

H110699

NOAA FORM 76-35A	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SERVICE	
DESCRIPTIVE REPORT	
Type of Survey	Hydrographic
Field No.	RA-10-15-96
Registry No.	H-10699
LOCALITY	
State	Alaska
General Locality	Southwest Alaska Peninsula
Sublocality	Northeast Approach to Anchorage Bay
19 96	
CHIEF OF PARTY	
CAPT. Dean R. Seidel, NOAA	
LIBRARY & ARCHIVES	
DATE	OCT 27 1997

**HYDROGRAPHIC TITLE SHEET**

H-10699

**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-10-15-96

State Alaska

General locality Southwest Alaska Peninsula

Locality Northeast Approach to Anchorage Bay

Scale 1:10,000 Date of survey June 25-July 29, 1996

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

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

Chief of party CAPT Dean R. Seidel, NOAA

Surveyed by NOAA Ship RAINIER Personnel

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

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: I. Almacen Automated plot by HP Design Jet 650C

Verification by D.Doles, R. Mayor, E. Domingo, J. Stringham

Soundings in fathoms ~~feet~~ at MLW\* 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.

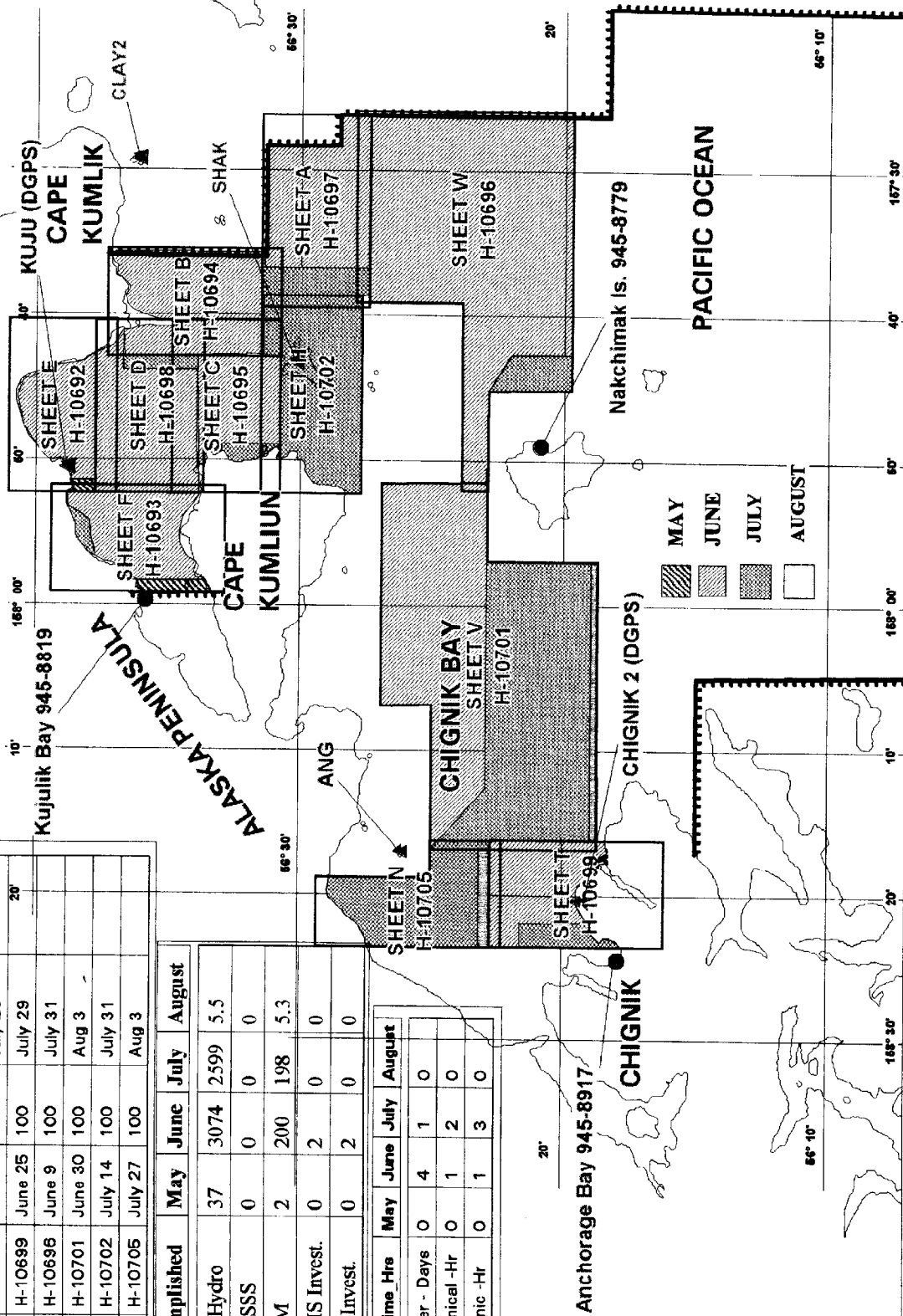
*ALICES/SURE 10/20/97 MUR*

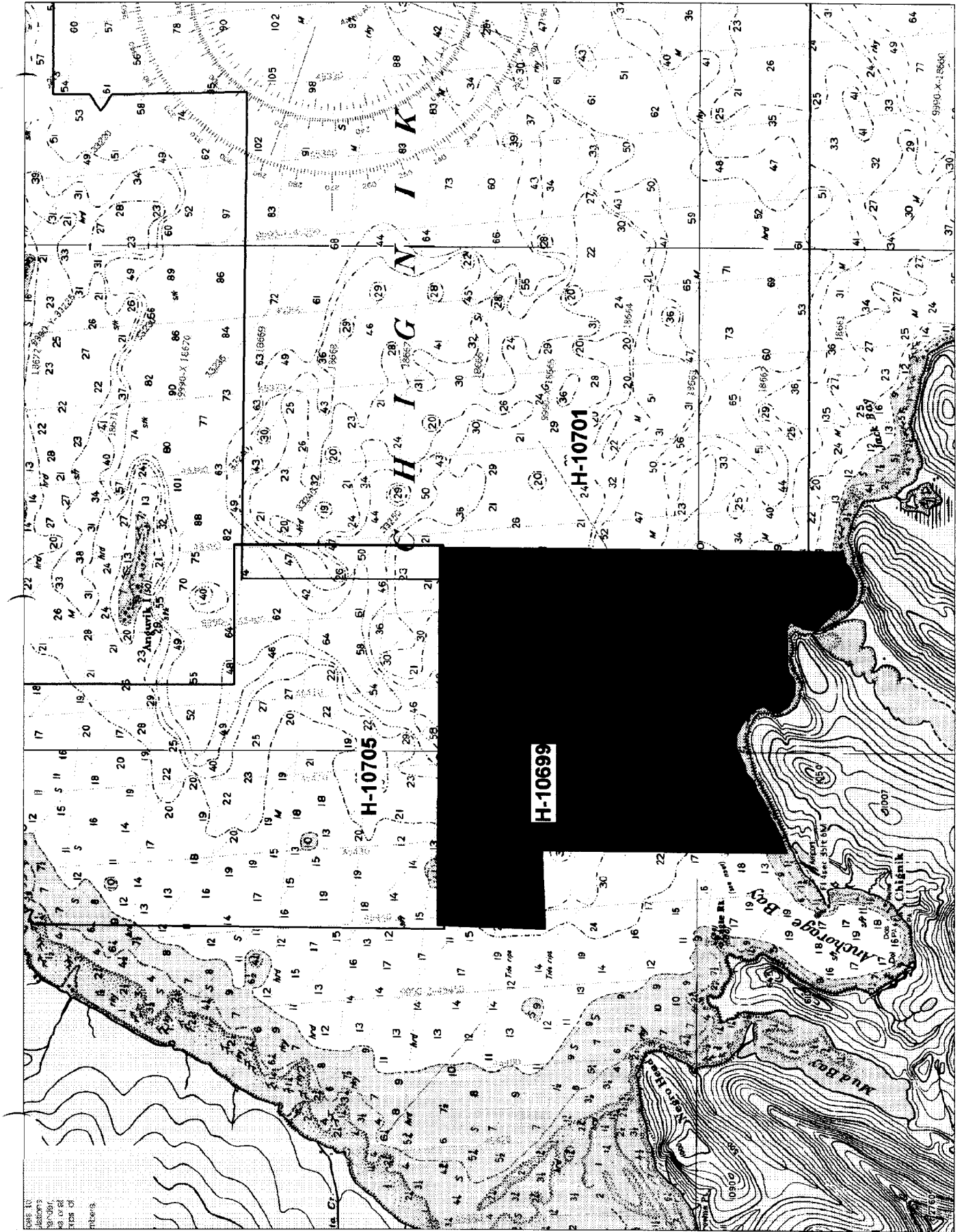
**PROGRESS SKETCH - OPR-P182-96  
NOAA SHIP RAINIER  
CAPTAIN DEAN R. SEIDEL, COMMANDING**

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
LNLM Hydro	37	3074	2599	5.5
LNLM 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





Scale 1:50,000  
Datum: WGS 84  
Projection: UTM  
Zone: 18N  
Units: Meters

H-10705

H-10699

H-10701

H I K

H I G

Anchorage Bay

Mud Bay

Nero Head

Chigalik

9340 X 18600

# Descriptive Report to Accompany Hydrographic Survey H-10699

Field Number RA-10-15-96

Scale 1:10,000

July 1996

NOAA Ship RAINIER

Chief of Party: Captain Dean R. Seidel, NOAA

## A. PROJECT ✓

This basic hydrographic survey was completed in the Southern Approaches to Anchorage Bay, Alaska, as specified by Project Instructions OPR-P182-RA dated May 15, 1996. Survey H-10699 corresponds to sheet T as defined in the sheet layout included in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating existing nautical charts of the Southwest Alaska Peninsula, Alaska. Requests for hydrographic surveys and updated charts have been received from a U.S. Congressman, a U.S. Senator, the domestic commercial fishing industry, the United States Coast Guard, and NOAA. The majority of requests are from the commercial fishing industry and reflect concern over charting adequacy for safe navigation in treacherous near shore areas. The project area is also traversed by 300 to 400-foot domestic and foreign cargo vessels calling at western U.S. ports.

## B. AREA SURVEYED (*See EVAL RPT., Sec B*)

The survey area is located at the approaches to Anchorage Bay, Alaska. The survey's limits are 56° 22' 45"N to the north, north of 56° 21' 40"N to the west, 158° 16' 00"W to the east, 158° 21' 57"W south of 56° 21' 40"N, and the shore to the south. Data acquisition was conducted from June 25, 1996 (DN 177) to July 29, 1996 (DN 211).

## C. SURVEY VESSELS ✓

Data were acquired by RAINIER survey launches noted below:

Vessel	EDP #	Operation
RA-2	2122	Hydrography
RA-3	2123	Hydrography Shoreline
RA-4	2124	Hydrography ✓
RA-5	2125	Hydrography Bottom Samples
RA-6	2126	Hydrography

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

Data were acquired and processed using HDAPS Software. A complete listing is included in Appendix VI.\*

**E. SONAR EQUIPMENT** ✓

Sonar equipment was not used on H-10699. *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.

**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
5	5	177	56° 23' 04" N 158° 19' 23" W	107.9	177-200
12	14	168	56° 24' 53" N 158° 16' 31" W	212	201-211

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. *Casts #5 & 14 were taken outside of 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** ✓

Transducer depths were determined using FPM Fig 2.2 for vessels 2122-2126 in the spring of 1996. These values were entered into the offset tables for each survey platform.

### 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-O136-RA. The data for vessels 2122-2126 were collected in Shilshole Bay, Washington in the Spring of 1996.

### Offset Tables ✓

Offset tables\* contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset tables 2-6 correspond to the last digit of the vessel number. The offset tables are contained in the "Separates to be Included with Survey Data".

### Heave ✓

The launches are not equipped with heave, roll and pitch sensors.

### 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-O136-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-10699 are:

Zone	Time Correction	Height Correction
3	-0 hr 0 min	X0.97

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 used as the primary control station for datum determination at all subordinate stations.

RAINIER personnel installed Sutron 8200 digital tide gages at Anchorage Bay (945-8917) on June 24, 1996, and Nakchamik Island (945-8779) on June 3, 1996. Each tide staff was connected to five bench marks during the opening level runs. The tide gages are presently running without problems.

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, 1996 is attached.*

## H. CONTROL STATIONS (See EVAL RPT., Sec. H)

The horizontal datum for this project is NAD 83. First Order station CHIGNIK 2 was the basis for control for H-10699. The control stations are <sup>list of</sup> ~~listed in Appendix III~~ <sup>included in this report.</sup> See the OPR-P182-RA-96 Horizontal Control Report for station recovery notes, closure results, and other information.

## I. HYDROGRAPHIC POSITION CONTROL (See EVAL RPT., Sec. I)

### Method of Position Control ✓

All soundings and features 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 CHIGNIK 2. The differences between the computed locations and the published positions were noted using SHIPDIM, version 2.2R (April 1996). No multi-path or other systematic error was indicated for the reference station. See the OPR-P182-RA-96 Horizontal Control Report for further information.

### Calibrations & Systems Check Methods ✓

Launch-to-launch DGPS performance checks were performed in accordance with Section 3.4.4 of the FPM. Two observations of position were made from two DGPS base stations, CHIGNIK 2 and KODIAK while the launches were rafted together with their GPS antennae within 2 meters of each other.

RAINIER began using SHIPDIM, version 2.2R (April 1996) on April 16 (DN 107) after this program was modified for use with the Trimble Centurion P-code receiver. The stations at CHIGNIK 2 and KODIAK provided input for daily comparisons. Some outliers were noted, but none indicated systematic or continuous errors in the KODIAK beacon. The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-P182-RA.

### Problems ✓

None.

## J. SHORELINE (See EVAL RPT., Sec. J)

Shoreline for this survey was taken from registered shoreline maps collected for coastal mapping project CM-8309, Cape Kumlik to Jack Point, Alaska, TP00913, (NAD 83, 1:20,000, 1987). Shoreline was hand traced from the T-Sheet at survey scale on to boat sheets and processing sheets from HDAPS.

### Method of Shoreline Verification ✓

Limited shoreline verification was conducted in accordance with the Project Instructions. For this survey the general limit of safe navigation of a survey launch is 30 meters offshore of apparent low tide, or approximately 3 to 5 meters of depth at Mean Lower Low Water.



This NALL (Navigational Area Limit Line) varied in distance from shore and depth of water based on the apparent usefulness of the nearshore waters for navigation in the judgement of the hydrographer. Predicted tides appeared to match actual conditions, leading the hydrographer to assume that photography was flown at a mid-stage of tide.

#### Charted Features ✓

Chart 16566, 7th Edition, October 28, 1989, 1:77,477 scale, (NAD 83) was enlarged to 1:10,000 for comparison purposes. Some positional differences are attributed to the enlargement process. There were no charted rocks offshore of the navigational area limit line. T-Sheet rocks inshore of the NALL were often matched to charted rocks, but were not positioned hydrographically; refer to the hydrographer's notes on the final Detached Position and Bottom Sample Plot.

During this survey some disagreements between the charted shoreline and the T-Sheet, TP-00913 were observed by the hydrographer. The hydrographer recommends the shoreline from TP-00913 and this survey supersede the charted shoreline. *Concur.*

#### K. CROSSLINES ✓

Crosslines agreed within one meter with mainscheme hydrography. Total mileage was 23.9 nautical miles or 6.6% of total mainscheme hydrography.

#### L. JUNCTIONS (*See EVAL RPT., Sec. L*)

This survey junctions with no contemporary surveys. *Do not concur. This survey junction with contemporary surveys # - 10701 & # - 10705.*

#### M. COMPARISON WITH PRIOR SURVEYS (*See EVAL RPT., Sec M*)

*File (5)*

*H-2860 (1906)*

Four prior surveys cover this survey: H-4389 and H-4388, 1:20,000, 1924, H-4427, 1:20,000, 1924, and H-4449, 1:60,000, 1924. The soundings from these prior surveys, when converted from fathoms or feet, were in agreement with the present survey to within two meters. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.

#### N. ITEM INVESTIGATIONS ✓

There were no AWOIS items located within the limits of this survey. *Concur.*

#### O. COMPARISON WITH THE CHART (*See EVAL RPT., Sec. O*)

This survey was compared in the field to NOS chart 16566, 7th Ed., October 28, 1989, 1:77,477 scale, (NAD 83). In addition, positions of soundings were digitized from a raster image of the chart using pc software to place soundings, converted to meters, onto the boat sheet. The charted soundings were found to be in good agreement.

**Dangers to Navigation** ✓

There were no dangers to navigation within the limits of H-10699. *Concur.*

**P. ADEQUACY OF SURVEY** ✓

Survey H-10699 is complete and adequate to supersede prior soundings and features in their common areas. *Concur*

**Q. AIDS TO NAVIGATION** ✓

No aids to navigation are located within the survey area. *Concur.*

**R. STATISTICS** ✓

NM Hydrography	387.8
Velocity Casts	2
Detached Positions	0
Selected Soundings	15,340 (NPS), 15,280 (NDAPs)
Bottom Samples	36
Tide Stations	2
NM <sup>2</sup> Hydrography	13.8
Dives	0

**S. MISCELLANEOUS** ✓

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. Secchi disk observations were performed during hydrographic data operations in this area at time of bottom sampling. General water visibility was 3-5 meters.

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

Project related data for  
OPR-P182-RA.

Incremental

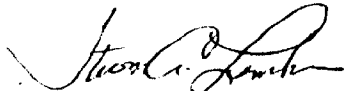
N/CS34

Secchi Disk Observations for  
OPR-P182-RA

August, 1996

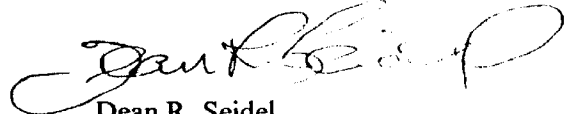
N/CS31

Respectfully Submitted,



Steven A. Lemke  
Lieutenant, NOAA

Approved and Forwarded,



Dean R. Seidel  
Captain, NOAA  
Commanding Officer

APPROVAL SHEET

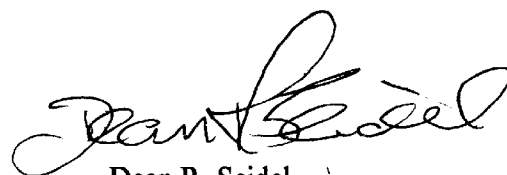
for

H-10699

RA-10-15-96

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

CONTROL STATIONS as of 30 Jul 1996 ✓

No	Type	Latitude	Longitude	H	Cart	Freq	Del Code	MM/DD/YY	Station Name
001	G	056:38:37.566	157:50:29.988	30	250	0.0	0 0	1 05/27/96	KUJH 1920 UW1303 DGPS FREQ 1
002	G	056:19:28.097	158:19:45.257	122	250	0.0	0 0	3 06/24/96	CHIGNIK 2 UW1351 DGPS FREQ 3
100	G	057:37:07.800	152:11:21.000	0	250	0.0	0 0	A 03/01/96	KOOTAK 313 KHZ USCG DGPS
101	G	055:05:30.000	162:31:54.000	0	250	0.0	0 0	B 06/25/96	COLD BAY 289 KHZ USCG DGPS

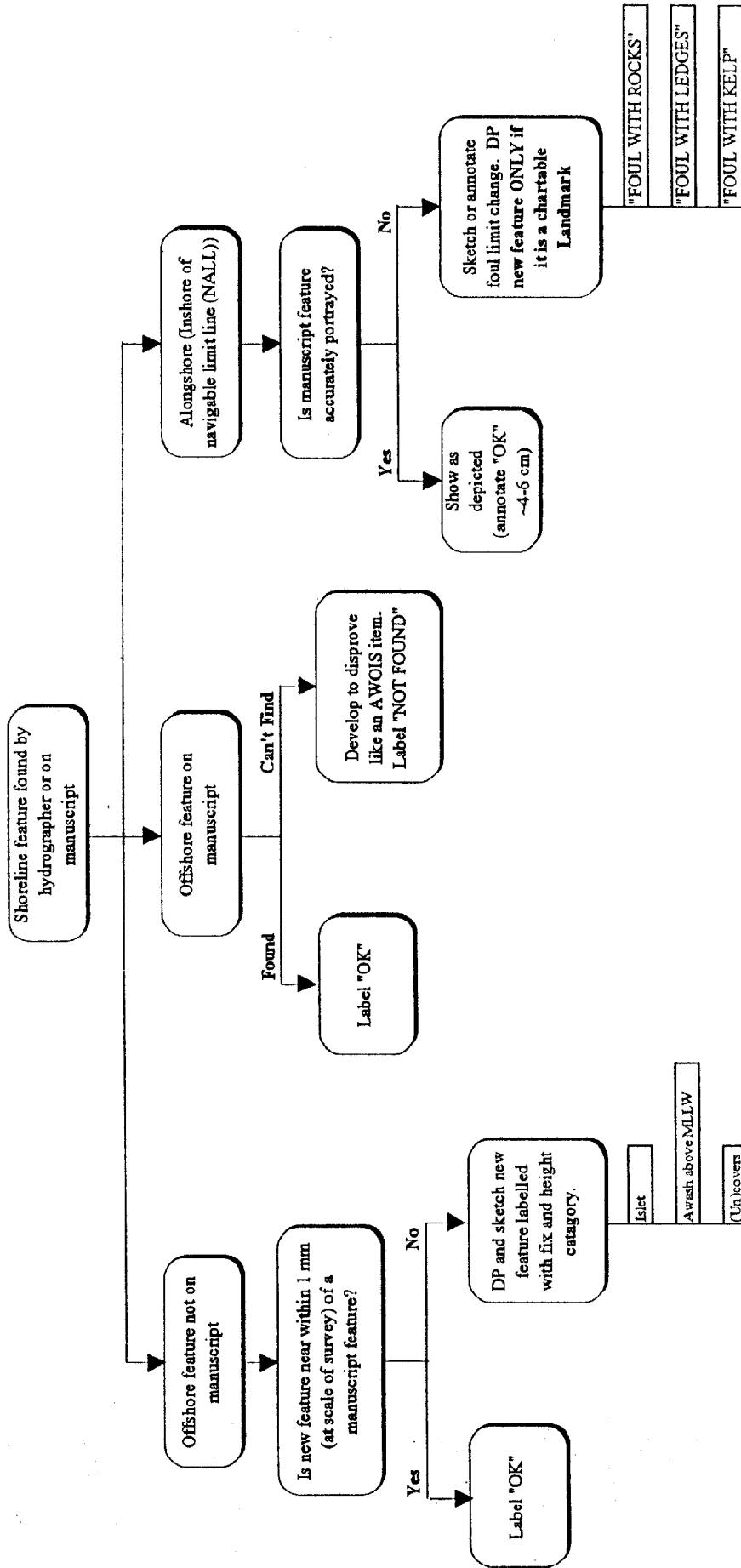
## Limited Shoreline Verification: The New Rules

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 disproof 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





**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-10699

**LOCALITY:** Northeast Approach to Anchorage Bay, Southwest Alaska  
Peninsula, Alaska

**TIME PERIOD:** June 25 - July 29, 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

**REMARKS:** RECOMMENDED ZONING

Use zone(s) identified as: #SAP7 & #SAP8  
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** ON CHART NO. 16011, 16013  
**B** ON PREVIOUS SURVEY NO.  
**C** ON U.S. QUADRANGLE MAPS  
**D** FROM LOCAL INFORMATION  
**E** ON LOCAL MAPS  
**F** P.O. GUIDE OR MAP  
**G** GRAND McNALLY ATLAS  
**H** U.S. LIGHT LIST  
**K**

Name on Survey	A	B	C	D	E	F	G	H	K
ALASKA (title)	X		X						1
ALASKA PENINSULA (title)	X		X						2
ANCHORAGE BAY (title)	X		X						3
CHIGNIK BAY	X		X						4
LAKE BAY	X		X						5
LUMBER BAY	X		X						6
									7
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Approved

*Arthur C. Long*  
Chief Geographer

OCT 7 1996

**HYDROGRAPHIC SURVEY STATISTICS**

H-10699

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	2				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES					

**SHORELINE DATA**

SHORELINE MAPS (List):	TP-00913
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 <del>REVISED</del> (selected)			15,280	
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	62.5		62.5	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		7.0	7.0	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		12.0	12.0	
GEOGRAPHIC NAMES				
OTHER*				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	62.5	19.0	81.5
Pre-processing Examination by <b>J. Stringham</b>	Beginning Date 8/16/96	Ending Date 8/16/96		
Verification of Field Data by <b>D. Doles, R. Mayor, E. Domingo, J. Stringham</b>	Time (Hours) 62.5	Ending Date 2/20/97		
Verification Check by <b>B. Olmstead</b>	Time (Hours) 3	Ending Date 4/18/97		
Evaluation and Analysis by <b>I. Almacen</b>	Time (Hours) 19.0	Ending Date 4/15/97		
Inspection by <b>B. Olmstead</b>	Time (Hours) 9	Ending Date 4/22/97		

## EVALUATION REPORT

H-10699

### A. PROJECT

Project information is discussed in the hydrographer's report.

### B. AREA SURVEYED

This basic hydrographic survey was conducted off the southeast coast of the Alaska Peninsula. It covers the northeastern approach to Anchorage Bay including Lumber Bay and Lake Bay. The inshore area is generally sandy with scattered rocks and ledges.

The hydrographer has determined the inshore limits of safe navigation by defining a Navigable Area Limit Line (NALL) within the area of the survey. Charted features and soundings inshore of this limit line have been specifically addressed during survey operations and should be retained as charted. A page-size plot of the survey area indicating the limits of supersession accompanies this report as Attachment A.

The bottom is mainly composed of pebble, sand and mud mixed with broken shells. Depths range from 0.4 to 49.0 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) and AutoCad, Version 12.

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 plot is filed both in the AutoCad drawing format, i.e., .dwg (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 approved.

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 unrevised in the HPS digital files to preserve the integrity of the original hydrographic data set. Cartographic codes

used to describe the digital data are those authorized by the Hydrographic Survey Guideline No. 75 and No. 35.

The field sheet parameters have been revised to center the hydrography on the office plot. 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 during this survey.

#### **F. SOUNDING EQUIPMENT**

Sounding equipment is discussed 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 actual tide, dynamic draft, and sound velocity. These reducers have been reviewed and are consistent with present NOS specifications. Actual tide reduction is derived from Nakchamik Island, Alaska gage (945-8779) and Chignik, Anchorage Bay, Alaska gage (945-8917). Refer to the approved tide note attached to this report concerning recommended tidal zoning.

#### **H. CONTROL STATIONS**

A list of Differential Global Positioning System (DGPS) reference stations used during this survey is attached to this report.

The positions of DGPS reference stations used during hydrographic operations are published values based on NAD 83. The geographic positions of all survey data are also based on NAD 83. The AutoCAD generated smooth sheet is annotated with an NAD27 adjustment tick based on values determined with NGS program NADCON.

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

Latitude: -2.796 seconds (-86.485 meters)  
Longitude: 7.336 seconds (126.037 meters)

#### **I. HYDROGRAPHIC POSITION CONTROL**

Differential GPS (DGPS) was used to control this survey. NAD83 is used as the horizontal datum for plotting and position computations. A horizontal dilution of precision (HDOP)

limits of 3.75 was computed for survey operations. The maximum HDOP allowable limit has not been exceeded during this survey and the quality of data obtained is considered good. The reference site confirmation test using the program SHIPDIM and the daily DGPS performance checks conducted in the field were adequate.

#### **J SHORELINE**

A digitized 1:10,000 scale enlargement of Class III registered shoreline manuscript TP-00913 on NAD83 was used during this survey. The digitized shoreline file and the survey file were merged during Microstation processing. The "limited" shoreline verification procedures was applied to this survey in accordance with the Project Instructions (Attachment 1) and the new 1996 RAINIER limited shoreline verification guidelines (copy attached). The inshore limit of safe navigation (Navigable Area Limit Line, NALL) was determined by the field hydrographer based on depth, bottom bathymetry, dangers to navigation and apparent usage of the nearshore area for navigation.

#### **K CROSSLINES**

Crosslines are discussed in the hydrographer's report.

#### **L JUNCTIONS**

Survey H-10699 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10701	1996	1:10,000	East
H-10705	1996	1:10,000	North

The junctions with surveys H-10701 and H-10705 are complete. The depth curves and soundings within the junction areas are in satisfactory agreement.

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

Survey H-10699 was compared with the following prior surveys.

H-2860 (1906), scale 1:20,000  
H-4388 (1924), scale 1:20,000  
H-4389 (1924), scale 1:20,000  
H-4427 (1924), scale 1:20,000  
H-4449 (1924), scale 1:60,000

The above listed prior surveys cover the area of the present survey. Comparisons with these C&GS surveys of 1906 and 1924 are considered satisfactory. All depths originating from

these prior surveys were adequately addressed during survey operations. A more thorough bottom coverage by the present survey has resulted in the discovery of some new shoal areas not found in the past. The present depths were found to be generally shoaler by about 1.0 to 5.0 fathoms in most areas. However, a few prior soundings were considerably deeper (10-15 fms) than depths found by the present survey which are likely the result of inaccurate lead line depth determination. The general differences noted in this survey can be attributed to the increased bottom coverage of the area and the application of more accurate positioning and sounding methods available in the field at the present time.

H-10699 is adequate to supersede the prior surveys within the common area.

T-4072 (1924), scale 1:20,000

The temporary fish trap charted at latitude 56/18/36N, longitude 158/17/12W, originating from the 1924 topographic survey T-4072, was not addressed by the hydrographer during this survey. However, hydrography conducted over this area provided no indication that the charted feature still exists. As the fish trap was noted on T-4072 as temporary, it likely no longer exists and should be removed from the chart.

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

There are no AWOIS item investigations assigned to this survey.

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

Survey H-10699 was compared with the following editions of chart 16566.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16566	8th	Aug. 3, 1996	1:17,477	NAD83
16566	7th	Oct.28, 1989	1:77,477	NAD83

##### **a. Hydrography**

Charted hydrography originates with the previously mentioned prior hydrographic surveys. These prior surveys have been adequately addressed in the preceding section of this report and requires no further discussion.

The 8th Edition of Chart 16566 reflects the latest shoreline information and dangers to navigation not portrayed on the previous edition.

Survey H-10699 is adequate to supersede charted hydrography within the common area of coverage as shown on Attachment A. However, considering the close proximity of the NALL line to shore as determined by the hydrographer and the scale of the chart, the

present survey is also considered adequate to supersede the charted inshore area between the NALL line and the low water line.

**b. Dangers to Navigation**

No reports of dangers to navigation were generated during the field or office processing.

**P. ADEQUACY OF SURVEY**

The hydrography on survey H-10699 is adequate to:

a. delineate the bottom configuration, determine least depths, and draw the standard 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.

Hydrography on survey H-10699 was acquired in the field in metric units while the AutoCAD generated smooth sheet for this survey was compiled in fathoms to conform to the sounding unit of the existing NOS nautical charts of the area.

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.

Survey H-10699 adequately complies with the project instructions.

**Q. AIDS TO NAVIGATION**

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

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

**R. STATISTICS**

Statistics are itemized in the hydrographer's report.

**S. MISCELLANEOUS**

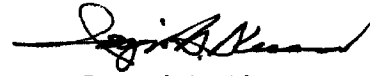
Miscellaneous information concerning this survey is discussed in the hydrographer's report. No additional miscellaneous items were noted during office processing.

**T. RECOMMENDATIONS**

Survey H-10699 is a good hydrographic survey and no additional field work is required.

**U. REFERRAL TO REPORTS**

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



Isagani A. Almacén  
Cartographer



APPROVAL SHEET  
H-10699

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: 4/25/97  
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.

Kathy Timmons Date: 5/6/97  
Kathy Timmons  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

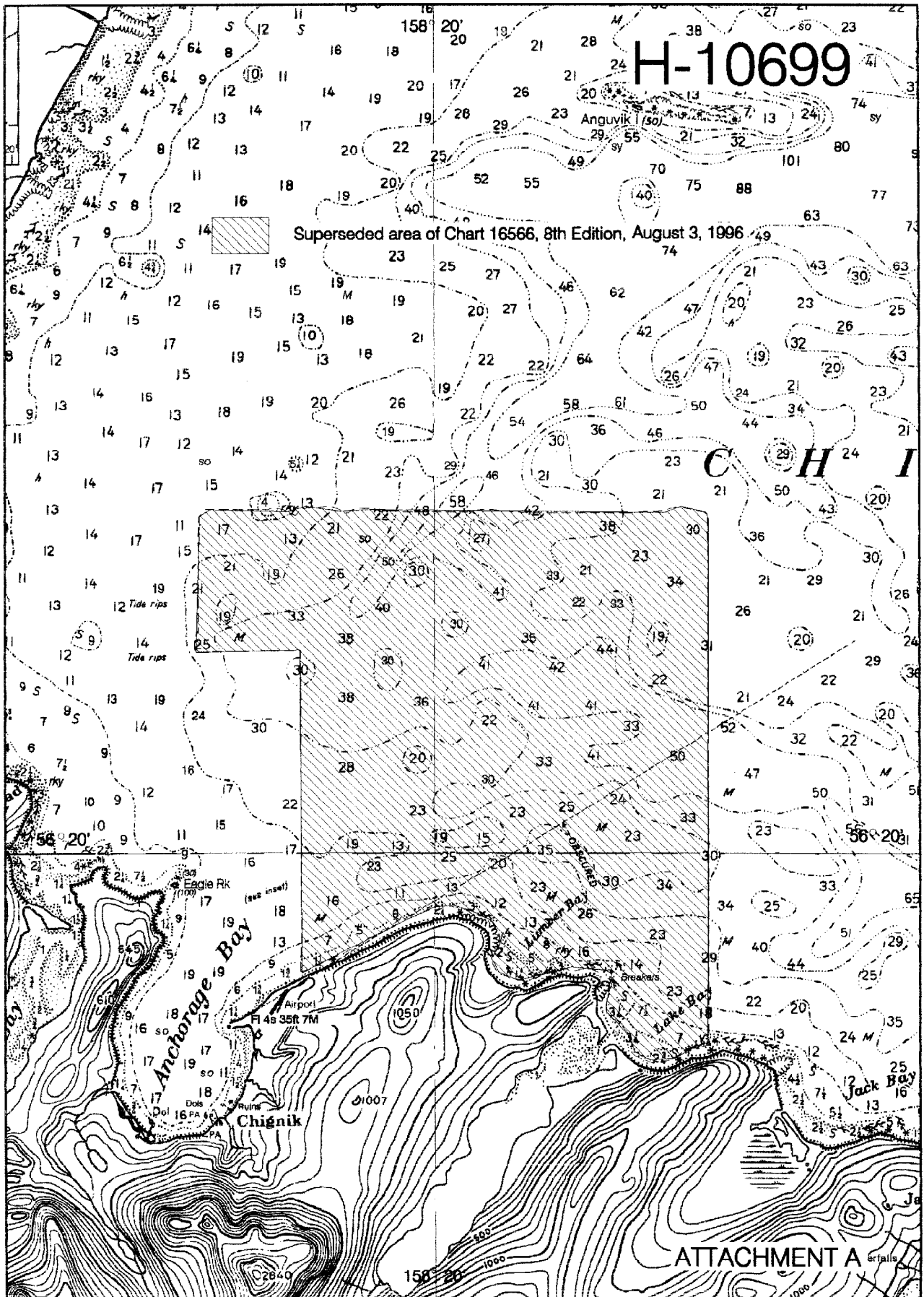
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Final Approval

Approved:  
Andrew A. Armstrong III Date: Oct. 24, 1997  
Andrew A. Armstrong III  
Captain, NOAA  
Chief, Hydrographic Surveys Division

# H-10699

Superseded area of Chart 16566, 8th Edition, August 3, 1996



ATTACHMENT A

