H11074

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey **HYDROGRAPHIC**

Field No. **RA-20-04-01**

Registry No. **H-11074**

LOCALITY

State **Alaska**

General Locality **Approaches to Seward**

Sublocality **Entrance to Resurrection Bay and Harding Gateway**

2001

CHIEF OF PARTY

Captain James C. Gardner, NOAA

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-11074

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

FIELD NO. **RA-20-04-01**

State **Alaska**

General Locality **Approaches to Seward**

Sublocality **Entrance to Resurrection Bay and Harding Gateway**

Scale **1:20,000** Date of Survey **8/16/2001-9/19/2001**

Instructions Date **7/26/2001** Project No. **OPR-P359-RA**

Vessel **RAINIER (2120), RA-1 (2121), RA-2 (2122), RA-3 (2123), RA-4 (2124), RA5-2125, RA6-2126, RA-2127**

Chief of Party **Capt James C. Gardner, NOAA**

Surveyed by **RAINIER Personnel**

Soundings taken by echo sounder,hand lead,pole **KNUDSEN 320M, RESON 8101 MB SEABEAM 1050D LF**

Graphic record scaled by **RAINIER Personnel**

Graphic record checked by **RAINIER Personnel**

Evaluation by **R. Shipley** Automated plot by **HP Design Jet 1050C**

Verification by **E. Domingo, R. Shipley**

Soundings in **Fathoms** at **MLLW**

REMARKS: **Time in UTC.**

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

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

UTM Projection (zone 6)

Descriptive Report to Accompany Hydrographic Survey H11074

Project OPR-P359-RA-01
Approaches to Seward, Alaska
Scale 1:20,000
August 2001
NOAA Ship RAINIER
Chief of Party: Captain James C. Gardner, NOAA

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-P359-RA-01, dated July 26, 2001, and the Draft Standing Project Instructions dated March 21, 2001. The project responds to requests from a U.S Senator, the Southwest Alaska Pilots Association, Cruise Lines, and NIMA. This project will respond to a request from Senator Ted Stevens, on behalf of the city of Seward, for contemporary hydrography in Resurrection Bay that will support the National Tsunami Inundation Mapping Program. This program is critical to the community of Seward due to its history of severe tsunami damage.

One hundred percent shallow-water multibeam (SWMB) coverage was obtained in the survey area in waters 10 meters and deeper. In waters from 4 meters to 10 meters, SWMB data were obtained at 25-meter line spacing, and in these areas additional coverage was collected to obtain least depths over features or shoals. Vertical-beam echo sounder (VBES) data were acquired in depths from 4 to 50 meters, at a line spacing of 100 meters, to define the four-meter curve and to aid in the planning of SWMB data acquisition.

The survey area covers the southern-most region of Resurrection Bay. The survey's northern limit is latitude 59°53’38"N and the southern limit is latitude 58°45’07"N. The survey's western limit is longitude 149°37’31”W and the eastern limit is longitude 149°12’00”W.[1]

Data acquisition was conducted from August 15[2], 2001 to September 19, 2001 (DN 228 to 262).

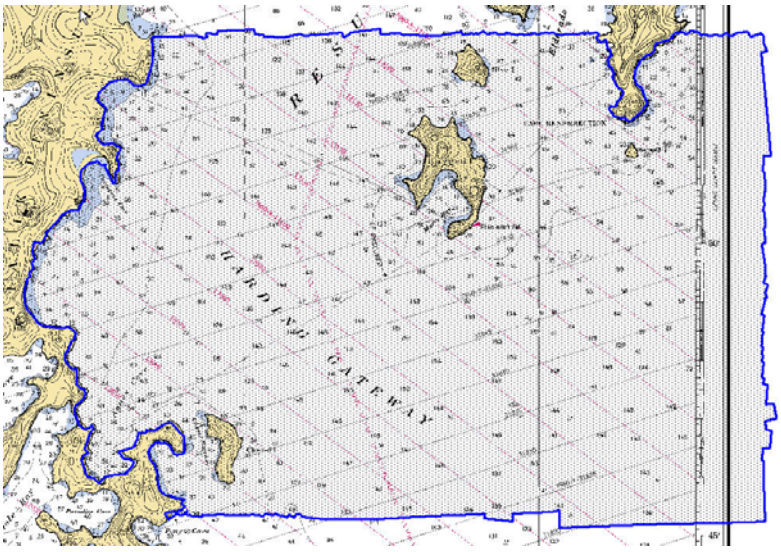


Figure 1. H11074 Survey Limits

B. DATA ACQUISTION AND PROCESSING

A complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods can be found in the *OPR-P359-RA-01 Data Acquisition and Processing Report,* [3] 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 and her survey launches (vessel numbers 2120, 2121, 2122, 2123, 2124, 2125, 2126, and 2127). Vessels 2120, 2121, 2123, 2124, and 2126 were used to acquire shallow-water multibeam (SWMB) soundings and sound velocity profiles. Vessels 2122, 2125, and 2127 were used to collect shoreline, bottom samples, and singlebeam data. No unusual vessel configurations or problems were encountered during this survey.[4]

B2. Quality Control

Crosslines

Vertical Beam Echo Sounder (VBES) crosslines totaled 18.22 nautical miles, comprising 33.8% of VBES mainscheme hydrography. Shallow-Water Multibeam (SWMB) crosslines totaled 89.26 nautical miles, comprising 10.58% of SWMB hydrography. The Quality Control Report (CARIS HIPS) for the checkline file averaged 86.93191%, with a depth tolerance factor of 0.013, which conforms to International Hydrographic Organization Order 1 specifications detailed in Special Publication S-44, Edition 4, as well as NOS Hydrographic Surveys Specifications and Deliverables Manual. See Appendix V[5] for the detailed report. This low QCR agreement is possibly due to steep and irregular bathymetry on H11074 and from a comparison of dissimilar SWMB systems. All data was examined thoroughly during subset cleaning, and the Hydrographer believes through manual examination of the data the accuracy standards have been met and crossline agreement is good.[6]

Junctions

H11074 junctions with H10075 and H11073.[7]

Registry #	Scale	Date	Junction side
H11075	1:20,000	2001	South
H11073	1:20,000	2001	North

Survey H11074 junctions well with survey H11075, with differences generally less than one fathom. Survey H11074 junctions well with survey H11073, with differences generally less than one fathom except for two areas. A sounding from Survey H11073 at 59°53’28”N, 149°23’47”W, shows a depth of 113 fathoms whereas the corresponding sounding from Survey 11074 shows a depth of 109 fathoms. Another sounding from Survey H11073 located at 59°53’28”N, 149°18’06”W shows a depth of 13.8 fathoms and its corresponding sounding from Survey H11074, approximately 10 meters away at location 59°53’28”N, 149°18’05”W shows a depth of 1.7 fathoms. In both cases, the discrepancies are due to the steep topography.[8]

Final comparisons will be made at the Pacific Hydrographic Branch (PHB).[9]

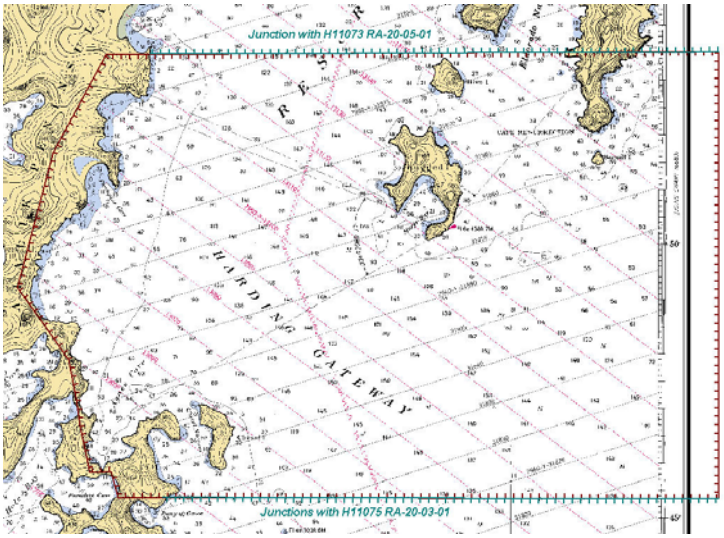


Figure 2. H11074 Junction Surveys

Data Quality Factors

Due to melting glacial ice, river runoff, and the effects of tidal currents, distinct differences in water masses were often observed in the field. This proved to be problematic in the acquisition and application of sound velocity correctors. Most instances were slight, and large cases were overcome in the field with nearly 200% SWMB coverage. After correcting for sound velocity in Hydrographic Data Cleaning System (HDCS), some lines still exhibited the characteristic "smiles" and "frowns" indicative of inaccurate sound velocity corrections. To correct these sound velocity problems, correctors were often applied based on the geographic position of the cast rather than the time the cast was collected. Such application was performed on individual lines that exhibited profound sound velocity problems. Sound velocity errors were still noticeable in several regions despite the best efforts of the Hydrographer to conduct sufficient sound velocity casts distributed both spatially and temporally. To compensate, the Hydrographer, where possible, rejected soundings obviously in error on the outer beams. The largest offsets in the outer beam soundings were generally between 0.5 to 1 meter. Most areas had sufficient overlap with soundings closer to nadir. Near nadir beams are least affected by sound velocity. The near nadir beams, due to their relative shoal nature when compared to the outer beams, are the soundings which are brought forward during the shoal bias binning. The Hydrographer recommends retaining this sounding data.[10]

B3. Data Reduction

HDCS data were reduced to mean lower-low water (MLLW) using smooth tides from station Seward, AK (945-5090) with no zoning correctors applied. This data was used in creating the tide corrector file “9455090.tid” which was applied in CARIS. Detached positions data were reduced to mean lower-low water (MLLW) using smooth tides from station Seward, AK (945-5090). These data were used in creating HPS tide table PTIDE_98, which was utilized in HPTools to apply zoned tide correctors to the detached positions.

All other data reduction procedures for survey H11074 conform to those detailed in the *OPR-P359-RA-01 Data Acquisition and Processing Report.*

C. VERTICAL AND HORIZONTAL CONTROL

A complete description of vertical and horizontal control for survey H11074 can be found in the *OPR-P359-RA-01 Horizontal and Vertical Control Report*,[11] 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. Differential corrections from U.S. Coast Guard beacons at Kenai (310 kHz), Hinchinbrook (292 kHz) and Potato Point (298 kHz) were utilized during this survey. Launch-to-launch DGPS performance checks were performed weekly in accordance with Section 3.2 of the FPM. Copies of the performance checks are included in the *OPR-P359-RA-01 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 Seward, AK (945-5090) will serve as control for datum determination and as the primary source for water level reducers for survey H11074. RAINIER personnel installed and maintained a tide gauge at the following subordinate station in accordance with the Project Instructions:

Station Name	Station #	Latitude	Longitude	Installed & Maintained
Agnes Cove	945-5120	59° 46.9’ N	149° 34.6’ W	RAINIER Personnel

All data were reduced to MLLW using final approved (smooth) tide correctors and zoning obtained from N/OPS1. Elevations have not been corrected to MHW where appropriate.[12] The Hydrographer recommends that the Pacific Hydrographic Branch (PHB) correct all elevations to MHW, including reclassification of features, as necessary. Copies of the request for smooth tides, and Final Tide Note[13], are included in Appendix IV of this report.

These data were used in creating HPS tide table PTIDE 98, which was utilized in HP Tools to apply zoned tide correctors to the detached positions.

D. RESULTS AND RECOMMENDATIONS

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

One AWOIS item was located within the limits of H11074 and investigated during this survey. No evidence of the AWOIS was found during SWMB acquisition. Correspondence with the responsible party at the University Of Alaska was not successful. A Local Notice to Mariners report was issued that indicates the instrument was removed on 1 June 2001, but the RAINIER has no supporting documentation. Correspondence with US Coast Guard is pending. Follow up communication should be conducted through Pacific Hydrographic Branch.[14] A copy of the electronic mail sent to USCG is included in Appendix VI of this report.

D.2 Chart Comparison

Survey H11074 was compared with chart 16682 (14th Ed., June 20, 1998, 1:81,847)[15], chart 16683 (9th Ed.; January 29, 2000 1:81,436)[16], and chart 16013 (27th Ed.; September 6, 1997, 1:969,761).

Chart 16682

Depths from Chart 16682 adequately agree with the current survey, with differences generally one fathom or less. Greater differences of up to 20 fathoms were noted in areas of high relief. Most instances can be attributed to inaccurate charted shoreline positions due to an offset in the chart and the narrower beamwidth of SWMB compared to prior surveys run with VBES on steeply sloping near shore bottom topography. This area was covered with 100% Shallow-Water Multibeam.[17]

Chart 16683

Depths from Chart 16682 adequately agree with the current survey, with differences generally one fathom or less. Greater differences of up to 20 fathoms were noted in areas of high relief. Most instances can be attributed to inaccurate charted shoreline positions due to an offset in the chart and the narrower beamwidth of SWMB compared to prior surveys run with VBES on steeply sloping near shore bottom topography. This area was covered with 100% Shallow-Water Multibeam.[18]

The Hydrographer has determined that data accuracy standards and bottom coverage requirements have been met and survey data are adequate to supersede charted data in their common areas, with the following exceptions:

Final chart comparisons will be made at the Pacific Hydrographic Branch.

D.3 Shoreline

Shoreline Source

N/GS3 supplied photogrammetric shoreline data in vector format as Cartographic Feature Files (CFF) from project GC10494. The CFF vector shoreline data were converted for use in HYPACK for field verification and were used as the primary shoreline source. In addition, features shown on the current editions of charts 16682 and 16683 but not on GC10494 were digitized in MapInfo by RAINER personnel and displayed in HYPACK for field verification. In instances in which charted features were digitized, RAINIER personnel attempted to identify the source of the feature by reviewing prior surveys, although in many instances the quality of the prior surveys images was poor, and RAINIER personnel were unable to register them in MapInfo.

Shoreline Verification

Shoreline verification was conducted near predicted low water in accordance with the Standing Project Instructions and FPM 6.1 and 6.2. Detached positions (DPs) taken during shoreline verification were recorded in HYPACK and on DP forms, and processed in Pydro. These indicate revisions to features found or features not found on the CFF or chart. In addition, annotations describing shoreline were recorded on hard copy plots of digital shoreline.[19] 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.[20]

Verified CFF shoreline that did not require revision is in the MapInfo table "H11074_CFF_Shoreline." Changes to the shoreline, and revisions to features from the CFF and charted shoreline are depicted in the MapInfo table "H11074_ShorelineUpdates." Charted shoreline, when used for reference purposes or when source data were not available, is depicted in the MapInfo table "H11074_Chd_Shoreline."

Source Shoreline Changes and New Features[21]

A section of CFF vector shoreline data covering Cape Resurrection was not provided to the RAINIER during the survey. For orientation purposes RAINIER personnel digitized shoreline in MapInfo from the current edition of chart 16682.

A significant shift in the shoreline was noted during field verification. The Hydrographer observed discrepancies between the CFF shoreline data and the actual shoreline in many places of up to 80 meters between the CFF High-Water Line (HWL) and the actual shoreline. In cases where the CFF data varies from data collected in the field, the Hydrographer recommends charting the shoreline as depicted on the Detached Position Plot.[22]

Charted Features

Cape Resurrection (centered at 59°52'51"N, 149°17'03"W)
No CFF shoreline was provided for Cape Resurrection. The charted shoreline of Cape Resurrection has shifted. This discrepancy is most evident on the western side of the peninsula with horizontal errors between 40 meters and 130 meters reported. Neither chart 16682 nor 16683 match the actual shoreline. The Hydrographer recommends depicting the shoreline as shown on the DP&BS plot, which is based on hydrography and shoreline field verification.[23]

A charted (16683) rock at 59°53'4.2"N, 149°16'43.1"W is disproved using a 3-minute visual search and a VBES star pattern search. The rock coordinates are on a steep face on the peninsula above the mean high water line and the rock in question cannot be found. Delete from the chart.[24]

A charted (16682) rock at position 23789 59°52'25.2"N, 149°16'16.8"W (372,844.8E, 6,639,523.5N) has been disproved. This rock position is outside an area foul with rocks, but the rock could not be located using VBES star pattern search or with 100% SWMB. Delete the rock from the chart.[25]

Two charted (16683) rocks on the south end of Cape Resurrection (at 59°52'3.5"N, 149°16'56.0"W, 59°52'7.2"N, 149°16'45"W) were not found after 100% SWMB coverage. They are most likely two charted (16682) rocks (at 59°52'3.0"N, 149°16'39.6"W) which were verified. Delete the charted (16683) rocks.[26]

Rugged Island (centered at 59°51'26"N, 149°22'53"W)
There are several charted rock within a foul limit. The charted (16682) rocks at position 23670 59°51'42.4"N, 149°22'19.7"W (367,155.4 E, 6,638,398.0 N), position 23669 59°51'39.5"N, 149°22'22.0"W (367,115.2 E, 6,638,307.5 N), and position 23666 59°51'38.2"N, 149°22'16.5"W (367,199.9 E, 6,638,265.0 N) were not found after a visual 3-minute search. SWMB was collected in this area where practical and did not record the rocks. The Hydrographer believes these rocks are non-distinctive features within the foul area but should be retained on the chart.[27]

A charted (16682) rock at position 23665 59°51'41.1"N, 149°22'13.1"W (367,256.1 E, 6,638,353.5 N) was disproved with 100% SWMB. Delete from the chart.[28]

Cheval Island (centered at 59°46'34"N, 149°30'38"W)
Revised shoreline on the eastern side of the island was defined by SWMB and VBES coverage. Amend the shoreline as shown on the DP&BS Plot.[29]

A CFF rock disproval at position 52016 59°46'11.8"N, 149°30'30.2"W (359,139.9 E, 6,628,456.4 N) was not found with a VBES star pattern search and 100% SWMB coverage. Delete the CFF rock from the file.[30]

Aialik Peninsula – Bulldog Cove to Porcupine Cove (centered at 59°52'11"N, 149°34'21"W) [31]
A charted (16682) rock at position 61579 59°52'08.8" N, 149°34'40.8"W (355,662.4 E, 6,639,644.9 N) was not found after a 5-minute echo sounder search with visibility of three meters and 100% SWMB coverage. Delete from the chart.[32]

Aialik Peninsula – Porcupine Cove to Agnes Cove (centered at 59°48'18"N, 149°35'22"W) [33]
Several new islets and rocks define a foul area at position 61561 59°51'43. 3"N, 149°34'43.5"W (355,589.0 E, 6,638,857.9 N), position 61365 59°51'42.3"N, 149°34'46.6"W (355,385.4 E, 6,638,896.6 N), and 61563 59°51'42.3"N, 149°34'46.6"W (355,539.3 E, 6,638,826.9 N). Chart as shown on the DP&BS Plot.[34]

Five charted (16682) islets east of the new islets have been disproved. They are grouped as position 61559 59°51'42.0"N, 149°34'15.7"W (356,019.4 E, 6,638,801.4 N). A five-minute visual search in 3 meters of water followed by 100% SWMB did not show evidence of the islets. The Hydrographer believes they are instead the islets at positions 61561, 61356, and 61563, which are listed in the above paragraph. Delete the islets at position 61559 from the chart.[35]

A charted (16682) rock at position 61537 59°51'28.3"N, 149°34'10.8"W (356,080.0 E, 6,638,372.9 N) is disproved after a five-minute visual and echosounder search to a depth of 3 meters and 100% SWMB coverage. Delete from the chart.[36]

Two islets have been repositioned based on shoreline verification. Islets at position 61516 59°50'58.3"N, 149°35'16.6"W (355,023.6 E, 6,637,486.7 N), position 61519 59°50'57.8"N, 149°35'17.3"W (355,007.6 E, 6,637,469.4 N) define the northern islet and position 61520 59°50'56.8"N, 149°35'18.6"W (355,019.8 E, 6,637,486.7 N) defines the southern islet. Chart as shown on the DP&BS Plot. [37]

The CFF shoreline for the southern part of this area differs from the charted shoreline by up to 80 meters. As a result, there are two charted rocks that were disproved with 100% SWMB coverage. They are charted (16682) rocks at position 51672 59°50'02.4"N, 149°36'38.4"W (353,679.6 E, 6,635,807.4 N) and position 51668 59°49'58.3"N, 149°36'50.5"W (353,679.6 E, 6,635,807.4 N). In addition, a CFF rock is disproved at position 51631 59°50'25.3"N, 149°36'15.2"W (354,068.1[38] E, 6,636,501.4[39] N) after a five-minute visual search and echosounder search with water visibility of one meter.[40]

Position 51621 59°50'18.6"N, 149°36'24.7"W (353,912.5 E, 6,636,300.3 N) is an islet. This feature is charted as a ledge, but it is separated at high water from the shore. The Hydrographer recommends correcting the shoreline for this area as depicted on the DP&BS Plot.[41]

Aialik Peninsula – Agnes Cove south (centered at 59°46'00"N, 149°33'27"W)
Shoreline in Agnes Cove and to the southeast is shifted east of the charted positions. New shoreline positions have been determined from VBES and SWMB data and shoreline notes. Plot as shown on the DP&BS Plot.[42]

A CFF cove at position 52020 59°46'08.4"N, 149°33'56.0" W (355,926.2 E, 6,628,474.5 N) is disproved using VBES coverage and shoreline field verification. Chart the shoreline as depicted on the DP&BS Plot.[43]

Recommendations

The Hydrographer recommends that the shoreline as depicted on the DP&BS Plot and final sounding plot supersede and complement shoreline information compiled on the CFF and charts as noted.[44] These revisions are recorded in the MapInfo digital files named "H11074_Shoreline" and "H11074_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 "H11074_ShorelineNotes."

D.4 Dangers to Navigation

Twelve dangers to navigation were found and reported to the Pacific Hydrographic Branch for verification and final submission to the Marine Chart Division (MCD) on 12 September 2002. A copy of the preliminary Danger to Navigation Report is included in Appendix I.[45] A copy of the final report will be inserted by PHB following verification and submission to MCD.[46]

D.5 Aids to Navigation

One aid to navigation (ATON), LL#25985, was found correctly charted and serves its intended purpose.[47]

D.6 Miscellaneous

Bottom samples were collected and are depicted on the Detached Position and Bottom Sample Plot.[48]

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, Hydrographic Survey Guidelines, Field Procedures Manual and the NOS Hydrographic Surveys Specifications and Deliverables, as updated for 2001.

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 H11074 is complete and adequate to supersede charted soundings in their common areas. No additional work is required for this survey.[49]

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

Title	Date Sent	Office
Data Acquisition and Processing Report for OPR-P359-RA-01	21 November 2001	N/CS34
Horizontal and Vertical Control Report for OPR-P359-RA-01	TBD[50]	N/CS34
Tides and Water Levels Package for OPR-P359-RA-01	29 October 2001	N/OPS1
Coast Pilot Report for OPR-P359-RA-01	TBD[51]	N/CS26

Approved and Forwarded: James C. Gardner 9-17-02

James C. Gardner
Captain, NOAA
Commanding Officer

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

Survey Sheet Manager: Jennifer Dowling

Jennifer Dowling
Lieutenant (junior grade), NOAA

Field Operations Officer: Richard A. Fletcher

Richard A. Fletcher
Lieutenant Commander, NOAA

Revisions Compiled During Office Processing and Certification

[1] Concur.
[2] PHB Revision--Strikethrough ~~15~~ and replace with 16.
[3] Filed with Project Records.
[4] Concur with hydrographer's statements.
[5] Concur with hydrographer's statements.
[6] Concur with hydrographer's statements.
[7] Junction were made during office processing. There was good agreement and "Joins" notes have been added to the smooth sheet.
[8] Concur with hydrographer's statements.
[9] Concur with clarification. Junction comparisons were made with H-11073 and H-11075 during office processing and found to be good. Soundings and depth curves are in good agreement.
[10] Concur.
[11] Filed with the project records.
[12] Elevations were corrected to MHW during PHB processing using final approved (smooth) tides.
[13] Approved Tide Note dated November 30, 2001 is attached.
[14] Concur with clarification. Correspondence was successful 12/02/05. According to Dr. Smith of the Univ. of Alaska, the buoy in question has been removed.
[15] During office processing, survey H11074 was compared to chart 16682 (16th Ed., Feb. 1, 2004).
[16] During office processing, survey H11074 was compared to chart 16683 (10th Ed., Feb.1, 2004).
[17] Concur. The Evaluator recommends superseding the charted data within data within the common area covered by the present survey.
[18] Concur. The Evaluator recommends superseding the charted data within data within the common area covered by the present survey.
[19] Plot filed with the hydrographic data.
[20] Plot filed with the hydrographic data.
[21] Shoreline verification conducted by the hydrographer and portrayed on the detached position plot has been analyzed during office processing and shown on the smooth sheet as warranted. The smooth sheet should be referred to for the cartographic portrayal and chart compilation in all cases where the hydrographer has referred to the detached position and bottom sample plot (DPBS). MHWL revisions are shown in red on the smooth sheet.
[22] Concur with clarification. Chart the Mean High Water Line revisions as shown on the smooth sheet and with latest available shoreline information.
[23] Concur with clarification. Chart the Mean High Water Line revisions as shown on the smooth sheet and with latest available shoreline information.
Items listed below may have been generalized on the Hdrawing due to chart scale.
[24] Do not concur. The charted rock on 16683 appears to be the same rock as shown on 16682. The DP plot indicates the rock is as shown on chart 16682. Chart rock as shown on the Hdrawing for chart 16682.
[25] Concur with clarification. The disproved rock is not shown on the current edition of the chart. Chart as depicted on the Hdrawing.
[26] Do not concur. Rocks are shown correctly on chart 16683. Retain as charted on chart 16683.

[27] Do not concur. Chart new rock and foul area as shown on the Hdrawing.
[28] Concur. Chart as depicted on the Hdrawing.
[29] Concur with clarification. Chart the Mean High Water Line revisions as shown on the smooth sheet.
[30] Concur.
[31] A PHB review of the data in CARIS showed no evidence of two rocks located at Lat 59/52/53.2N, Long 149/33/03.3W and Lat 59/52/51.1N, Long 149/32/59.2. The evaluator recommends removing the two rocks and chart the area as depicted on the Hdrawing.
[32] Concur. Chart as depicted on the Hdrawing.
[33] A PHB review of the data in CARIS showed no evidence of a rock located at Lat 59/49/23.5N, Long 147/37/10.1. The evaluator recommends removing the rock and chart the area as depicted on the Hdrawing.
[34] Concur. Chart as depicted on the Hdrawing.
[35] Concur with clarification. The disproved islets are not shown on the current edition of the chart. Chart as depicted on the Hdrawing.
[36] Concur.
[37] Concur. Chart as depicted on the Hdrawing.
[38] PHB Revision--Strikethrough ~~353,679.6~~ and replace with 353,485.9.
[39] PHB Revision--Strikethrough ~~6,635,807.4~~ and replace with 6,635,687.9.
[40] Concur. Chart area as depicted on the Hdrawing.
[41] Concur. Chart as depicted on the Hdrawing.
[42] Concur. Chart as depicted on the Hdrawing.
[43] Concur. Chart as depicted on the Hdrawing.
[44] Concur with clarification. Shoreline information provided by the hydrographer has been analyzed during office processing and shown on the smooth sheet as warranted.
[45] PHB Revision--Strikethrough ~~Appendix I~~ and add this report.
[46] Concur.
[47] The evaluator recommends that MCD use the latest ATONIS information to chart the aid to navigation.
[48] Concur. Chart bottom samples as shown on the smooth sheet. Some charted bottom samples were retained on the Hdrawing.
[49] Concur.
[50] Submitted 12/12/01
[51] Submitted 12/12/01

REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H11074

Survey Title:
State: ALASKA
Locality: APPROACHES TO SEWARD
Sublocality: ENTRANCE TO RESURRECTION BAY AND HARDING GATEWAY

Project Number: OPR-P139-RA-02

Survey Date: August 15, 2001 to September 19, 2001

Features are reduced to Mean Lower Low Water using predicted tides and are positioned on NAD83.

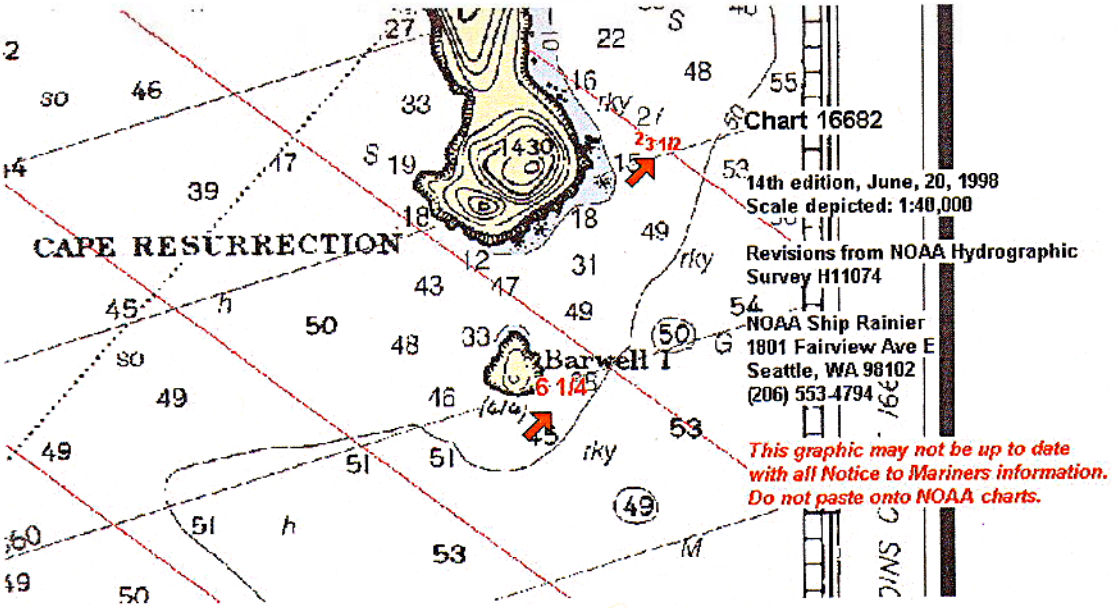
Charts affected:

Chart	Scale	Edition	Date	Datum
16682	1:81,847	14th	20-Jun-98	NAD83
16683	1:81,436	9th	29-Jan-00	NAD83
16013	1:969,761	27th	6-Sep-97	NAD83

DANGERS TO NAVIGATION

FEATURE	DEPTH (M)	LATITUDE (N)	LONGITUDE (W)	DEPTH (FTM)
Sounding	6.4	59°52'25.833"	149°15'42.527"	3 1/2
Sounding	4	59°52'27.447"	149°15'52.902"	2
Sounding	11.3	59°51'29.051"	149°16'29.778"	6 1/4
Sounding	14.2	59°52'36.411"	149°21'54.128"	7 1/2
Sounding	11	59°52'56.407"	149°23'10.807"	6
Sounding	14.5	59°50'02.515"	149°23'13.880"	8
Sounding	12.9	59°51'05.559"	149°24'56.259"	7
Sounding	13.9	59°52'04.731"	149°34'24.978"	7 1/2
Sounding	4.2	59°50'52.003"	149°34'26.987"	2 1/4
Sounding	3	59°50'41.609"	149°35'04.221"	1 1/2
Sounding	14.3	59°50'12.458"	149°35'39.590"	7 3/4
Sounding	12.6	59°50'16.491"	149°35'48.476"	7

Questions concerning this letter should be directed to the Chief, Pacific Hydrographic Branch, (206) 526-6835. Refer to survey project OPR-P139-RA-02. More information on current RAINIER survey projects may be obtained by e-mail; contact the Field Operations Officer at FOO.RAINIER@NOAA.GOV.


CAPE RESURRECTION
Barwell I
1430
6 1/4
Chart 16682
14th edition, June, 20, 1998
Scale depicted: 1:40,000
Revisions from NOAA Hydrographic Survey H11074
NOAA Ship Rainier
1801 Fairview Ave E
Seattle, WA 98102
(206) 553-4794
This graphic may not be up to date with all Notice to Mariners information.
Do not paste onto NOAA charts.

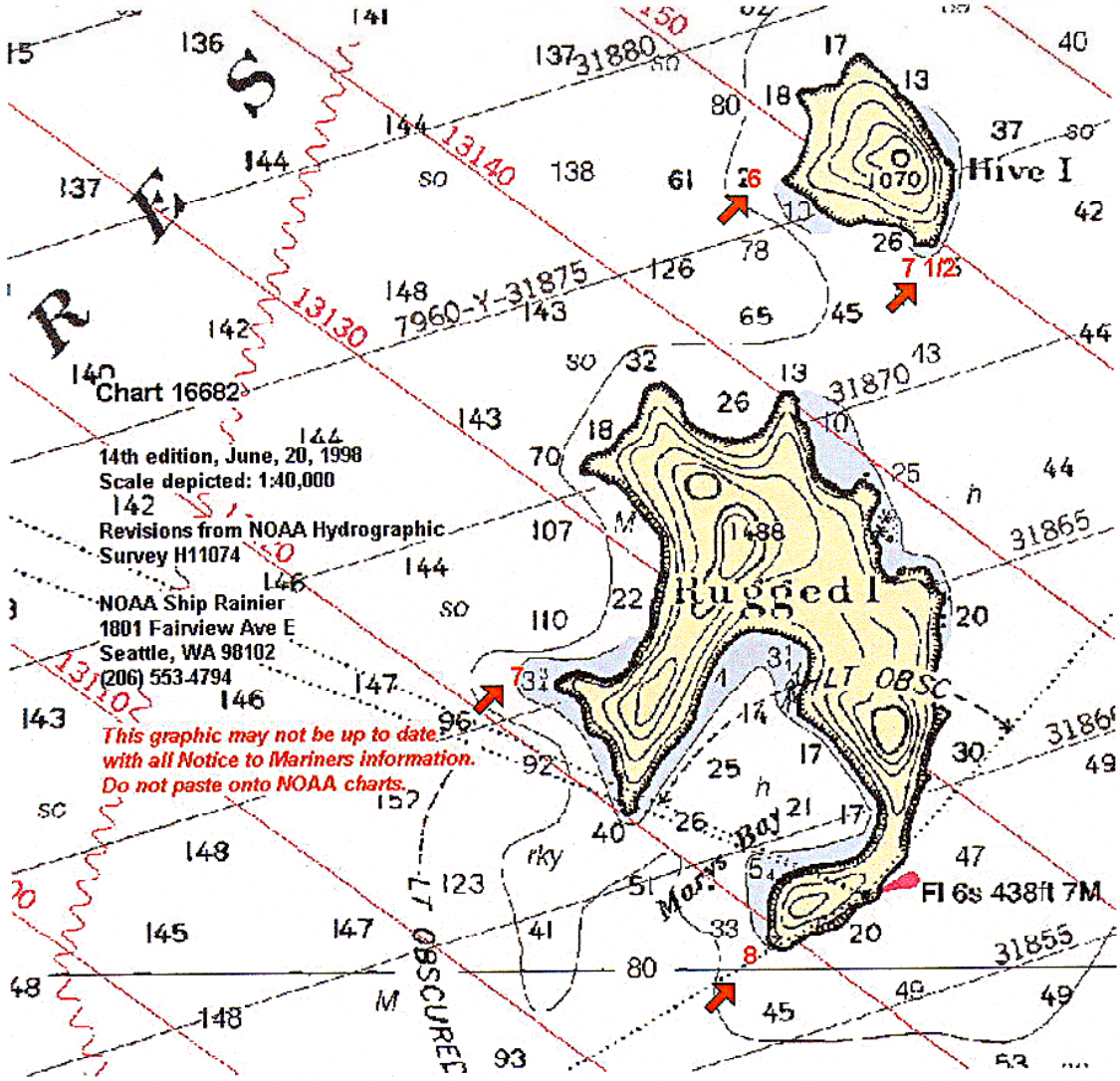


Chart 16682
14th edition, June, 20, 1998
Scale depicted: 1:40,000
Revisions from NOAA Hydrographic Survey H11074
NOAA Ship Rainier
1801 Fairview Ave E
Seattle, WA 98102
(206) 553-4794
This graphic may not be up to date with all Notice to Mariners information.
Do not paste onto NOAA charts.
Hive I
Rugged I
LT OBSC
Mary's Bay
Fl 6s 438ft 7M
LT OBSCURED
13140
13130
13110
7960-Y-31875
31880
31870
31865
31855

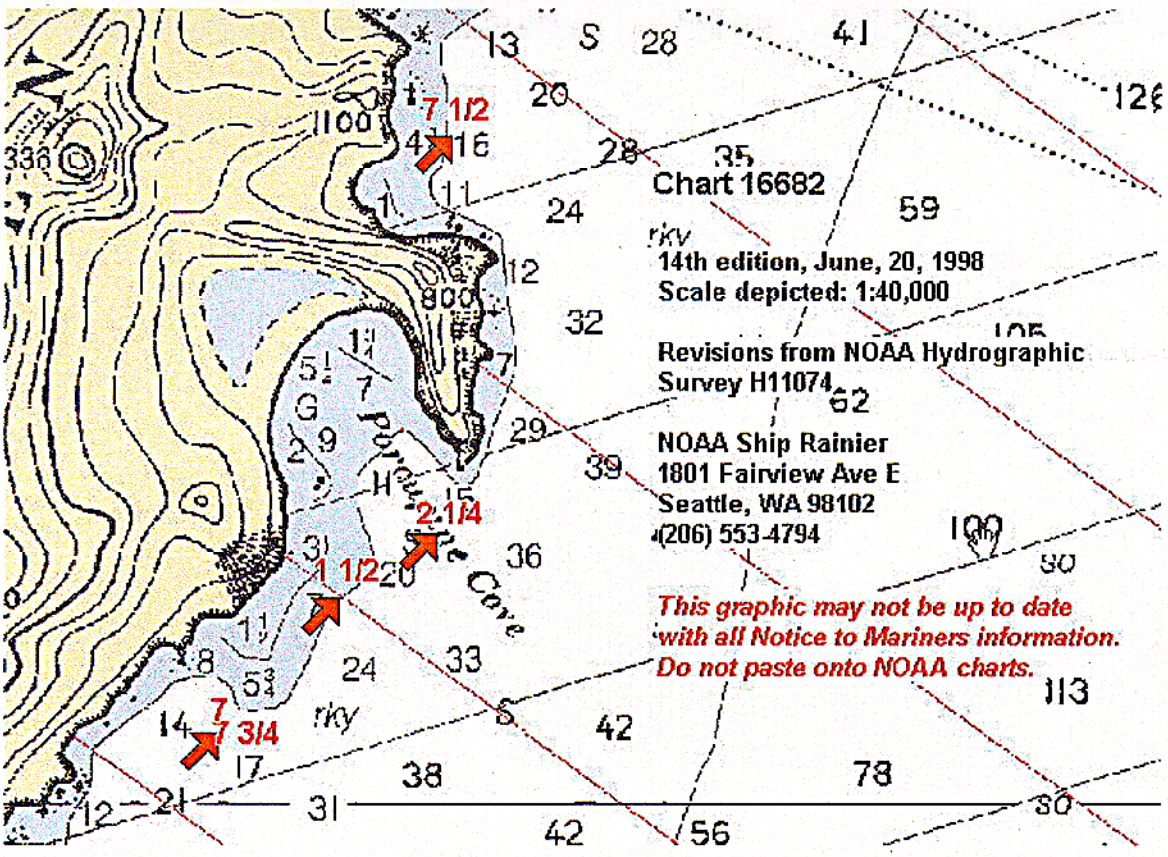


Chart 16682
14th edition, June, 20, 1998
Scale depicted: 1:40,000
Revisions from NOAA Hydrographic Survey H11074
NOAA Ship Rainier
1801 Fairview Ave E
Seattle, WA 98102
(206) 553-4794
This graphic may not be up to date with all Notice to Mariners information.
Do not paste onto NOAA charts.
7 1/2
2 1/4
1 1/2
7 3/4
Cove

RECRD	52822	VESSLTERMS	OBSTRUCTION	CHART	16682	AREA	P
		CARTOCODE	0067	SNDINGCODE		DEPTH	

LAT83	59 51 06.5	LONG83	149 29 54	NATIVDATUM	31
LATDEC:	59.851805555556	LONDEC:	149.49833333333	GPQUALITY	Med
				GPSOURCE	Direct

PROJECT	OPR-P359	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	300	INIT	MCR	ASSIGNED	7/2/2001
TECNIQ	MB,S2,ES,DI,SD				

Techniqnote

History

HISTORY
LNM27/98--17TH CGD; AS OF MARCH 20, 1998 A SUBSURFACE OCEANOGRAPHIC INSTRUMENT MOORING HAS BEEN DEPLOYED IN POS.59 51 06.5, 149 29 54W. THIS MOORING EXTENDS TO WITHIN 50 FEET OF THE SURFACE AND WILL FOUL FISHING GEAR. CONTACT: TOM SMITH AT U OF AK, 907-224-5261.
LNM33/00-17TH CGD, 8/15/00; ADD DOTTED CIRCLE (500 YD RADIUS) WITH BLUE TINT 8 FM IN POS. POS.59 51 06.5, 149 29 54W.

Fieldnote

INVESTIGATION

DATE(S): 08/21/01 (DN:233)

HYDROGRAPHIC SURVEY NUMBER: H11074

VN: 2120 TIME: 2337

INVESTIGATION METHODS USED: 100% SWMB

SURVEYED POSITION: LAT. 59/51/06.103N LON.149/29/56.580W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: NOT FOUND AFTER USING 100% SWMB COVERAGE. COMMUNICATION WITH DR. SMITH AT UAF UNSUCCESSFUL. LETTER OF INQUIRY SENT TO USCG.

CHARTING RECOMMENDATION (HYDROGRAPHER): RETAIN AS CHARTED PENDING COMMUNICATION WITH EITHER DR. SMITH OR USCG.

EVALUATOR COMMENTS: THE BUOY HAD BEEN REMOVED PER PHONE CONVERSATION WITH TOM SMITH (U OF AK.) 12/02/2005. REMOVE DOTTED CIRCLE, TINT AND NOTES FROM CHARTS.

Proprietar

YEARSUNK NIMANUM

Print Record

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: November 30, 2001

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-P359-RA-2001
HYDROGRAPHIC SHEET: H11074

LOCALITY: Entrance to Resurrection Bay and Harding Gateway, AK
TIME PERIOD: Aug. 16 - Sept. 19, 2001

TIDE STATION USED: 945-5090 Seward, AK
Lat. 60° 7.2'N Lon. 149° 25.6'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.947 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: CA500 & CA501.

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.

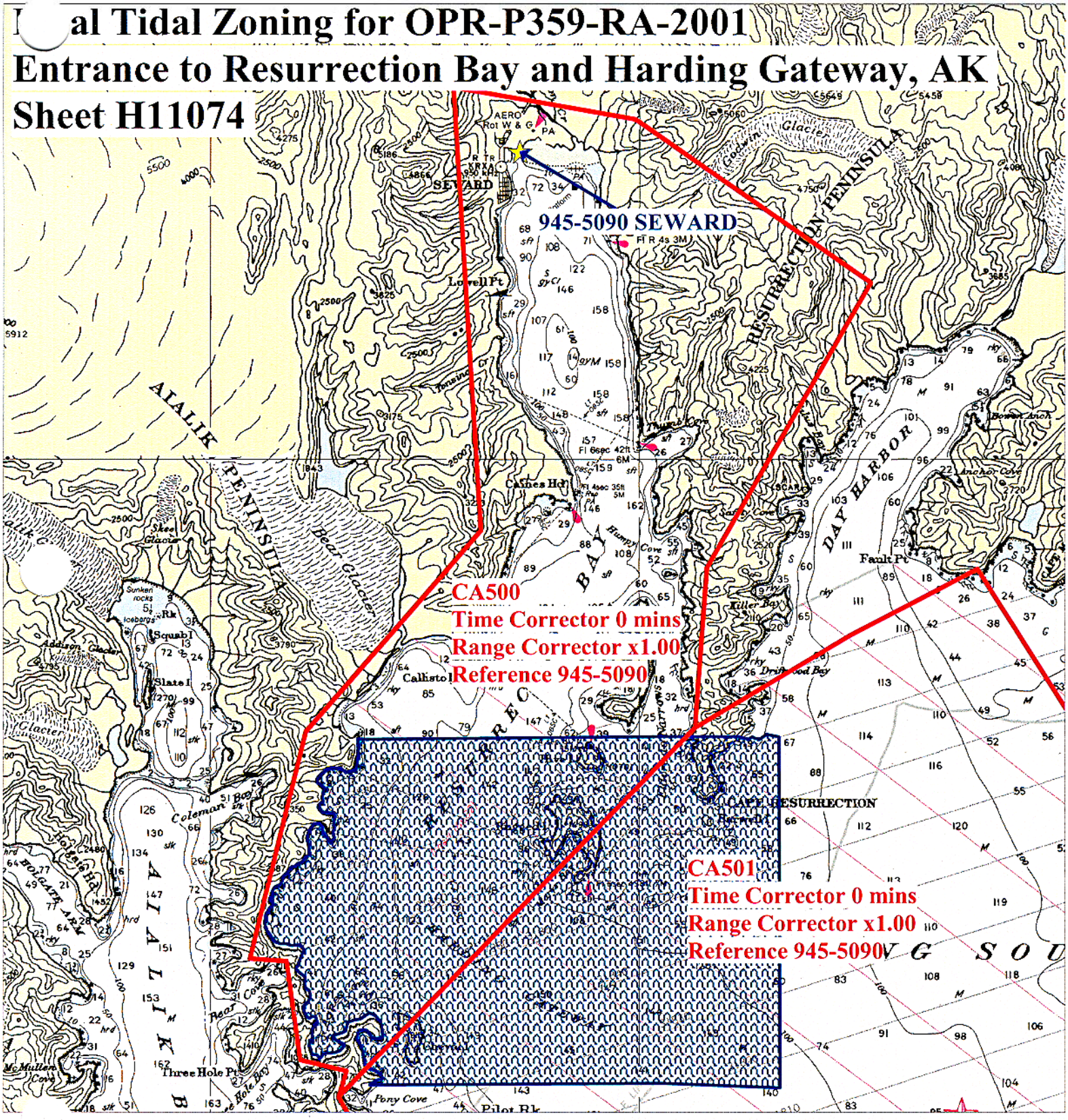
Edward N. Meus 12/3/01

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

al Tidal Zoning for OPR-P359-RA-2001

Entrance to Resurrection Bay and Harding Gateway, AK

Sheet H11074



Final tide zone node point locations for **OPR-P359-RA-2001**, **Sheet H11074.**

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

	Tide Station Order	AVG Time Correction	Range Correction
Zone CA500	945-5090	0	1.00
-149.592208 59.893478			
-149.456543 59.97201			
-149.478042 60.144898			
-149.336485 60.132389			
-149.153716 60.068871			
-149.280941 59.957638			
-149.290309 59.895001			
-149.567018 59.750298			
-149.560923 59.760449			
-149.596704 59.764695			
-149.607227 59.803421			
-149.63564 59.804481			
-149.592208 59.893478			
Zone CA501	945-5090	0	1.00
-148.826452 59.763477			
-149.070356 59.957131			
-149.070356 59.957131			
-149.169456 59.931179			
-149.290309 59.895001			
-149.567018 59.750298			
-149.527047 59.714435			
-149.307008 59.573642			
-149.157057 59.403902			
-148.655827 59.530663			
-148.826452 59.763477			

APPROVAL SHEET
H11074

Initial Approvals:

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

Gary C. Nelson Date: 8 March 2006

Gary Nelson
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 Descriptive Report.

, CDR/NOAA Date: 8 MARCH 2006

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

Kyle R. Ward

Digitally signed by Kyle R. Ward
DN: cn=Kyle R. Ward, c=US, ou=HSD, email=Kyle.Ward@NOAA.GOV
Reason: AWOIS and Surf Check Completed
Date: 2006.03.21 12:12:22 -05'00'

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-11074

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
16683	12/05/05	R. SHIPLEY	Full ~~Part Before~~ After Marine Center Approval Signed Via FULL Application of
			Drawing No. SNDGS, CURVES AND features from
			the smooth sheet
16682	12/15/05	R. Shipley	Full ~~Part Before~~ After Marine Center Approval Signed Via Full Application of
			Drawing No. SNDGS, curves and features from the
			smooth sheet
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.