

H10701

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-20-2-96
Registry No. ....	H-10701
LOCALITY	
State .....	Alaska
General Locality .....	Southwest Alaska Peninsula
Sublocality .....	Chignik Bay
.....	
19 96	
CHIEF OF PARTY CAPT Dean R. Seidel, NOAA	
LIBRARY & ARCHIVES	
DATE .....	NOV 17 1997

NOAA FORM 77-28  
(11-72)U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

REGISTER NO.

## HYDROGRAPHIC TITLE SHEET

H-10701

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-20-2-96

State Alaska

General locality Southwest Alaska Peninsula

Locality Chignik Bay

Scale 1:20,000 Date of survey June 30 - August 3, 1996

Instructions dated May 15, 1996 Project No. OPR-P182-RA

Vessel NOAA Ship RAINIER(2120), RA-3(2123), RA-4(2124), RA-5(2125)

Chief of party CAPT Dean R. Seidel, NOAA

Surveyed by NOAA Ship RAINIER Personnel

Soundings taken by echo sounder, ~~lead line, pole~~ DSF-6000N

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

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

~~Extracted by~~ B. Mihailov

Verification by B. Mihailov

Soundings in fathoms ~~XXXX~~ at ~~MLLW~~ 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 numbers may be  
interrupted or non-sequential. All depths listed in this report  
are referenced to mean lower low water unless otherwise noted.

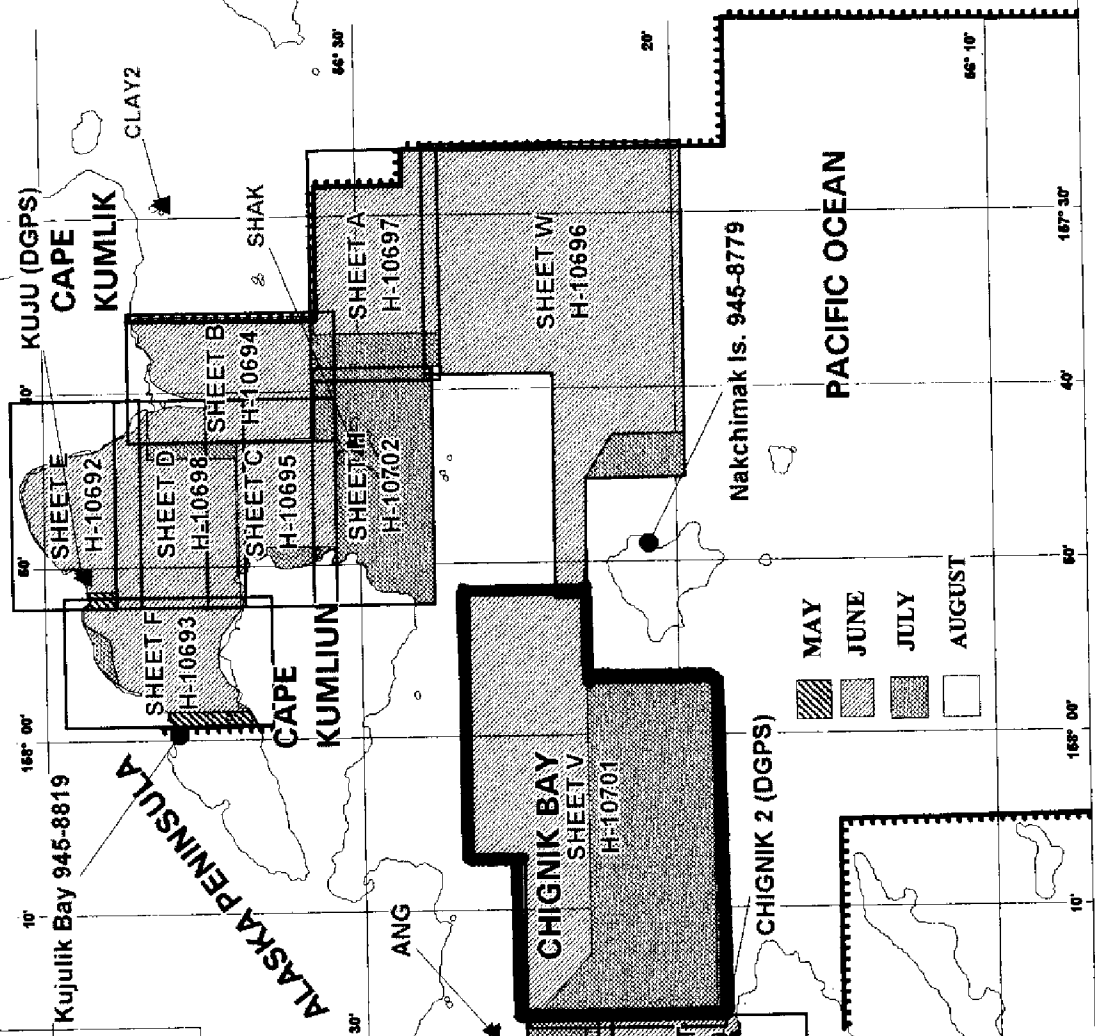
74013/SURF 10/20/97mcr

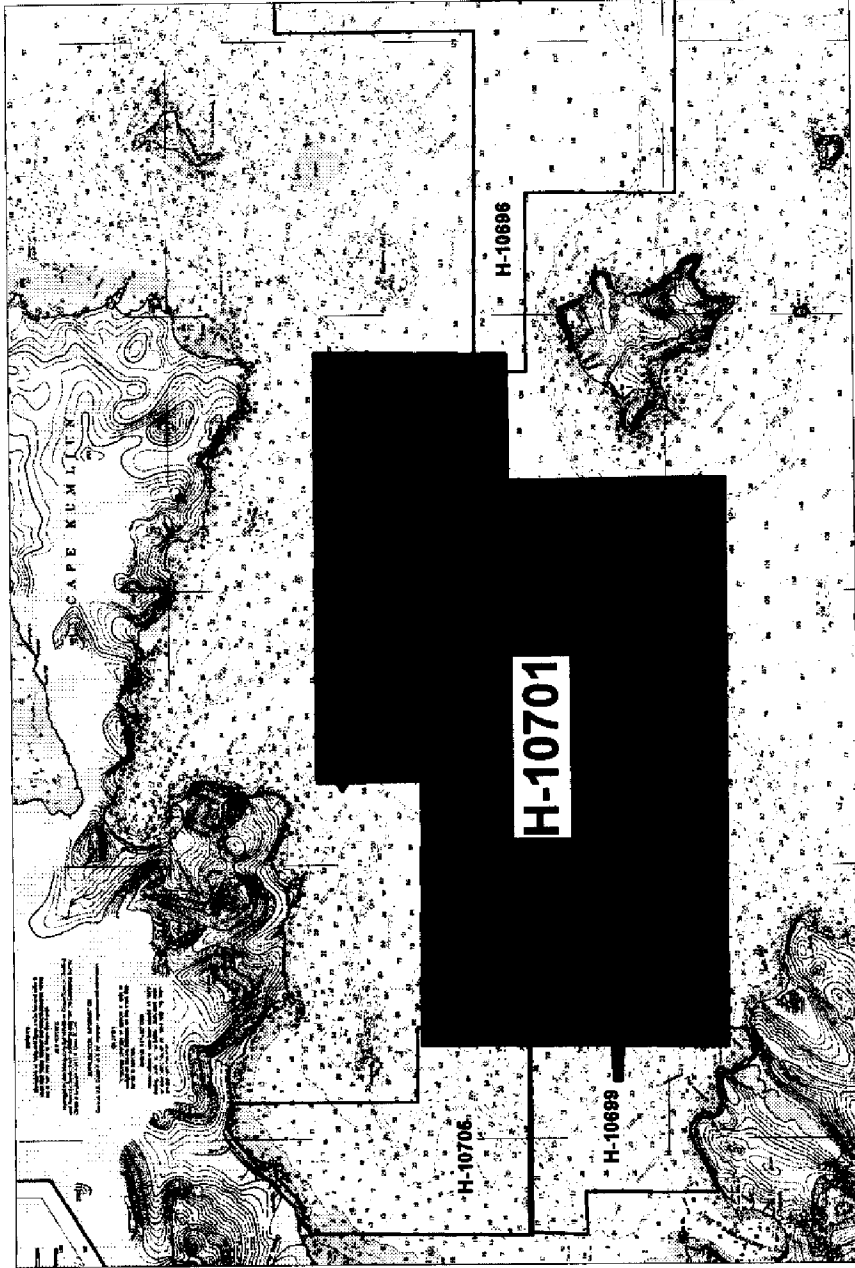
**PROGRESS SKETCH - OPR-P182-96**  
**NOAA SHIP RAINIER**  
**CAPTAIN DEAN R. SEIDEL, COMMANDING**

Sheet	Reg No	Started	Percent	Completed	Submitted
E	H-10692	May 30	100	June 29	July 19
F	H-10693	May 30	100	July 24	
B	H-10694	June 4	100	July 23	
C	H-10695	June 4	100	July 31	
A	H-10697	June 7	100	July 31	
D	H-10698	June 19	100	July 23	
T	H-10699	June 25	100	July 29	
W	H-10696	June 9	100	July 31	
V	H-10701	June 30	100	Aug 3	
H	H-10702	July 14	100	July 31	
N	H-10705	July 27	100	Aug 3	

Accomplished	May	June	July	August
LNM Hydro	37	3074	2599	5.5
LNM SSS	0	0	0	0
SQ NM	2	200	198	5.3
AWOIS Invest.	0	2	0	0
Other Invest.	0	2	0	0

Downtime_Hrs	May	June	July	August
Weather - Days	0	4	1	0
Mechanical - Hr	0	1	2	0
Electronic - Hr	0	1	3	0





# Descriptive Report to Accompany Hydrographic Survey H-10701

Field Number RA-20-2-96

Scale 1:20,000  
~~June~~  
July - August 1996

NOAA Ship RAINIER

Chief of Party: Captain Dean R. Seidel, NOAA

## A. PROJECT ✓

This basic hydrographic survey was completed in the southwest region of the Alaska Peninsula as specified by Project Instructions OPR-P182-RA dated May 15, 1996. Survey H-10701 corresponds to sheet V as defined in the sheet layout included in the Project Instructions.

This survey provides contemporary hydrographic survey data for the southwest Alaska peninsula to update existing nautical charts derived from 1924-1925 leadline surveys. Requests for hydrographic surveys and updated charts have been received from members of the United States Congress, the U.S. Coast Guard, NOAA, and the domestic commercial fishing industry.

## B. AREA SURVEYED ✓ See Eval Rpt, Section B

The survey area is the eastern portion of Chignik Bay, from Nakchamik Island west to Lake Bay. The survey's northern limit is 56° 26' 57" N, its southern limit is 56° 18' 48" N, its western limit is 158° 16' 54" W, and its eastern limit is 157° 51' 36" W. Data acquisition was conducted from June 30, 1996 (DN 182) to ~~July 29, 1996~~ (DN 216).

Aug 31, 1996

## C. SURVEY VESSELS ✓

Data were acquired by RAINIER, and by RAINIER survey launches as noted below:

Vessel	EDP #	Operation
RAINIER	2120	Sound Velocity Casts Bottom Samples Hydrography
RA-3	2123	Hydrography
RA-4	2124	Hydrography
RA-5	2125	Hydrography

## D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

All data were acquired and processed with HDAPS. A complete listing of software for HDAPS is included in Appendix VI. - Filed with the hydrographic data.

### E. SONAR EQUIPMENT ✓

Sonar equipment was not used on H-10701. *CONCUR*

### F. SOUNDING EQUIPMENT ✓

The Raytheon DSF-6000N is a dual frequency (100 kHz, 24 kHz), paper trace echo sounder. Serial numbers are included on the headers of the daily Raw Master Printouts.\* No problems which affect survey data were encountered. All DSF-6000N soundings were acquired using the High + Low, high frequency digitized setting. Noise from the ship's bridge fathometer caused occasional mis-digitization, but these depths were corrected during the data scanning process.

### G. CORRECTIONS TO ECHO SOUNDINGS ✓

Correctors for the velocity of sound through water were determined from the casts listed below:

Velocity Table #	Cast #	DN	Cast Position	Deepest Depth (m)	Applicable DN
10	12	200	56° 19' 18" N 157° 58' 54" W	259	182-204 Launch
11	13	210	56° 23' 52" N 157° 58' 53" W	285	205-216 Launch
23	11	182	56° 23' 24" N 157° 52' 30" W	324	182-189 Ship
24	12	200	56° 19' 18" N 157° 58' 54" W	259	190-204 Ship
25	13	210	56° 23' 52" N 157° 58' 53" W	285	205-216 Ship

The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 219), calibrated January 16, 1996. Velocity correctors were computed using the PC programs SEACAT and VELOCITY, version 2.11 (1995), in accordance with Hydrographic Survey Guideline (HSG) No. 69. ~~Cast # 23 were taken outside the survey area.~~

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 Draft ✓

A transducer depth was determined using FPM Fig 2.2 for vessels 2123-2125 in the spring of 1996. RAINIER transducer draft was determined during drydock in 1995. These values were entered into the offset tables for each survey platform.

\* Filed with the hydrographic data.

## Settlement and Squat ✓

Correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2., using FPM Fig. 2.3, and are included with project data for OPR-P182-RA. The data for vessels 2123-2125 were collected in Shilshole Bay, Washington in the Spring of 1996. Data for RAINIER was acquired in 1994.

## Offset Tables

Offset tables<sup>\*</sup> contain offsets for the GPS antenna, static draft measurements, and settlement and squat data. Offset tables 3-5 correspond to the last digit of the vessel number, and RAINIER uses Table 1. The offset tables are included with project data for OPR-P182-RA.

## Heave ✓

The launches are not equipped with heave, roll and pitch sensors. The Hippy heave sensor aboard RAINIER is not connected to HDAPS.

## Bar Check and Lead Lines ✓

Bar check lines were calibrated by RAINIER personnel during Spring 1996. Calibration forms are included with project data for OPR-P182-RA. Bar checks were performed periodically and served as a functional check of the DSF-6000N.

## Tide Correctors ✓

Predicted tides for the project were provided on diskette by N/OES334 through N/CS31 for the West End, Sutwik Island, Alaska reference station (945-8665). Tidal correctors as provided in the project instructions for H-10701 are:

Zone	Time Correction	Height Correction
3	0 hr 0 min	X0.97
6	0 hr 0 min	X1.00

Zone 6 applies to the northeast corner of Sheet V, while Zone 3 applies to the remaining portion of the survey. HDAPS listings of the data used in generating tide corrector tables are included in Appendix V of this report.\*

Sand Point, Alaska (945-9450) was the primary control station for datum determination at all subordinate stations. RAINIER personnel installed Sutron 8200 digital tide gages at Nakchamik Island (945-8779) on June 3, 1996, and Anchorage Bay (945-8917) on June 24, 1996. Each tide staff was connected to five bench marks during the opening and closing level runs. The station descriptions, field tide records, preliminary field tide notes and data (Appendix V) have 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 FPM 4.2.3. *Approved Tide Note dated November 22, 1986 is attached.*

*\* Filed with the hydrographic data.*

## H. CONTROL STATIONS ✓ See Eval Rpt, section H

The horizontal datum for this project is NAD 83. No new control points were established for this survey. The control stations used for this survey are listed in Appendix III.\* See the OPR-P182-RA-96 Horizontal Control Report for more information. Control Station list is appended to this report.

## I. HYDROGRAPHIC POSITION CONTROL See Eval Report, Section I.

### Method of Position Control ✓

All soundings and bottom samples were positioned using differential GPS. Serial numbers for vessel GPS equipment are annotated on the raw data printouts.\* A VHF differential reference station was established at First Order station CHIGNIK2, located near the entrance to Anchorage Bay. No multi-path or other systemic error was indicated by Monitor, version 3.0. The United States Coast Guard modulated radio reference stations (i.e., DGPS beacons) at Kodiak and at Cold Bay were monitored at stations KUJU and ANG, respectively, and used when VHF correctors from CHIGNIK2 were not available.

### Calibrations & Systems Check Methods ✓

Launch-to-launch DGPS performance checks were performed in accordance with Section 3.4.4 of the FPM. Some outliers were noted, but none indicated systematic or continuous errors in the VHF station at CHIGNIK2, or in the KODIAK or COLD BAY DGPS beacons. The performance check and monitor results are included in the project data for OPR-P182-RA.

## J. SHORELINE ✓

There was no shoreline associated with this survey. Concur

## K. CROSSLINES ✓

Crosslines generally agreed within 1 meter of mainscheme hydrography. Total crossline mileage was 40.4 nautical miles, or 5.5% of total mainscheme hydrography.

## L. JUNCTIONS See Eval Report, section L.

This survey junctions with surveys H-10696, RA-20-01-96, 1:20,000 at the eastern limit, and surveys H-10699, RA-10-15-96 and H-10705, RA-10-17-96 at the western limit. Soundings were found to be in good agreement. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.



**M. COMPARISON WITH PRIOR SURVEYS** See Eval Rpt, section M.

Five

Four prior surveys cover this project area: H-4388 (1:20,000, 1924), H-4427 (1:20,000, 1924), H-4449, (1:60,000, 1924), and H-4509 (1:20,000, 1925). Soundings from these prior surveys were generally in good agreement with this survey. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey. H-4508 (1:20,000, 1925) also falls within the survey limits.

**N. ITEM INVESTIGATIONS** ✓

No AWOIS items were assigned to this survey. CONCUR

**O. COMPARISON WITH THE CHART** See Eval Rpt, Section O.

This survey was compared in the field to NOS chart 16566, 7th Edition, dated October 28, 1989, 1:77,477 (NAD 83). In general, charted soundings were found to be in good agreement with those from the current survey. Least depths from this survey were often shoaler than charted soundings due to the use of modern positioning equipment and increased sounding densities. In areas where charted soundings appeared shoaler than those from this survey, they generally differed by less than three meters (up to four meters in waters greater than 80 fathoms). These differences are not considered unusual in such deep waters. The differences probably arise from positioning and scaling errors from prior surveys, as well as errors introduced by deep water sounding by lead-line (e.g., currents). CONCUR

Three charted soundings were of particular note due to the differences found by this survey:

<u>Latitude</u>	<u>Longitude</u>	<u>Charted Sounding</u>	<u>Current * Sounding</u>	<u>Line Spacing</u>	
56° 23' 36" N	158° 04' 30" W	57 fm	70 fm	200 m	Retain 57 fm depth
56° 20' 52" N	158° 09' 08" W	43 fm	48 fm	100 m	Supersede 43 fm depth
56° 26' 03" N	157° 57' 15" W	25 fm	47 fm	100 m	Retain 25 fm depth

\* Based on approved tides

In the case of the charted 57 fathom sounding, the 100 meter (55 fathom) contour was found to be approximately 0.1 nm to the southwest of the charted sounding by this survey. Positioning errors between the prior survey and the chart, as well as currents in this area while conducting lead-line soundings, could have accounted for this large difference. A similar argument can be made for the charted 43 fathom sounding, where the 80 meter (44 fathom) contour was found to be approximately 0.1 nm to the southwest of the charted sounding. There was no sounding development conducted over the charted 57 fm depth. Based on the irregular bottom and no survey coverage, the charted 57 depth should be retained. The present survey found 38-39 fm depths within 200 meters of the charted 43 depth and should supersede the prior sounding. In the case of the 25 fathom sounding, the charted position appears to have been shifted approximately 10" south from that indicated on the prior survey. However, the depth in the general area of the correct position is more than 35 fathoms, still indicating a difference greater than 10 fathoms. A 20 fathom shoal area was found by this survey approximately 0.5 nm to the east, suggesting a possible positioning error from the prior survey. While this difference between the charted and current sounding is not fully explainable, this area does not represent a hazard to navigation and has been adequately developed by the current survey. The hydrographer recommends superseding all previous soundings with those from this survey. CONCUR

It is likely the charted 25 fm depth is part of a twenty fathom shoal area approximately .5 nautical miles east found by the present survey. However, based on the irregular bottom and lack of sounding coverage, the 25 fm depth should be retained.

Final comparisons will be made at PHB after application of <sup>approved</sup> real tide correctors.

**Dangers to Navigation** ✓

No dangers to navigation were determined by this survey. Concur

**P. ADEQUACY OF SURVEY** ✓

Survey H-10701 is complete and adequate to supersede prior soundings and features in their common areas. Concur

**Q. AIDS TO NAVIGATION** ✓

No aids to navigation exist within the survey area. Concur

**R. STATISTICS** ✓

NM Hydrography	791.9
Velocity Casts	3
Detached Positions	0
Selected Soundings	14263
Bottom Samples	55
Tide Stations	2
NM <sup>2</sup> Hydrography	90.1
Dives	0

**S. MISCELLANEOUS** ✓

Bottom samples were collected and sent to the Smithsonian Institution in accordance with Project Instructions. No unusual tidal currents were found during the time of this survey. Secchi disk observations were not performed during hydrographic data operations.

**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>
1996 Horizontal Control Report for OPR-P182-RA.	August, 1996	N/CS34
1996 Coast Pilot Report for OPR-P182-RA.	August, 1996	N/CS26

<u>Title</u> ✓	<u>Date Sent</u>	<u>Office</u>
Project related data for OPR-P182-RA.	Incremental	N/CS34
Secchi Disk Observations for OPR-P182-RA	August, 1996	N/CS31

Respectfully Submitted,

  
Stephen Meador  
Lieutenant, NOAA

Approved and Forwarded,

  
Dean R. Seidel  
Captain, NOAA  
Commanding Officer

CONTROL STATIONS as of 28 Jul 1997 ✓

No	Type	Latitude	Longitude	H	Cart	Freq	Vel Code	MM/DD/YY	Station Name
001	G	056:30:37.566	157:50:29.988	30	250	0.0	0.0	1 05/27/96	1000 1026
002	G	056:19:28.097	158:19:45.257	122	250	0.0	0.0	3 06/24/96	100001 2 0W1 351 DGPS FREQ 3
100	G	057:37:07.800	152:11:21.000	0	250	0.0	0.0	0 03/01/96	100101 313 F02 USEC DGPS
101	G	055:05:30.000	162:31:54.000	0	250	0.0	0.0	8 06/25/96	0000 014 297 1HZ USCG DGPS

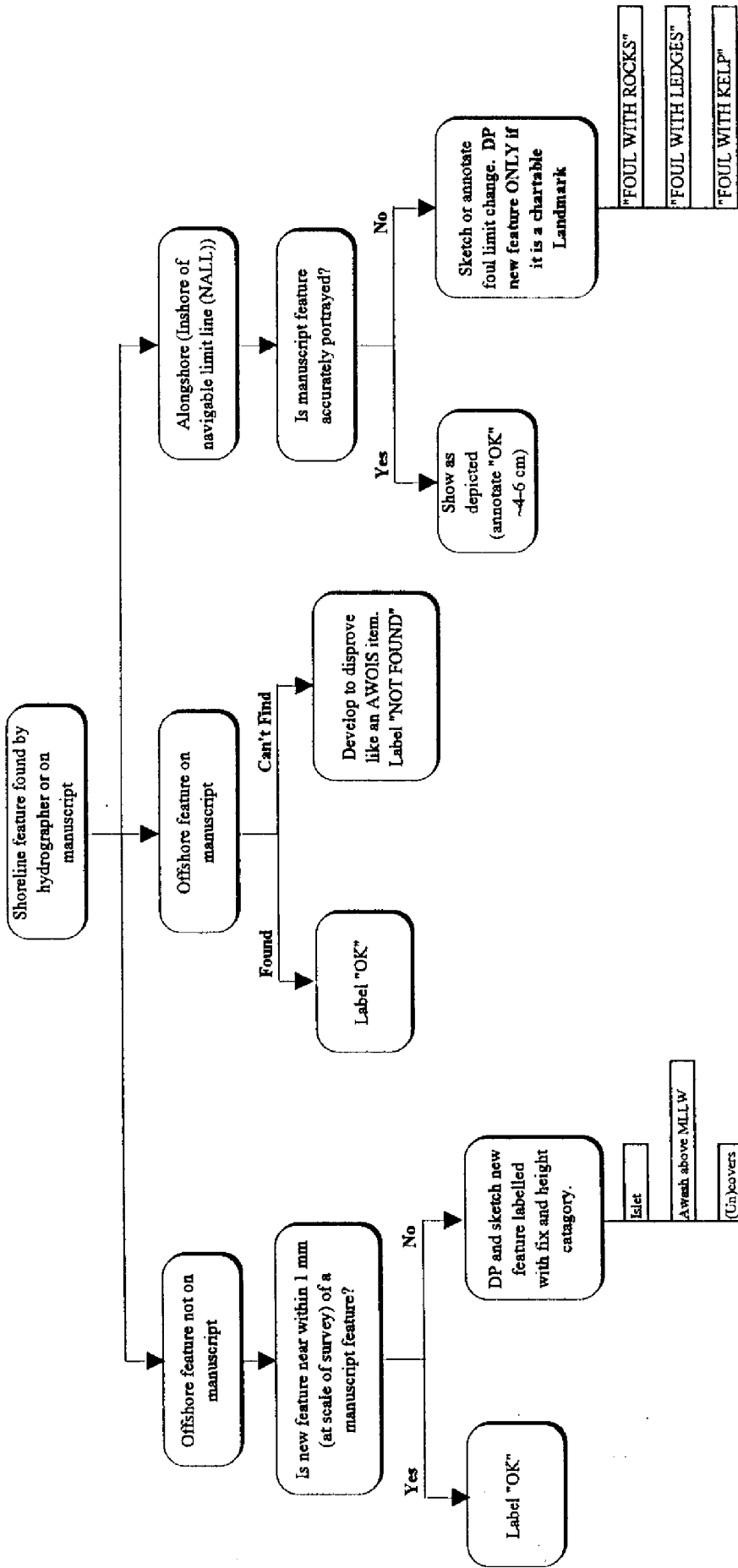
## **Limited Shoreline Verification: The New Rules**

First, understand that the fundamental difference between last year and this year is that the amount of shoreline we must verify is determined by US, not strictly specified in the Project Instructions.

Procedures:

- 1) Determine distance from shore that is the MINIMUM working distance necessary for the survey. Take into account likely vessel traffic, bathymetry, complexity of the shoreline from prior surveys and the chart, and weather (sea) conditions experienced in the area. Use greater distances if shallow depths prevail, or if swell is severe. Even in steep foreshore bathymetry, do not go closer than 3 launch lengths (30 meters), unless vessel usage indicates that the area is used (e.g. a landing ramp is on shore, or an extremely narrow passage is used by fishing vessels to reach a certain bay.)
- 2) Draw the inshore limit determined in (1) on the boat sheet. Collecting data along this line may or may not be feasible, due to tides and project logistics, but the boat sheet line may be used to delimit mainscheme and development hydrography until such a "buffer" line is or may be needed.
- 3) Search for and develop all features seaward of the line drawn in (2). Use low water for this search, if possible. Combining this search with the acquisition of the data along the "buffer" line may be possible in areas which are not too complex. Detached positions are required only if a feature is found offshore of the NALL line and either more than 1 mm away from any manuscript feature or is mis-represented by the manuscript. If a charted or manuscript feature located offshore of the line is NOT found, a full disapproval is required.
- 4) Annotate the field copies of the boat sheet (which by definition includes the charted, manuscript, and significant prior survey features) showing that the shoreline features offshore of the NALL each have a full disposition. These copies are bound and used to create the final field sheet, and submitted as official survey records.

# Shoreline Decision Tree



APPROVAL SHEET

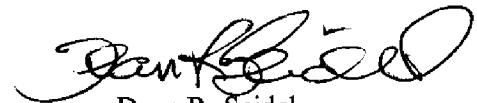
for

H-10701

RA-20-2-96

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Guidelines; and the 1994 version of the Field Procedures Manual in producing this survey. The data were examined daily during data acquisition and processing.

The field sheet and accompanying records have been examined by me, are considered complete and adequate for charting purposes, and are approved.



Dean R. Seidel  
Captain, NOAA  
Commanding Officer



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
Office of Ocean and Earth Sciences  
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: November 22, 1996

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-P182-RA

HYDROGRAPHIC SHEET: H-10701

LOCALITY: Chignik Bay, Southwest Alaska Peninsula, Alaska

TIME PERIOD: June 30 - August 3, 1996

TIDE STATION USED: 945-8779 Nakchamik Island, Ak.  
Lat. 56° 21.1'N Lon. 157° 48.7'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.491 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: 2.472 meters

TIDE STATION USED: 945-9450 Sand Point, Popof Island, Ak.  
Lat. 55° 20.2'N Lon. 160° 30.1'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.984 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: #SAP7, #SAP8 & #SAP11  
Refer to Attachment(s) for zoning information

Note: Times are tabulated in Greenwich Mean Time.

  
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CHIEF, TIDAL ANALYSIS BRANCH





GEOGRAPHIC NAMES

Name on Survey	A BY CHART NO. 16585, 16771, 16013 B ON PREVIOUS SURVEY C ON U.S. QUADRANGLE MAPS D FROM LOCAL INFORMATION E ON LOCAL MAPS F P.O. GUIDE OR MAP G RAND McNALLY ATLAS H U.S. LIGHT LIST K										
	A	B	C	D	E	F	G	H	K		
ALASKA (title)	X		X								1
ALASKA PENINSULA (title)	X		X								2
CHIGNIK BAY	X		X								3
											4
											5
											6
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											25

Approved:

*Christa C. Long*  
Chief Geographer

OCT 7 1996

**HYDROGRAPHIC SURVEY STATISTICS**

H-10701

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

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

SHORELINE DATA	
SHORELINE MAPS (List):	NA
PHOTOBATHYMETRIC MAPS (List):	NA
NOTES TO THE HYDROGRAPHER (List):	NA
SPECIAL REPORTS (List):	NA
NAUTICAL CHARTS (List):	Chart 16566 8th Ed., August 3, 1996

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

PROCESSING ACTIVITY	AMOUNTS			
	VERIFICATION	EVALUATION	TOTALS	
POSITIONS ON SHEET				
POSITIONS REVISED				
SOUNDINGS REVISED				
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS				
VERIFICATION OF SOUNDINGS				
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION VERIFICATION				
COMPILATION OF SMOOTH SHEET	100		100	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		10	10	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		30	30	
GEOGRAPHIC NAMES				
OTHER				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	100	40	140

Pre-processing Examination by <b>J. Stringham</b>	Beginning Date 9/17/96	Ending Date 9/19/96
Verification of Field Data by <b>B. Mihailov</b>	Time (Hours) 100	Ending Date 4/22/97
Verification Check by <b>B. Olmstead</b>	Time (Hours) 12	Ending Date 4/25/97
Evaluation and Analysis by <b>B. Mihailov</b>	Time (Hours) 40	Ending Date 4/23/97
Inspection by <b>B. Olmstead</b>	Time (Hours) 11	Ending Date 5/14/97

## **EVALUATION REPORT**

**H-10701**

### **A. PROJECT**

Project information is discussed in the hydrographer's report.

### **B. AREA SURVEYED**

A description of the survey limits is adequately discussed in the hydrographer's report. The bottom consists mainly of sand, mud and broken shell. Depths range from 12 to 150 fathoms.

### **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 same Hydrographic Data Acquisition/Processing System (HDAPS) software used by the hydrographer, the Hydrographic Processing System (HPS), AutoCad (Version 12.0), and MicroStation 95.

At the time of the survey certification the format for transmission of digital data had not been formally approved. In the interim, digital data for this survey exists in the standard HPS format, which is a database, format using the .dbf extension. In addition, the sounding plot was created with .dbf (extension) and enhanced using the MicroStation system, are filed both in the MicroStation drawing format, .dgn (extension); and in the more universally recognized graphics transfer format, .dxf (extension). Copies of these files will be retained at PHB until data transfer protocols are developed and improved.

The drawing files necessarily contain information, which 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 unversed 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 Guidelines 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 was not used on survey H-10701.

### **F. SOUNDING EQUIPMENT**

Sounding equipment is discussed in the hydrographer's report.

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## **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. Actual tide reduction are derived from Sand Point, Popof Island, Alaska gage 945-9450, Nakchamik Island, Alaska gage 945-8779 and Chignik, Anchorage Bay, Alaska gage 945-8917.

## **H. CONTROL STATIONS**

Control stations are discussed in the hydrographer's report and separates.

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.

Data based on NAD 27 may be referenced to this survey by applying the following corrections:

Latitude: -2.778 seconds (-85.921 meters)  
Longitude: 7.347 seconds (126.076 meters)

## **I. HYDROGRAPHIC POSITION CONTROL**

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 7.5 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. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable. Daily DGPS performance checks were conducted in the field and found adequate.

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**

There is no shoreline within the limits of survey H-10701.

## **K. CROSSLINES**

Crosslines are discussed in the hydrographer's report.

## L. JUNCTIONS

Survey H-10701 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10696	1996	1:20,000	East
H-10699	1996	1:10,000	Southwest
H-10705	1996	1:10,000	Northwest

The junction with surveys H-10696, H-10699 and H-10705 are complete, soundings and depth curves are in good agreement within the common area. A few soundings have been transferred from survey H-10705 and H-10699 to better portray the common area. A "Joins" note has been shown on the survey within the common areas. There are no contemporary surveys which junction on the south, southeast and northeast.

## M. COMPARISON WITH PRIOR SURVEYS

H-4388 (1924) 1:20,000  
H-4449 (1924) 1:60,000  
H-4508 (1925) 1:20,000  
H-4509 (1925) 1:60,000

The prior surveys listed above cover the entire area of the present survey. A more thorough bottom ensonification by the present survey has shown this area to contain many newly discovered shoal areas not found in 1924-25. In addition, shoaler depths (1-3 fathoms) were normally found in similar areas depicted on the prior surveys. However, there are several prior depths considerably shoaler (5-10 fathoms) than depths found by the present survey. These shoaler depths plot in areas where the bottom slopes off rapidly and has likely resulted in anomalous lead line depths. Positional error may be another factor in discrepancies with prior depth information. Many of the prior shoaler depths can be found within 200 meters of a present depth. Differences between the present and prior surveys can largely be attributed to positioning and sounding methods available in 1924-25.

H-10701 is adequate to supersede prior surveys except as follows:

The charted 57 fathom and 25 fathom depths originate from prior survey H-4449 (1924) and were not adequately investigated. These prior survey soundings have been brought forward to the present survey and should remain as charted. Reference the hydrographer's report section O.

## N. ITEM INVESTIGATIONS

There were no AWOIS items assigned to this survey.

## O. COMPARISON WITH CHART

Survey H-10701 was compared with the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16566	8th	Aug. 3, 1996	1:77,477	NAD83
16566	7th	Oct. 28, 1989	1:77,477	NAD83

a. Hydrography

Charted hydrography originates with the prior hydrographic surveys. The prior surveys have been adequately addressed in section M and require no further discussion. The 8<sup>th</sup> Edition of Chart 16566 reflects the latest shoreline information and dangers to navigation not portrayed on the previous edition.

Survey H-10701 is adequate to supersede charted hydrography except as noted in section M.

b. Dangers to Navigation

No dangers to navigation were discovered during survey operations. No additional dangers to navigation were found during office processing.

**P. ADEQUACY OF SURVEY**

With the exception noted in section M and T, hydrography contained on survey H-10701 is adequate to:

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

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual, April 1994 Edition, except as follows;

The present survey reveals numerous shoal indications rising 25-30% above the surrounding depths (16-50 fathoms) throughout the survey area. It is recommended to split the two hundred meter line spacing throughout these areas to better define the bottom and to ensure shoaler depths are not present. Reference Section 1.4.3 of the Hydrographic Manual. Additionally, two holidays in the sounding lines exist and are located at approximately latitude 56/24/00N, longitude 158/12/00W and latitude 57/19/50N, longitude 158/13/09W.

**Q. AIDS TO NAVIGATION**

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

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

**S. MISCELLANEOUS**

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

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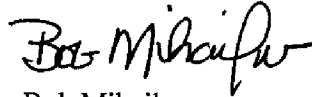
!

## T. RECOMMENDATIONS

This is a fair hydrographic survey. Additional work is recommended as specified in section P, Adequacy of Survey and in a letter to the Hydrographic Surveys Division dated May 6, 1997 (attached). Attachment 2 is a full size copy of survey H-10701 with areas noted for further development and is not included in this report.

## U. REFERRAL TO REPORTS

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



Bob Mihailov  
Cartographer

May 6, 1997

MEMORANDUM FOR: Captain Andy Armstrong, NOAA  
Chief, Hydrographic Surveys Division

FROM: Commander Kathy Timmons, NOAA  
Chief, Pacific Hydrographic Branch

SUBJECT: OPR-P182-RA Additional Work

After reviewing the hydrographic surveys H-10697 and H-10701 from OPR-P182-RA, I strongly recommend that the RAINIER return to these areas during the 1997 field season and perform additional work. The work performed by the RAINIER was not sufficient such that holidays exist and least depth developments were not conducted.

The areas that need additional soundings are:

H-10697 - A junctional holiday exists on the northern edge of H-10697 with the contemporary survey H-10557. A second junctional holiday exists on the eastern boundary of H-10697 where it meets H-10545 and H-10554. (Refer to attachment #1)

H-10701 - Only a minor amount of development work was done on this survey. As a result, over 100 additional sounding lines should be completed as indicated on the attached sheet. Basically, this calls for splitting almost every main scheme line west of longitude 158/10/00 W; splitting most lines south of latitude 56/23/00 N; and then a few additional lines throughout the remaining area. Also, two holidays in the sounding lines exist and are located at approximately 56/24/00N, 158/12/00W and 56/19/50N, 158/13/09W. (Refer to attachment #2)

cc: PMC - Albright  
PMC-RA - Anderson

FILE COPY

CODE	SURNAME	DATE	CODE	SURNAME	DATE
N/05341	L.H.M.	5/6/97			
N/05341	K. Timmons	5/6/97			

NOAA FORM 61-2



APPROVAL SHEET  
H-10701

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

Bruce A. Olmstead  
Senior Cartographer, Cartographic Section  
Pacific Hydrographic Branch

Date: 5/14/97

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.

Kathy Timmons

Kathy Timmons  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

Date: 5/29/97

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Final Approval

Approved:

Andrew A. Armstrong III  
Andrew A. Armstrong III  
Captain, NOAA  
Chief, Hydrographic Surveys Division

Date: Oct. 28, 1997

