

H10760

|  |   |
|--|---|
| NOAA FORM 70-35A   |   |
| U.S. DEPARTMENT OF COMMERCE<br>NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION<br>NATIONAL OCEAN SERVICE |   |
| DESCRIPTIVE REPORT   |   |
| Type of Survey   | Hydrographic                            |
| Field No.  | RA-10-19-97                             |
| Registry No.   | H-10760                                 |
| LOCALITY   |   |
| State  | Alaska                                  |
| General Locality   | Southwest Alaska Peninsula              |
| Sublocality  | Northeast Approach to<br>Chignik Lagoon |
| 1997   |   |
| CHIEF OF PARTY<br>CAPT Alan D. Anderson, NOAA  |   |
| LIBRARY & ARCHIVES   |   |
| DATE   | OCT. 15. 1998                           |

HYDROGRAPHIC TITLE SHEET

H-10760

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-10-19-97

State Alaska

General locality Southwest Alaska Peninsula

Locality Northeast Approach to Chignik Lagoon

Scale 1:10,000 Date of survey July 14 to Aug 22, 1997

Instructions dated 5/15/96, Change #1-6/3/97 Project No. OPR-P182-RA

Vessel RA-1(2121), RA-2(2122), RA-3(2123), RA-4(2124), RA-5(2125), RA-6(2126)

Chief of party CAPT Alan D. Anderson, NOAA

Surveyed by CAPT A. Anderson, LT G. Noll, LCDR G. Glang, LT M. Larsen, LT K. Bailey, LT D. Baird, St. S. Baum

Soundings taken by echo sounder, ~~beam lead, etc~~ Side Scan Dives DSF-6000N, Knudsen 320M, EG&G Model 260  
Divers Depth Gage

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: B. Mihailov Automated plot by HP Design Jet 650C

~~Processed by~~ M. Bigelow, E. Domingo

Verification by M. Bigelow, E. Domingo

Soundings in fathoms ~~xxxx~~ at ~~xxxx~~ MLLW and tenths

REMARKS: All times are UTC, revisions and marginal notes in black were generated during office processing. All separates are filed with the hydrographic data, as a result page numbering may be interrupted or non-sequential. All depths listed in this report are referenced to mean lower low water unless otherwise noted.

AWOIS/SURF 10/1/98  
mcr

PROGRESS SKETCH  
 OPR-P182-RA-97  
 SOUTHWEST ALASKA PENINSULA  
 JULY-AUGUST 1997  
 CAPT A. D. ANDERSON, NOAA  
 COMMANDING  
 CHART 16566

| Sheet | Reg_No  | Started | Percent | Completed | Submitted | SQNM |
|-------|---------|---------|---------|-----------|-----------|------|
| J     | H-10761 | 7/10    | 100     | 8/2       |           | 29.3 |
| K     | H-10762 | 7/10    | 100     | 8/1       |           | 14.4 |
| L     | H-10765 | 7/19    | 100     | 8/20      |           | 12.6 |
| M     | H-10767 | 7/30    | 100     | 8/24      |           | 17.0 |
| P     | H-10760 | 7/14    | 100     | 8/19      |           | 13.8 |
| S     | H-10759 | 7/13    | 100     | 8/19      |           | 7.9  |
| V     | H-10701 | 7/24    | 100     | 8/25      |           | 16.0 |
| Q     | H-10768 | 8/5     | 100     | 8/22      |           | 11.4 |
| X     | H-10770 | 8/15    | 100     | 8/26      |           | 20.8 |

| Downtime_Type  | July | August |
|----------------|------|--------|
| Weather - Hr   | 0    | 4      |
| Mechanical -Hr | 0    | 2      |
| Electronic -Hr | 0    | 2      |

| Accomplished  | July   | August |
|---------------|--------|--------|
| LNM Hydro     | 2539.4 | 1732.6 |
| LNM SSS       | 20.83  | 15.85  |
| SQ NM         | 77.9   | 224.5  |
| AWOIS Invest. | 5      | 0      |
| Other Invest. | 1      | 8      |
| LNM Multibeam | 0      | 68.5   |

holidays in  
 1996 work  
 to be done in 1997

1996  
 JULY  
 AUGUST

Sheet P  
 13.8 sq nm  
 100%  
 H-10760

Sheet C  
 11.4 sq nm  
 100%

Sheet S  
 7.9 sq nm  
 100%

Additional lines

Sheet M  
 17.0 sq nm  
 100%

Sheet L  
 12.6 sq nm  
 100%

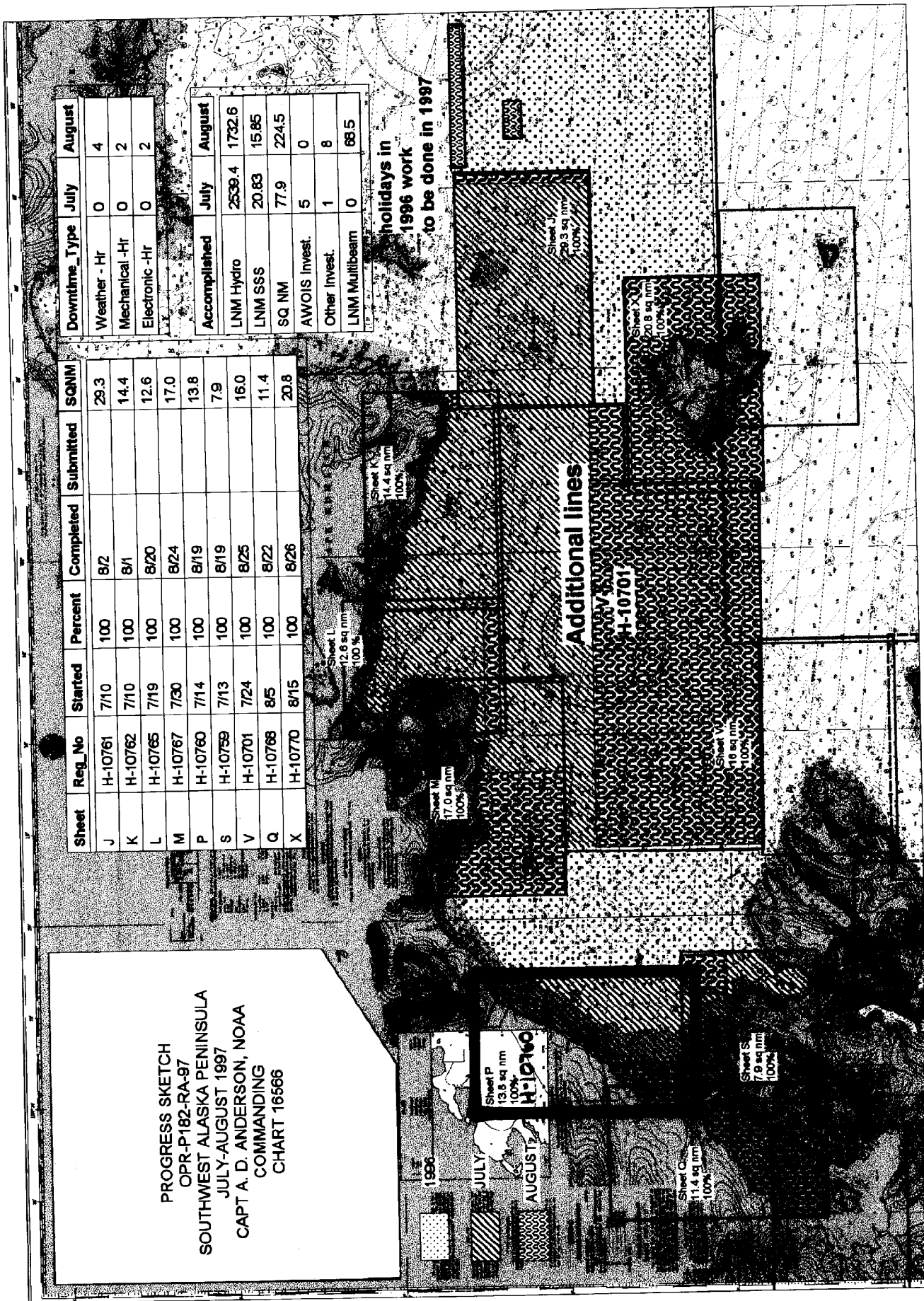
Sheet K  
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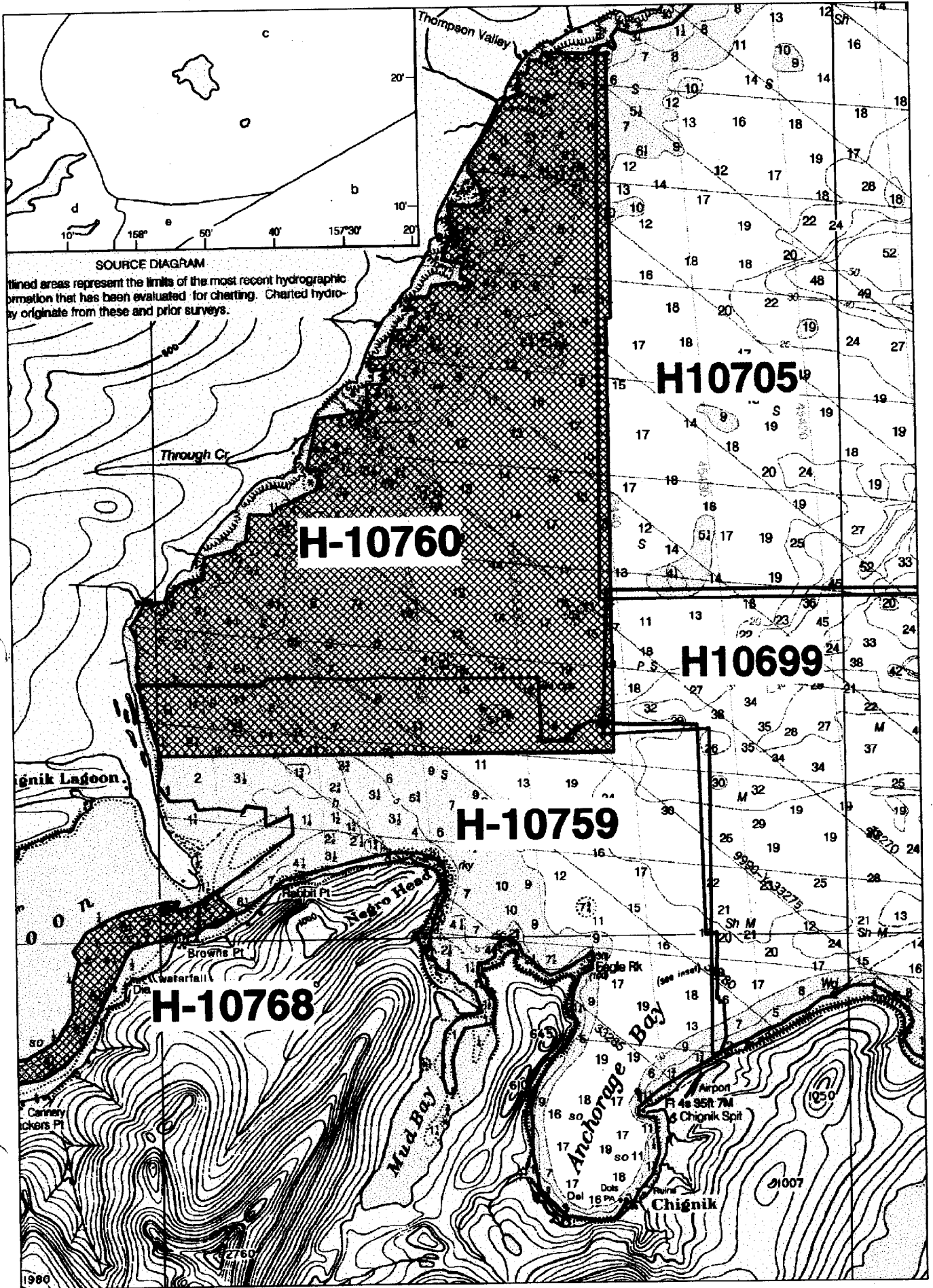
Sheet V  
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Sheet Q  
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Sheet X  
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Sheet U  
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 100%





**SOURCE DIAGRAM**  
 Hatched areas represent the limits of the most recent hydrographic information that has been evaluated for charting. Charted hydrography originates from these and prior surveys.

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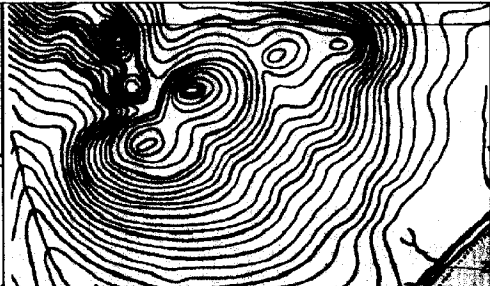
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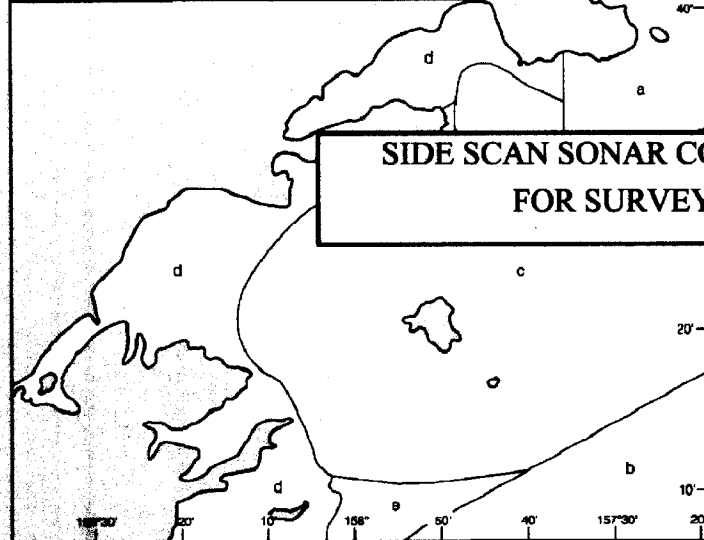
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irect U.S.  
unification

SOURCE

|            |             |           |
|------------|-------------|-----------|
| a. 1983-86 | NOS Surveys | Various   |
| b. 1943    | NOS Surveys | 1:120,000 |
| c. 1925-88 | NOS Surveys | 1:80,000  |
| d. 1924-86 | NOS Surveys | 1:20,000  |
| e. 1988    | NOS Surveys | 1:10,000  |



SIDE SCAN SONAR COVERAGE AREA  
FOR SURVEY H-10760

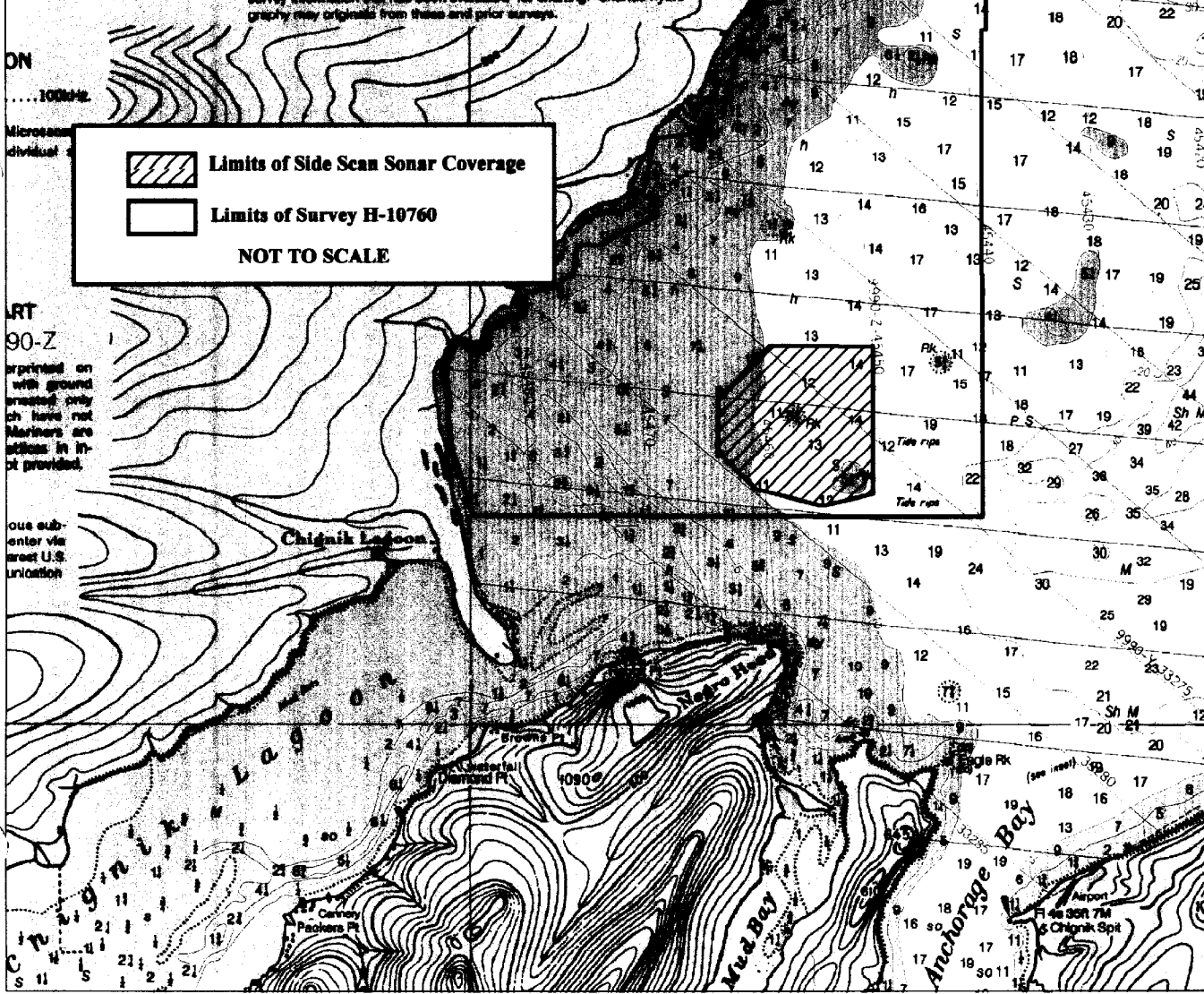


The outlined areas represent the limits of the most recent hydrographic survey information that has been evaluated for charting. Charted hydrography may originate from these and prior surveys.

**Limits of Side Scan Sonar Coverage** (indicated by hatched pattern)

**Limits of Survey H-10760** (indicated by solid line)

**NOT TO SCALE**



Descriptive Report to Accompany Hydrographic Survey H-10760

Field Number RA-10-19-97

Scale 1:10,000

July-August 1997

NOAA Ship RAINIER

Chief of Party: Captain Alan D. Anderson, NOAA

**A. PROJECT** ✓

This hydrographic survey was completed as specified by Project Instructions OPR-P182-RA dated ~~December 20, 1996, and Change No. 1 dated June 3, 1997.~~ <sup>MAY 15</sup> Survey H-10760 corresponds to sheet P as defined in the sheet layout. The purpose of this survey is to provide contemporary surveys for updating National Ocean Service (NOS) nautical charts. The majority of charted hydrography in the 1997 project area is from 1924 and 1925 lead-line hydrographic surveys. Requests for hydrographic surveys and updated charts in this area have been received from a U.S. Senator, a U.S. Congressman, the United States Coast Guard (USCG), the commercial fishing industry, and NOAA. \* *Change No. 1 applies to this survey.*

**B. AREA SURVEYED** ✓ *See Evaluation Report, Section B, for additional information.*

The survey area is in the west end of Chignik Bay, Southwest Alaska Peninsula. It lies north of the entrance to Chignik Lagoon. The survey is bound on the west by the Alaska Peninsula, with its southern limit latitude  $56^{\circ} 21' 30''$  N and its northern limit latitude  $56^{\circ} 27' 30''$  N. It is bound on the east by longitude  $158^{\circ} 23' 30''$  W. <sup>15</sup> <sub>20</sub>

Data acquisition was conducted from July 14<sup>th</sup> to August 22<sup>nd</sup>, 1997 (DN 195-234).

**C. SURVEY VESSELS** ✓

Data were acquired by RAINIER and her survey launches as noted in the Survey Information Summary ~~included with~~ this report. *attached to*

**D. AUTOMATED DATA ACQUISITION AND PROCESSING** ✓

All data were acquired and processed using the Hydrographic Data Acquisition and Processing System (HDAPS.) The final field sheet was generated using MapInfo (Version 4.1) and MapBasic software developed by N/CS32 and modified by RAINIER personnel. A complete listing of software for HDAPS is included in Appendix VI. *Filed with the hydrographic records.*

**E. SONAR EQUIPMENT** ✓

Side scan sonar (SSS) operations were conducted on this survey to look for a suitable anchorage for RAINIER. The approximate area of coverage is bound by  $56:22:45$  N,  $158:26:30$  W;  $56:22:45$  N,  $158:25:00$  W;  $56:21:40$  N,  $158:25:00$  W;  $56:21:40$  N,  $158:26:30$  W. Two hundred percent SSS collection was conducted in the entire area on DN 198. The recorder gain setting was adjusted for the best return for changing bottom conditions. A rub test was conducted prior to operating the SSS. The side scan sonogram was manually scanned for significant contacts in accordance with section 7.3.2 of the project instructions. No significant contacts were identified; thus the area was developed based on normal echosounding analysis. - *CONCUR*

An EG&G model 260 slant-range corrected SSS recorder (SN 0012106) and EG&G 272-T-dual channel towfish (SN 016989). The towfish was operated on the 100 kHz frequency. The towfish was deployed manually on the starboard quarter of RA-3, attached to the aft fall shackle by line and lead around the stern railings. The length of towcable deployed was determined by noting the measured markings on the towfish cable as these markings met the stern railing. The SSS towfish was adjusted to maintain a height off the bottom of 8 to 20 percent of the range scale. The 100 meter range scale were used. SSS operations were conducted at or less than 5 knots.

Multi-beam echo sounder equipment was not used on this survey. -CONCUR

## F. SOUNDING EQUIPMENT ✓

Two types of fathometers were used on this survey. RA-2, RA-3, RA-4, RA-5 and RA-6 used the Raytheon DSF-6000N. The DSF-6000N is a dual frequency (100 kHz, 24 kHz), paper trace echo sounder. RA-1 used the KNUDSEN 320M. The KNUDSEN 320M is a dual frequency, thermal depth sounder. The KNUDSEN used the same type of transducers as the DSN-6000N. All soundings were acquired in meters using the High + Low, high frequency digitized setting. Serial numbers for the fathometers are included on the headers of the daily Raw Master Printouts. \* Least Depth Diver Gauge, serial number 08333 was used for 7 dive investigations, which are filed with the raw records. \*

## G. CORRECTIONS TO ECHO SOUNDINGS ✓

### Sound Velocity ✓

Two sound velocity casts were used for this survey. Information on the casts is included in the Survey Information Summary report. Attached to this report.

A SBE SEACAT Profiler (S/N 219), calibrated December 15, 1996 was used for the SVP cast. Velocity correctors were computed using the PC programs SEACAT and VELOCITY (version 3.3, 1996), in accordance with Hydrographic Survey Guideline (HSG) No. 69. A printout of the Sound Velocity Corrector Table used in the HDAPS Post Survey program is included in the "Separates to be Included with Survey Data, IV. Sounding Equipment Calibrations and Corrections".\*

Static transducer depths for all launches were determined in the spring of 1997 using the form in Field Procedures Manual (FPM) Fig. 2.2. Settlement and squat correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2, using the form in FPM Fig. 2.3 and are included with project data for OPR-P182-RA. Correctors for launches 2121, 2122, and 2123 were determined from observations in Shilshole Bay, Washington during the spring of 1997. Correctors for launches 2124 and 2126 were determined from observations in Shilshole Bay taken in the spring of 1996. Correctors for launch 2125 were determined from observations made near Scull Island, Alaska in March 1997.

### Offset ✓

Offsets for GPS antennae, static draft, and settlement and squat correctors were tabulated in the HDAPS Offset Tables. Offset tables 1 through 6 are numbered to correspond to the last digit of the launch number. Offset tables are included with project data for OPR-P182-RA. Launches were not equipped with heave, roll and pitch (HRP) sensors for this survey.

\* Filed with hydrographic data.

## Tides

The Coastal and Estuarine Oceanography Branch (N/OES334), through N/CS31, provided predicted tides for the project. The reference station for the Southwest Alaska Peninsula is West End, Sutwik Island (945-8665).

HDAPS listings of the data used in generating tide corrector tables are included in Appendix V\* of this report. Tidal correctors as provided in the project instructions for H-10760 are in the Survey Information Summary ~~included with this report.~~ **attached to**

Sand Point, Alaska (945-9450) is the primary control stations for datum determination at all subordinate stations. RAINIER personnel installed and maintained Sutron 8200 tide gauges at Unavikshak Island (945-8762) from July 9<sup>th</sup> through August 27<sup>th</sup> and Chignik, Anchorage Bay (945-8917) from July 12<sup>th</sup> through August 26<sup>th</sup>. Unavikshak Island and Chignik, Anchorage Bay tide stations were required for control of vertical datum for this survey. **A**

Refer to the Field Tide Notes and supporting data in appendix V\* for individual tide gauge performance and level closure information. This information has been forwarded to N/OES212 in accordance with HSG 50 and FPM 4.3. A request for approved tides was forwarded to N/OES23 in accordance with FPM4.2.3.

**A tide note for survey H-10760, dated January 5, 1998 is attached to this report.**

## H. CONTROL STATIONS ✓

The horizontal datum for this project is NAD 83. Control stations used for hydrography on this survey are listed in ~~Appendix III and section I.~~ **this report.** Refer to the OPR-P182-RA-97 Horizontal Control Report for site descriptions, monitor results, and closure information.

## I. HYDROGRAPHIC POSITION CONTROL ✓

All soundings were positioned using differential GPS (DGPS). Primary control was from the RAINIER-installed VHF differential reference stations on Unavikshak Island (SHAK, 1920) and on Anguvik Island (ANG, 1920). The USCG DGPS Beacons in Kodiak, Alaska (KODIAK) and Cold Bay, Alaska (COLD BAY) served as alternate control. All differential stations were monitored, and results were sent to N/CS31 per Project Instructions. Launch-to-launch DGPS performance checks were performed in accordance with Section 3.4.4 of the FPM. These performance checks were position comparisons made with the RAINIER DGPS reference stations and the USCG DGPS Beacons. DGPS performance was frequently monitored aboard RAINIER using the program SHIPDIM, version 2.2R (April 1996) with a Trimble Centurion P-code receiver and an Ashtech OEM sensor (both differentially-corrected). Some outliers were noted, but none indicate systematic or continuous errors in any of the reference stations or beacons. The SHIPDIM output file, OUTLIER.SUM, is included in the project data for OPR-P182-RA.

## J. SHORELINE ✓ See Evaluation Report, Section J.

The shoreline manuscript from Coastal Mapping survey CM-8309 was supplied by N/CS341. Stable base copies of TP-00905 and TP-00911 were scanned and digitized by RAINIER personnel. The shoreline was transferred onto boat sheets by hand. Chart 16566 (8<sup>th</sup> ed. Aug 3/96) was converted to a raster image, registered in MapInfo, and plotted at survey scale. There was general agreement between the digitized shoreline manuscript and the chart enlargement, and what the hydrographer found on this survey. Shoreline on the contemporary survey agrees closely with shoreline on the prior surveys. In general, the west end of Chignik Bay is a shallow sloping beach riddled with rocks and ledges. In the summer, much of the shoreline is foul with kelp. **Concur**

\* Filed with the hydrographic data.



Limited shoreline verification was conducted at or below Mean Lower Low Water (MLLW) in accordance with the Project Instructions. For this survey, the general limit of safe navigation of a survey launch was 3-10 meters of depth or 3-10 meters offshore of rocks and ledges. The shoreline notes for this survey give a more detailed description of the numerous rocks and ledges along the shoreline than are represented on the shoreline manuscript and on the chart. Many manuscript rocks were found to be high points of reefs and ledges. *Concur* *Shoreline verification data has been analyzed during office processing and shown on the smooth sheet as warranted.*

Beginning at the south shore and moving north, the contemporary survey reveals a new reef in the vicinity of *lat.* 56:22:57.611 N, *long.* 158:29:08.368 W. It is a broken reef extending eastward from shore. Two detached positions, # 40720, DN 204 and # 40725, DN 204, position the feature. The area north of this is shallow, sloping beach, foul with kelp. *Four isolated reefs extending from shore are shown on the smooth sheet along latitude 56/23/00N, from longitude 158/29/51W to longitude 158/29/37W.* *Chart reefs as individual rocks.*  
In the vicinity of *lat.* 56:23:49.49 N, *long.* 158:27:33.53 W, the manuscript shows numerous rocks. These rocks are the high points of a broken reef. Directly east of the reef, the water is shoal and foul with kelp. The hydrographer has drawn a foul limit line around this area. *Broken reefs and foul limit line are shown on smooth sheet. Chart as ledge connected to shoreline. Add kelp symbol to area.*  
To the north, in the vicinity of *lat.* 56:24:16.21 N, *long.* 158:27:34.74 W, are a series of broken ledges along an otherwise sandy shoreline. Under the guidelines of limited shoreline verification, the hydrographer estimated the position of these ledges inshore of the navigable area. North of this, the manuscript shows ledges and scattered rocks. The hydrographer has included a foul limit line surrounding areas found to be shoal and foul with ledges and kelp. *Broken reefs and foul limit line are shown on smooth sheet. Show as one continuous ledge connected to shore at chart scale. Add foul note to area.*

Detached position #30417, DN203, marks a rock offshore of the manuscript ledge. The hydrographer found breaking water between this rock and the ledge indicating it is a continuous feature. *Rock (!) shown on field sheet has been incorporated into ledge as shown on the smooth sheet. Chart as part of continuous connected to shore.*

Detached position # 30418, DN 203, marks the extent of breakers surrounding a foul area. This area, delineated by a foul limit line, is shoal and foul with rocks and kelp. The manuscript shows two rocks inshore; the hydrographer found the area riddled with rocks and was unable to survey inside this area. *Chart area as shown on smooth sheet. Chart ledge and individual rocks. Add "Breakers" note to chart.*

Detached position # 30419, DN 203, marks the offshore limit of a ledge. The manuscript shows this feature as a collection of rocks, however, these rocks are the high points of a large ledge. The feature appears as a ledge on the chart. *This smooth sheet shows it is to be a continuous ledge connected to shore. Chart feature as shown on the smooth sheet.*

#### K. CROSSLINES ✓

Crosslines are in agreement with mainscheme hydrography. Differences of 0.2 m to 0.4 m (0.1 to 0.2 fathoms) can generally be attributed to the irregular bottom topography. There was a total of 21.65 nautical miles of crosslines comprising 8.6% of mainscheme hydrography.

#### L. JUNCTIONS ✓ See Evaluation Report, section L.

This survey junctions with H-10705, 1996 to the east, H-10699, 1996 to the southeast, and H-10759, 1:10,000, 1997 to the south. Soundings on H-10760 were found to be in agreement with the survey junctions. In most cases, soundings compare within half a fathom or less. Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after reduction to final vertical datum.

## M. COMPARISON WITH PRIOR SURVEYS

|        |          |      |
|--------|----------|------|
| H-4427 | 1:20,000 | 1924 |
| H-4389 | 1:20,000 | 1924 |

The contemporary survey was compared to the prior surveys at 1:20,000 using NAD27. The prior surveys contain fewer soundings with greater line spacing than the contemporary survey. The prior surveys used 200 m to 300 m line spacing compared to the contemporary survey that used 10 m to 100 m line spacing. The prior surveys did not collect as many soundings along the shoreline as the contemporary survey. Prior survey H-4427 surveyed to approximately the 3-fathom curve and H-4389 surveyed, in feet, to approximately the 1 ½ fathom curve. The contemporary survey sounded to the 0 to 1 fathom curve in most areas.

A comparison of shoreline features shows general agreement between the contemporary survey and the prior surveys. The shoreline, rocks and ledges are represented similarly. Due to the shallower soundings and increased concentration of soundings, the contemporary survey provides more detailed information on shoreline rocks and ledges and near shore shoals. Specific shoreline features are discussed in Section J.

Soundings on the contemporary survey are in close agreement, within 1 fathom, with soundings on the prior surveys. Comparison of the depth contours is also consistent. In some areas, soundings from the contemporary survey are 1 fathom to 2 fathoms shallower than soundings on the prior surveys. This is particularly apparent on H-4389. This may be due to the irregular bottom topography in the survey area accompanied with the increased density of soundings on the contemporary survey. On H-4389, it may also be due to sedimentation from Chignik Lagoon. Bottom samples in this area show sand bottom, broken shells, and pebbles.

Numerous areas were developed on the contemporary survey that proved to be shoaler than previously recorded. These shoals appear in areas that were not sounded on the prior surveys. The following is a list of some of the shoals developed on this survey that were not recorded on the 1924 surveys. Some of these shoals are 3 fathoms or more shoaler than previously surveyed. Near shore shoals that occur in areas noted to be foul or rocky are not included in this list. Shoals considered to be of consequence to traffic have been reported as Dangers To Navigation and are discussed separately in Section O.

| Latitude     | Longitude     | Depth (fm) | SR       |
|--------------|---------------|------------|----------|
| 56:26:59.907 | 158:23:33.950 | 1.4        | 0.7 RK   |
| 56:25:38.342 | 158:23:26.319 | 8.9        | 9.1 fms  |
| 56:25:04.167 | 158:25:15.932 | 2.3        | 2.2 fms  |
| 56:24:33.845 | 158:25:44.708 | 4.4        | 4.4 fms  |
| 56:24:03.322 | 158:25:58.987 | 5.8        | 5.9 fms  |
| 56:23:58.509 | 158:24:36.909 | 10.7       | 10.8 fms |
| 56:21:46.871 | 158:24:21.951 | 7.6        | 7.6 fms  |

H-4389 shows one shoal to be shallower than the contemporary survey sounded. On H-4389, 14 ft (2 1/3 fathoms) was the shallowest sounding on a shoal in the vicinity of 56:22:13.95 N, 158:28:46.56 W. This shoal is charted as 2 ¼ fathoms. The contemporary survey sounded 2.7 fathoms as the shallowest depth on this shoal. This area was surveyed using 50 meter line spacing. The smooth sheet shows a 2.8 fm (2 ¾) sounding with smooth tides applied. There is a 2.6 fm (2 ½) sounding which plots 500 meters to the southeast that should be charted. Chart this area based on the present survey information.

**N. ITEM INVESTIGATIONS** ✓

No AWOIS items were located within H-10760 survey area. *Concur*

**O. COMPARISON WITH THE CHART** ✓ *See Evaluation Report, Section O.*

This survey was compared to chart 16566, 1:77477, <sup>9</sup>th ed., ~~Aug. 3, 1996~~ *March 7, 1998*. In general, soundings and contours on the contemporary survey agree with charted depths. There are, however, a number of areas found on the contemporary survey that are 1 to 2 fathoms or more shallower than charted. *Concur* The majority of these areas were missed in the prior surveys' sounding scheme. *Concur* Shoreline features are discussed in Section J, and soundings are discussed in Section M.

**Dangers to Navigation** ✓

The following Dangers to Navigation were reported to the USCG District 17 headquarters in Juneau, Alaska, on September 10, 1997. *Dangers letter is attached to report.*

| FEATURE | DEPTH (Fathoms) | LATITUDE (N) | LONGITUDE (W) | POSITION Number | Depth (Meters) | <i>SS</i> fathoms | <i>Chart</i>    |
|---------|-----------------|--------------|---------------|-----------------|----------------|-------------------|-----------------|
| Rock    | 5 3/4           | 56:21:45.730 | 158:25:05.943 | "60000+0"       | 10.8           | <i>5 1/4</i>      | <i>5 1/4</i> RK |
| Rock    | 5 3/4           | 56:22:36.980 | 158:23:54.010 | "60479+0"       | 10.8           | <i>6.1</i>        | <i>6</i> RK     |
| Rock    | 5 1/2           | 56:22:13.660 | 158:25:48.307 | "60480+0"       | 10.3           | <i>5 1/8</i>      | <i>5 1/4</i> RK |
| Rock    | 2 1/2           | 56:24:49.525 | 158:24:13.456 | "60514+0"       | 4.8            | <i>2 1/2</i>      | <i>2 1/2</i> RK |
| Rock    | 1 3/4           | 56:23:35.287 | 158:26:00.622 | "60515+0"       | 3.4            | <i>1 3/8</i>      | <i>1 3/4</i> RK |
| Rock    | 1 1/2           | 56:26:12.124 | 158:24:02.193 | "60482+0"       | 3.1            | <i>1 1/8</i>      | <i>1 1/4</i> RK |

**P. ADEQUACY OF SURVEY** ✓

Survey H-10760 is complete and adequate to supersede prior soundings and features in their common areas. *Concur*

**Q. AIDS TO NAVIGATION** ✓

There were no aids to navigation within the survey area. *Concur*

**R. STATISTICS** ✓

Survey statistics are listed in the Survey Information Summary *attached to* ~~included with~~ this report. *Concur*

**S. MISCELLANEOUS** ✓

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. No unusual tidal currents or magnetic variations were found during this survey.

There were no Secchi disk observations collected on this survey.

**T. RECOMMENDATIONS** ✓

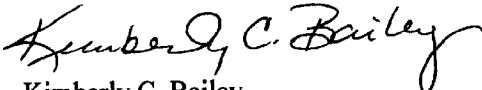
None

**U. REFERRAL TO REPORTS** ✓

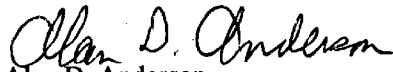
The following supplemental reports contain additional information relevant to this survey:

| <u>Title</u>                          | <u>Date Sent</u> | <u>Office</u> |
|---------------------------------------|------------------|---------------|
| OPR-P182-RA Horizontal Control Report | September 1997   | N/CS34        |
| OPR-P182-RA 1997 Coast Pilot Report   | September 1997   | N/CS26        |
| Project related data for OPR-P182-RA  | Incremental      | N/CS34        |

Respectfully Submitted,

  
Kimberly C. Bailey  
Lieutenant, NOAA

Approved and Forwarded,

  
Alan D. Anderson  
Captain, NOAA  
Commanding Officer

CONTROL STATIONS as of 9 Oct 1997 ✓

| No             | Type         | Latitude                 | Longitude                | H              | Cart           | Freq           | Vel            | Code | MM/DD/YY            | Station Name               |
|----------------|--------------|--------------------------|--------------------------|----------------|----------------|----------------|----------------|------|---------------------|----------------------------|
| 001            | G            | 056:30:09.724            | 157:43:12.024            | 162            | 250            | 0.0            | 0.0            |      | 09/00/97            | SHAK                       |
| 002            | G            | 056:26:08.935            | 158:17:01.986            | 33             | 250            | 0.0            | 0.0            |      | 09/00/97            | ANG                        |
| 100            | G            | 057:37:07.800            | 152:11:21.000            | 0              | 250            | 0.0            | 0.0            | A    | 03/01/96            | KODIAK 313 KHZ USCG DGPS   |
| 101            | G            | 055:05:30.000            | 162:31:54.000            | 0              | 250            | 0.0            | 0.0            | B    | 06/25/96            | COLO BAY 289 KHZ USCG DGPS |
| <del>003</del> | <del>G</del> | <del>056:21:50.300</del> | <del>157:50:26.735</del> | <del>310</del> | <del>250</del> | <del>0.0</del> | <del>0.0</del> |      | <del>09/00/97</del> | <del>NAX</del>             |
| <del>004</del> | <del>G</del> | <del>056:18:34.550</del> | <del>158:23:01.300</del> | <del>24</del>  | <del>0</del>   | <del>0.0</del> | <del>0.0</del> |      | <del>09/00/97</del> | <del>ENIGNIF LT</del>      |



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

NOAA Ship RAINIER  
 August 28, 1997

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

**ADVANCE  
 INFORMATION**

Dear Sir:

The following dangers to navigation should be included in the Local Notice to Mariners. They were positioned by the NOAA Ship RAINIER while a conducting hydrographic surveys in the vicinity of Chignik Bay, Alaska. The dangers are shown on the three pages of attached chartlet and affect chart 16566, 8TH ED., 96/08, 1:77,477, NAD 83. Depths of features are referenced to Mean Lower Low Water using predicted tides.

| FEATURE | DEPTH<br>(Fathoms) | LATITUDE (N) | LONGITUDE (W) | POSITION  | Depth<br>(Meters) | Survey<br>Number |
|---------|--------------------|--------------|---------------|-----------|-------------------|------------------|
| Shoal   | 8 3/4              | 56:21:02.864 | 157:47:54.013 | "10511+3" | 16.1              | H-10770          |
| Shoal   | 4 3/4              | 56:20:56.574 | 157:54:28.371 | "20031+6" | 8.9               | ""               |
| Shoal   | 3 1/4              | 56:21:03.582 | 157:48:16.931 | "10521+4" | 6.2               | ""               |
| Shoal   | 7 3/4              | 56:20:14.131 | 158:23:47.644 | "20999+4" | 14.3              | H-10759          |
| Rock    | 5 3/4              | 56:21:45.730 | 158:25:05.943 | "60000+0" | 10.8              | H-10760          |
| Rock    | 5 3/4              | 56:22:36.980 | 158:23:54.010 | "60479+0" | 10.8              | ""               |
| Rock    | 5 1/2              | 56:22:13.660 | 158:25:48.307 | "60480+0" | 10.3              | ""               |
| Rock    | 2 1/2              | 56:24:49.525 | 158:24:13.456 | "60514+0" | 4.8               | ""               |
| Rock    | 1 3/4              | 56:23:35.287 | 158:26:00.622 | "60515+0" | 3.4               | ""               |
| Rock    | 1 1/2              | 56:26:12.124 | 158:24:02.193 | "60482+0" | 3.1               | ""               |
| Shoal   | 3                  | 56:25:51.506 | 158:14:57.358 | "10563+6" | 5.5               | H-10767          |
| Shoal   | 4                  | 56:30:20.082 | 158:02:56.410 | "30303+6" | 7.8               | H-10765          |
| Shoal   | 7 3/4              | 56:26:07.352 | 157:48:41.918 | "10082+1" | 14.6              | H-10761          |

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-P182-RA-97 and Danger to Navigation message RA-5-97. 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,

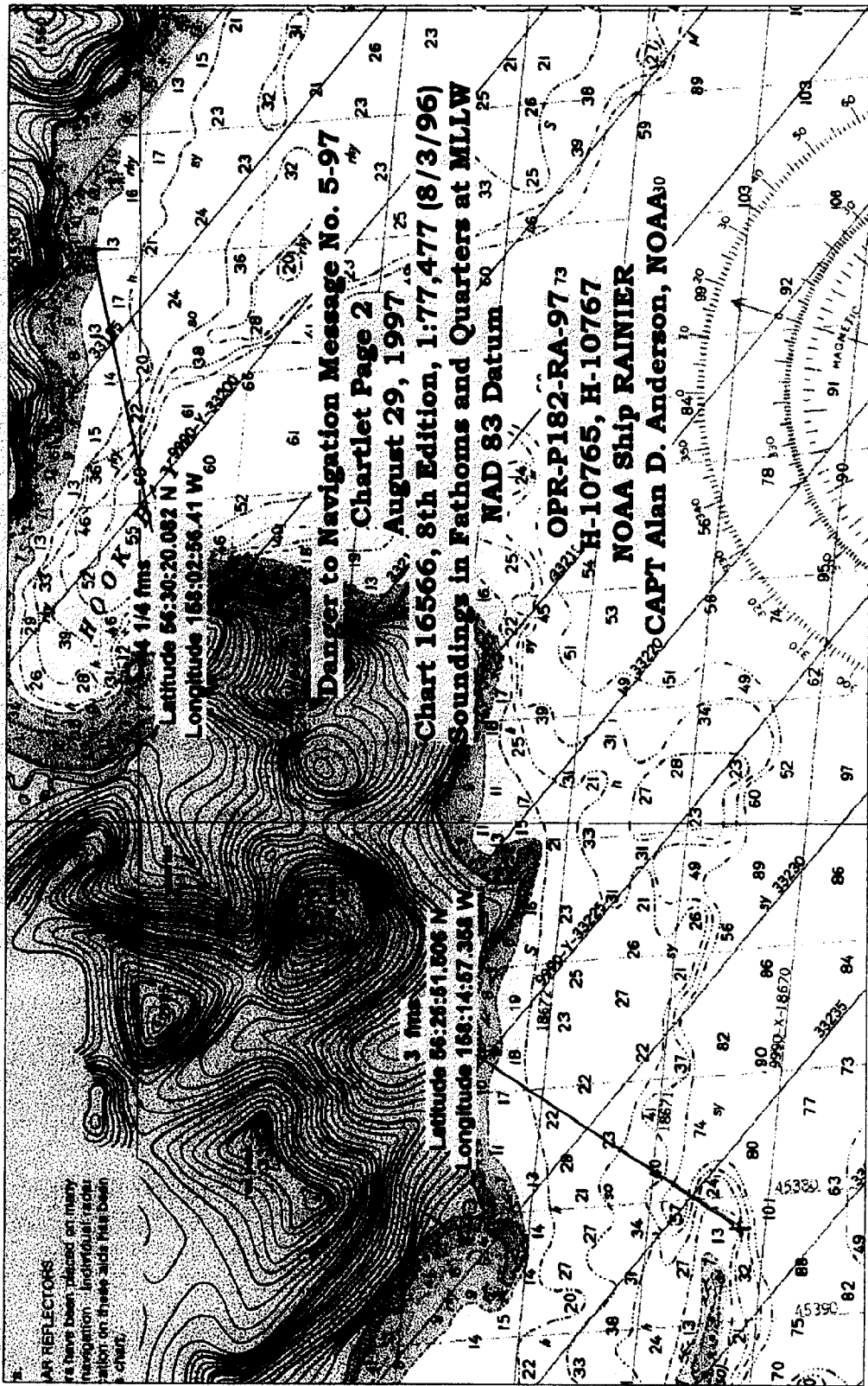
*Alan D. Anderson*  
 Alan D. Anderson  
 Captain, NOAA  
 Commanding Officer

Attachment

cc: NIMA  
 PMC  
 N/CS261  
 N/CS34



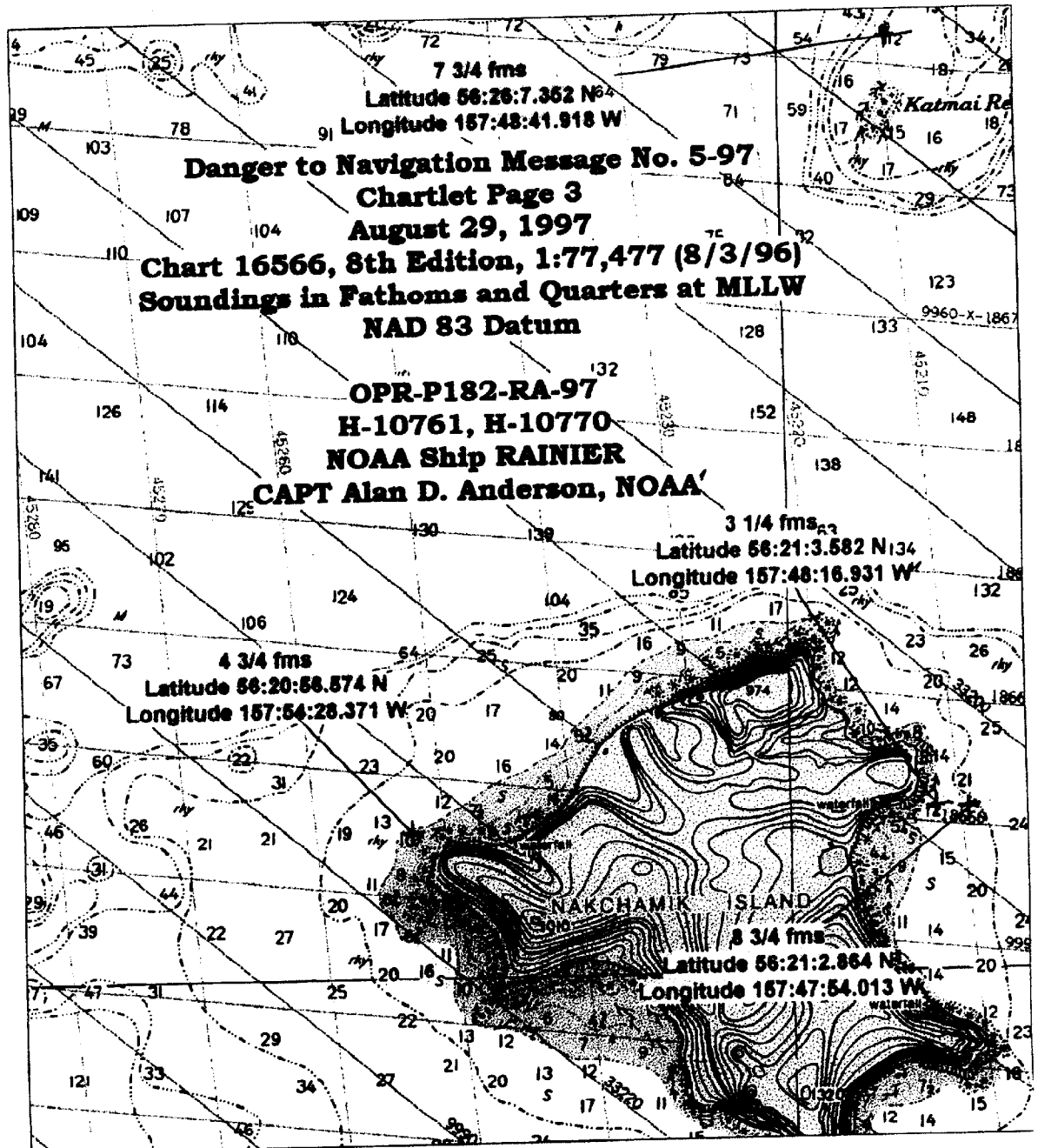




**ADVANCE  
 INFORMATION**



**ADVANCE  
INFORMATION**



Lotus cc:Mail for FOO Rainier

Author: FOO Rainier at Rainier  
Date: 9/1/97 14:47  
Priority: Normal

**ADVANCE  
INFORMATION**

TO: akcgnav@alaska.net at RDC, dhill@pachydro.noaa.gov at RDC,  
ktimmons@pachydro.noaa.gov at RDC, navinfonet@nima.mil at RDC  
CC: CO Rainier, Chief Survey Technician Rainier, Larry [OPS-PMC] Mordock at RDC  
Subject: DTON message for USCG/NIMA/PHB/Chart Section

The following dangers to navigation should be included in the Local Notice to Mariners. They were positioned by the NOAA Ship RAINIER while a conducting hydrographic surveys in the vicinity of Chignik Bay, Alaska. The dangers are digitally rendered in the attached MapInfo file (ver 4.1, zipped). They affect chart 16566, 8TH ED., 96/08, 1:77,477, NAD 83.

| FEATURE | DEPTH<br>(Fathoms) | LATITUDE (N) | LONGITUDE (W) | POSITION<br>Number | Depth<br>(Meters) | Survey<br>Number |
|---------|--------------------|--------------|---------------|--------------------|-------------------|------------------|
| Shoal   | 8 3/4              | 56:21:02.864 | 157:47:54.013 | "10511+3"          | 16.1              | H-10770          |
| Shoal   | 4 3/4              | 56:20:56.574 | 157:54:28.371 | "20031+6"          | 8.9               | "                |
| Shoal   | 3 1/4              | 56:21:03.582 | 157:48:16.931 | "10521+4"          | 6.2               | "                |
| Shoal   | 7 3/4              | 56:20:14.131 | 158:23:47.644 | "20999+4"          | 14.3              | H-10759          |
| Rock    | 5 3/4              | 56:21:45.730 | 158:25:05.943 | "60000+0"          | 10.8              | H-10760          |
| Rock    | 5 3/4              | 56:22:36.980 | 158:23:54.010 | "60479+0"          | 10.8              | "                |
| Rock    | 5 1/2              | 56:22:13.660 | 158:25:48.307 | "60480+0"          | 10.3              | "                |
| Rock    | 2 1/2              | 56:24:49.525 | 158:24:13.456 | "60514+0"          | 4.8               | "                |
| Rock    | 1 3/4              | 56:23:35.287 | 158:26:00.622 | "60515+0"          | 3.4               | "                |
| Rock    | 1 1/2              | 56:26:12.124 | 158:24:02.193 | "60482+0"          | 3.1               | "                |
| Shoal   | 3                  | 56:25:51.506 | 158:14:57.358 | "10563+6"          | 5.5               | H-10767          |
| Shoal   | 4 1/4              | 56:30:20.082 | 158:02:56.410 | "30303+6"          | 7.8               | H-10765          |
| Shoal   | 7 3/4              | 56:26:07.352 | 157:48:41.918 | "10082+1"          | 4.6               | H-10761          |

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-P182-RA-97 and Danger to Navigation message RA-5-97. More information on current RAINIER survey projects may be obtained by e-mail; contact the Field Operations Officer at FOO.RAINIER@NOAA.GOV.

/S/ Captain Alan D. Anderson, NOAA

BOB



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
OFFICE OF COAST SURVEY  
Pacific Hydrographic Branch  
Seattle, Washington 98116-0070

August 11, 1998

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

Dear Sir,

During office review of hydrographic survey H-10760, Alaska, Southwest Alaska Peninsula, Northeast Approach to Chignik Lagoon, eight additional features were found and are considered to be potential dangers to navigation.

It is recommended that the enclosed Report of Dangers to Navigation be included in the Local Notice To Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6835.

Sincerely,

A handwritten signature in cursive script, appearing to read "Kathryn A. Timmons".

*Kr* Kathryn A. Timmons  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

Enclosure

cc: NIMA  
N/CS261



## REPORT OF DANGERS TO NAVIGATION

**Hydrographic Survey Registry Number:** H-10760

**Survey Title:** State: Alaska  
Locality: Southwest Alaska Peninsula  
Sublocality: Northeast Approach to Chignik Lagoon

**Project Number:** OPR-P182-RA, NOAA Ship Rainier

**Survey Date:** July 14, 1997 to August 22, 1997

Soundings are reduced to Mean Lower Low Water using approved tides and are positioned on NAD 83.

| <u>Affected Nautical Chart</u> | <u>Edition</u> | <u>Date</u>   | <u>Datum</u> |
|--------------------------------|----------------|---------------|--------------|
| 16566                          | 9th Edition    | March 7, 1998 | NAD83        |

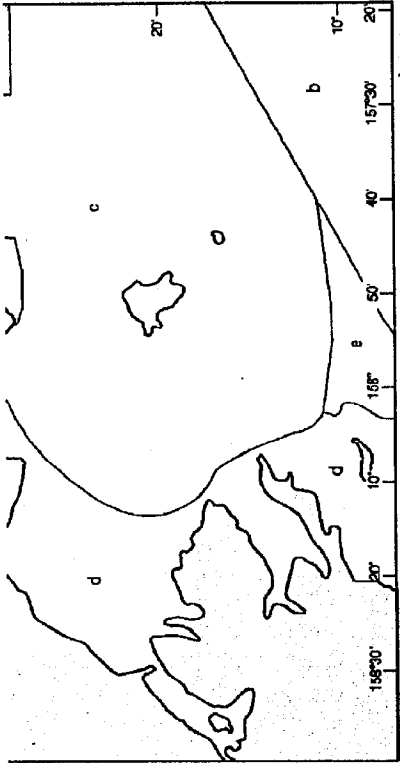
| <u>Danger to Navigation</u> | <u>Latitude (N)</u> | <u>Longitude (W)</u> |
|-----------------------------|---------------------|----------------------|
| 7 ½ fathoms, shoal          | 56°21'46.871"       | 158°24'21.951"       |
| 10 fathoms, shoal           | 56°23'25.644"       | 158°23'47.614"       |
| 1 ½ fathoms, shoal          | 56°23'47.465"       | 158°26'42.671"       |
| 2 ¼ fathoms, shoal          | 56°24'14.984"       | 158°25'59.203"       |
| 2 ¼ fathoms, shoal          | 56°25'04.167"       | 158°25'15.932"       |
| 9 fathoms, shoal            | 56°25'38.342"       | 158°23'26.319"       |
| 4 ½ fathoms, shoal          | 56°25'33.356"       | 158°24'13.764"       |
| ½ fathom, rock              | 56°25'59.777"       | 158°23'33.949"       |

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch, at (206) 526-6835.

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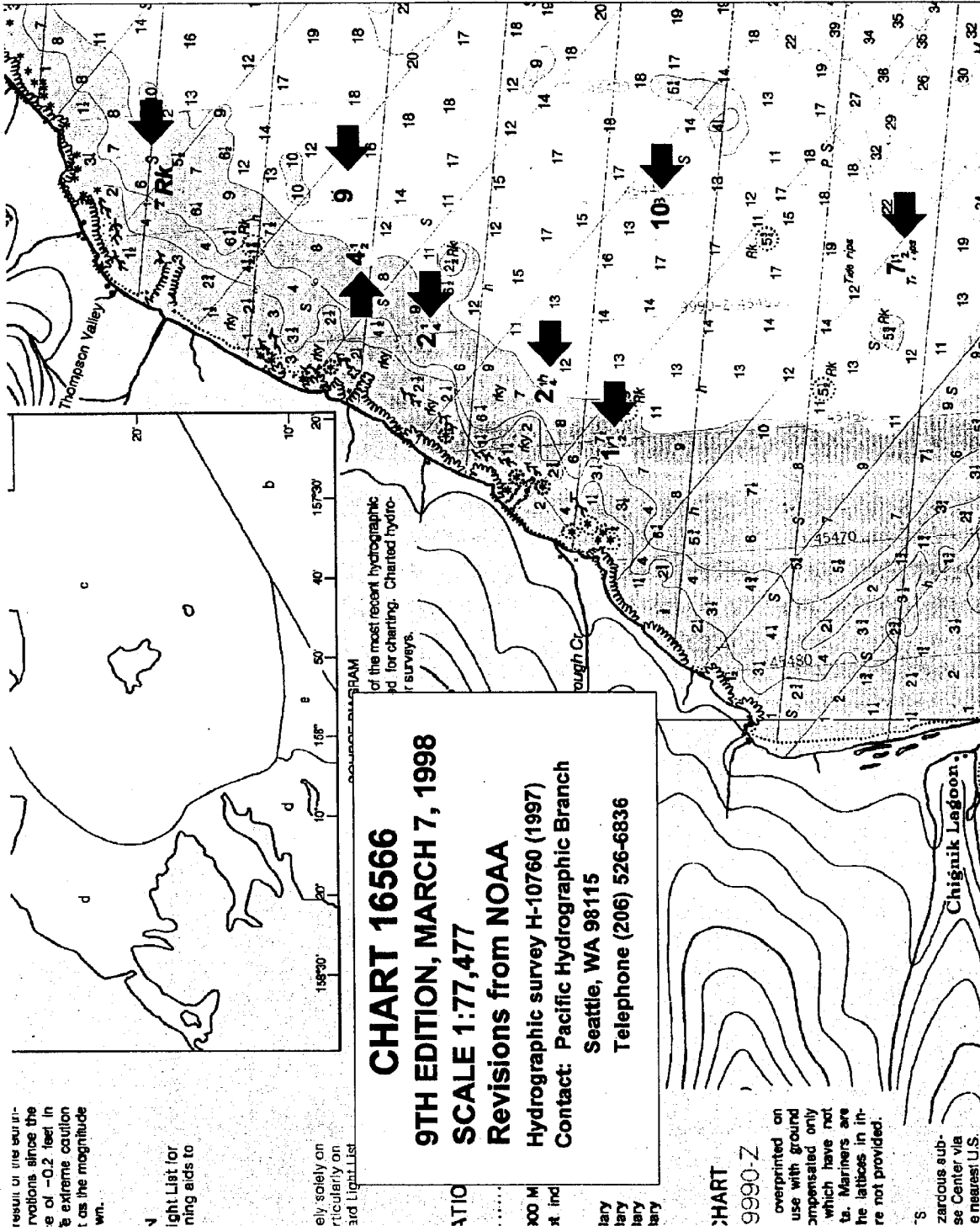


of the most recent hydrographic  
ed for charting. Charted hydro-  
r surveys.

**CHART 16566**  
**9TH EDITION, MARCH 7, 1998**  
**SCALE 1:77,477**  
**Revisions from NOAA**  
Hydrographic survey H-10760 (1997)  
Contact: Pacific Hydrographic Branch  
Seattle, WA 98115  
Telephone (206) 526-6836

CHART  
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UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
OFFICE OF COAST SURVEY  
Pacific Hydrographic Branch  
Seattle, Washington 98116-0070

September 3, 1998

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

Dear Sir,

During office review of hydrographic survey H-10760, Alaska, Southwest Alaska Peninsula, Northeast Approach to Chignik Lagoon, an erroneous reported geographic position of a 1/2 Rk was discovered on a danger letter submitted to the USCG, dated August 11, 1998.

It is recommended that the enclosed Report of Dangers to Navigation be included in the Local Notice To Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6835.

Sincerely,

Kathryn A. Timmons  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

Enclosure

cc: NIMA  
N/CS261



## REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10760

Survey Title: State: Alaska  
Locality: Southwest Alaska Peninsula  
Sublocality: Northeast Approach to Chignik Lagoon

Project Number: OPR-P182-RA, NOAA Ship Rainier

Survey Date: July 14, 1997 to August 22, 1997

Soundings are reduced to Mean Lower Low Water using approved tides and are positioned on NAD 83.

| <u>Affected Nautical Chart</u> | <u>Edition</u> | <u>Date</u>   | <u>Datum</u> |
|--------------------------------|----------------|---------------|--------------|
| 16566                          | 9th Edition    | March 7, 1998 | NAD83        |

| <u>Danger to Navigation</u>                              | <u>Latitude (N)</u> | <u>Longitude (W)</u> |
|--|---------------------|----------------------|
| Erroneous reported geographic position<br>½ fathom, rock | 56°25'59.777"       | 158°23'33.949"       |
| Correct geographic position                              | 56°26'59.777"       | 158°23'33.949"       |

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch, at (206) 526-6835.

APPROVAL SHEET

for

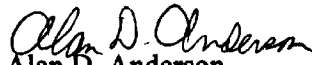
H-10760

Standard field surveying and processing procedures were followed in producing this examination in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and the Field Procedures Manual, as updated for 1994.

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.

DATE: January 9, 1998

Approved and Forwarded,

  
Alan D. Anderson  
Captain, NOAA  
Commanding Officer  
NOAA Ship RAINIER



# Survey Information Summary

**Project:** OPR-P182-97      **Project Name:** SW ALASKA PENINSULA - YEAR 2  
**Instructions Dated:** 5/15/96      **Project Change Info:**

| Change # | Dated  |
|----------|--------|
| 1        | 6/3/97 |

**Sheet Letter:** P      **Registry Number:** H-10760  
**Sheet Number:** RA-10-19-97

**Survey Title:** WEST END OF CHIGNIK BAY

**Data Acquisition Dates:**      **From:** 14-Jul-97      195      **To:** 22-Aug-97      234

### Vessel Usage Summary

| VESNO | MS | SPLITS | DEV | XL | S/L | DP | BS | DIVE |
|-------|----|--------|-----|----|-----|----|----|------|
| 2121  | 2  | 2      | 3   |    |     |    |    |      |
| 2122  | 2  |        |     |    |     |    | 1  |      |
| 2123  | 3  |        |     |    | 1   | 1  |    |      |
| 2124  | 2  | 3      |     |    | 3   | 2  |    |      |
| 2125  | 1  |        |     |    |     |    | 1  |      |
| 2126  | 2  | 4      | 5   | 2  |     | 1  |    | 2    |

### Sound Velocity Cast Information

| Launch Table # | Ship Table # | Cast DN | Max Depth | Position  | Applicable DN |
|----------------|--------------|---------|-----------|-----------|---------------|
| 5              |              | 215     | 77.2      | 56/21/28  | 211 -         |
|                |              |         |           | 158/22/33 |               |
| 2              | 0            | 198     | 57.1      | 56/21/48  | FSD - 206     |
|                |              |         |           | 158/23/25 |               |

### Tide Zone Information

| Zone # | Time Corr.    | Height Corr. |
|--------|---------------|--------------|
| SAP8   | 000 hr 00 min | X0.96        |

### Tide Gage Information

| Tide Gage # | Gage Name     | Installed | Removed |
|-------------|---------------|-----------|---------|
| 945-8917    | ANCHORAGE BAY | 7/12/97   | 8/26/97 |
| 945-8762    | UNAVIKSHAK IS | 7/9/97    | 8/27/97 |

### Statistics Summary

| Type  | Total: |
|-------|--------|
| BS    | 40     |
| DEV   | 45.84  |
| DIVE  | 7      |
| DP    | 9      |
| MS    | 250.45 |
| S/L   | 11.43  |
| SPLIT | 205.93 |
| SSS1  | 7.48   |
| SSS2  | 9.68   |
| XL    | 21.65  |

Percent XL: 8.6%

SQNM: 13.8



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SERVICE

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE:** January 5, 1998

**HYDROGRAPHIC BRANCH:** Pacific  
**HYDROGRAPHIC PROJECT:** OPR-P182-RA  
**HYDROGRAPHIC SHEET:** H-10760

**LOCALITY:** Southwest Alaska Peninsula

**TIME PERIOD:** Jul 14 - Aug 23, 1997

**TIDE STATION USED:** 945-8762 Unavikshak Island, AK.  
Lat. 56° 29.5'N Lon. 157° 44.4'W  
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 2.519 meters


**TIDE STATION USED:** 945-8849 Chankluit Island, AK.  
Lat. 56° 08.8'N Lon. 158° 06.4'W  
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 2.367 meters

**TIDE STATION USED:** 945-8917 Chignik, Anchorage Bay, AK.  
Lat. 56° 17.8'N Lon. 158° 24.0'W  
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 2.486 meters

**REMARKS: RECOMMENDED ZONING**  
Use zone(s) identified as: SAP7 & SAP8  
Refer to attachments for zoning information.

**Note 1:** Provided time series data are tabulated in metric units (Meters), relative to MLLW and on Greenwich Mean Time.

**Note 2:** Use tide data from the appropriate station for each zone according to the order in which they are listed in the "Tidezone" corrector files. For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data are not available. All zones within a survey sheet may not have the same order of applicable tide stations.

  
-----  
**CHIEF, OPERATIONAL ANALYSIS BRANCH**

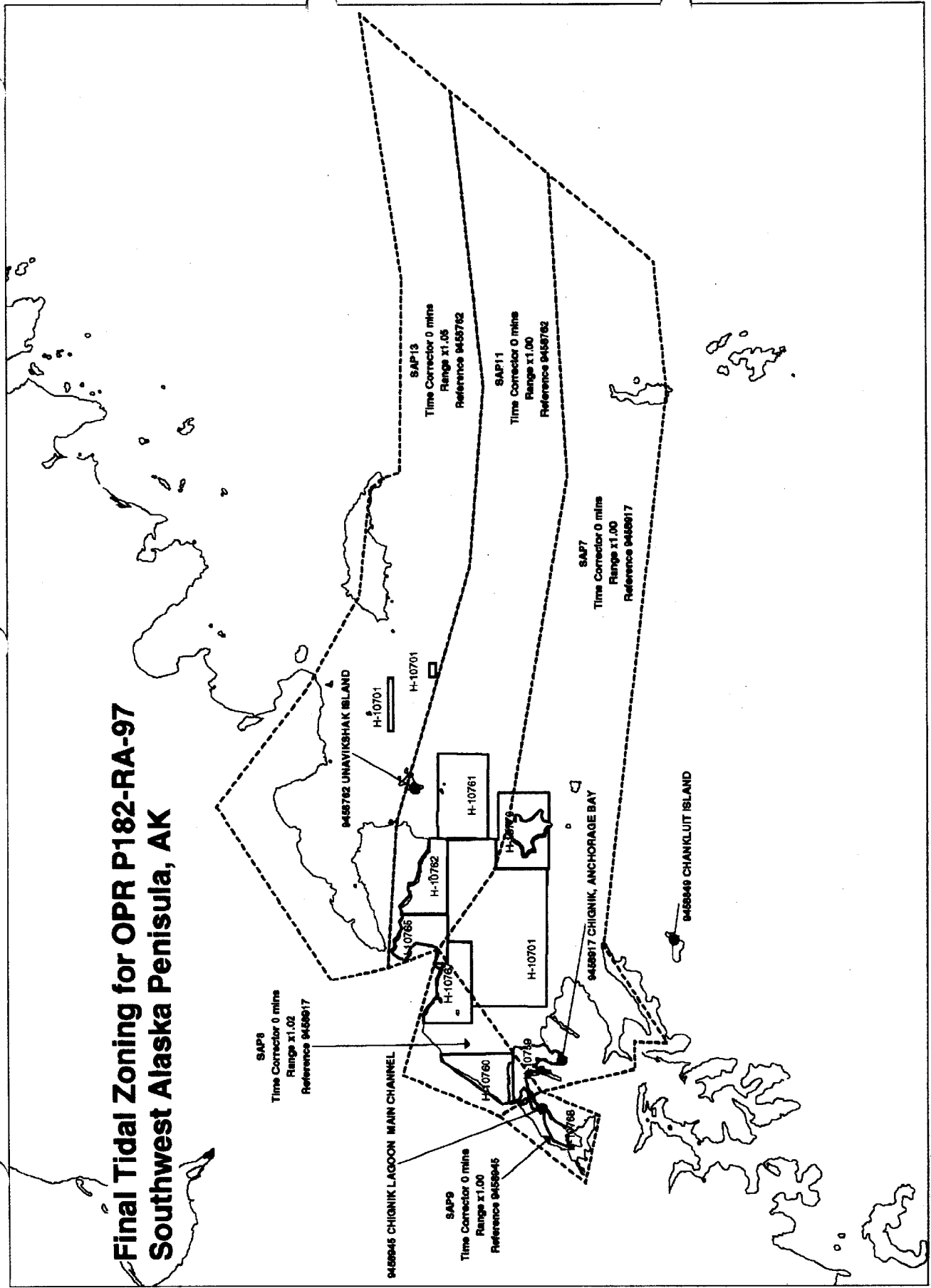


Final tide zone node point locations for OPR P182-RA-97,  
Sheet H-10760.

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

|             |           | Tide Station<br>Order | AVG Time<br>Correction | Range<br>Correction |
|-------------|-----------|-----------------------|------------------------|---------------------|
| Zone SAP7   |           |                       |                        |                     |
| -158.130628 | 56.461475 | 945-8917              | 0                      | 1.00                |
| -158.474563 | 56.325022 | 945-8762              | 0                      | 0.98                |
| -158.422005 | 56.199729 | 945-8849              | 0                      | 1.05                |
| -158.355785 | 56.200309 |                       |                        |                     |
| -158.358075 | 56.156015 |                       |                        |                     |
| -158.122839 | 56.241028 |                       |                        |                     |
| -156.778131 | 56.154977 |                       |                        |                     |
| -156.465239 | 56.171892 |                       |                        |                     |
| -156.253456 | 56.311786 |                       |                        |                     |
| -156.986771 | 56.288084 |                       |                        |                     |
| -157.826885 | 56.36808  |                       |                        |                     |
| -157.940076 | 56.386887 |                       |                        |                     |
| -158.130628 | 56.461475 |                       |                        |                     |
| Zone SAP8   |           |                       |                        |                     |
| -158.474563 | 56.325022 | 945-8917              | 0                      | 1.02                |
| -158.130628 | 56.461475 | 945-8762              | 0                      | 1.00                |
| -158.435831 | 56.508574 | 945-8849              | 0                      | 1.08                |
| -158.534417 | 56.380701 |                       |                        |                     |
| -158.474563 | 56.325022 |                       |                        |                     |

# Final Tidal Zoning for OPR P182-RA-97 Southwest Alaska Peninsula, AK



SAP9  
Time Corrector 0 mins  
Range x1.02  
Reference 9458917

9458945 CHIGNIK LAGOON MAIN CHANNEL  
SAP9  
Time Corrector 0 mins  
Range x1.00  
Reference 9458945

9458762 UNAVIKSHAK ISLAND  
H-10701

SAP13  
Time Corrector 0 mins  
Range x1.05  
Reference 9458762

SAP11  
Time Corrector 0 mins  
Range x1.00  
Reference 9458762

SAP7  
Time Corrector 0 mins  
Range x1.00  
Reference 9458917

9458917 CHIGNIK, ANCHORAGE BAY

9458949 CHANKLUIT ISLAND



**HYDROGRAPHIC SURVEY STATISTICS**

H-10760

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

| RECORD DESCRIPTION |                   | AMOUNT               | RECORD DESCRIPTION                 |           | AMOUNT                     |
|--------------------|-------------------|----------------------|------------------------------------|-----------|----------------------------|
| SMOOTH SHEET       |                   | 1                    | SMOOTH OVERLAYS: POS., ARC, EXCESS |           | NA                         |
| DESCRIPTIVE REPORT |                   | 1                    | FIELD SHEETS AND OTHER OVERLAYS    |           | NA                         |
| DESCRIP-TION       | DEPTH/POS RECORDS | HORIZ. CONT. RECORDS | SONAR-GRAMS                        | PRINTOUTS | ABSTRACTS/SOURCE DOCUMENTS |
| ACCORDION FILES    | 1                 |                      |                                    |           |                            |
| ENVELOPES          |                   |                      |                                    |           |                            |
| VOLUMES            |                   |                      |                                    |           |                            |
| CAHIERS            |                   |                      |                                    |           |                            |
| BOXES              |                   |                      |                                    |           |                            |

|                                   |                             |
|-----------------------------------|-----------------------------|
| <b>SHORELINE DATA</b>             |                             |
| SHORELINE MAPS (List):            | TP-00905 & TP-00911         |
| PHOTOBATHYMETRIC MAPS (List):     | NA                          |
| NOTES TO THE HYDROGRAPHER (List): | NA                          |
| SPECIAL REPORTS (List):           | NA                          |
| NAUTICAL CHARTS (List):           | 16566 9th Ed. March 7, 1998 |

**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               | 15.0         |            | 15.0   |
| VERIFICATION OF CONTROL                  |              |            |        |
| VERIFICATION OF POSITIONS                |              |            |        |
| VERIFICATION OF SOUNDINGS                |              |            |        |
| VERIFICATION OF JUNCTIONS                |              |            |        |
| APPLICATION OF PHOTOBATHYMETRY           |              |            |        |
| SHORELINE APPLICATION/VERIFICATION       |              |            |        |
| COMPILATION OF SMOOTH SHEET              | 51.0         |            | 51.0   |
| COMPARISON WITH PRIOR SURVEYS AND CHARTS |              |            |        |
| EVALUATION OF SIDE SCAN SONAR RECORDS    |              |            |        |
| EVALUATION OF WIRE DRAGS AND SWEEPS      |              |            |        |
| EVALUATION REPORT                        |              | 40.0       | 40.0   |
| GEOGRAPHIC NAMES                         |              |            |        |
| OTHER*                                   |              |            |        |
| *USE OTHER SIDE OF FORM FOR REMARKS      | TOTALS       | 66.0       | 40.0   |
|  |              |            | 106.0  |

|  |                           |                        |
|--|---------------------------|------------------------|
| Pre-processing Examination by<br><b>M. Bigelow</b> | Beginning Date<br>1/16/98 | Ending Date<br>2/20/98 |
| Verification of Field Data by<br><b>S. Domingo</b> | Time (Hours)<br>51.0      | Ending Date<br>3/19/98 |
| Verification Check by<br><b>B. Olmstead</b>        | Time (Hours)<br>6         | Ending Date<br>7/23/98 |
| Evaluation and Analysis by<br><b>B. Mihailov</b>   | Time (Hours)<br>40.0      | Ending Date<br>7/28/98 |
| Inspection by<br><b>B.A. Olmstead</b>              | Time (Hours)<br>5         | Ending Date<br>8/6/98  |

## EVALUATION REPORT

H-10760

### A. PROJECT

Project information is discussed in the hydrographer's report.

### B. AREA SURVEYED

The survey area is adequately described in the Hydrographer's report. A page-size plot of the charted area depicting the limits of supersession accompany this report as an Attachment.

The bottom offshore of the five fathom depth curve consists mainly of mud, sand and gravel. However, the bottom inshore of the five fathom depth curve is littered with rocks and boulders which compromise numerous pinacles, which rise up from the bottom. The foreshore area is made up of extensive ledges and reefs. Depths range from 0 to 25 fathoms.

Of note, there is an 1100-meter overlap with junction H-10759. The area from latitude 56/21/30N to latitude 56/22/09N and from longitude 158/24/30W to longitude 158/30/00W was additionally surveyed on H-10759. Refer to Section L, Junctions, for additional discussions regarding this situation.

### C. SURVEY VESSELS

Survey vessel information is found in the hydrographer's report.

### D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data were processed using the Hydrographic Data Acquisition /Processing System (HDAPS), the Hydrographic Processing System (HPS), MapInfo (Version 4.1) and MapBasic software.

Digital data for this survey exists in the standard HPS format, that is a database format using the .dbf extension. In addition, the plot is filed both in the MicroStation drawing format, i.e., dgn (extension), and in the more universally recognized graphics transfer format, .dxf (extension). Copies of these files will be retained at PHB until data forwarded to headquarters has been accepted and approved. 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 Hydrographic Survey Guideline No. 35 and No. 75.

The field sheet parameters have been revised to center the hydrography on the office plot. The data is plotted using a Modified Transverse Mercator projection and are depicted on a single sheet.

### E. SONAR EQUIPMENT

Side scan sonar equipment was used on survey H-10760 and is adequately addressed in the hydrographer's report.

## **F. SOUNDING EQUIPMENT**

Sounding equipment has been adequately addressed in the hydrographer's report.

## **G. CORRECTIONS TO SOUNDINGS**

The sounding data have been reduced to Mean Lower Low Water (MLLW). The reducers include corrections for an actual tide, dynamic draft, and sound velocity. These reducers have been reviewed and are consistent with NOS specifications.

Predicted tides were used for reduction of soundings during field processing. During office processing, tide reductions were derived from approved hourly heights zoned direct from the following tide gages: Unavikshak Island, AK. gauge 945-8762, Chignik, Anchorage Bay, AK. gauge 945-8917 and Chignik Lagoon Main Channel, AK. gauge 945-8945. The gauge Unavikshak Island, AK. 945-8762 was not used due to a gap in the data. There was a gap in corrector values from 08-03-97 at 220600 to 08-06-97 at 204200. This gap coincides with times of data collection, therefore the gauge Chignik, Anchorage Bay, AK. 945-8917 was used.

## **H. CONTROL STATIONS**

Section H and I of the hydrographer's report contain adequate discussions of horizontal control and hydrographic positioning.

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

|            |               |                  |
|------------|---------------|------------------|
| Latitude:  | -2.804seconds | (-86.723meters)  |
| Longitude: | 7.353 seconds | (126.097 meters) |

The year of establishment of control stations originate with the horizontal control records for this survey.

## **I. HYDROGRAPHIC POSITION CONTROL**

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 3.75 meters was computed for survey operations. The quality of several positions exceeds limits in terms of horizontal dilution of precision (HDOP). These positions are isolated and occur randomly throughout the survey area. A review of the data, however, suggests that none of these fixes are used to position dangers to navigation. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable.

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

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

## **J. SHORELINE**

Shoreline maps TP-00905 and TP-00911 scale 1:20,000, were compiled on NAD83 and apply to this survey. Shoreline shown on the smooth sheet originates from a digital file created by the



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

There were no revisions to the mean high water line.

#### **K. CROSSLINES**

Crosslines are discussed in the hydrographer's report.

#### **L. JUNCTIONS**

Survey H-10760 junctions with the following surveys:

| <u>Survey</u> | <u>Year</u> | <u>Scale</u> | <u>Area</u> |
|---------------|-------------|--------------|-------------|
| H-10699       | 1996        | 1:10,000     | Northeast   |
| H-10705       | 1996        | 1:10,000     | Southeast   |
| H-10759       | 1998        | 1:10,000     | South       |

The junctions with surveys H-10699 and H-10705 were not formally completed since these surveys have previously been processed and forwarded for charting. There is good agreement between standard depth curves and soundings within the common area of the junction surveys. A few soundings from the junctional survey H-10705 have been transferred within the common areas of H-10760 to better delineate the bottom configuration. Adjoins notes have been shown on the smooth sheet were applicable.

The junction with survey H-10759 is complete. A "Joins" note has been added to the smooth sheet where applicable. An 1100-meter junction overlap with H-10759 exists in this area as previously mentioned in section B of this report. Both surveys H-10759 and H-10760 were conducted during the same time frame and using the same equipment. There is good agreement between standard depth curves and soundings within the common area of the junction surveys. Both data sets should be used to complement each other within the junctional area. Shoal depths and supplemental soundings from H-10759 have been added to the smooth sheet (H-10760) in red as warranted to adequately delineate the bottom configuration.

#### **M. COMPARISON WITH PRIOR SURVEYS**

|        |        |          |
|--------|--------|----------|
| H-4389 | (1924) | 1:20,000 |
| H-4427 | (1924) | 1:20,000 |

The above prior surveys cover the entire area of the present survey. Differences in depths generally range from 1 to 3 fathoms. There is no consistent pattern of shoaling or an increase in depths between the prior surveys and the present survey. However, the present survey tends to reflect a shoaler bias likely based on greater sounding coverage, improved positioning sounding techniques, and relative accuracy of the data acquisition methods. A comparison of standard depth curves with the prior surveys reveal little change in configuration except where present hydrography defined new or existing shoal areas than were found in 1924. Refer to the hydrographer's report for a discussion regarding specific areas of difference.

H-10760 is adequate to supersede the above prior surveys within the common area except as follows. Two tide rip notes from H-4389 (1924) at latitude 56/22/06, longitude 158/24/00 and latitude 56/21/54, longitude 158/24/00 have been transferred to the smooth sheet and should be retained as charted.

## N. ITEM INVESTIGATIONS

There were no AWOIS items assigned to this survey.

## O. COMPARISON WITH CHART

Survey H-10760 was compared with the following chart.

| <u>Chart</u> | <u>Edition</u> | <u>Date</u>    | <u>Scale</u> | <u>Datum</u> |
|--------------|----------------|----------------|--------------|--------------|
| 16566        | 9th            | March. 7, 1998 | 1:177,477    | NAD83        |

### a. Hydrography

Charted hydrography originates with the previously discussed prior surveys and miscellaneous source data. The prior surveys have been adequately addressed in section M and require no further discussion.

The application of this survey to charts of a scale greater 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 less than 1:40,000 may be accomplished without generalization of features. Features from survey H-10760 have been generalized on chart 16566 along the shoreline where applicable.

Survey H-10760 is adequate to supersede charted hydrography within the common area.

### b. Dangers To Navigation

Six dangers to navigation were discovered during survey operations and eight additional dangers were found during office processing and reported to the USGS.

An erroneous geographic position of a danger to navigation was submitted to the USCG on August 11, 1998. A revised position has been sent to the USCG in a letter dated September 3, 1998. A copy of all correspondence is attached,

## P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10760 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 Project Instructions and the requirements of the Hydrographic Manual, 4<sup>th</sup> Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual, April 1994 Edition with the exception of the following. In the event that the field units submission of survey data will exceed four weeks from completion of field work, The Chief of Party will submit a written explanation for the delay indicating the anticipated transmittal date to the Chief of the appropriate processing section. Marine Center ships forward their

explanation through the Marine Center Director. Fieldwork for survey H-10760 was completed on August 23, 1997 but not received for office processing until January 16, 1998.

**Q. AIDS TO NAVIGATION**

There are no floating or fixed aids to navigation within the survey area.

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

**R. STATISTICS**

Statistics are itemized in the hydrographer's report.

**S. MISCELLANEOUS**

Miscellaneous information is discussed in the hydrographer's report. No additional miscellaneous items were noted during office processing.

**T. RECOMMENDATIONS**

This is a good hydrographic survey. No additional work is recommended.

**U. REFERRAL TO REPORTS**

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

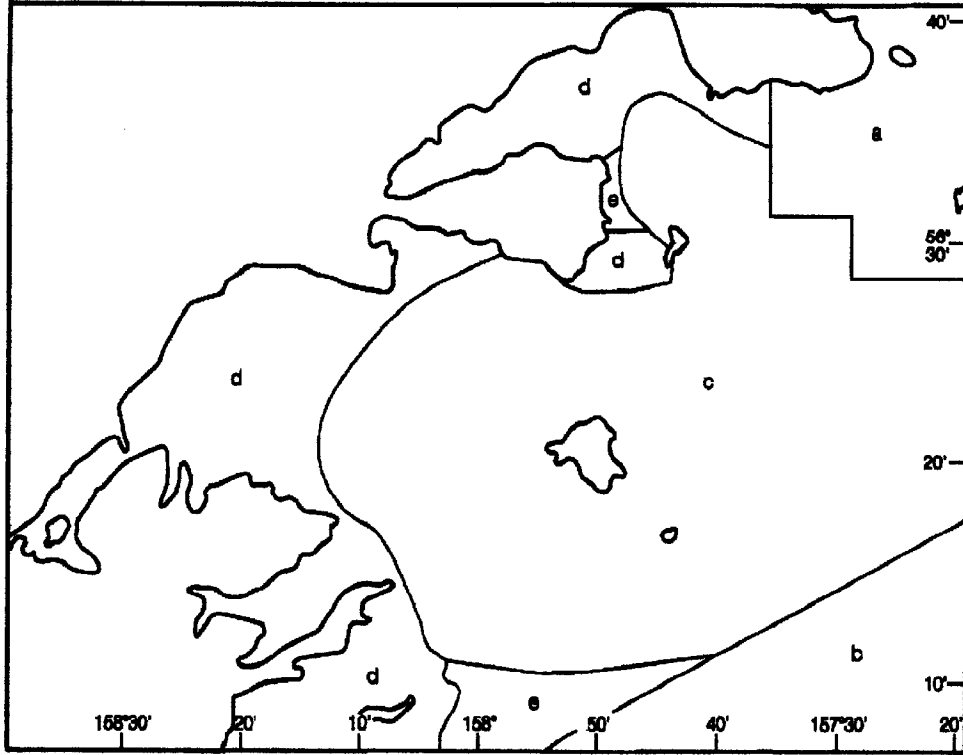


Bob Mihailov  
Cartographer

c. 1920-90  
 d. 1924-96  
 e. 1996

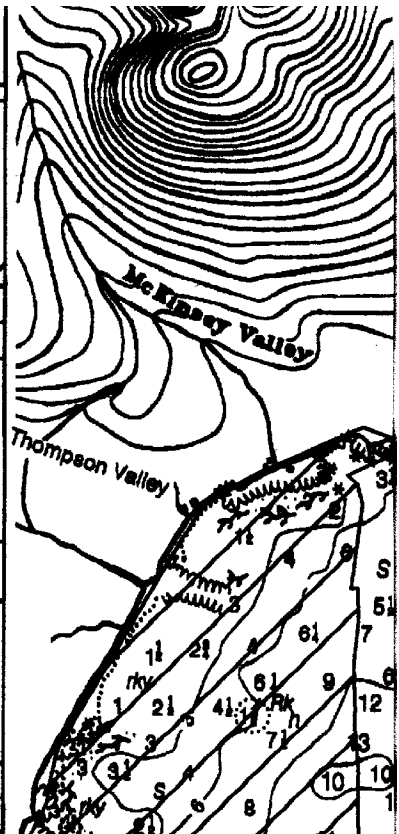
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1:50,000  
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 1:10,000

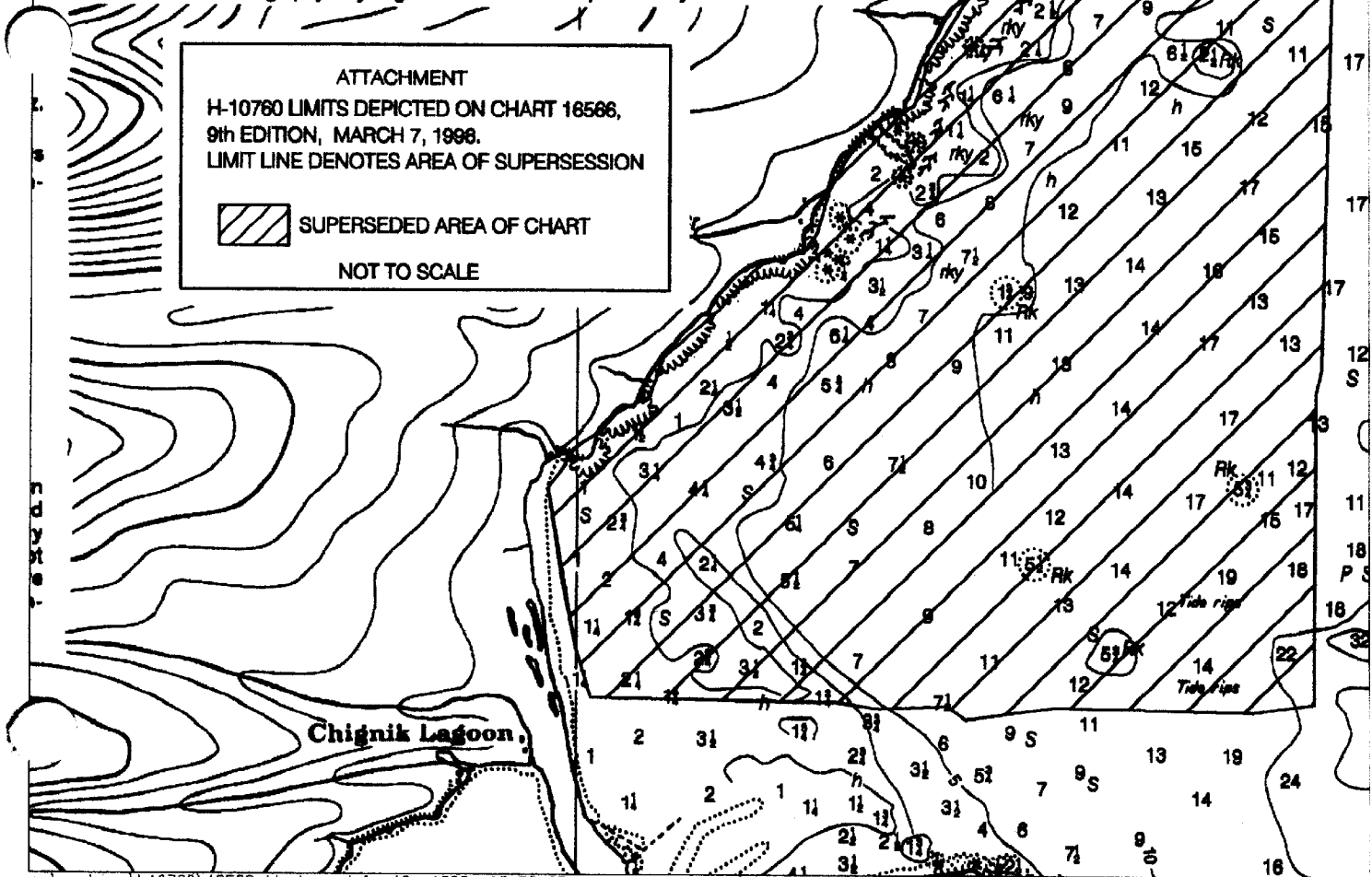


**SOURCE DIAGRAM**

The outlined areas represent the limits of the most recent hydrographic survey information that has been evaluated for charting. Charted hydrography may originate from these and prior surveys.



**ATTACHMENT**  
 H-10760 LIMITS DEPICTED ON CHART 18566,  
 9th EDITION, MARCH 7, 1998.  
 LIMIT LINE DENOTES AREA OF SUPERSESION  
 SUPERSEDED AREA OF CHART  
 NOT TO SCALE



APPROVAL SHEET  
H-10760

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.

Bruce A. Olmstead Date: 8/10/98  
Bruce A. Olmstead  
Senior Cartographer, Cartographic Section  
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.

*for* Dennis Hill Date: 8/25/98  
Kathy Timmons  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

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Final Approval

Approved:  
Andrew A. Armstrong III Date: Oct 19, 1998  
Andrew A. Armstrong III  
Captain, NOAA  
Chief, Hydrographic Surveys Division

