

H10974

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-10-03-00

Registry No. H-10974

### LOCALITY

State Alaska

General Locality Northern Shelikof Strait

Sublocality Cape Ugyak to Devils Cove and  
Vicinity of Kukak Point

2000

CHIEF OF PARTY  
Commander D.R. Herlihy, NOAA

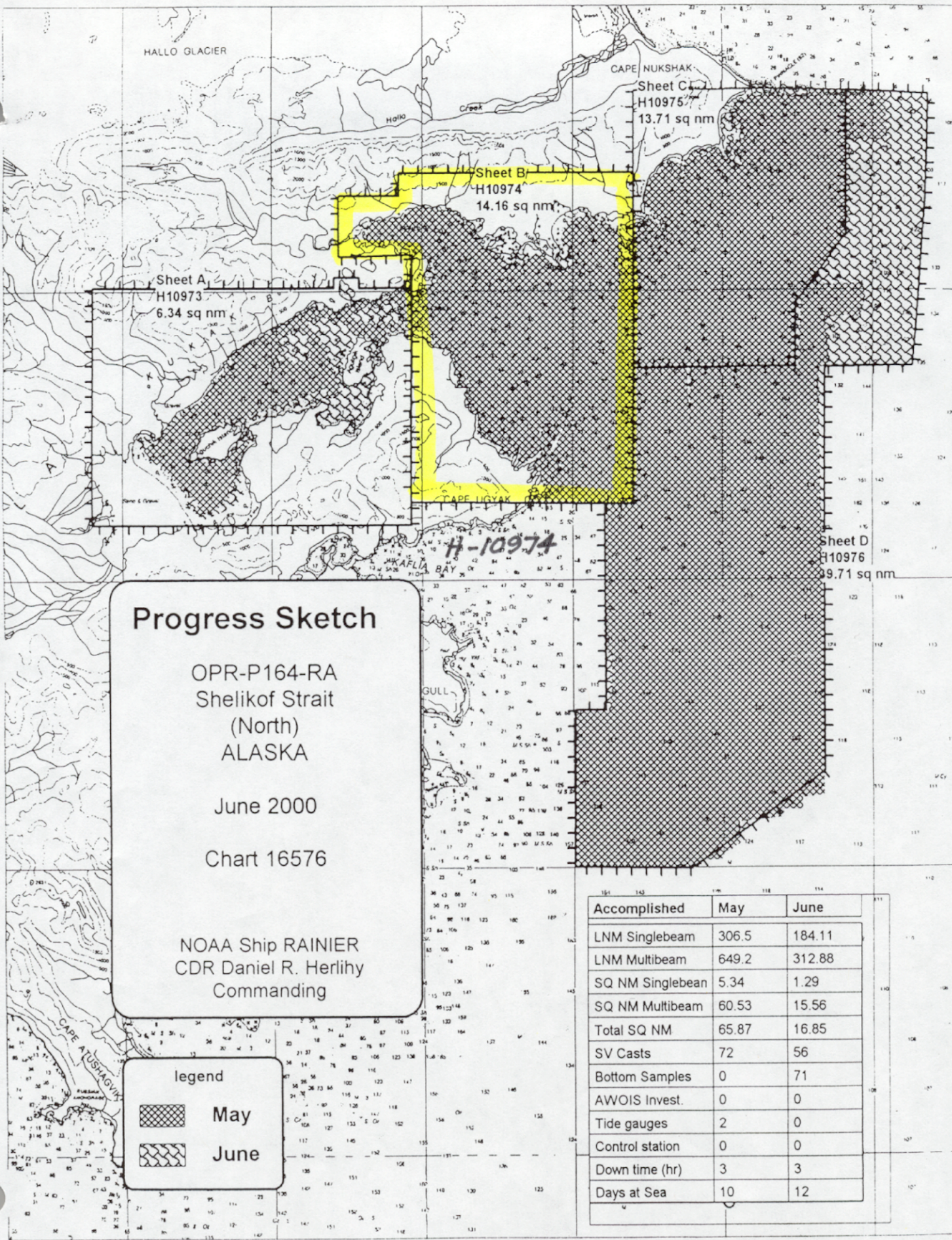
### LIBRARY & ARCHIVES

DATE

May 2, 2002

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTER NO.
<b>HYDROGRAPHIC TITLE SHEET</b>		<b>H-10974</b>
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. <b>RA-10-03-00</b>
State <u>Alaska</u>		
General Locality <u>Northern Shelikof Strait</u>		
Sublocality <u>Cape Ugyak to Devils Cove and Vicinity of Kukak Point</u>		
Scale <u>1:10,000</u>	Date of Survey <u>5/26/2000 --6/23/2000</u>	
Instructions Date <u>5/8/2000</u>	Project No. <u>OPR-P164-RA-00</u>	
<u>Change #1 6/12/2000</u>		
Vessel <u>RA-1(2121) to RA-7(2127)</u>		
Chief of Party <u>Commander D. R. Herlihy, NOAA</u>		
Surveyed by <u>RAINIER Personnel</u>		
Soundings taken by echo sounder, hand lead, pole <u>Knudsen 320M, RESON 8101 MB</u>		
Graphic record scaled by <u>RAINIER Personnel</u>		
Graphic record checked by <u>RAINIER Personnel</u>		
Evaluation by <u>I. Almacen</u>	Automated plot by <u>HP DesignJet 750C</u>	
Verification by <u>E. Domingo, R. Mayor, R. Davies</u>		
Soundings in <u>Fathoms</u>	at	<u>MLLW</u>
REMARKS: <u>Time in UTC. Revisions and marginal notes in black</u>		
<u>were generated during office processing. All separates</u>		
<u>are filed with the hydrographic data. As a result page</u>		
<u>numbering may be interrupted or non-sequential.</u>		
<u>All depths listed in this report are referenced to</u>		
<u>mean lower low water unless otherwise noted.</u>		
<u>AWOIS V § SURFV by DAS 4-25-02</u>		





**Progress Sketch**


OPR-P164-RA  
 Shelikof Strait  
 (North)  
 ALASKA


June 2000

Chart 16576

NOAA Ship RAINIER  
 CDR Daniel R. Herlihy  
 Commanding

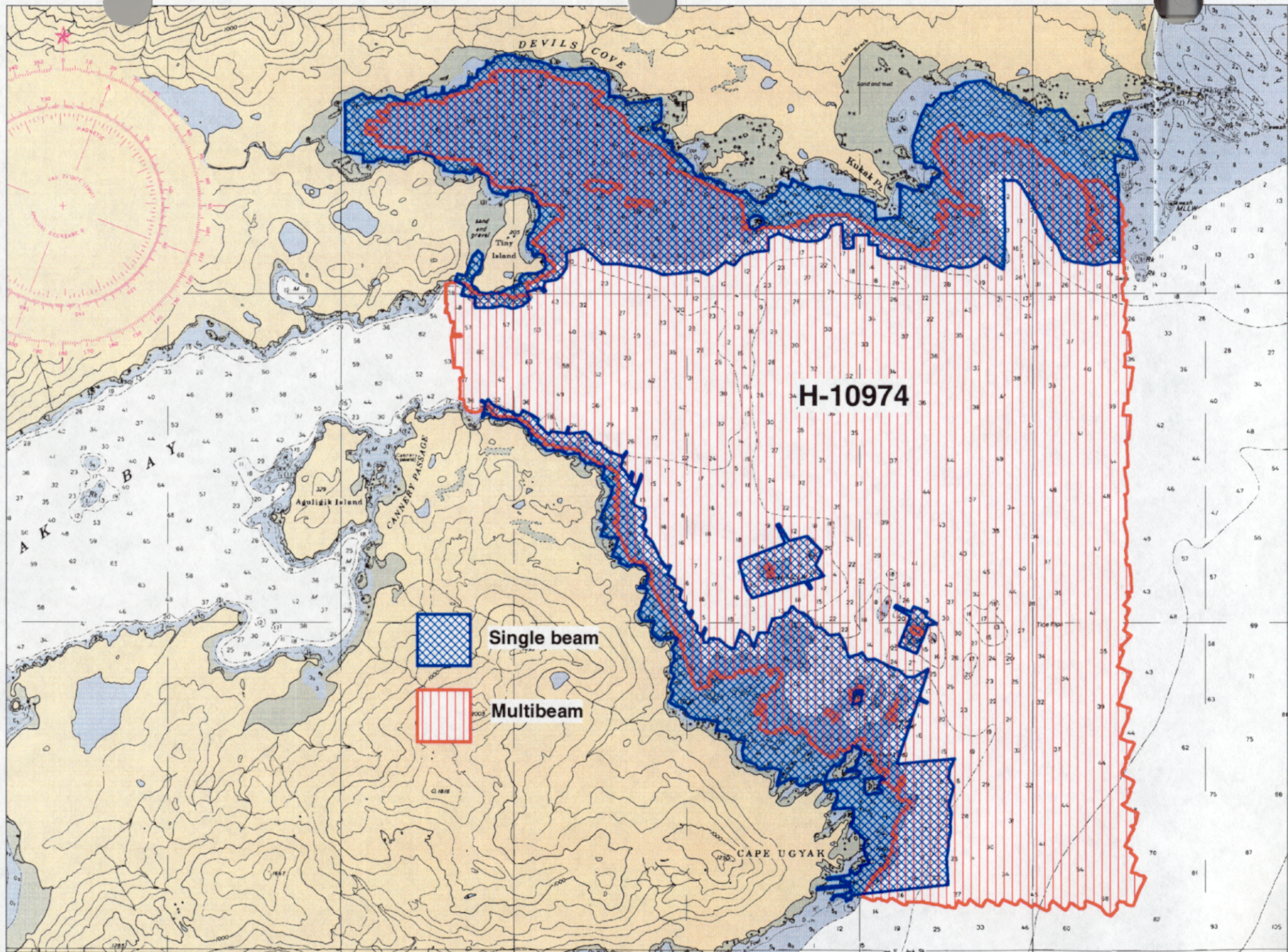
**legend**

 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





DEVILS COVE

Tiny Island

Rukak Pt.

H-10974

Aguligik Island

CANNERY PASSAGE

CAPE UGYAK



Single beam



Multibeam



# Descriptive Report to Accompany Hydrographic Survey H10974

Project OPR-P164-RA-00 Shelikof Strait

Scale 1:10,000

May-June 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 on the east coast of the Alaskan Peninsula in Northern Shelikof Strait, approximately five nautical miles southwest of Cape Nukshak, and extending south to Cape Ugyak. The survey's northern limit is latitude  $58^{\circ}22'18''$  N and the southern limit is latitude  $58^{\circ}18'33''$  N. The survey's western limit is longitude  $154^{\circ}13'10.2''$  W and the eastern limit is longitude  $154^{\circ}03'23.1''$  W. The western most extent of Devil's Cove, located at the northwest corner of the survey limits, has been incorporated into a separate inset.

Data acquisition was conducted from May 26, to June 23, 2000 (DN 147 to 175).

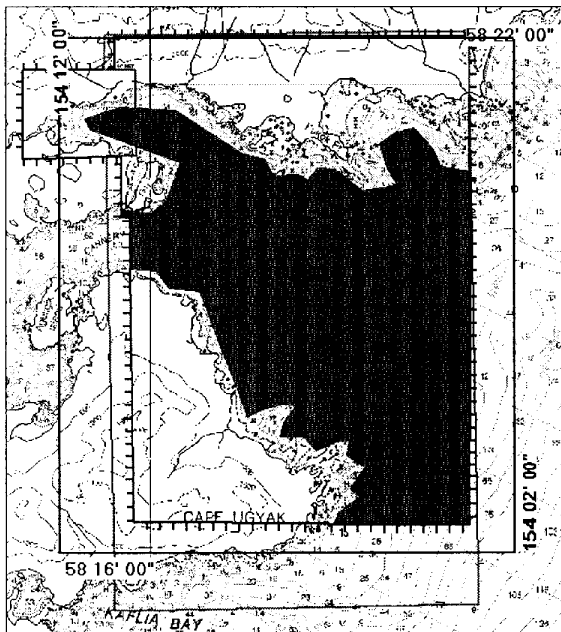


Figure 1: Extent of SWMB coverage for H10974

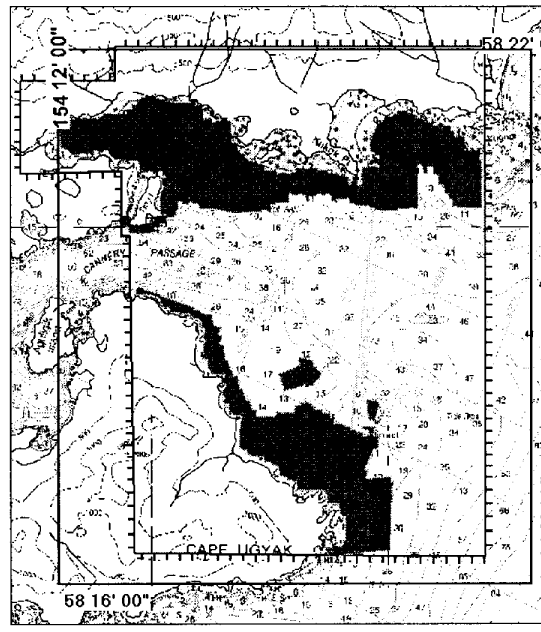


Figure 2: Extent of VBES hydrography for H10974

## 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 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. Vessels 2124 and 2125 were also used to collect bottom samples. Vessel 2127 was used to obtain detached positions during shoreline verification. No unusual vessel configurations or problems were encountered on this survey.

**B2. Quality Control ✓**

**Crosslines**

Vertical-beam echo sounder (VBES) crosslines totaled 14.3 nautical miles, comprising 12.1% of mainscheme hydrography. Crosslines agreed within one meter of mainscheme hydrography. Shallow-water multibeam (SWMB) crosslines totaled 23.2 nautical miles, comprising 10.5% of SWMB hydrography. The Quality Control Report (CARIS HIPS) for the checkline file averaged 97.29%, 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 (HSSDM). See Appendix V for the detailed report

**Junctions ✓**

The following contemporary surveys junction with H10974:

Registry #	Scale	Date	Junction side
H10973	1:10,000	2000	West ✓
H10975	1:10,000	2000	East ✓
H10976	1:20,000	2000	Southeast ✓

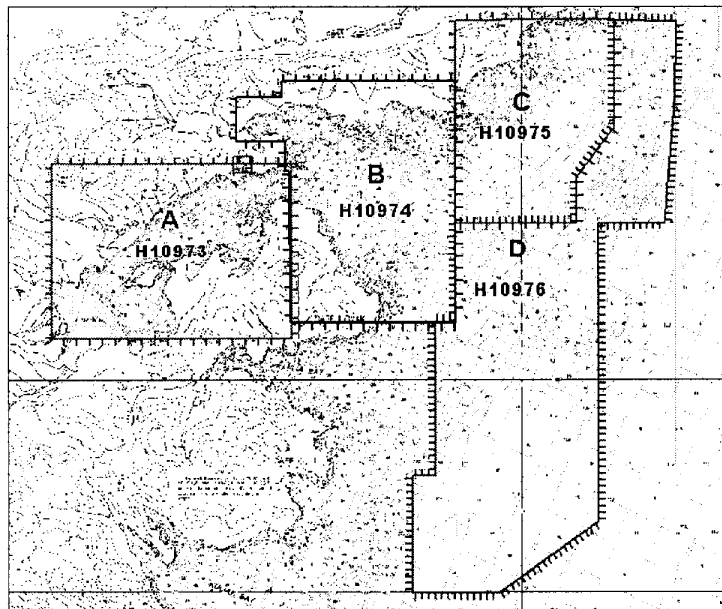


Figure 3: H10974 Survey Junctions

*\* Filed with the hydrographic data -*

At the time of this report, processing of H10973 was not complete. Comparisons with H10973 will be discussed in the Descriptive Report for H10973. *Comparison on this survey was done during office processing.*

Survey H10975 junctions well with this survey. Depths generally agree within one fathom or less. *Concur.*

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

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

**Data Quality Factors** ✓

No unusual conditions were encountered during the survey which 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 H10974 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 H10974 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** ✓

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 Kodiak, AK and Kenai, AK were the sources of differential correctors. Launch-to-launch DGPS performance checks were performed in accordance with Section 3.2 of the 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
Nukshak Island	945-6717	30-day	24 May 2000	30 June 2000
Aguchik Island	945-6901	30-day	23 May 2000	24 June 2000

*Aguchik Is. gage was not used for the reduction of soundings & features for this survey.*  
 Raw water level data from these gauges were forwarded to N/OPS1 throughout the project period, with the final package submitted on July 5, 2000 in accordance with 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 H10974 was forwarded to N/OPS1 on July 11, 2000 in accordance with FPM 4.8. *Approved Tide Note dated November 17, 2000 is included in this report.*

**D. RESULTS AND RECOMMENDATIONS** ✓

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

There were no AWOIS items on this survey. *Concur.*

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

Survey H10974 was compared with chart 16603 (07<sup>th</sup> Ed.; Jan 4, 1992, Scale 1:30,000). Depths from chart 16603 agreed well with survey depths, with most differences less than two fathoms, although some differences up to three fathoms exist. More significant differences not otherwise submitted as dangers to navigation (refer to Appendix I) are discussed below.

Between charted 15-fathom soundings at 58°19'21.24"N, 154°07'18.91"W (434,283.5E, 6,465,171.0N), survey H10974 obtained soundings of up to 22 fathoms. However, survey soundings agreed with charted soundings at the positions of the charted 15-fathom soundings. Soundings from H10974 also agreed within one fathom with those of prior survey H-7822. The Hydrographer believes that the 20-fathom curve has been generalized on charts 16603 and 16576, and therefore the deeper soundings are not depicted. The area was covered with 100% SWMB. The Hydrographer recommends depicting the deeper depths to define the break in the ridge, as is practicable at chart scale. This difference is depicted in Figure 4. *Do not concur. Depiction of break in the ridge for insignificantly deeper depth of 21 & 20.5 fathoms is not necessary considering the scale of the chart.*

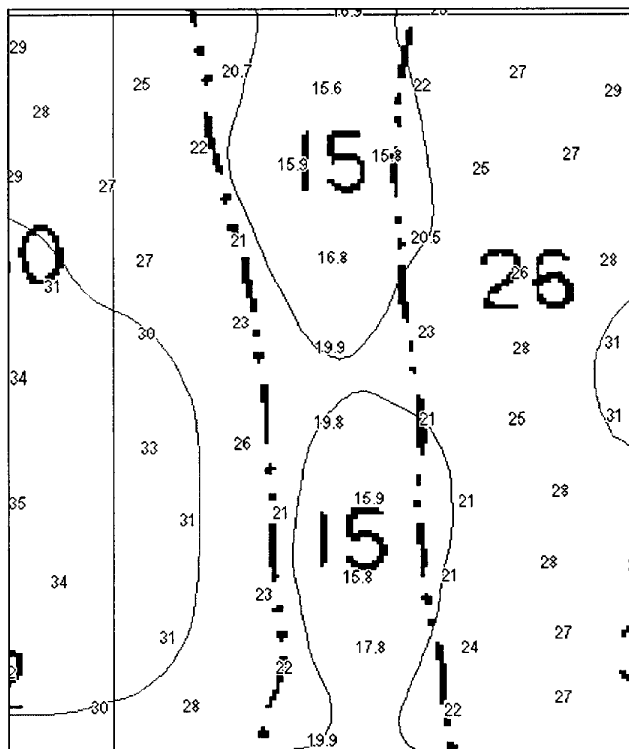


Figure 4: Chart comparison in vicinity of 20-fathom curve

Just south of a charted 12-fathom sounding at 58°17'01.0"N, 154°05'21.8"W (436,118.7E, 6,460,802.8N), the present survey revealed a depth of 9.9 fathoms. This area is close to shore and was covered by 100% SWMB. *(7.6-8.9 fms isolated soundings were located about 250m. NE of this location) Chart the area based on the present survey.*

In the vicinity of the southern shore of Tiny Island, H10974 shows the 10- and 20-fathom curves to be located closer inshore than depicted on the chart. This area was very steep and close to shore and was covered with 100% SWMB. The Hydrographer recommends revising the depth curves on chart 16603 using soundings from H10974. *Concur. Chart the area based on the recent survey.*

Survey H10974 was also compared with chart 16576 (3<sup>rd</sup> Ed.; March 14, 1998; Scale: 1:80,000). Depths from chart 16576 agreed well with survey depths, with differences generally less than 2 fathoms, although some differences up to 3 fathoms exist. *Concur.*

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

N/NGS3 supplied photogrammetric shoreline data in raster format for T-13162, T-13163, T-13165, and T-13166 for use as source shoreline data. 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 16603 and 16576 were digitized in MapInfo by RAINIER personnel and displayed in HYPACK for field verification.

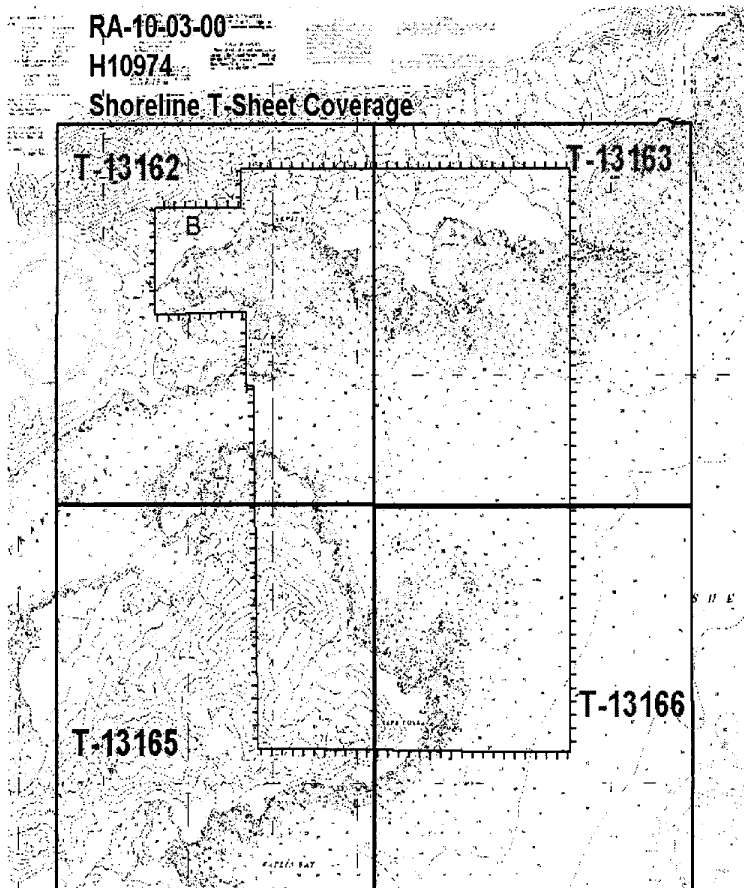


Figure 5: T-Sheet coverage for H10974

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 to several hundred meters offshore of the apparent low water line. Water depths along this limit of safe navigation are approximately four meters at Mean Lower Low-Water (MLLW). The MLLW line was approximated in the field by the Hydrographer based on the stage of tide during shoreline verification, and is depicted on the DP and BS Plot. Many charted and T-Sheet features inshore of the approximate MLLW line were unreachable by survey launch and are the Hydrographer's approximate representation of the shoreline. The features that were visually verified from afar and unaccompanied by a detached position have been labeled on the Bottom Sample and DP Plot and on the MapInfo table "H10974\_ShorelineNotes." ✓

Detached positions (DPs) acquired 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. Digitized T-Sheet shoreline copies that included T-Sheet and charted rocks were taken into the field and annotated by hand to reflect shoreline and feature verification. Detached position forms are included in Section I of the *Separates to be Included with Survey Data*. \* ✓

A detailed "DP and BS 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. ✓

#### Source Shoreline Changes and New Features ✓

Several changes and new features were found and are depicted on the final DP plot. T-Sheet and charted rocks were often identified as high points or extents of new ledges, new reefs, extents of islets or extents of foul areas. The following changes and new features to the T-Sheet shoreline were found and are depicted on the final DP plot. ✓

Several new reefs, foul areas, and revisions to T-Sheet foul areas were found in the vicinity of Cape Ugyak and Kulichkof Island. Detached positions were obtained on these features and are depicted on the DP and BS Plot. Foul area limits most often included heavy kelp. ✓

Extensive foul areas were delineated to the west and east of Kukak Point and also at the eastern most extent of the survey where it junctions with survey H10975. These areas were defined by a buffer line and delineated by the limit of hydrography. Several charted and T-Sheet features define the seaward most extents of the foul limits. There is also a heavy concentration of kelp within the foul areas. ✓

The foul area which junctions with survey H10975 extends west to east, from 58°21'13.39"N, 154°04'15.79"W, to 58°20'42.9"N, 154°02'57.6"W, and is defined exclusively in survey H10974's DP and Bottom Sample Plot to eliminate any ambiguity in defining the foul area limits. ✓

There were no T-Sheet rock disprovals. The submerged T-Sheet rock at 58°17'09.319"N, 154°06'33.023"W (437,197.9E, 6,461,042.2N) was found 50 meters to the east at 58°17'08.954"N, 154°06'30.341"W, (435,006.4E, 6,461,067.0N, Pos. #26033). The Hydrographer recommends revising the charted position of the rock to the surveyed position. Numerous T-Sheet rocks were found to be located within designated foul areas and were unreachable by survey launch, and were thus verified visually from a distance to the best of the Hydrographer's ability. These rocks are noted on the DP and BS Plot as well as in the MapInfo table "H10974\_ShorelineNotes." *Charted rocks as depicted on BS.*

*\* Filed with the hydrographic data.*



Divers investigated a submerged T-Sheet and charted rock at 58°16'31.132"N, 154°05'45.904"W (435,711.1 E, 6,459,885.5 N, Pos. #55169) and found a least depth of 2.7 fathoms. VBES hydrography over this rock revealed a least depth of <sup>1.0</sup>0.9 fathoms, 13 meters north at 058°16'31.498"N, 154°05'45.825"W (435,712.4 E, 6,459,896.8 N, Pos. #20315-20317). The charted depth of this feature is 0 fathoms, 5 feet. The Hydrographer recommends retaining the rock as charted.

*Do not concur. Chart rock as depicted on the present survey.*

**Charted Shoreline Chart 16603 (7<sup>th</sup> Ed.; Jan 4, 1992; Scale: 1:30,000). ✓**

The charted rock at 58°19'58.727"N, 154°09'53.508"W (431,788.3E, 6,466,373.0N, Pos.#23211) was disproved using a 5-minute visual and echo sounder search within a 50-meter search radius in water with 4-meter visibility. The area was also covered with 100% SWMB. The Hydrographer recommends removing the rock from the chart.

*Concur. A reef was located west of the charted rock location. Chart the area based on the present survey.*

The charted rock at 58°20'58.711"N, 154°08'32.893"W, (433,131.0E, 6,468,205.5N, Pos. #23787) was disproved using a 10-minute visual and echo sounder search within a 25-meter search radius in water with 3.5-meter visibility. The average water depth was 7.5 meters. The Hydrographer recommends removing the rock from the chart.

*Concur. A reef was located close to this location. Chart the area based on the present survey.*

The charted rock at 58°20'43.554"N, 154°05'01.805"W, (436,555.2E, 6,467,680.0N, Pos. #26072) was disproved using a 10-minute visual and echo sounder search (Pos. # 26060-26070, and 58584-53589) within a 50-meter radius in water with 2-meter visibility. The Hydrographer believes it is the same feature as the T-Sheet reef located west of the charted rock position. The Hydrographer recommends removing this rock from the chart.

*Concur. A reef was found close west of this location. Chart the area based on the present survey.*

The charted rock at 58°19'58.393"N, 154°10'03.641"W, (431,592.0E, 6,464,559.7N, Pos. #26006) was disproved using a 10-minute visual and echo sounder search within a 100-meter search radius in water with 3-meter visibility. The Hydrographer believes the rock is charted to represent the T-Sheet reef positioned 40 meters to the east. The area was covered with 100% SWMB. The Hydrographer recommends removing the rock from the chart and charting the reef as surveyed.

*Concur.*

Divers investigated a charted submerged rock at 58°17'56.615"N, 154°05'21.066"W (436,158.5E, 6,462,522.5N, Pos. # 55168) and found a least depth of 3.2 fathoms. SWMB obtained a least depth of 2.5 fathoms 45 meters south of the position of the diver least depth, although full coverage was not obtained over the rock due to its shoal nature. The Hydrographer notes that visibility during the dive investigation was less than optimal, and it is likely that divers did not find the least depth. The SWMB data indicate shoaling at the edges of coverage around the rock, indicating a shoaler depth at the charted position of the rock. The Hydrographer recommends retaining the rock as charted.

*Concur. Carry forward the subm. rock originating from prior survey H-792 (same as presently depicted on the chart.) "1.0 Rk"*

A new foul area with kelp and rocks was delineated northeast of Tiny Island inside Devil's Cove. The northwest extent is defined by a T-Sheet rock at 58°20'41.210"N, 154°09'02.476"W (432,640.8E, 6,467,672.5N, Pos. # 23799). Its western extent is defined by a new rock at 58°20'39.199"N, 154°09'03.228"W (432,627.5E, 6,467,610.5N, Pos. # 23798). The eastern extent is defined by a T-Sheet rock at 58°20'39.001"N, 154°08'58.234"W (432,708.6E, 6,467,603.0N), and the southern extent is defined by the limit of hydrography.

*Chart the area based on the present survey.*

The charted rock with a depth of 1 fathom, 2 feet located at the entrance to Devil's Cove at 58°20'32.93"N, 154°08'37.35"W was not specifically addressed during shoreline verification. A least depth of <sup>1.0</sup>2.2 fathoms was recorded with SWMB in the vicinity of the charted rock; however, the rock was not fully covered with SWMB due to its shoal nature. The SWMB data indicate shoaling at the edges of

coverage around the rock, seeming to confirm the existence of the rock. The Hydrographer recommends retaining the rock as charted. *Do not concur. Chart subm rock based on the present survey.*

Three charted rocks were disproved concurrently with VBES (Pos. #'s 26082-26110) at 58° 20' 17.37"N, 154°05'20.94"W (436,231.0 E, 6,466,875.3 N), 58°20'17.55"N, 154°05'21.43"W (440,892.1E, 6,429,147.6N; chart 16603), and 58°20'25.09"N, 154°05'18.74"W (436,270.6E, 6,467,113.4N; chart 16576; Pos. #26073-26158). However, a 2.2-fathom sounding at 58°20'17.787"N, 154°05'19.789"W (436,242.5E, 6,466,895.4N, Pos. #26110) was found close to the charted rocks. This feature is close to a broken ledge and it appears to be a rock on the echo sounder trace. The Hydrographer recommends replacing the charted submerged rock of unknown depth with a rock with a depth of 2.2 fathoms. *Concur. Chart the area based on the present survey.*

Charted Shoreline Chart 16576 (3<sup>rd</sup> Ed.; March 14, 1998; Scale: 1:80,000). ✓

The charted rock at 58°20'20.386"N, 154°09'47.168"W (431,903.0E, 6,467,041.0N, Pos. #23891) was disproved using a 10-minute visual and echo sounder search in a grid pattern in water with 4-meter visibility. The Hydrographer believes that this rock corresponds to the T-Sheet rock which was found to be part of a ledge (Pos #23890). The Hydrographer recommends removing this rock from the chart and revising the extents of the ledge on chart 16576. *Concur. Chart as shown on the present survey.*

The charted rock at 58°19'58.475"N, 154°10'10.579"W (431,510.5E, 6,466,370.0N, Pos. #26007) was disproved using a 10-minute visual and echo sounder search with a 100-meter search radius in water with 3-meter visibility. The charted rock position was covered with 100% multibeam. The Hydrographer recommends removing this rock from the chart. *Concur. Same rock depicted on chart 16603.*

The charted rock at 58°18'01.972"N, 154°08'18.773"W (433,268.1E, 6,462,736.0N, Pos. #26028) was disproved using a 5-minute visual and echo sounder search within a 100-meter search radius in water with 3-meter visibility. The Hydrographer recommends removing this rock from the chart. *Concur.*

The charted rock at 58°20'39.641"N, 154°03'07.424"W (438,533.8E, 6,467,527.6N, Pos. #53523) was disproved with a 10-minute visual and echo sounder search within a 100-meter radius. The average water depth was 10 meters and the water visibility was 4 meters. This charted rock is south of a foul area with rocks and kelp depicted on chart 16603. The Hydrographer recommends removing it from the chart, and charting the area as foul as depicted on the DP and BS Plot. *Concur. Chart the area based on the present survey.*

The charted rock at 58°20'45.046"N, 154°05'01.211"W (436,565.6E, 6,467,726.0N, Pos. #53586) was disproved using a 10-minute visual and echo sounder search within a 100-meter radius. The average water depth was 8.5 meters and the water visibility was 8.5 meters. The Hydrographer believes this rock represents the T-Sheet reef positioned 35 meters to the west. *Concur. Chart reef as depicted on the present survey. (See position # 26072)*

The charted rock at 58°16'19.712"N, 154°06'09.021"W (435,328.7E, 6,459,538.5N, Pos. #54257) was disproved using a 10-minute visual and echo sounder search (Pos. #26042-26051), with a 50-meter radius. The average water depth was 12 meters. The Hydrographer recommends removing this rock from the chart. *Concur.*

The charted rock at 58°18'18.108"N, 154°06'59.896"W (434,560.5E, 6,463,213.5N, Pos. #54855) was disproved using a 10-minute visual and echo sounder search with a 100-meter radius. The water visibility was 2 to 3 meters, and the average water depth was 12 meters. A charted rock on chart 16603 was verified 70 meters to the north. The Hydrographer believes they are the same rock. *Concur. Chart feature based on the present survey.*

A new reef was defined just to the east of the previously mentioned foul area. Its eastern extent is 58°20'38.851"N, 154°08'51.575"W (432,816.8E, 6,467,596.5N, Pos. # 23795) and its western extent is 58°20'38.981"N, 154°08'55.054"W (432,760.3E, 6,467,601.5N, Pos. # 23796). This reef is charted as a rock on chart 16576, and will likely continue to be depicted as a rock due to the scale of chart 16576. The Hydrographer recommends revising the position of the charted rock to the surveyed position of the reef. *Concur. Chart features based on the present survey.*

The Hydrographer recommends that the shoreline as depicted on the DP and BS Plot supersede and complement shoreline information compiled on the T-Sheets and charts as noted. <sup>*Concur.*</sup> These revisions are recorded in the MapInfo digital files named "H10974\_shoreline" and "H10974\_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 "H10974\_ShorelineNotes."

#### D.4 Dangers to Navigation *(See EVAL RPT., Sec. 06)*

Thirteen dangers to navigation were found and reported to the Pacific Hydrographic Branch on October 11, 2000 for verification and final submission to the Seventeenth Coast Guard District. A copy of the preliminary Danger to Navigation Report is 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 ✓

There were no Aids to Navigation within the limits of survey H10974. *Concur.*

#### D.6 Prior Surveys ✓

Soundings from survey H10974 were compared with prior surveys H-7812 (1949) and H-7822 (1949). Soundings from survey H10974 and survey H-7812 generally agreed within 2 fathoms, with some differences of up to 4 fathoms. Soundings from survey H10974 and survey H-7822 also generally agreed within 2 fathoms, with some differences of up to 4 fathoms. *Concur.*

**E. APPROVAL ✓**

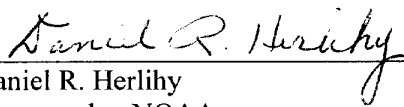
As Chief of Party, I have ensured that standard field surveying and processing procedures were followed in producing this examination in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; the Field Procedures Manual, and the NOS Hydrographic Surveys Specifications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

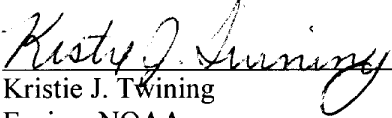
Survey H10974 is complete and adequate to supersede charted soundings and features in their common areas. There is no additional work required on this survey.


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	10/2/2000	N/CS34
Horizontal and Vertical Report for OPR-P164-RA-00	10/13/2000	N/CS34
Tides and Water Levels Package for OPR-P164-RA-00	7/5/2000	N/OPS1
Coast Pilot Report for OPR-P164-RA-00	11/1/2000	N/CS51

Approved and Forwarded:   
 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:   
 Kristie J. Twining  
 Ensign, NOAA

Field Operations Officer:   
 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  
October 7, 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 H10974 in Northern Shelikof Strait, Alaska, in May-June 2000. The dangers are shown graphically on the attached chartlets.

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	7th	January 4, 1992
16576	1:80,000	3th	March 14, 1998

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

<u>Feature</u>	<u>Depth (fm)</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Depth (m)</u>
Sounding	1 <sub>2</sub>	58° 17' 42.881	154° 06' 58.702	2.5
Sounding	1 <sub>3</sub>	58° 17' 26.225	154° 06' 17.696	2.8
Sounding	2 <sub>5</sub>	58° 21' 04.867	154° 09' 53.391	5.4
Sounding	3 <sub>2</sub>	58° 20' 47.655	154° 09' 06.757	6.2
Sounding	3 <sub>4</sub>	58° 20' 34.128	154° 08' 44.497	6.8
Sounding	3 <sub>5</sub>	58° 17' 16.926	154° 05' 42.548	7.0
Sounding	4 <sub>3</sub>	58° 20' 19.598	154° 04' 36.678	8.3
Sounding	4 <sub>5</sub>	58° 16' 19.915	154° 05' 45.827	9.0
Sounding	7	58° 20' 10.080	154° 04' 16.357	12.9
Sounding	7 <sub>5</sub>	58° 17' 06.519	154° 05' 10.521	14.4
Sounding	8 <sub>4</sub>	58° 17' 10.114	154° 05' 19.006	15.9
Sounding	9 <sub>2</sub>	58° 16' 33.842	154° 05' 28.420	17.1
Sounding	9 <sub>5</sub>	58° 18' 33.438	154° 06' 42.838	18.0



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-P164-00 and Danger to Navigation report RA-10-00. 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).

Sincerely,

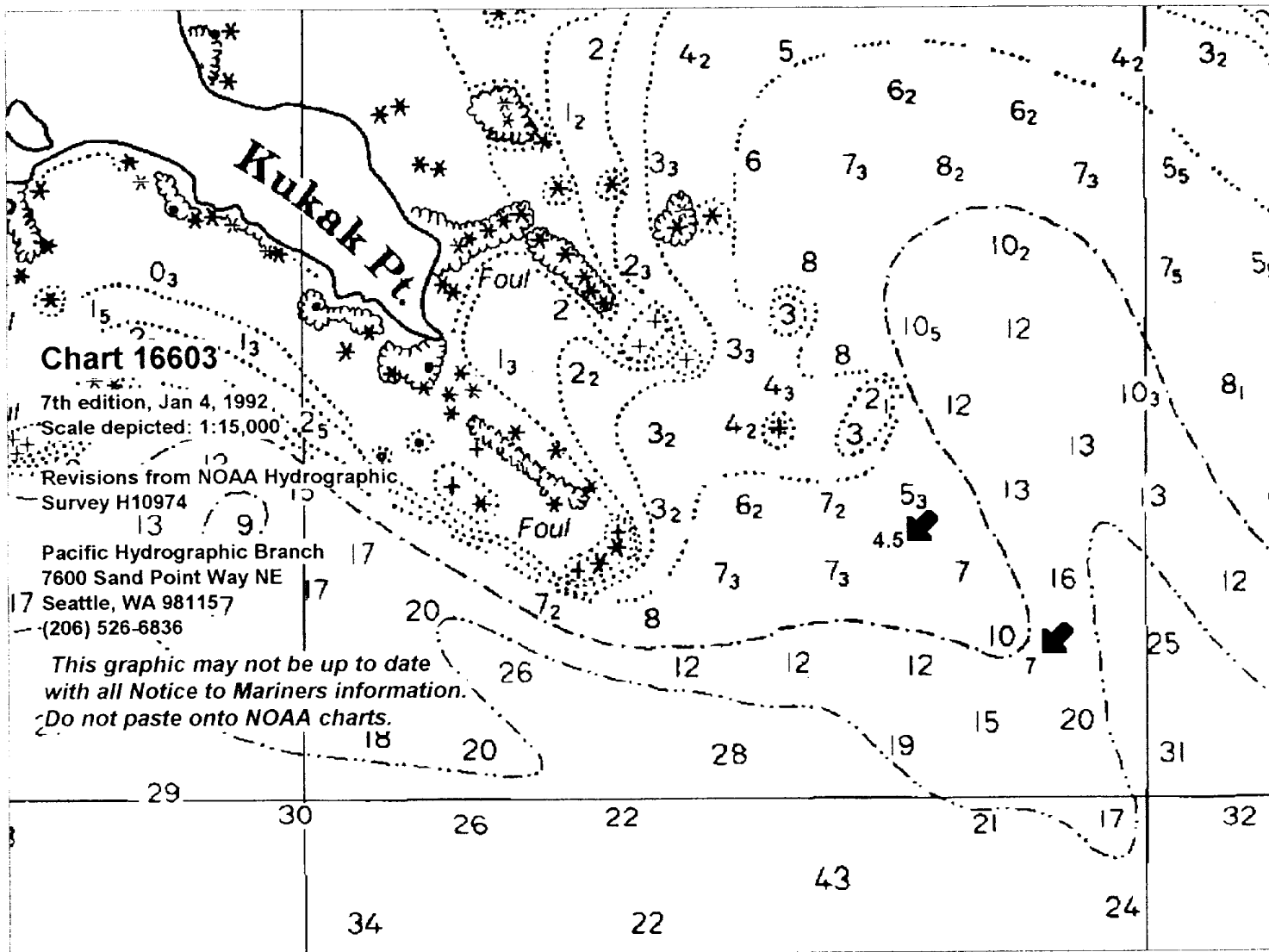
**ADVANCE  
INFORMATION**

Daniel R. Herlihy  
Commander, NOAA  
Commanding Officer

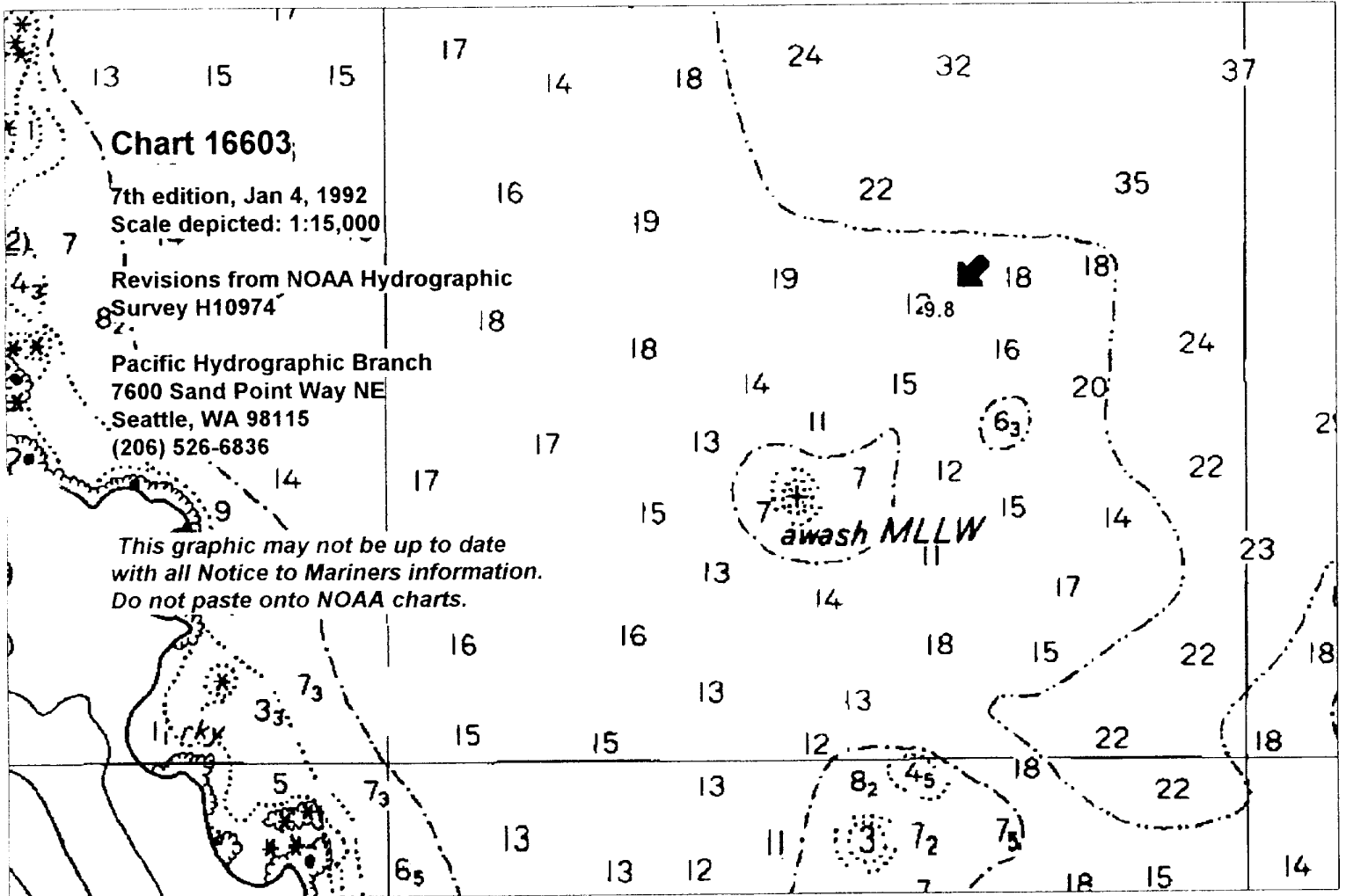
Attachment

cc: N/CS31  
N/CS34

ADVANCE  
INFORMATION

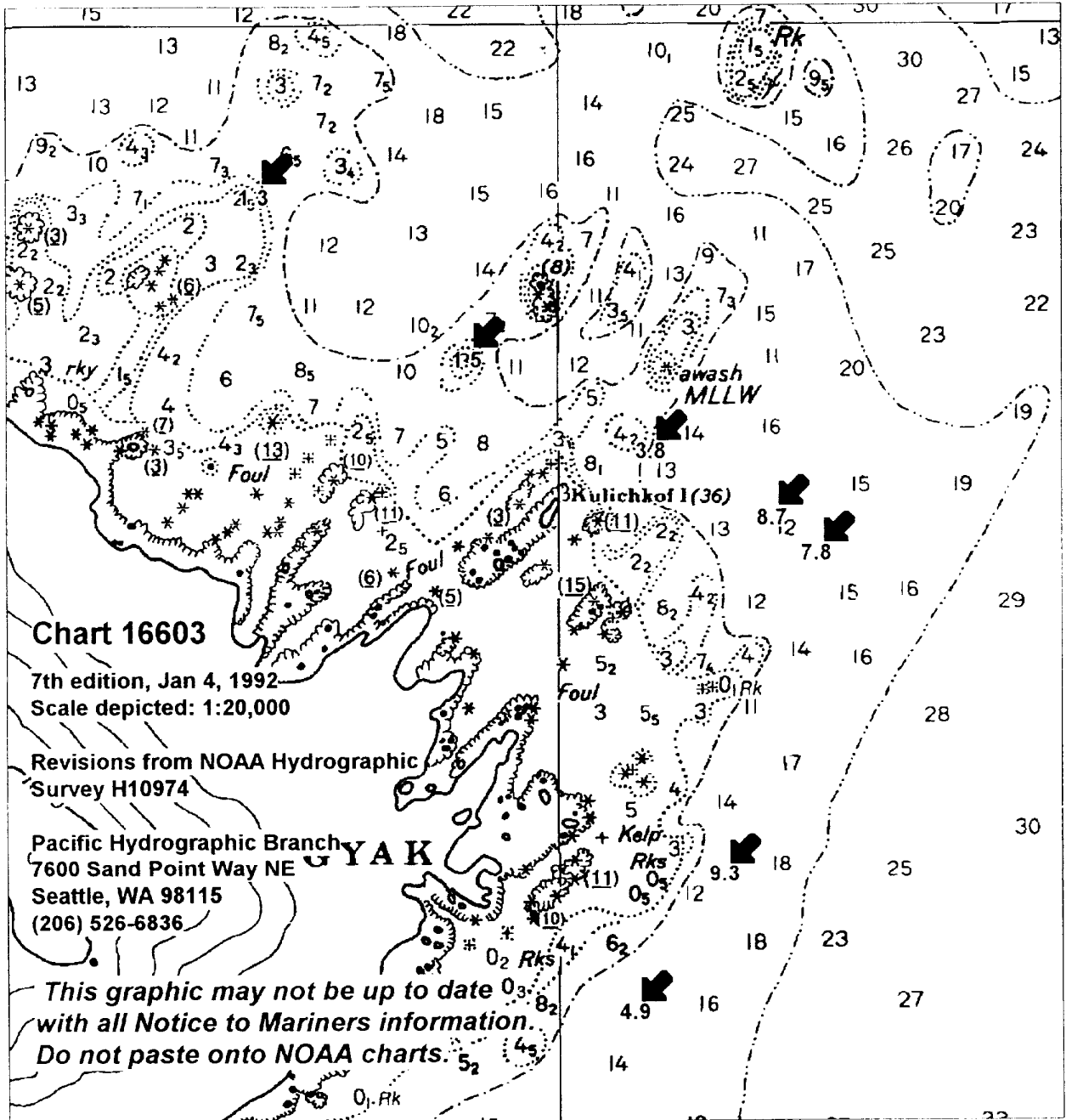


ADVANCE  
INFORMATION

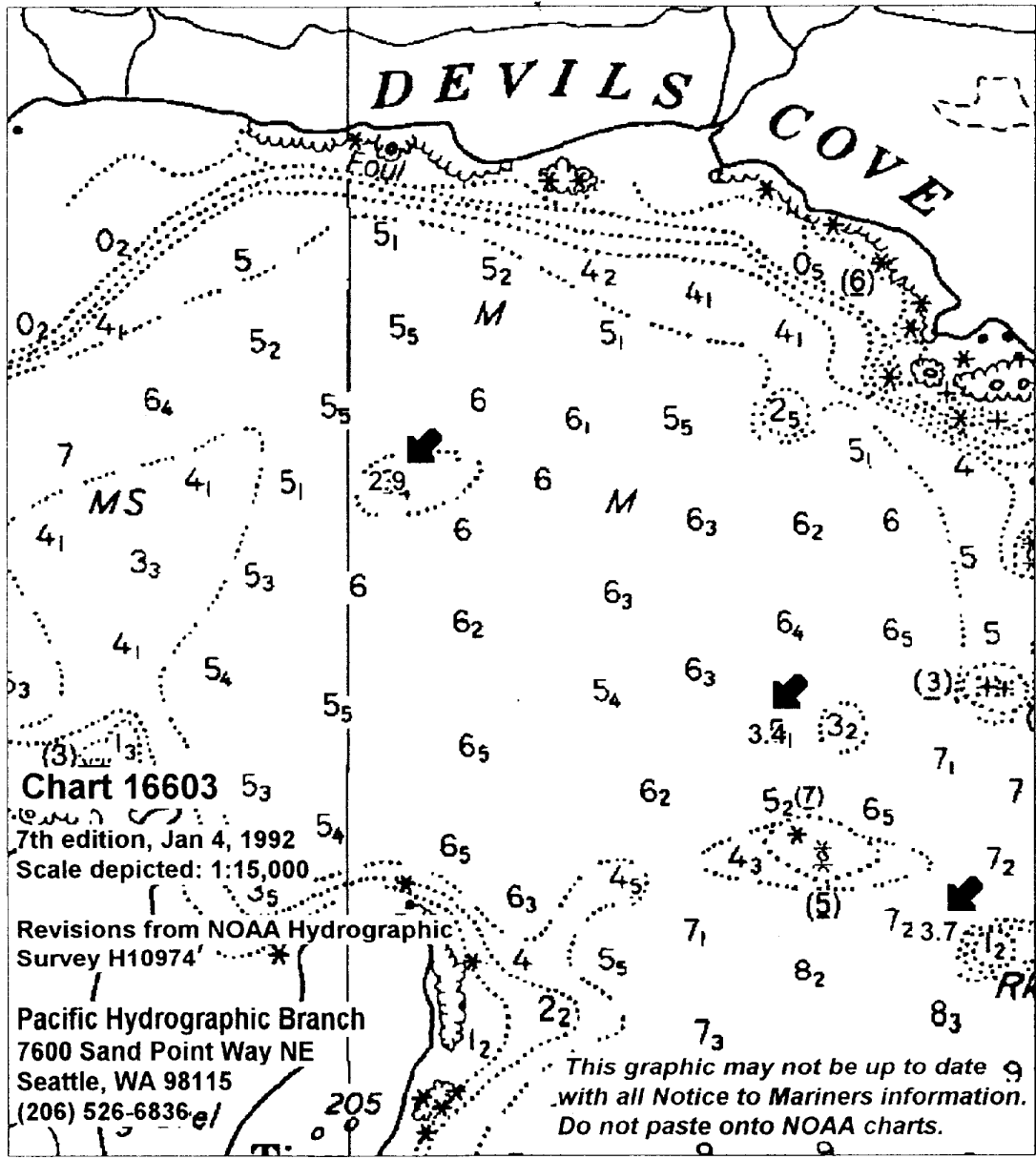




ADVANCE  
INFORMATION



ADVANCE  
INFORMATION



H-10974

GEOGRAPHIC NAMES

Name on Survey

A 944878783  
B ON PREVIOUS SURVEY 16603  
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
ALASKA PENINSULA	X		X							2
CANNERY PASSAGE	X		X							3
CAPE UGYAK	X		X							4
DEVILS COVE	X		X							5
KUKAK POINT	X		X							6
KULICHKOF ISLAND	X		X							7
LITTLE BEACH	X		X							8
SHELIKOF STRAIT	X		X							9
TINY ISLAND	X		X							10
YUGNAT ROCKS	X		X							11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Approved: *Chris Hoy*

Chief Geographer OCT 9 2001



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-10974

**LOCALITY:** Cape Ugyak to Devil's Cove, AK  
**TIME PERIOD:** May 26 - 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: 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**

**HYDROGRAPHIC SURVEY STATISTICS**

**H-10974**

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	2				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES					

**SHORELINE DATA**

SHORELINE MAPS (List): T-13162, T-13163, T-13165 and T-13166

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			164
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT			21
GEOGRAPHIC NAMES			
OTHER (Chart Compilation)			126
USE OTHER SIDE OF FORM FOR REMARKS	<b>TOTALS</b>		311

Pre processing Examination by Beginning Date 12/22/2000 Ending Date

Verification of Field Data by E. Domingo, R. Davies, D. Doles, R. Mayor Time (Hours) 164 Ending Date

Verification Check by Time (Hours) Ending Date

Evaluation and Analysis by I. Almaen Time (Hours) 21 Ending Date 10/09/2001

Inspection by L. Deodato Time (Hours) 15 Ending Date 11/29/2001

## **EVALUATION REPORT H-10974**

### **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 area on chart 16603 depicting the specific limits of supersession accompanies this report as Attachments 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 75.0 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 considered too risky 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 Nukshak Island, Alaska, gage 945-6717.

Other sounding reducers include corrections for static draft, dynamic draft, sound velocity, 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-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: -2.454 seconds (-75.915 meters)

Longitude: 7.486 seconds (121.914 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-13162, T-13163, T-13165, and T-13166 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. 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-10974 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-9524	1975	1:10,000	Southern limit
H-10973	2000	1:10,000	Western Limit
H-10975	2000	1:10,000	Eastern Limit
H-10976	2000	1:20,000	Southeastern Limits

The junction with survey H-9524 was not formally completed since this survey was processed previously. However, depths are in good agreement. An "Adjoins" note has been added to the smooth sheet. A few soundings have been transferred in color within the common area of H-10974 to better delineate the bottom configuration.

The junctions with surveys H-10973, H-110975 and H-10976 are complete. A “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

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 cover the area of the present survey. The soundings from the current survey generally agree with the priors to within 0.5-2.0 fathoms with no consistent pattern of shoaling or increase in depths around the area. Aside from the natural effects of past earthquake activity, the differences in depths with the prior surveys may well be attributed to the greater sounding coverage and improved surveying methods applied to the present survey.

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 of the area.

Several prior survey features and a sounding have been carried forward in color to the smooth sheet. These features mostly fall near or inside the NALL and were not specifically addressed by the hydrographer.

With the inclusion of the features mentioned above, survey H-10974 is adequate to supersede the prior surveys within the area of common coverage.

#### **N. ITEM INVESTIGATIONS**

There were no AWOIS items assigned to this survey.

#### **O. COMPARISON WITH CHART**

Survey H-10974 was compared with the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16603	7th	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 with a few or without generalization of features at all.

Charted shoreline changes were noted during this survey. A few new rocks were located during shoreline verification while some charted rocks were identified in the field as part of the reefs and some are high point or extension of the newly located ledges.

Except as mentioned in section M, survey H-10974 is adequate to supersede charted hydrography within the common area.

##### **b. Dangers to navigation**

Thirteen (13) dangers to navigation (DTON) were found during survey operations. A danger to navigation report was transmitted to PHB with the hydrographer’s report on September 18,2000 for office review prior to transmittal to N/CS26. No additional dangers were identified during office processing. Copy of the report is attached.



**P. ADEQUACY OF SURVEY**

The hydrography contained on survey H-10974 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 2000.

**Q. AIDS TO NAVIGATION**

There are no fixed and floating aids to navigation within the survey arrea.

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

**R. STATISTICS**

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

**S. MISCELLANEOUS**

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

**T. RECOMMENDATIONS**

Survey H-10974 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. Almacen  
Cartographer

APPROVAL SHEET  
H-10974

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 disproval of charted data. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

*for* *Edward T. Roberts* Date: *11/27/01*  
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: *2/22/02*  
John E. Lowell, Jr.  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

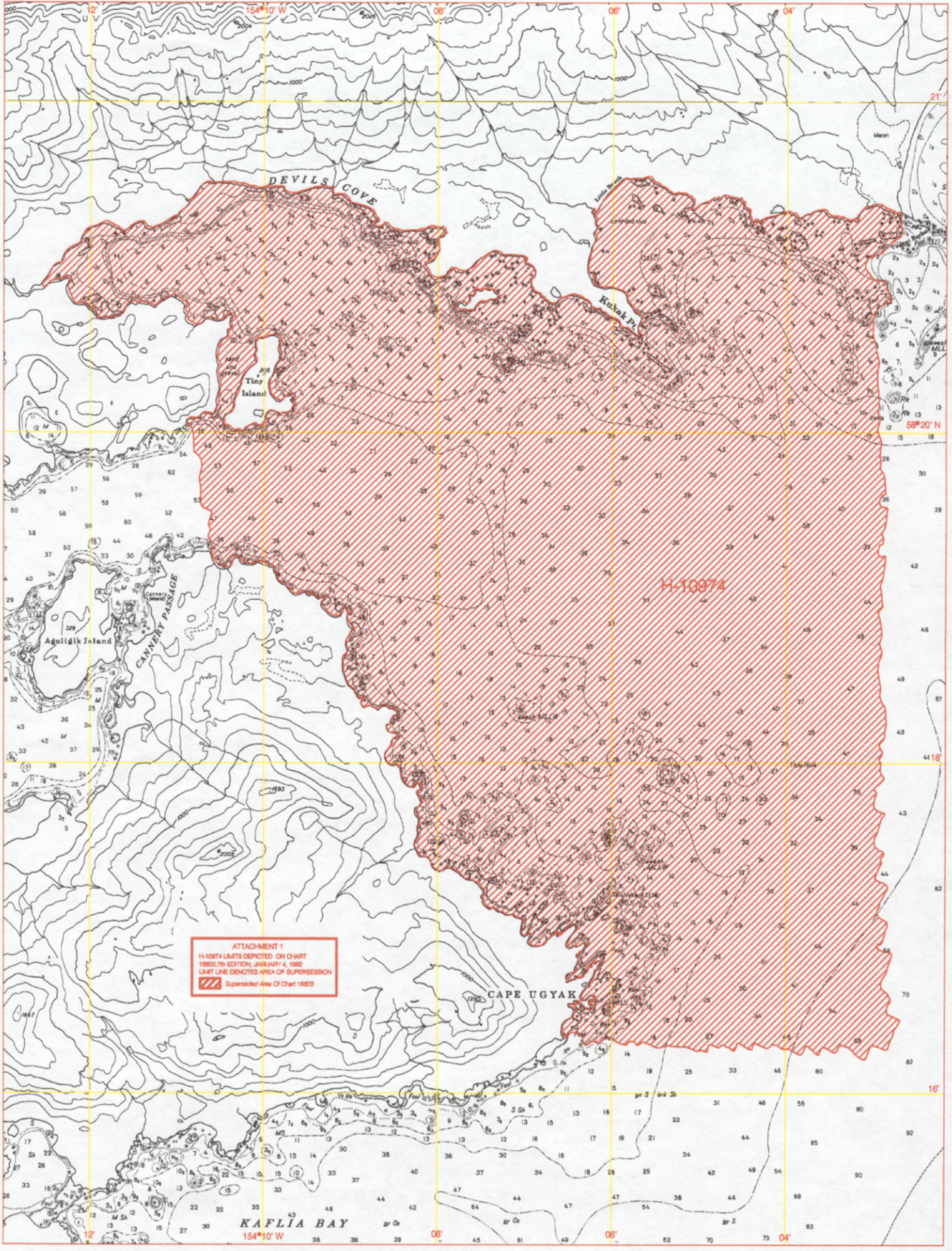
\*\*\*\*\*

Final Approval

Approved:

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





ATTACHMENT 1  
H-10974 LIMITS DEPICTED ON CHART  
1993.7th EDITION, JANUARY 4, 1992  
LIMIT LINE DENOTES AREA OF SUPERSESSION  
[Red Hatched Box] Superseded Area Of Chart 1993



