 E, 6470936.990 N) were not located. However, a full search was not

possible due to the shoal nature of the area. The Hydrographer recommends retaining these features as charted.

*Concur. Chart the foul area based on the present survey.*

Three T-Sheet/charted rocks (positions 58°22'35.68"N, 153°59'22.37"W; 58°22'35.58"N, 153°59'29.08"W; 58°22'31.52"N 153°59'44.21"W) were not located. However, a full search was not possible due to the shoal nature of the area. The Hydrographer recommends retaining these features as charted.

*Concur. Retain features as charted.*

*The same features as above.*

A new foul limit was delineated in the vicinity of Yugnat Rocks (58°21'13.98"N, 154°02'17.88"W; E 439235.071 N 6468578.922). The foul limit is based on detached positions 22550, 22549, 22543, 22542, 22541, and 22534. The area is foul with rocks.

*Concur. Chart the new foul limits of rocks based on this present survey.*

A new rock was found at 58°20'56.4"N, 154°00'47.5"W (440697.012 E, 646807.711 N). A dive investigation was conducted (position # 4500-4506). The least depth was determined to be 0.8 fathoms. This item was submitted to the U.S. Coast Guard as a danger to navigation on August 21, 2000. A copy of the Danger to Navigation Report is included in Appendix I.

*(based on approved files)  
Appendix I. (See EVAL RPT. Sec. 06)  
this report*

**Charted Features ✓**

The charted (16603) rock at 58°23'17.95"N, 153°57'24.55"W (position # 53160; 444057.907 E, 6472342.010 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. In places the visibility was reduced to only two meters due to thick kelp. The Hydrographer recommends its removal from the chart.

*Concur. Chart the area based on the present survey.*

The charted (16603) rock at 58°23'18.2"N, 153°57'27.04"W (position # 53159; 444017.500 E, 6472350.504 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. In places the visibility was reduced to only two meters due to thick kelp. The Hydrographer recommends its removal from the chart.

*Concur. Chart the area based on the present survey.*

The charted (16603) rock at 58°23'19.47"N, 153°57'52.56"W (position # 53156; 443603.696 E, 6472395.514 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart.

*Concur. Chart the area based on the present survey.*

The charted (16603) rock at 58°23'22.6"N, 153°57'58.29"W (position # 53158; 443516.805 E, 6472481.989 N) was found to be the extent of a T-Sheet ledge. The Hydrographer recommends removing the rock from the chart and charting the extents of the ledge as depicted on the Detached Position Plot.

*Concur.*

The charted (16603) rock at 58°23'23.82"N, 153°58'29.81"W (position # 53162; 443000.698 E, 6472539.009 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart.

*Concur. Charted rock was extension of ledge as shown on the smooth sheet.*

The charted (16603) rock at 58°21'18.46"N, 154°01'42.14"W (position # 22551; 439818.199 E, 6468708.515 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart.

*Do not concur. Search not conducted at LW. Retain feature from prior survey.*

The charted (16603) rock at  $58^{\circ}21'05.39''\text{N}$ ,  $154^{\circ}02'35.36''\text{W}$  (position # 22537; 438946.801 E, 6468317.514 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart. *Concur. Chart the area as depicted on the present survey.*

The charted (16603) rock at  $58^{\circ}21'05.53''\text{N}$ ,  $154^{\circ}01'33.7''\text{W}$  (position # 22546; 439949.199 E, 6468306.496 W) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends its removal from the chart. *Concur. Chart the area based on the present survey with the transferred prior survey rock.*

A dive investigation was conducted on a charted (16603) rock at position  $058^{\circ}22'0.4''\text{N}$ ,  $153^{\circ}58'21.3''\text{W}$  (443101.616 E, 6469957.031 W). The feature was determined to be a submerged rock with a least depth of 0.1 fathoms. The Hydrographer recommends replacing the charted depth on this rock with the least depth obtained from H10975. *Concur. Chart as "Og Rk".*

A charted ledge (16603) at the eastern extent of Nukshak Island ( $58^{\circ}23'20.44''\text{N}$ ,  $153^{\circ}56'55.99''\text{W}$ , 444522.811 E, 6472412.539 N) was not specifically addressed during the survey. However, a new rock was located at the seaward most extent of the charted ledge. The immediately surrounding area was foul with kelp. Several track lines were run over the charted location (DN 146) and there were no signs of the charted ledge. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends removal of the charted ledge and charting the shoreline as depicted on the Detached Position Plot. *Concur. Chart the area as depicted on the present survey.*

The charted (16603) rock at  $58^{\circ}21'03.62''\text{N}$ ,  $154^{\circ}01'53.39''\text{W}$  was not addressed during the survey. The Hydrographer recommends retaining it as charted. *Concur. Chart the rocks as depicted on the present survey.*

Several charted (16603) rocks (position # 22537 and 22527) were disproved south of Yugnat rocks on DN152. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer recommends their removal from the chart. *Concur. Chart area based on the present survey.*  
 $58/21/05.4\text{N}$ ,  $154/02/35.4\text{W}$  (Rs#22537);  $58/20/57.4\text{N}$ ,  $154/02/57.5\text{W}$  (Rs#22528)

A T-Sheet/charted (16603) reef at location  $58^{\circ}23'05.8''\text{N}$ ,  $153^{\circ}59'34.7''\text{W}$  (441938.721 E, 6471996.987 W) is actually a new extent of a charted ledge (16603). The Hydrographer recommends charting the ledge as depicted on the Detached Position Plot. *Concur. Chart ledge as depicted on the smooth sheet.*

The charted (16576) rock at  $58^{\circ}21'05.87''\text{N}$ ,  $154^{\circ}01'53.43''\text{W}$  (position # 22557; 439628.695 E, 6468322.005 N) was disproved with a 5-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer believes this is the same rock as that is located 70 meters to the south on chart 16603. *Concur. Chart rock based on the prior survey.*

The charted (16576) rock at  $58^{\circ}20'43.97''\text{N}$ ,  $154^{\circ}02'04.83''\text{W}$  (position # 22526; 439433.003 E, 6467647.493 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer believes that this is the same rock as that located approximately 100 meters to the southwest on chart 16603. *Concur. Chart rock as depicted on the present survey.*

The charted (16576) rock at  $58^{\circ}22'16.06''\text{N}$ ,  $153^{\circ}59'56.61''\text{W}$  (441560.027 E, 6470464.017 N) is a T-Sheet ledge. The Hydrographer believes that this is the same ledge as the one located approximately 60 meters to the northeast on chart 16603. *Concur. Chart the feature as shown on the present survey.*

The charted (16576) rock at  $58^{\circ}21'54.78''\text{N}$ ,  $154^{\circ}01'25.32''\text{W}$  (position # 23014; 440108.698 E,

6469827.495 N) was disproved with a five-minute echo sounder and visual search over a 50-meter area. Sea conditions were two-foot swell with one-foot seas. Visibility in the water was approximately four meters. The Hydrographer believes that this rock corresponds to the T-Sheet rocks close to the north of this position. *Do not concur. These rocks correspond to the rocks charted on 16603 and depicted on Chart 16576 at 1:80,000 scale. Rocks were transferred in the area as depicted on the prior survey.*

**Recommendations** ✓

The Hydrographer recommends that the shoreline as depicted on the DP and BS Plot supersede and complement shoreline information compiled on the T-Sheets as noted. <sup>concur</sup> These revisions are recorded in the MapInfo digital files named "H10975\_Shoreline" and "H10975\_ShorelineUpdates". 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 "H10975\_ShorelineNotes."

**D.4 Dangers to Navigation** ✓ (See EVAL RPT., Sec. O<sub>6</sub>)

One danger to navigation was found and reported to the Seventeenth Coast Guard District on August 21, 2000. An additional 17 dangers to navigation were found and reported to the Pacific Hydrographic Branch for verification <sup>on Sept 18, 2000</sup> and final submission to the Seventeenth Coast Guard District on October 2, 2000.

Copies of the preliminary Danger to Navigation Reports are included in Appendix I. The final report will be inserted by the Pacific Hydrographic Branch (PHB) following verification and submission to the U.S. Coast Guard.\*

**D.5 Aids to Navigation** (See EVAL RPT., Sec. Q)

No aids to navigation were located within H10975 survey limits. *Do not concur. A prominent charted landmark "Pinnacle" is located within the survey area. This landmark was depicted on prior survey.*

**D.6 Prior Surveys** See Eval Rpt., Section M

**Survey H-7812** ✓

Comparison of soundings from H10975 with soundings from prior survey H-7812 generally showed a difference of less than one fathom, with some discrepancies of up to three fathoms. *concur.*

**Survey H-7822** ✓

Comparison of soundings from H10975 with soundings from prior survey H-7822 showed a general difference of less than one fathom, with several discrepancies of up to four fathoms. These differences may be attributed to improved bottom coverage and positioning techniques since the prior survey. *concur.*

\* Filed with the hydrographic records for survey H-10975.

**E. APPROVAL**

As Chief of Party I have personally supervised the data acquisition and processing of this hydrographic survey and have inspected the final field sheets along with the Descriptive Report. I approve of all field sheets, the Descriptive Report, digital data, and accompanying records. This approval constitutes the assumption of responsibility for the stated accuracy and completeness of the hydrographic survey.

Survey H1097<sup>5</sup>~~4~~ is complete and adequate to supersede charted soundings and features in their common areas. There is no additional work required on this survey. *Concur.*

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

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Data Acquisition and Processing Report for OPR-P164-RA-00	10/02/2000	N/CS34
Horizontal and Vertical Control Report for OPR-P164-RA-00	TBD	N/CS34
Tides and Water Levels Package for OPR-P164-RA-00	08/18/2000	N/OPS1
Coast Pilot Report for OPR-P164-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: *Sean C. Rooney*  
 Sean C. Rooney  
 Senior Survey Technician

Field Operations Officer: *E. J. Van Den Ameele*  
 Edward J. Van Den Ameele  
 Lieutenant, NOAA



**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  
 August 21, 2000

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

**ADVANCE  
 INFORMATION**

Dear Sir:

It is requested that the following danger to navigation be included in the Local Notice to Mariners. The NOAA Ship RAINIER positioned this feature while conducting hydrographic survey H10975 in Shelikof Strait, Alaska, in May-June 2000. The feature is shown graphically on the attached chartlet.

The following dangers to navigation affect the following charts:

<u>Chart</u>	<u>Scale</u>	<u>Edition</u>	<u>Date</u>
16603	1:30,000	07 <sup>th</sup> Ed.	Jan 4, 1992
16013	1:969,761	27 <sup>th</sup> Ed.	September 6, 1997
16576	1:80,000	03 <sup>th</sup> Ed.	March 14, 1998

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

<u>Feature</u>	<u>Depth (fm)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Depth (m)</u>
Rock	0.6 1.3 *	58° 20' 56.4	154° 00' 47.5"	1.8

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 OPR-P164-RA-00 and Danger to Navigation message RA-05-00. More information on current RAINIER survey projects may be obtained by e-mail; contact the Field Operations Officer at [FOO.RAINIER@NOAA.GOV](mailto:FOO.RAINIER@NOAA.GOV).

*\* based on approved tides.*

Sincerely,

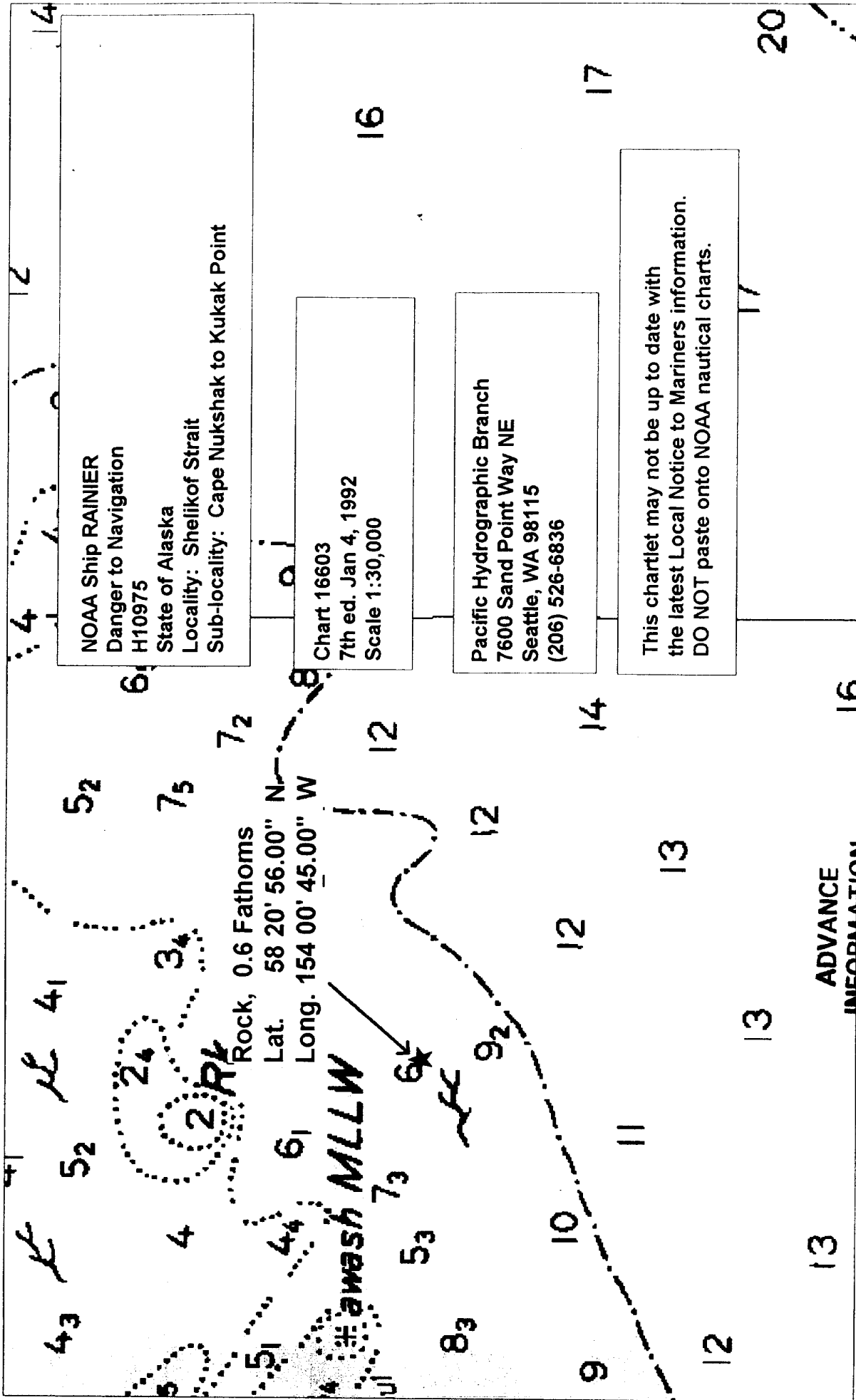
Daniel R. Herlihy  
 Commander, NOAA  
 Commanding Officer

Attachment

cc: NIMA  
 N/CS261  
 PMC  
 N/CS34







NOAA Ship RAINIER  
 Danger to Navigation  
 H10975  
 State of Alaska  
 Locality: Shelikof Strait  
 Sub-locality: Cape Nukshak to Kukak Point

Chart 16603  
 7th ed. Jan 4, 1992  
 Scale 1:30,000

Pacific Hydrographic Branch  
 7600 Sand Point Way NE  
 Seattle, WA 98115  
 (206) 526-6836

This chartlet may not be up to date with  
 the latest Local Notice to Mariners information.  
 DO NOT paste onto NOAA nautical charts.

ADVANCE  
 INFORMATION

**REPORT OF DANGERS TO NAVIGATION**

Hydrographic Survey Registry Number: H10975

Survey Title: State: AK  
Locality: Shelikof Strait  
Sublocality: Cape Nukshak to Kukak Point

**ADVANCE  
INFORMATION**

Project Number: OPR-P164-RA

Survey Dates: May - June 2000

Depths are reduced to Mean Lower Low Water using observed unverified tides  
Positions are based on the NAD83 horizontal datum.

**CHARTS AFFECTED:**

CHART	SCALE	DATE	EDITION
16603	1:30,000	07 <sup>th</sup> Ed.	Jan 4, 1992
16013	1:969,761	27 <sup>th</sup> Ed.	September 6, 1997
16576	1:80,000	03 <sup>th</sup> Ed.	March 14, 1998

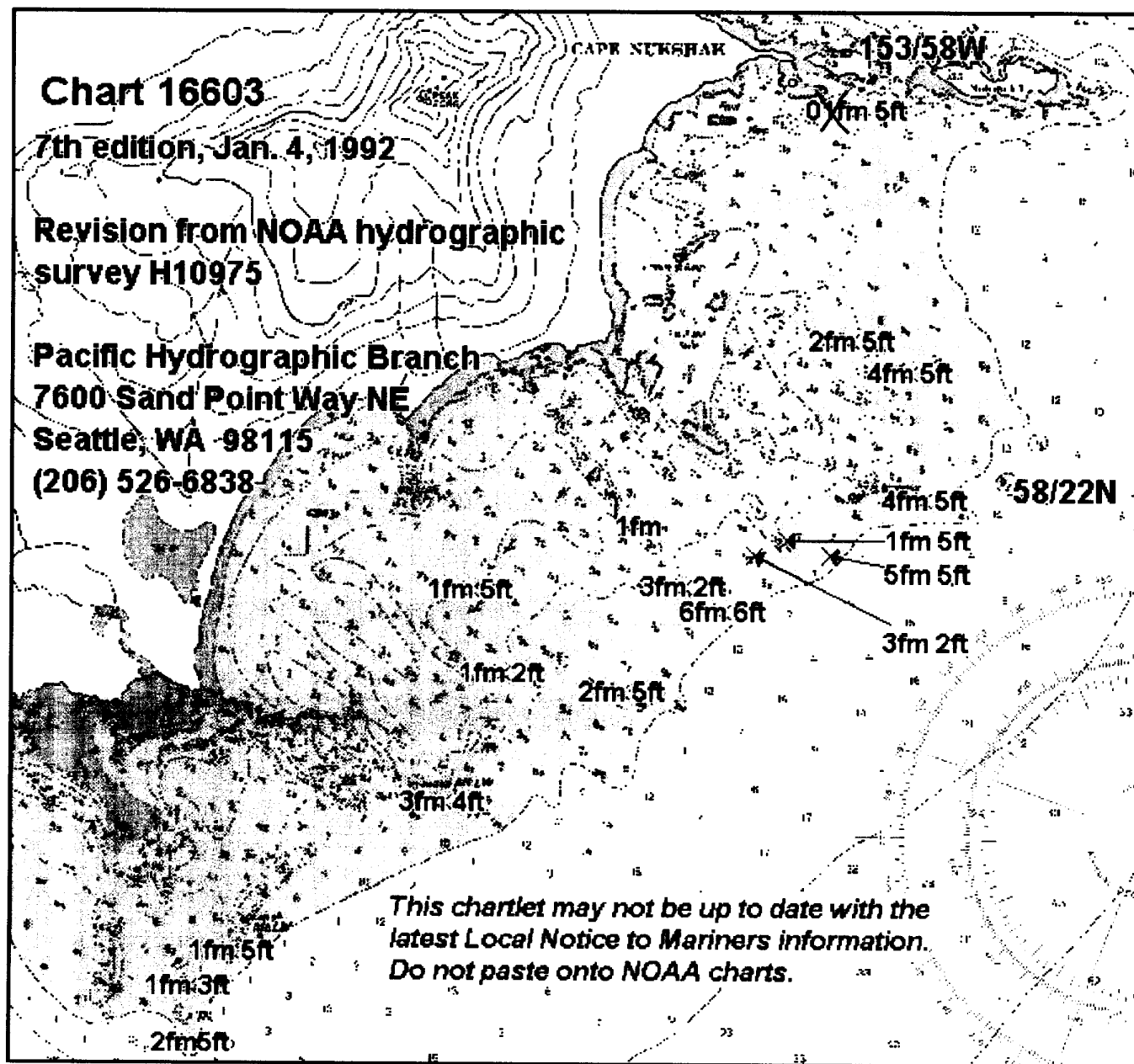
**DANGERS:**

FEATURE	DEPTH(fms/ft) ELEV(feet)	LATITUDE(N)	LONGITUDE(W)
Depth	0fm 5ft	58° 23' 18.5"	153° 58' 27.8"
Depth	1fm	58° 21' 53.3"	153° 59' 51.7"
Depth	1fm 2ft	58° 21' 23.2"	154° 00' 44.9"
Depth	1fm 3ft	58° 20' 18.9"	154° 02' 46.0"
Depth	1fm 5ft	58° 21' 50.5"	153° 58' 54.6"
Depth	1fm 5ft	58° 21' 40.0"	154° 00' 57.3"
Depth	2fm 2ft	58° 20' 26.1"	154° 02' 29.3"
Depth	2fm 5ft	58° 20' 07.0"	154° 02' 45.2"
Depth	2fm 5ft	58° 21' 19.4"	153° 59' 58.3"
Depth	2fm 5ft	58° 22' 31.3"	153° 58' 29.9"
Depth	3fm 2ft	58° 21' 47.4"	153° 59' 07.0"
Depth	3fm 2ft	58° 21' 40.7"	153° 59' 34.5"
Depth	3fm 4ft	58° 20' 56.6"	154° 01' 07.6"
Depth	4fm 5ft	58° 21' 58.6"	153° 58' 01.3"
Depth	4fm 5ft	58° 22' 24.7"	153° 58' 07.1"

**COMMENTS:**

[Click here to view chartlet](#)

Questions concerning this report should be directed to the Pacific Hydrographic Branch (N/CS34) at (206) 526-6836.





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

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE:** November 17, 2000

**HYDROGRAPHIC BRANCH:** Pacific

**HYDROGRAPHIC PROJECT:** OPR-P164-RA-2000

**HYDROGRAPHIC SHEET:** H-10975

**LOCALITY:** Northern Shelikof Strait, AK

**TIME PERIOD:** May 25 - June 23, 2000

**TIDE STATION USED:** 945-6717 Nukshak Island, AK

Lat. 58° 23.5'N Lon. 153° 57.6'W

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters

**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 3.957 meters

**REMARKS:** RECOMMENDED ZONING

Use zone(s) identified as: SS14 & SS25.

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.

*Thomas V. Mero* 11/17/00  
-----  
**CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION**



Printed on Recycled Paper



GEOGRAPHIC NAMES

H-10975

Name on Survey	ON CHART NO. 16576, 16603		ON PREVIOUS SURVEY	CON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	RAND McNALLY ATLAS	U.S. LIGHT LIST	
	A	B								
ALASKA (title)	X		X							1
CAPE NUKSHAK	X		X							2
KUKAK POINT	X		X							3
NUKSHAK ISLAND	X		X							4
PINNACLE (monument)	X									5
SHELIKOF STRAIT	X		X							6
YUGNAT ROCKS	X		X							7
										8
										9
										10
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										24
										25

APPROVED

*Chris Olay*  
Chief Surveyor

JAN 24 2001

**HYDROGRAPHIC SURVEY STATISTICS**

**H-10975**

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

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

DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS
ACCORDION FILES	1				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES					

**SHORELINE DATA**

- SHORELINE MAPS (List): T-13160, T-13163
- PHOTOBATHYMETRIC MAPS (List):
- NOTES TO THE HYDROGRAPHER (List):
- SPECIAL REPORTS (List):
- 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			150
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT			49
GEOGRAPHIC NAMES			
OTHER (Chart Compilation)			93
USE OTHER SIDE OF FORM FOR REMARKS			
<b>TOTALS</b>			<b>292</b>

Pre-processing Examination by	Beginning Date	12/15/2000	Ending Date	
Verification of Field Data by E. Domingo, R. Mayor, R. Davies, I. Almacen	Time (Hours)	150	Ending Date	
Compilation Check by	Time (Hours)		Ending Date	
Evaluation and Analysis by I. Almacen	Time (Hours)	49	Ending Date	06/12/2001
Inspection by B. Olmstead, L. Deodato	Time (Hours)	118	Ending Date	12/03/2002

**EVALUATION REPORT  
H-10975**

**A. PROJECT**

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

**B. AREA SURVEYED**

The survey area is adequately described in the hydrographer's report except as follows.

The hydrographer has determined the inshore limits of safe navigation by defining a Navigable Area Limit Line (NALL) throughout the survey area. Charted features and soundings inshore of this limit line have not been specifically addressed during survey operations and should be retained as charted. A page-size plot of the charted area on chart 16603 depicting the specific limits of supersession accompanies this report as Attachment 1.

The bottom consists mainly of mud, sand and pebbles mixed with broken shells. Kelps is common along the shallow inshore area of this survey. Depths range from 0.0 to 89.0 fathoms.

**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 dated June 2000.

The data are plotted using a Universal Transverse Mercator, Zone 5 projection 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 B1 of the hydrographer's report. Vertical-beam echo sounder data were collected in near shore and shallow areas which were too dangerous for the safe and effective use of vessels equipped with the 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 Nukshak Island, Alaska, gage 945-6717.

Other sounding reducers include corrections for static draft, dynamic draft, sound velocity, heave, pitch and roll. 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-P164 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 NAD27 adjustment tick based on values determined with the NGS program NADCON. Geographic positions based on NAD27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: -2.446 seconds (-75.668 meters)  
Longitude: 7.483 seconds (121.698 meters)

#### I. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used to control this survey. The satellite configuration, as indicated by HDOP and number of satellites, is monitored by POS/MV software displays to insure position data quality. The maximum HDOP allowable limit of 2.5 has not been exceeded during this survey and the quality of data obtained is good. DGPS performance checks were conducted in the field and found adequate.

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

Additional information concerning specific control system type, calibrations and system checks can be found in the hydrographer's report and in the separates related to horizontal position control and correction to position data.

#### J. SHORELINE

Shoreline maps T-13160 and T-13163 in raster format were office compiled on NAD27 and apply to this survey. The shoreline was digitized at the Pacific Hydrographic Branch on NAD83. Shoreline drawn on the smooth sheet in black originates from the above raster data as provided by the Remote Sensing Division, NGS. There is no photogrammetric shoreline coverage at latitude 58°22'30"N, longitude 154°00'15"W. This portion of the shoreline originates from chart 16603 (7<sup>th</sup> Edition) and shown in brown for orientation purposes only. The shoreline data and the hydrographic data were merged during MicroStation processing. There were no MHW revisions on this survey.

The shoreline maps and the results of the fieldwork as portrayed on the smooth sheet should supersede charted shoreline.

#### K. CROSSLINES

Crosslines are adequately discussed in section B2 of the hydrographer's report.

#### L. JUNCTIONS

Survey H-10975 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Year</u>
H-10974	2000	1:10,000	Western Limit
H-10976	2000	1:20,000	Southern & Eastern Limits

The junction with survey H-10974 and H-10976 are complete and "Joins" notes have been added to the smooth sheet where applicable.



## M. COMPARISON WITH PRIOR SURVEYS

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Datum</u>
H-7812	1949	1:40,000	NAD 27
H-7822	1949	1:20,000	NAD 27
H-9543	1975	1:20,000	NAD 27

The legibility of the prior survey digital image files is considered acceptable and was adequately registered to the present survey smooth sheet. The registration was accomplished by applying the corrections mentioned in section H of this report.

Prior surveys H-7812 and H-7822 are the source data for most of the charted information. The soundings from the current survey generally agree within 0.5-2.0 fathoms with no consistent pattern of shoaling and or an increase in depths. Aside from the effects of past earthquake activity, the differences in depths with the prior surveys may well be attributed to the greater sounding coverage and improved positioning and sounding methods used during this survey.

Prior survey H-9543 covers the northern edge of the present survey from Nukshak Point towards the area along the northern shore of Nukshak Island. The depths of the present survey are generally shallower than the prior by about 1-2 fathoms.

Comparison with the prior mean high water line generally reveals an appreciable change over the past fifty-one years.

A more thorough bottom coverage utilizing the shallow water multibeam (SWMB) system supplemented by single-beam echo sounding system has generally provided a better portrayal of the bottom configuration.

With the exception of several prior survey features brought forward in color to the smooth sheet, survey H-10975 is adequate to supersede the prior data within the area of common coverage.

## N. ITEM INVESTIGATIONS

There were no AWOIS items assigned to this survey.

## O. COMPARISON WITH CHART

Survey H-10975 was compared with the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16603	7 <sup>th</sup>	Jan. 4, 1992	1:30,000	NAD 83

### a. Hydrography

Charted hydrography originates with the previously discussed prior surveys and requires 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.

Except as mentioned in section M, Survey H-10975 is adequate to supersede charted hydrography within the common area.

### b. Dangers to navigation

Sixteen dangers to navigation were discovered during survey operations, checked by Pacific Hydrographic Branch and reported to the N/CS26. No additional dangers to navigation were found during office processing. A copy of the report is attached.

**P. ADEQUACY OF SURVEY**

The hydrography contained on survey H-10975 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.

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 dated June 2000.

**Q. AIDS TO NAVIGATION**

There are no fixed and floating aids to navigation located within the limits of survey H-10975.

The charted landmark (pinnacle) situated on an islet close to the west end of Nukshak Island at latitude 58°23'29.0"N, longitude 153°57'58.0"W, was compiled as a landmark on prior survey H-7822 (1949). This feature was described as a prominent pinnacle on the latest edition of the U. S. Coast Pilot and is presently depicted as "PINNACLE" on charts 16576 and 16603. This feature should be retained as charted. However, based on this recent survey, the presently charted position of the landmark appears to fall outside of the small islet where the pinnacle is suppose to be located as shown on the prior survey.

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

**R. STATISTICS**

This section in the hydrographer's report is no longer required under the Specifications and Deliverables dated June 2000.

**S. MISCELLANEOUS**

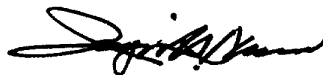
Miscellaneous information is adequately discussed in the hydrographer's report.

**T. RECOMMENDATIONS**

Survey H-10975 is a good hydrographic survey. No additional work is recommended.

**U. REFERRAL TO REPORTS**

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



Isagani A. Almacén  
Cartographer

APPROVAL SHEET  
H-10975

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproof of charted data. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

*for* *Arnold T. Dickel* Date: *12/03/01*  
Dennis Hill,  
Chief, 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 Evaluation Report.

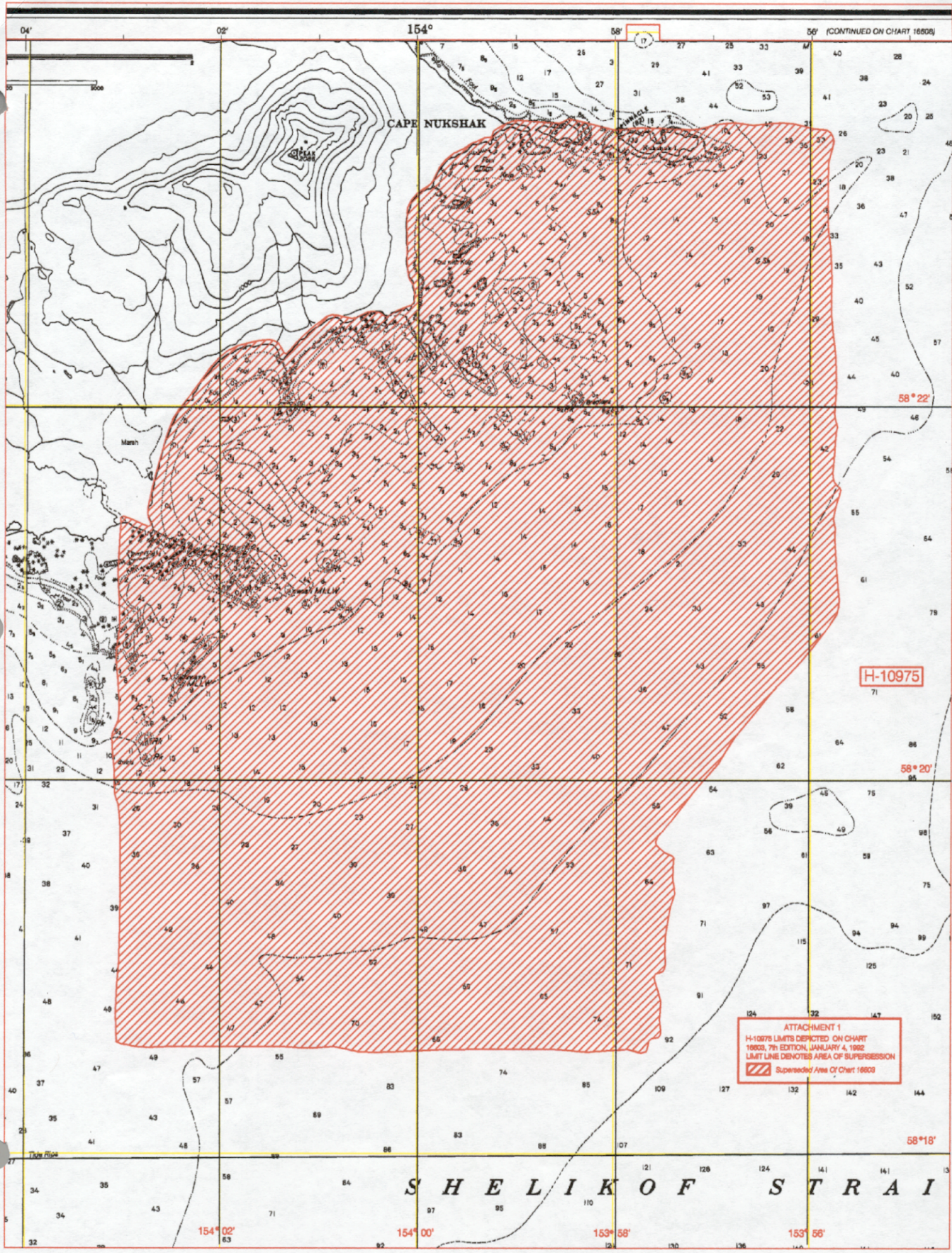
*J. E. Lowell, Jr.* Date: *2/14/02*  
John E. Lowell, Jr.  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

\*\*\*\*\*

Final Approval

Approved:

*Samuel P. De Bow, Jr.* Date: *May 2, 2002*  
Samuel De Bow, Jr.  
Captain, NOAA  
Chief, Hydrographic Surveys Division



154°

(CONTINUED ON CHART 16608)

CAPE NUKSHAK

H-10975

S H E L I K O F S T R A I T

154° 02'

154° 00'

153° 58'

153° 56'

58° 18'

58° 20'

58° 22'

MARINE CHART BRANCH  
**RECORD OF APPLICATION TO CHARTS**

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10975

**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
16603	6/12/01	<i>Raymond</i>	Full <del>Part</del> Before After Marine Center Approval Signed Via <i>Full application of</i> Drawing No. <i>soundings &amp; features from smooth sheet.</i>
			Full Part Before After Marine Center Approval Signed Via Drawing No.
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