

H10549

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-20-2-94
Registry No. H-10549

LOCALITY

State Alaska
General Locality Alaska Peninsula
Sublocality Four Miles East of Foggy Cape

1994

CHIEF OF PARTY
CAPT Russell C. Arnold, NOAA

LIBRARY & ARCHIVES

DATE NOV 21 1995

HYDROGRAPHIC TITLE SHEET

H-10549

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-20-2-94

State Alaska

General locality Alaska Peninsula

Locality Four Miles East of Foggy Cape

Scale 1:20,000 Date of survey June 15 - July 13, 1994

Instructions dated 5/5/94 Project No. OPR-P180-RA

Vessel NOAA SHIP RAINIER (2120), RA-3(2123), RA-4(2124)

Chief of party CAPT Russell C. Arnold, NOAA

Surveyed by CAPT R.A. Arnold, LT D. Neander, LT D. Haines, LTJG D. Lemke, ENS A. Caron,

ENS G. Glover, ENS S. Smith, ENS S. Maenner

Soundings taken by echo sounder, hand lead, 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 550L

Verification by L. Deodato

Soundings in ~~fathoms~~ ~~feet~~ at ~~MLW~~ MLLW

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.

SurF/AW01S 12/4/95 MLR

NOV 21 1995

Descriptive Report to Accompany Hydrographic Survey H-10549

Field Number RA-20-2-94

Scale 1:20,000

June - July 1994

NOAA Ship RAINIER

Chief of Party: Captain Russell C. Arnold

A. PROJECT ✓

This basic hydrographic survey was completed along the Southern Alaskan Peninsula as specified by Project Instructions OPR-P180-RA dated May 5, 1994.

Survey H-10549 corresponds to "sheet AG" as defined in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating existing nautical charts, and for constructing two new 1:100,000 scale metric charts. The new charts will cover inshore and offshore areas between Sutwik Island and Mitrofanina Island, along the Southern Alaska Peninsula. Requests for hydrographic surveys and updated charts have been received from the U.S. Coast Guard, Alaskan Congressional Delegates, NOAA, Defense Mapping Agency, and local fishermen.

B. AREA SURVEYED ✓ See Eval Rpt. section B.

The survey area is located along the Southern Alaskan Peninsula, four miles east of Foggy Cape, Sutwik Island. The survey's northern and southern limits are bounded by latitudes $56^{\circ}39.5'N$ and $56^{\circ}26.8'N$, and the eastern and western most limits are bounded by longitudes $157^{\circ}47.5'W$ and $157^{\circ}02.0'W$. There is no shoreline within the survey limits. Sutwik Island is shown on the smooth for orientation purposes only.

Data acquisition was conducted from June 15, 1994, Day Number (DN) 166 through July 13, 1994, DN 194.

C. SURVEY VESSELS ✓

Data were acquired by the NOAA SHIP RAINIER and two survey launches.

<u>Vessel</u>	<u>EDP No</u>	<u>Operation</u>
RAINIER	2120	SV Casts Bottom Samples Hydrography
RA-3	2123	Hydrography
RA-4	2124	Hydrography

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

Data acquisition and processing were accomplished with the following HDAPS programs:

HDAPS 1994

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
BACKUP	2.00	3/7/94
BASELINE	1.14	3/7/94
BIGABST	2.07	3/7/94
BIGAUTOST	3.01	3/7/94
BLKEDIT	2.02	3/7/94
CARTO	2.13	5/12/94
CLASSIFY	1.05	3/7/94
CONVERT	3.62	3/7/94
DAS_SURV	6.70	5/12/94
DIAGNOSE	3.04	5/12/94
DISC-UTIL	1.00	3/7/94
DP	2.14	3/7/94
EXCESS	4.21	3/7/94
FILESYS	3.24	5/12/94
GRAFEDIT	1.06	3/7/94
LISTDATA	1.02	3/7/94
LOADNEW	2.10	3/7/94
LSTAWOIS	3.07	5/12/94
MAINMENU	1.20	3/7/94
MAN_DATA	2.01	3/7/94
NEWPOST	6.01	3/7/94
PLOTALL	2.27	5/12/94
POINT	2.10	3/7/94
PREDICT	2.01	3/7/94
PRESURV	7.08	5/12/94
PRINTOUT	4.03	5/3/94
QUICK	2.05	5/12/94
RAMSAVER	1.02	3/7/94
REAPPLY	2.10	3/7/94
SCANNER	1.00	3/7/94
SELPRINT	2.04	3/7/94
SYMBOLS		3/7/94
VERSIONS	1.00	3/7/94
ZOOMEDIT	2.24	5/12/94

Velocity corrections were determined using:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
VELOCITY	2.10	15 Mar 1994

E. SONAR EQUIPMENT ✓

Sonar equipment was not used on sheet AG.

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 12 was used for data acquired by RAINIER, and table 4 was used for the launches. *Casts 4 and 12 were taken outside the survey area.*

<u>Velocity Table No.</u>	<u>Cast No.</u>	<u>Deepest Depth (m)</u>	<u>Applicable DN</u>	<u>Cast Position</u>	<u>Day</u>
12	2	235	166 - 169	56°39'24"N 157°10'24"W	160
4	4	256	188 - 194	56°36'18"N 157°05'06"W	188
14	4	256	188 - 194	" "	188

The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 811), calibrated on 12/17/93. Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) No. 69. A printout of the Sound Velocity Corrector Tables 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 launches 2123 and 2124 in the spring of 1994. RAINIER's transducer depth was determined during the 1990 winter inport. These depths were entered into the offset table* for each vessel.

Settlement and Squat ✓

Launch correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2, using FPM Fig. 2.2 and 2.3, and are included with project data for OPR-P180. The data used was collected in Shilshole Bay, Washington in March of 1994. RAINIER settlement and squat correctors were computed from data collected in 1989 and applied to the final field plot. New settlement and squat correctors for RAINIER were acquired on July 14, 1994. Copies of the new correctors will be forwarded to N/CG245 during RAINIER's July 15 inport.

Offset Tables ✓

Offset tables contain offset for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset table 1 corresponds to RAINIER. Tables 3 and 4 correspond to the number of the launch. The offset tables were compiled with new measurements in the spring of 1994 and are contained in the "Separates to be Included with Survey Data". *

* Filed with the hydrographic data.

Heave ✓

RAINIER and the launches were not equipped with heave, pitch, and roll sensors. Data acquired during periods of significant sea action were scanned to account for inaccuracies caused by heave.

Bar Check and Lead Lines

Bar check and lead lines were calibrated by RAINIER personnel during the winter 1993-1994 inport. Calibration forms are included with project data for OPR-P180. Bar checks were performed weekly and served as a functional check of the DSF-6000N. ✕

Tide Correctors ✓

Predicted tides for the project were provided on diskette by N/OES334 for the Ugaiushak, Alaska reference station (945-8553).

Tidal correctors as provided in the project instructions for this sheet are:

<u>Time Correction</u>	<u>Height Correction</u> <u>Range Ratio</u>
0 hr 0 min.	x0.95

HDAPS listings of the data used in generating tide corrector tables are included in Appendix V of this report. ✕

Tide gages were installed and maintained by RAINIER personnel at West End of Sutwik Island (945-8665) and Foggy Cape, Sutwik Island, (945-8582). Opening levels were performed upon installation. Bracketing levels were completed at the end of June, and closing levels will be performed at the conclusion of the project.

The control station was Sand Point, Alaska (945-9450). Opening levels for the control station were conducted by RAINIER personnel on May 21 and 22, 1994. Closing levels at Sand Point, Alaska will be completed by the Pacific Operation Section N/OES214 during their annual visit in late July as per phone conversation with Mr. Mike Gibson (OES212).

The station descriptions, field tide records, and Field Tide Note (Appendix V) will be forwarded to N/OES212 monthly, in accordance with HSG 50 and FPM 4.3, and at the end of the project. A requests for approved tides was forwarded to N/OES2 in accordance with FPM 4.2.3. *Tide note dated October 28, 1994 is attached.*

H. CONTROL STATIONS *See Eval Rpt, section H.*

A listing of the geodetic stations used to control this survey is included in ~~Appendix III~~ of this report. The horizontal datum for this project is NAD 83.

DGPS base stations were setup on existing stations LAND, CLAY 2, and HYDRA. Station LAND is located on an islet in the northern Aniakchak Bay. Station CLAY 2 is located on an islet southwest of Kumlik Island. HYDRA is located on Hydra Island, north of Sutwik Island. Existing stations were recovered in accordance with methods stated in Section 5.2.4 of the FPM. For further information see the "Summer 1994 Horizontal Control Report", which will be submitted at the end of the project.

** Filed with the hydrographic data.*

An additional DGPS station, TWIK, was established by RAINIER personnel on a small peninsula on the south shore of Sutwik Island. The station was positioned to Third-Order Class I accuracy using static GPS methods. Existing stations LAND and CLAY2 were used as control stations. For further information, see the "Summer 1994 Horizontal Control Report", which will be submitted at the end of the project.

I. HYDROGRAPHIC POSITION CONTROL ✓

Method of Position Control ✓

All soundings and features were positioned using differential GPS. Serial numbers for Ashtech GPS equipment are annotated on the data printouts. ✕

Calibration & System Check Methods

System checks were performed by launch to launch or launch to RAINIER comparisons of position. Three observations of position were made using correctors from two independent DGPS base stations. System checks were performed weekly. The results were transferred to forms which are included in the project data for OPR-P180. An abstract of the system checks is included in the "Separates to be Included with Survey Data, III ✕ Horizontal Position Control and Corrections to Position Data".

Ashtech GPS ✓

VHF differential shore stations were established at stations LAND, CLAY 2, HYDRA, and TWIK. The difference between the computed location and the station's published position was recorded by the MONITOR program on a PC. Data from a 24 hour period were recorded and examined for signs of multipath signal reflection, which were not evident at any of the stations. Scatterplot results are included in the "Project related data for OPR-P180-RA". The scatterplot results for stations LAND and HYDRA were obtained last year. The areas around stations LAND and HYDRA remain undeveloped, and the geography unchanged.

Problems ✓

None

Offset ✓

RAINIER and launch GPS antenna offsets are stored in the HDAPS Offset Tables as listed in Section G. Copies of the Offset Tables are included in the "Separates to be Included with Survey Data". ✕

J. SHORELINE ✓ See Eval Rpt., Section J

None

K. CROSSLINES ✓

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 40 nautical miles, representing 8.1% of the total mainscheme hydrography.

* Filed with the hydrographic data.

L. JUNCTIONS See Eval. Report, section L.

This survey junctions with survey H-10551 (1:10,000, 1994) and H-10553 (1:10,000, 1994) to the west, H-10482 (1:20,000, 1993) and H-10477 (1:20,000, 1993) to the north. These soundings were found to be in general agreement with this survey, except in areas of complex bathymetry.

Final comparisons will be made at the Pacific Hydrographic Section (PHS).

M. COMPARISON WITH PRIOR SURVEYS See Eval Report, section M.

One prior survey was compared: H-6925 (1:20,000, 1944). Sparse soundings from this prior survey were in general agreement with the present survey. However, the present survey, due to much greater sounding density, revealed numerous shoal soundings not found during the prior survey. There were no instances where prior survey soundings were shoaler in a corresponding area, except as noted below.

Comparisons with a prior sounding of 36 fathoms (66 meters) in the vicinity 56°31'40"N, 156°50'40"W did not reveal a shoaler depth. The area was split to one hundred meter line spacing. The average depth in the vicinity was 43 fathoms (80 meters). Soundings of 36 fathoms (66 meters) and shoaler are located five hundred meters to the west. *The 36 FM sounding originates from H-6925 (1944) and has been mischarted as 56 FMS. Concur with hydrographer's findings. Chart 36 fathom sounding at latitude 56/31/40N longitude 156/50/40W*

Final comparisons will be conducted by PHS. *chart as shown on present survey.*

N. ITEM INVESTIGATIONS ✓

There were no item investigations for sheet AG.

O. COMPARISON WITH THE CHART See Evaluation Report, section O.

This survey was compared to NOS chart 16568, 9th Edition, March 21, 1992, 1:106,600 (NAD83). All charted soundings were compared and found to be generally deeper, with the exception of a few soundings located in areas with steep depth curves. In these cases a shoaler depth was in the general vicinity of the charted sounding.

Dangers to Navigation ✓

There were no dangers to navigation within the limits of this survey. *However, there were several shoaler depths found during survey operations that are not currently charted. A danger to navigation letter was generated during office processing (attached).*

P. ADEQUACY OF SURVEY

Prior to final approval, survey H-10549 is complete and adequate to supersede charted depths and features in their common area. *Concur*

Q. AIDS TO NAVIGATION ✓

None

R. STATISTICS ✓

<u>Vessel:</u>	<u>2120</u>	<u>2123</u>	<u>2124</u>	<u>Total</u>
# of Pos	1739	177	448	2364
NM Hydro	725.5	49.4	65.6	840.5

NM ² Hydrography	51
Velocity Casts	2
Tide Stations	2
Bottom Samples	60

S. MISCELLANEOUS ✓

Bottom samples were sent to the Smithsonian Institution in accordance with Project Instructions.

Coast Pilot current comparisons were made in accordance with the Project Instructions. No tidal current predictions are available within the sheet limit.

No unusual magnetic variations were noted.

T. RECOMMENDATIONS ✓

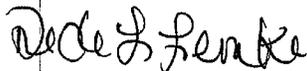
None

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 1994 Horizontal Control Report for OPR-P180-RA-94	August 1994	N/CG245
Summer 1994 Coast Pilot Report for OPR-P180-RA-94	August 1994	N/CG245
Project related data for OPR-P180-RA	Incremental	N/CG245

Respectfully Submitted,



Dede L. Lemke
Lieutenant(jg), NOAA

Approved and Forwarded,



Russell C. Arnold
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 23 Jun 1994 ✓

No	Type	Latitude	Longitude	H	Cart	Freq	Vel Code	MM/DD/YY	Station Name
100	F	056:45:19.732	157:29:28.737	42	250	0.0	0.0	05/24/94	LAND(DGPS)
101	F	056:44:35.925	157:00:57.249	50	250	0.0	0.0	05/24/94	HYDRA(DGPS)
102	F	056:36:08.811	157:29:12.200	44	250	0.0	0.0	05/24/94	CLAY 2(DGPS)
103	F	056:31:22.546	157:11:42.067	35	250	0.0	0.0	06/03/94	TWIK(DGPS)



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
Seattle, Washington 98115-0070

November 1, 1995

Commander
Seventeenth Coast Guard District
P.O. Box 25517
Juneau, AK 99802

**ADVANCE
INFORMATION**

Dear Sir:

During office review of hydrographic survey H-10549, Alaska Peninsula, four miles east of Foggy Cape, six soundings were found and are considered potential dangers to navigation affecting the following chart.

<u>Chart</u>	<u>Edition/date</u>	<u>Datum</u>
16568	10th, 02/18/95	NAD 83

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) 526-6853.

Sincerely,

Kathy A. Timmons
for Kathy A. Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Enclosure

cc: DMA/HTC
NCS/261



REPORT OF DANGERS TO NAVIGATION

**ADVANCE
INFORMATION**

Hydrographic Survey Registry Number: H-10549
Survey Title: State: ALASKA
Locality: ALASKA PENINSULA
Sublocality: FOUR MILES EAST OF FOGGY CAPE

Project Number: OPR-P180-RA, NOAA Ship Rainier

The following depths were discovered during hydrographic surveying operations and indicate significantly shoaler depths than those currently charted:

Charts Affected: 16568 10th Edition/February 18, 1995 1;106,000 NAD83

Horizontal Depth	Datum	Geographic Position	
		Latitude(N)	Longitude(W)
24 fathoms	NAD83	56/38/25.0	156/52/40.0
22 fathoms	NAD 83	56/36/50.5	156/52/30.9
22 fathoms	NAD 83	56/36/42.3	156/49/19.9
25 fathoms	NAD 83	56/36/24.1	156/50/46.7
13 fathoms	NAD 83	56/33/30.0	156/52/38.0
13 fathoms	NAD 83	56/33/07.0	156/52/52.0

Depths reduced to Mean Lower Low Water using approved tides.

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.

APPROVAL SHEET

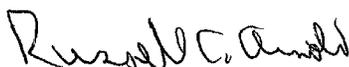
for

H-10549

RA-20-2-94

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and 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.



Russell C. Arnold
Captain, NOAA
Commanding Officer, NOAA Ship RAINIER



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

ORIGINAL

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: October 28, 1994

MARINE CENTER: Pacific

OPR: P180

HYDROGRAPHIC SHEET: H-10549

LOCALITY: Four Miles East of Foggy Cape, Shelikof Strait, Alaska

TIME PERIOD: June 15 - July 13, 1994

TIDE STATION USED: 945-8582 Foggy Cape, Sutwik Island,
Alaska
Lat. $56^{\circ} 32.2'N$ Lon. $156^{\circ} 58.5'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 3.36 feet

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 9.0 feet

REMARKS: RECOMMENDED ZONING

1. South of $56^{\circ} 38.8'N$, times and heights are direct on Foggy Cape, Sutwik Island, Ak. (945-8582).
2. North of $56^{\circ} 38.8'N$, times are direct, and apply a X1.03 range ratio to the heights using Foggy Cape, Sutwik Island, Ak. (945-8582).

NOTES: Hourly heights are tabulated on Greenwich Mean Time.
The data for Foggy Cape, Sutwik Island, Ak. (945-8582)
is stored in the Next Generation Water Level Measurement
System temporary file #745-8582.

William M. Helton
CHIEF, DATUMS SECTION



H-10549

GEOGRAPHIC NAMES

Name on Survey	ON CHART NO. 16568 BGN 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										
	A	B	C	D	E	F	G	H	K		
ALASKA (title)	X		X								1
ALASKA PENINSULA (title)	X		X								2
FOGGY CAPE	X		X								3
NORTH PACIFIC OCEAN	X		X			(BGN Decision)					4
SUTWIK ISLAND	X		X								5
											6
											7
											8
											9
											10
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											12
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											24
											25

Approved
Chris Clark
 Chief Geographer
 JUN 12 1995

HYDROGRAPHIC SURVEY STATISTICS

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS
ACCORDION FILES	2				
ENVELOPES					
VOLUMES					
CAMERS					
BOXES					

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	VERIFICATION	EVALUATION	TOTALS	
POSITIONS ON SHEET			4605	
POSITIONS REVISED				
SOUNDINGS REVISED				
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	49.5		49.5	
VERIFICATION OF SOUNDINGS	49.0		49	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	158		158	
COMPARISON WITH PRIOR SURVEYS AND CHARTS				
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		43	43	
GEOGRAPHIC NAMES				
OTHER				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	256.50	43	299.5

Pre-processing Examination by	Beginning Date 6/15/94	Ending Date 8/8/94
Verification of Field Data by Deodato, J. Stringham, D. Doles, B. Mihailov, R. Shipley	Time (Hours) 256.5	Ending Date 6/7/95
Verification Check by J. Stringham, B. Olmstead	Time (Hours) 2	Ending Date 10/28/95
Evaluation and Analysis by B. Mihailov	Time (Hours) 43	Ending Date 10/23/95
Inspection by B. Olmstead	Time (Hours) 20	Ending Date 11/01/95

EVALUATION REPORT

H-10549

A. PROJECT

Project information is discussed in the hydrographer's report.

B. AREA SURVEYED

This survey was conducted in Alaska, and is located along the Alaska Peninsula, approximately 80 nautical miles southwest of Kodiak Island. Specifically, the surveyed area resides four nautical miles offshore of Sutwik Island. There is no shoreline within the limits of the surveyed area. However, Sutwik Island has been shown on the smooth sheet for orientation purposes only. The bottom consists mainly of sand, mud and broken shells. Depths range from 24.3 to 183 meters.

C. SURVEY VESSELS

Survey vessel information is found in the hydrographer's descriptive 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 12.0.

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 AutoCad system, are filed both in the AutoCad drawing format, .dwg (extension); and in the more universally recognized graphics transfer format, .dxf (extension). Copies of these files will be retained at PHS 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 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. 75.

The field sheet parameters have been revised to center the hydrographer 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-10549.

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 an actual tide, dynamic draft, and sound velocity. These reducers have been reviewed and are consistent with NOS specifications. Actual tide reduction is derived from the Foggy Cape, Sutwik Island, Alaska, gage (945-8582).

H. CONTROL STATIONS

Control stations are discussed in the hydrographer's report and separates. A list of control stations used on survey H-10549 is attached to this report.

The positions of horizontal control stations used during hydrographic operations are field and 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: -2.661 seconds (-82.319 meters)
Longitude: 7.352 seconds (125.574 meters)

The year of establishment of the control stations originates with the horizontal control report and the hydrographer's signal list.

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. No positions exceeded this limit. Additional information may be found in the hydrographer's report.

J. SHORELINE

Shoreline shown on the smooth sheet is outside the surveyed area and is shown for orientation purposes only.

The following registered shoreline map compiled on NAD 27 applies to this survey.

<u>Map Number</u>	<u>Photo Date</u>	<u>Scale</u>
TP-01158	July 1982 August 1983	1:20,000

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10549 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10477	1993	1:20,000	North
H-10482	1993	1:20,000	North
H-10551	1994	1:10,000	Northwest
H-10553	1994	1:10,000	West

The junctions with surveys H-10553 and H-10551 are complete. Sounding and depth curves are in good agreement within the common areas.

The junctions with surveys H-10477 and H-10482 have not been formally completed as these surveys were previously forwarded for charting. The junctions were made using a copy. Soundings and depth curves are in good agreement within the common areas

Comparison with the chart in areas not covered by a junction indicates good agreement.

M. COMPARISON WITH PRIOR SURVEYS

H-6925 (1943-44) 1:120,000

H-4506 (1925) 1:60,000

Surveys H-~~4495~~⁴⁵⁰⁶ and H-6925 cover the majority of the present area. Sounding agreement is generally good with differences of 1-5 meters. There is no apparent pattern as to shoaling or increase in depths. A few prior depths are considerably shallower (11-27 fathoms) than the present survey. Present hydrography in these areas does not reveal any indication that these shoal depths exist.

H-10549 is adequate to supersede the prior surveys within the common area.

N. ITEM INVESTIGATIONS

There were no item investigations assigned to this survey.

O. COMPARISON WITH CHART

Survey H-10549 was compared with the following chart.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16568	10th	February 18, 1995	1:106,600	NAD83

a. Hydrography

Charted hydrography originates with the previously discussed prior surveys and miscellaneous sources. A comparison with prior surveys is found in section M. Miscellaneous source data originates from BP-40351 (1945), BP-134011 (1987) and BP-134041 (1987). This data was collected as part of reconnaissance and trackline operations.

Survey H-10549 is adequate to supersede charted hydrography within the common area.

b. Dangers to Navigation

Six dangers to navigation were discovered during office processing and reported to the USCG, DMAHTC and N/CS261. A copy of this report is attached.

P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10549 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.

Q. AIDS TO NAVIGATION

There are no fixed or floating aids to navigation located within the survey area. There are no features of landmark value located within the survey area.

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

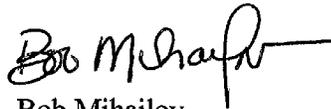
Miscellaneous information is discussed in the hydrographer's report.

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

APPROVAL SHEET
H-10549

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 digital data have been completed and all revisions and processing have been entered in the magnetic tape record for this survey. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report. Final control, position and sounding printouts have been included with the survey records.

Bruce A. Olmstead Date: 11/1/95
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: 11/9/95
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Andrew A. Armstrong III Date: 12-1-95
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

