

10466

Diagram 8201-4

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-10-5-93 ..
Registry No. H-10466 ..

LOCALITY

State Alaska ..
General Locality .. Port Houghton ..
Sublocality Walter Island & Vicinity ..

1993

CHIEF OF PARTY
CAPT R.C. Arnold

LIBRARY & ARCHIVES

DATE April 18, 1994 ..

10466

HYDROGRAPHIC TITLE SHEET

H-10466

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-10-5-93

State Alaska

General locality Port Houghton

Locality Walter Island and Vicinity

Scale 1:10,000 Date of survey 4/6/93 - 4/12/93

Instructions dated February 5, 1993 Project No. OPR-0136-RA

Vessel NOAA Ship RAINIER, Launches 2123, 2124, 2125, 2126

Chief of party CAPT Russell C. Arnold, NOAA

Surveyed by LT Brown, LTJG Ramos, ENS Pitts, ENS Glover, ENS Graham, LTJG Lemke

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

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Verification by: E. Domingo Automated plot by PHS Xynetics Plotter

~~Processed by~~ Evaluation by: R. Davies

Soundings in meters and decimeters at ~~MLLW~~ MLLW

REMARKS: Time in UTC, Revisions and marginal notes in black were generated during office processing. All separates are filed with the hydrographic data, as a result page numbering may be interrupted or non-sequential.

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

AWOIS and SURF / RAD 4/94

R.W.W.

Descriptive Report to Accompany Hydrographic Survey H-10466

Field Number RA-10-5-93

Scale 1:10,000

March - April 1993

NOAA Ship RAINIER

Chief of Party: Captain Russell C. Arnold

A. PROJECT ✓

This basic hydrographic survey was completed in Southern Stephens Passage, Alaska, as specified by Project Instructions OPR-O136-RA dated February 5, 1993.

Survey H-10466 corresponds to "Sheet V" as defined in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating existing nautical charts, and for a new series of metric charts as part of a continuing program to improve chart coverage of the Inside Passage in Southeast Alaska. Requests for hydrographic surveys and updated charts have been received from the Southeastern Alaska Pilot's Association, the Alaska Department of Transportation, and other private interests such as the cruise line and fishing industries.

B. AREA SURVEYED *See Eval Report, section 1*

This survey area is located inside Port Houghton at the southern end of Stephens Passage, Alaska and includes Walter Island and Sandborn Canal. The survey limits are $133^{\circ}19'N$ to the west and $133^{\circ}12'N$ to the east. The north and south limits are shoreline. Topographical relief consists of steep rocky cliffs to the north and rocky ledges with intermittent gravel beaches to the south. Sandborn Canal shoreline is characterized by both rocky and sandy beaches with mud flats at the south end of the canal.

Data acquisition was conducted from April 6, Day Number (DN) 96, through April 12, DN 102.

C. SURVEY VESSELS ✓

Data were acquired by the NOAA SHIP RAINIER and four survey launches as noted below:

<u>Vessel</u>	<u>EDP No</u>	<u>Operation</u>
RAINIER	2120	Velocity Cast
RA-3	2123	Hydrography
RA-4	2124	Hydrography Shoreline Verification
RA-5	2125	Bottom Samples
RA-6	2126	Hydrography Shoreline Verification

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

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

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
AUTOST	3.00	9/24/92
BACKUP	2.00	9/24/92
BASELINE	1.13	9/24/92
BIGABST	2.03	9/24/92
BLKEDIT	2.00	9/24/92
CARTO	2.04	3/1/93
CONTACT	2.01	9/24/92
CONVERT	3.51	9/24/92
DAS_SURV	6.31	2/26/93
DIAGNOSE	3.01	9/24/92
DISC_UTIL	1.00	9/24/92
DP	2.13	3/1/93
EXCESS	4.10	9/24/92
FILESYS	3.01	4/14/92
GRAFEDIT	1.01	2/26/93
HIPSTICK	1.01	9/24/92
HPRAZ	1.26	9/24/92
INVERSE	2.00	9/24/92
INSTALL	4.00	9/24/92
LSTAWOIS	3.01	9/24/92
LISTDATA	1.00	9/24/92
LOADNEW	2.01	9/24/92
MAINMENU	1.00	9/24/92
MAN_DATA	2.00	9/24/92
NEWPOST	6.00	9/24/92
PLOTALL	2.08	2/26/93
POINT	2.10	9/24/92
PREDICT	2.00	9/24/92
PRESURV	7.01	2/26/93
PRINTOUT	4.01	9/24/92
QUICK	2.03	2/26/93
RAMSAVER	1.01	9/24/92
RECOMP	2.02	9/24/92
REAPPLY	2.01	9/24/92
SCANNER	1.00	9/24/92
SELPRINT	2.02	9/24/92
SYMBOLS	2.00	9/24/92
ZOOMEDIT	2.10	9/24/92

Velocity corrections were determined using:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
VELOCITY	2.0	24 Mar 1993

E. CORRECTIONS TO ECHO SOUNDINGS ✓

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

Velocity Table No.	Cast No.	Deepest Depth (m)	Applicable DN	Cast Position	Day
1	1	425.2	96-102	57°15'45"N 133°45'05"W	(OFF SHEET) LIMITS 82

The sound velocity cast was acquired with a SBE SEACAT Profiler, S/N 220.

Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) #69. A printout of the Sound Velocity Corrector Tables used in the HDAPS Post Survey program is included in the "Spring 1993 Corrections to Echo Sounding Data Package for OPR-O136-RA."

Static Draft ✓

A transducer depth was determined for launches 2123, 2124, 2125 and 2126 on March 19, 1993 and is in the offset tables for each launch.

Settlement and Squat ✓

Correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2., using FPM Fig. 2.2 and 2.3, and are included in the "Spring 1993 Corrections to Echo Sounding Data Package for OPR-O136-RA." The data used was collected in Shilshole Bay, Washington on March 11, 16, and 18 of 1992. Revised settlement and squat correctors were received from Pacific Marine Center on October 21, 1992. Authorization was obtained from N/CG241 to use the 1992 data. These revised correctors were applied to the data on sheet V.

Offset Tables

Vessel	Offset Table No.
2123	3
2124	4
2125	5
2126	6

Heave ✓

Data were not acquired during periods of significant sea action so heave was not a factor.

Bar Check and Lead Lines ✓

Bar check and lead lines were calibrated by RAINIER personnel on February 19, 1993 at PMC. Calibration forms are included in the "Spring 1993 Corrections to Echo Sounding Package for OPR-O136-RA."

Tide Correctors ✓

Tide correctors for the project were found in the Tide Table 2 of the published predicted tides for the Juneau, Alaska, reference station (945-2210). Correctors for Port Houghton were used for sheet V. Tidal correctors are:

	<u>TIME</u> (min)	<u>HEIGHT</u> (ft)
Low Water	-17	-0.1
High Water	-21	-0.8

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 The Brothers, Frederick Sound (945-1785), Port Houghton, Stephens Passage (945-1771) and Port Houghton Inside (945-1798). The control station was Juneau, Alaska (945-2210). Opening levels for the control station were completed by RAINIER personnel on April 2, 1993. Closing levels will be completed by RAINIER personnel on April 16, 1993. *Approved tides were used to reduce soundings on this survey.*

The station descriptions, field tide records, and Field Tide Notes will be forwarded to N/OES212, in accordance with HSG 50 and FPM 4.3, at the end of the project. Requests for approved tides will be forwarded to N/OES2.

F. CONTROL STATIONS ✓

A listing of the geodetic stations used to control this survey is included in ~~Appendix III~~ of this report.

Positions for all existing stations are from the National Geodetic Survey (NGS) data base. All existing stations were recovered in accordance with methods stated in Section 5.2.4 of the Field Procedures Manual. New stations were positioned via GPS methods to meet third-order class I standards. Further information can be found in the "Spring 1993 Horizontal Control Report for OPR-O136-RA."

G. HYDROGRAPHIC POSITION CONTROL ✓**Method of Position Control** ✓

All soundings and features were positioned using differential GPS. Falcon was used solely for GPS system checks. Serial numbers for Falcon R/T units, RPU's and Ashtech GPS equipment are annotated on the data printouts. Lists of all positioning equipment serial numbers are included in the "Spring 1993 Electronic Control Data Package for OPR-O136-RA."

* Filed with the hydrographic data

Calibrations & Systems Check Methods ✓**Falcon 484** ✓

Baseline calibrations were conducted in accordance with FPM 3.1.2.1 and 3.1.3.2. Calibrations were performed at the MATTHEWS PARK BEACH BASELINE on March 1-2, 1993 (DN 60-61). Calibration data and a description of the baseline is included in the "Spring 1993 Electronic Control Data Package for OPR-O136-RA."

Ashtech GPS ✓

A VHF Differential shore station was established at station INDX. After the station was established, a remote sensor was directly connected to the MXII shore station and its antenna was collocated with the shore station. The computed position was transmitted back to the ship via VHF radio modem link. 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 multi-path signal reflection, which was not evident at the station.

Launch system checks were made by using one of two methods, either by a direct comparison of the Falcon position with the GPS position or by comparing the GPS position with a known, fixed point. HDAPS Survey Screen Two was used for the Falcon comparison method, and was dumped to the system printer to record the results. Three such dumps were made for each system check. For the fixed point method, a taped distance was measured between the antenna and a known position. Eastings and Northings, HDOP, and number of satellites received were manually recorded three times from Screen One. The absolute value of the inverse distance was then compared to the taped distance to determine if position error criteria were met. System checks were made when possible, and days with no system checks were always bracketed by days with good checks. Formal system checks are recorded on a form included with data for the beginning and ending of each leg.

Problems ✓

The differential GPS station on INDX ran without problem for sheet V.

Offset ✓

The launch GPS antenna is mounted on the mast of the Falcon R/T unit. Antenna offsets are stored in the HDAPS Offset Tables as listed in Section E. Copies of the Offset Tables are included in the "Separates to be Included with Survey Data, III. Horizontal Position Control and Corrections to Position Data."

H. SHORELINE *See EVMC Report, section 2*

Shoreline maps (T-sheets) used to transfer shoreline detail to the final sheets were TP-01387, TP-01388, and TP-01390, (1:20,000, NAD83).

Shoreline verification was conducted near predicted lower low water in accordance with FPM 7.1. Shoreline verification was accomplished by assigning sequential reference numbers and taking detached positions (DPs) as explained later in this section.

** Filed with the hydrographic data*

Inshore hydrography shows that photogrammetric and hydrographic positioning are in excellent agreement.

Shoreline and T-sheet features verified via visual inspection were assigned sequential reference numbers, described, and recorded in the field using sounding volumes and corresponding 1:10,000 photocopies of the T-sheet. Heights were corrected to MLLW using predicted tides. Corresponding notes were annotated on the photocopies of the T-sheet when deemed necessary. The annotated photocopies of the T-sheet are attached to the sounding volumes which are included with the survey data.

DPs taken during shoreline verification were recorded on the master printouts and indicate significant T-sheet features, features not found on the T-sheet, and locations of disprovals. Where possible, positions of some T-sheet features were verified during inshore mainscheme hydrography and annotated on the master printouts.

Detailed 1:10,000 "Rough Bottom Sample and Detached Position Plots" are provided showing all DPs and reference numbers and notes relating to each feature. The information from these plots was transferred to a field shoreline plot. Verified T-sheet features were retained and shown in black. Disproved features were removed from the shoreline plot and changes to the shoreline were shown in red. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in meters and are corrected to predicted MLLW.

Disprovals

The T-Sheet rock in the vicinity of $057^{\circ}18'42''^{\text{N}}$, $133^{\circ}17'47''^{\text{W}}$, Position No. 8189 was not found. A 20 meter radius in the area of the T-Sheet rock was searched for 10 minutes. The area in general was ~~50~~ ^{27.4} meters deep. There is a foul area 120 meters SE of the T-Sheet rock. Recommend removal of T-Sheet rock. CNCUR

Changes

Eight changes to the T-Sheet shoreline were found and depicted on the field shoreline plot.

The two T-Sheet rocks in the vicinity of $57^{\circ}17'39''^{\text{N}}$, $133^{\circ}18'23''^{\text{W}}$, Position No. 7842 are a ledge extending from the shoreline. Highpoint of the ledge is ^{.16} ^{.02} -1.4 meters at MLLW.

The three T-Sheet rocks in the vicinity of $57^{\circ}17'21''^{\text{N}}$, $133^{\circ}16'38''^{\text{W}}$, Position No. 7844 are a reef. Highpoint of the reef is ^{.30} ^{.15} -4.0 m at MLLW.

The three T-Sheet rocks in the vicinity of $57^{\circ}17'34''^{\text{N}}$, $133^{\circ}16'26''^{\text{W}}$, Position No. 7846, 7847, 7848 are a reef. Highpoint of the reef is ^{.71} ^{.15} -4.3 m at MLLW.

The two T-Sheet rocks in the vicinity of $57^{\circ}17'42''^{\text{N}}$, $133^{\circ}15'05''^{\text{W}}$, Position No. 8196 are a reef parallel to shoreline. Highpoint of the reef is ^{.42} ^{.16} ^{.17} -1.2 m at MLLW.

The two T-Sheet rocks in the vicinity of $57^{\circ}18'38''^{\text{N}}$, $133^{\circ}12'05''^{\text{W}}$, Position No. 8204 are a ledge extending from the shoreline. Highpoint of the ledge is ^{.87} ^{.26} -3.1 m at MLLW.

The T-Sheet rock in the vicinity of $57^{\circ}18'19''^{\text{N}}$, $133^{\circ}12'57''^{\text{W}}$, Position No. 8203 is a ledge extending from the shoreline. Highpoint of the ledge is ^{.26} ^{.05} -2.9 m at MLLW.

The T-Sheet rock and island in the vicinity of $57^{\circ}17'29''^{\text{N}}$, $133^{\circ}15'54''^{\text{W}}$, Position Nos. 8032, 8033 are a reef with a large rock on the SE end. High point of the reef is -3.0m at MLW.

The T-Sheet ledge in the vicinity of $57^{\circ}17'23''^{\text{N}}$, $133^{\circ}15'38''^{\text{W}}$ extends to the north and southeast. Limits are marked by Pos Nos. 8034-8036. High point of the ledge is -2.1m at MLW.

Recommendations: The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information compiled on T-sheets (TP-01387, TP-01388, and TP-01390). *Cancel*

New Features

Fifteen new features were found and depicted on the field sheet.

Item	Approximate Position	Position Number	Height (m)	Remarks
Rock	$57^{\circ}18'15''^{\text{N}}$ $133^{\circ}18'06''^{\text{W}}$	8183	0.4 -0.8	Submerged covered
Rock	$57^{\circ}18'17''^{\text{N}}$ $133^{\circ}18'05''^{\text{W}}$	8184	0.4 -0.9	Submerged covered
Rock	$57^{\circ}18'39''^{\text{N}}$ $133^{\circ}17'42''^{\text{W}}$	8186	-1.5	Defines NW limit of a foul area defined by Pos Nos. 8186,8187,8188.
Rock	$57^{\circ}18'41''^{\text{N}}$ $133^{\circ}17'34''^{\text{W}}$	8187	0.7 -1.1	Defines N limit of a foul area defined by Pos Nos. 8186,8187,8188 covered
Ledge	$57^{\circ}17'22''^{\text{N}}$ $133^{\circ}15'19''^{\text{W}}$	8194	-1.0	Limit of ledge extending from shoreline - Exposed uncovers
Ledge	$57^{\circ}17'39''^{\text{N}}$ $133^{\circ}14'59''^{\text{W}}$	8197	-0.8	Limit of ledge extending from shoreline - Exposed uncovers
Rock	$57^{\circ}17'45''^{\text{N}}$ $133^{\circ}14'52''^{\text{W}}$	8198	-0.3 0.0	Awash uncovers
Rock	$57^{\circ}17'51''^{\text{N}}$ $133^{\circ}14'37''^{\text{W}}$	8199	0.6 -0.8	Submerged covered
Ledge	$57^{\circ}18'09''^{\text{N}}$ $133^{\circ}14'23''^{\text{W}}$	8200	-1.5	Limit of ledge extending from shore - Exposed uncovers
Ledge	$57^{\circ}18'12''^{\text{N}}$ $133^{\circ}14'13''^{\text{W}}$	8201	-1.5	Limit of ledge extending from shore - Exposed uncovers
Rock	$57^{\circ}18'40''^{\text{N}}$ $133^{\circ}12'02''^{\text{W}}$	8205	-0.8 -0.6	Exposed uncovers

Ledge	57°19'50"N 133°16'33"W	3100		Offshore limit of ledge Exposed
Rock	57°16' ¹² 24"N 133°14' ³² 39"W	8092	2.0 - 2.1	Exposed <i>uncovered</i>
Rock	57°17' ^{7.67} 28"N 133°16'05"W	8031	0.8	Exposed <i>covered</i>
Ledge	57°17' ⁶⁷ 25"N 133°16'12"W	8028-8030	0.0	Limit of ledge extending from shoreline - Exposed <i>AWSN</i>

Recommendations: The hydrographer recommends that the shoreline detail from this survey be used to supersede prior shoreline information. *concur*

I. CROSSLINES ✓

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 18.28 nautical miles, representing 12.3 % of the total mainscheme hydrography.

J. JUNCTIONS *See EML Report, section 5*

This survey junctions with survey H-10465 (1:10,000, 1993) to the west and H-10467 (1:10,000, 1993) to the east. No irregularities were found when comparing soundings and depth curves. Final comparisons will be made in the office at the Pacific Hydrographic Section (PHS).

K. COMPARISON WITH PRIOR SURVEYS *See EML Report, section 6*

H-1996 (1:10,000, 1889-92)

All prior survey soundings originate from survey H-1996. The soundings from this survey generally agree with survey H-1996 in their common area. Final comparisons and recommendations will be made at PHS.

L. COMPARISON WITH THE CHART *See EML Report, section 7*

This survey was compared to NOS chart 17360, 28th Edition, February 8, 1992, 1:217,828 (NAD83).

Charted soundings were found to be in general agreement with this survey. Discrepancies are noted below. Final comparisons will be made at PHS.

A shoal depth of 25.⁵ meters was found near 057°19'10"N, 133°15'12"W. The charted depth in this area is 453 meters. (83 fm)

A shoal depth of 38 meters was found near 057°18'35"N, 133°18'45"W. The charted depth in this area is 89 meters. (49 fm)

The charted rock, scaled from chart 17360, shown in the vicinity 057°18'20"N, 133°18'00"W is not at that position. The rock's actual position is approximately 200 meters from the charted position and is defined by Position No. 8182 at latitude 57°18'15.46"N, longitude 133°18'09.19"W

Recommendation: The charted rock is adequately portrayed at this chart scale. Do not concur, chart rock according to this survey at the above position and delete charted rock.

The charted rocks, scaled from chart 17360, shown in the vicinity 057°17'50"N, 133°18'30"W are not at that position. The rocks' actual position are approximately 350 meters from the charted position and are defined by Position No. 7842. At the scale of the chart this is about 1.5mm. *Pos. 7842 is a highpoint on a ledge*

Recommendation: The charted rock is adequately portrayed at this chart scale. *Do not concur, remove charted rock and chart rock ledge as shown on this survey.*

One AWOIS item was investigated. The charted reef, Awois Item #51884, extending north of Walter island was not found at the charted location. There is a reef ledge system extending NW of Walter island whose NW limit is defined by position No. 8186. The general depth in the area of the Awois item is consistently over 200m. *Latitude 57°18'39.95"N, longitude 133°17'42.05"W. Chart area according to this survey.*

For more information see the attached item investigation report form.

Dangers to Navigation ✓

Three dangers to navigation within the limits of this survey were reported to the Seventeenth Coast Guard District and DMAHTC. Copies of the radio message and correspondence are included in Appendix I of this report.

M. ADEQUACY OF SURVEY *See Section 3, 4 and 9 of EVMC Report.*

This survey is complete and adequate to supersede the T-Sheets, chart letters, and prior survey H-1996 ** in the common areas. *concur*

*** See section 4 of EVMC Report.*

N. AIDS TO NAVIGATION ✓

None.

O. STATISTICS ✓

<u>Vessel:</u>	<u>2123</u>	<u>2124</u>	<u>2125</u>	<u>2126</u>	<u>Total</u>
# of Pos	321	521	33	573	1448
NM Hydro	41.66	64.29	0	81.81	187.76

NM ² Hydrography	6.06
Velocity Casts	1
Detached Position	43
Tide Stations	3
Reference Numbers	19
Bottom Samples	27

P. MISCELLANEOUS ✓

Loran C comparisons were not required according to the Project Instructions.

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

The Coast Pilot current and predicted current comparisons were made in accordance with the Project Instructions. The current predictions were adequate and the descriptions accurate.

Q. RECOMMENDATIONS ✓

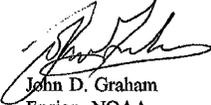
None.

R. REFERRAL TO REPORTS ✓

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

Title	Date Sent	Office
Spring 1993 Horizontal Control Report for OPR-O136-RA	May 1993	N/CG2333
Spring 1993 Electronic Control Data Package for OPR-O136-RA	March 1993	N/CG245
Spring 1993 Corrections to Echo Soundings Data Package for OPR-O136-RA	May 1993	N/CG245
Spring 1993 Coast Pilot Report for OPR-O136-RA	May 1993	N/CG245
Spring 1993 User Evaluation Report for OPR-O136-RA	May 1993	N/CG245

Respectfully Submitted,



John D. Graham
Ensign, NOAA

Approved and Forwarded,



Russell C. Arnold
Captain, NOAA
Commanding Officer

NOAA SHIP RAINIER
Item Investigation Report

AWOIS/Investigation #: 51884
Item Description: Reef extends 0.5 NM north of Walter Is.
Source: CL302/66 -- PMC LTR
Investigation Date: Apr 10 93 DN: 100 Time: 16:35 UTC
Position Number(s): 100m splits Pos Nos. 864-886 ; DP # 81866
Vessel(s): 2123
Corrections Applied: Velocity Draft Predicted Tides Pneumo-Cal.
Depth/Height: 1.5 meters

Position	Latitude	Longitude
Reported	<u>57°19'05.76"</u>	<u>133°17'14.18"</u>
Observed	<u>57°18'39.96"</u>	<u>133°17'42.04"</u>

Positioning Method: DGPS Falcen R/Az
Method of Investigation: Area was split to 100 meter line spacing in a 1000meter square about the reported Awois position

Findings: AWOIS 51884 is not present at the charted location. There is a reef ledge system extending NW of Walter island whose NW limit is defined by position No. 8186. The general depth in the area of the Awois item is consistently over 200m.

Charting Recommendation: Correct the reef's position using the survey information.
Delete charted note "Reefrep" and symbol.

Compilation Use Only	
CHART	APPLIED
17360	Reef

April 15, 1993

CONTROL STATIONS as of 13 Apr 1993

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
100	F	057:16:13.397	133:37:53.400	25	250	0.0	0.0	03/27/93		INDX(DGPS)
101	F	057:15:03.085	133:32:35.533	7	250	0.0	0.0	0	03/23/93	BILL POINT
102	F	057:18:17.883	133:31:16.082	7	250	0.0	0.0	5	03/23/93	VAL
200	0	057:17:57.880	133:27:52.297	0	254	0.0	0.0	03/23/93		ROBERT IS TR(FIXED-CAL.)
201	0	057:17:45.967	133:20:36.141	0	254	0.0	0.0	03/23/93		PORT HOUGHTON TR(FIXED-CAL.)
202	0	057:19:38.133	133:11:00.320	0	254	0.0	0.0	03/23/93		AUNT BEA BM 0 (FIXED-CAL.)
203	0	057:24:45.171	133:26:25.046	0	254	0.0	0.0	04/13/93		ENTRANCE ISLAND PELLING(FIXED-CAL.)

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

NOAA Ship RAINIER

April 15, 1993

**ADVANCE
INFORMATION**

Director
DMAHTC
Attn: MCNM
6500 Brookes Lane
Washington, DC 20315-0030

Dear Sir:

While conducting hydrographic survey operations in Southern Stephens Passage, Alaska, NOAA Ship RAINIER discovered three dangers to navigation. They have been reported to DMAHTCNAVWARN and the Seventeenth Coast Guard District. A copy of the correspondence describing the dangers is enclosed.

Sincerely,

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

Enclosures





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

NOAA Ship RAINIER

April 15, 1993

Commander
Seventeenth Coast Guard District
Post Office Box 25517
Juneau, AK 99802-5517

**ADVANCE
INFORMATION**

Dear Sir:

Attached is a confirmation copy of the radio message sent to your office regarding the dangers to navigation which I recommend for inclusion in the Local Notice to Mariners for the Seventeenth Coast Guard District. A copy of the chart showing the areas in which the dangers exist is also attached.

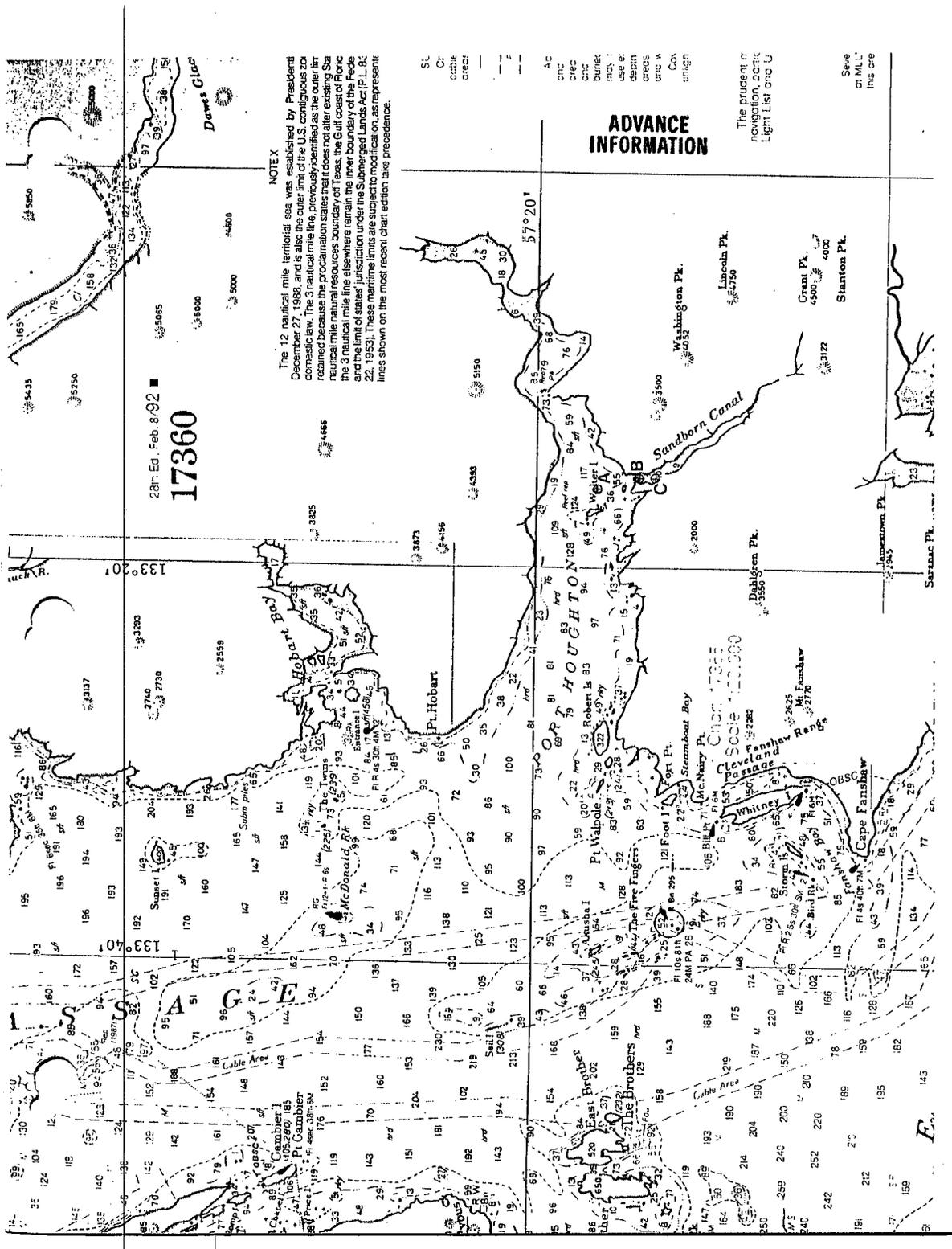
Sincerely,

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

Enclosures

cc: DMAHTC
N/CG221
PMC





28th Ed., Feb. 8, 92
17360

NOTE

The 12 nautical mile territorial sea was established by Presidential Decree 27, 1988, and is also the outer limit of the U.S. contiguous zone. The 3 nautical mile line, previously identified as the outer limit retained because the procedure for determining the outer limit of the 3 nautical mile natural resource zone is not yet complete. The 3 nautical mile line is shown for reference only. The boundary of the Federal and the limit of states' jurisdiction under the Seaward Lands Act (P.L. 85-624, 22, 1953). These maritime limits are subject to modification. Lines represent lines shown on the most recent chart edition take precedence.

ADVANCE INFORMATION

The present navigation, oceanic Light List and U

See at MIL: this are

- SL cable
- CF crest
- Ac cnc
- cnc cnc
- bunc cnc
- mo; use e
- ascn
- crcc
- cnc w
- Co
- unlight

P 14 Z APR 93
FM NOAA S RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCCNAVWARN WASHINGTON DC//MCNM//
INFO NOAA MOP SEATTLE WA
ACCT CM-VCAA

**ADVANCE
INFORMATION**

BT
UNCLAS

NOAA SHIP RAINIER HAS LOCATED 3 DANGERS TO NAVIGATION INSIDE PORT HOUGHTON, ALASKA (PROJECT OPR-0136-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10466. THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

CHARTS AFFECTED: 17360 28TH ED FEB 8/92 1:217,828 NAD 83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	CHART	DEPTH	LATITUDE	LONGITUDE	Pos No.
A.	SHOAL	17360	10 fms	57/18/22.98N	133/15/57.35W	3520
B.	SHOAL	17360	5 fms	57/17/17.28N	133/15/23.49W	8047
C.	SHOAL	17360	3 3/4 fms	57/16/49.84N	133/15/25.27W	1011

THIS IS ADVANCE INFORMATION SUBJECT TO OFFICE REVIEW. QUESTIONS CONCERNING THIS MESSAGE SHOULD BE DIRECTED TO THE CHIEF, PACIFIC HYDROGRAPHIC SECTION AT (206)526-6835. A LETTER WITH ATTACHED CHARTLET IS BEING MAILED TO CONFIRM THIS MESSAGE.

BT

APPROVAL SHEET

for

H-10466
RA-10-5-93

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

Russell C. Arnold
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

ORIGINAL

DATE: August 18, 1993

MARINE CENTER: Pacific

OPR: 0136

HYDROGRAPHIC SHEET: H-10466

LOCALITY: Sandborn Canal, Port Houghton,
Stephens Passage, Alaska

TIME PERIOD: April 6, 1993 - April 12, 1993

TIDE STATION USED: 945-1771 Port Houghton, Alaska
Lat. 57° 17.8'N Lon. 133° 21.2'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = -1.03 feet

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 14.3 feet

REMARKS: RECOMMENDED ZONING

1. Times and heights are direct on Port Houghton, Ak. (945-1771).

NOTE: Hourly heights for Port Houghton are tabulated on Greenwich Mean Time.

William M. Hayes
ACTING CHIEF, DATUMS SECTION



ORIGINAL

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

GEOGRAPHIC NAMES

H-10466

Name on Survey	ON CHART NO. 17360											
	A	B	C	D	E	F	G	H	K			
	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND McNALLY ATLAS	U.S. LIGHT LIST					
ALASKA (title)	X											1
HOUGHTON, PORT	X		X									2
RABBIT ISLAND			X									3
SANDBORN CANAL	X		X									4
WALTER ISLAND	X		X									5
												6
												7
												8
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												25

Approved:

Charles B. Huntington
Chief Geographer - N/C 2/25

DEC - 8 1993

NOAA FORM 77-27(H) (9-83)		U.S. DEPARTMENT OF COMMERCE			REGISTRY NUMBER	
HYDROGRAPHIC SURVEY STATISTICS					H-10466	
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		
DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS	
ACCORDION FILES	2					
ENVELOPES						
VOLUMES	2					
CAHIERS						
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						1448
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				129.0		129.0
VERIFICATION OF JUNCTIONS						
APPLICATION OF PHOTOBATHYMETRY						
SHORELINE APPLICATION/VERIFICATION						
COMPILATION OF SMOOTH SHEET				44.5		44.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS					6	6
EVALUATION OF SIDE SCAN SONAR RECORDS						
EVALUATION OF WIRE DRAGS AND SWEEPS						
EVALUATION REPORT					9	9
GEOGRAPHIC NAMES						
OTHER*						
*USE OTHER SIDE OF FORM FOR REMARKS						
TOTALS				223	15	238
Pre-processing Examination by D. Neander				Beginning Date 4/6/93	Ending Date 4/12/93	
Verification of Field Data by E. Domingo, R. Mayor				Time (Hours) 223	Ending Date 3/4/94	
Verification Check by J. Stringham, E. Domingo				Time (Hours) 23	Ending Date 3/10/94	
Evaluation and Analysis by R. Davies				Time (Hours) 15	Ending Date 3/29/94	
Inspection by D. Hill				Time (Hours) 2	Ending Date 4-6-94	

**EVALUATION REPORT
H-10466**

1. INTRODUCTION

Survey H-10466 is a basic hydrographic survey accomplished by the NOAA Ship *Rainier* under the following Project Instructions.

OPR-O136-RA, dated February 5, 1993

This survey was conducted in Stephens Passage, Alaska and covers a portion of Port Houghton. This survey includes Walter and Rabbit Islands and Sandborn Channel. The surveyed area extends from latitude 57/15/56N to latitude 57/20/11N, and from longitude 133/11/12W to longitude 133/19/00W. The shoreline in the area is characterized by rocky and gravel beaches, rock ledges and isolated islands and reefs offshore. The bottom consists of mud and shells. Depths range from zero along the shoreline to 233 meters offshore.

Predicted tides for Juneau, Alaska were used for the reduction of soundings during field processing. Approved hourly heights zoned from Port Houghton, Alaska, gage 945-1771 were used during office processing.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. NAD 83 is used as the horizontal datum for plotting and position computation. The offset values and sound velocity correctors are adequate. An accompanying computer printout contains the parameters and the correctors.

A digital file has been generated for this survey that includes categories of information required to comply with Hydrographic Survey Guidelines No. 52, Standard Digital Data Exchange Format, April 15, 1986. Certain descriptive information, however, may not be in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete information.

2. CONTROL AND SHORELINE

Sections H and I of the hydrographer's report and the Spring 1993 Horizontal Control Report for OPR-O136-RA, contain adequate discussions of horizontal control and hydrographic positioning.

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. The quality of 127 positions exceeded the limit in terms of HDOP. A review of the data, however, indicates

that none of these fixes are used to position dangers to navigation. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable.

The position of the horizontal control station used during hydrography is a 1993 field value based on NAD 83.

The smooth sheet and accompanying overlays are annotated with NAD 27 adjustment ticks based on values determined with NGS program NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: -1.234 seconds (-38.162 meters)
Longitude: 6.186 seconds (103.585 meters)

The year of establishment of control stations shown on the smooth sheet originates with the horizontal control records for this survey.

The following registered shoreline maps were compiled on NAD 83 and apply to this survey.

	<u>Photo Date</u>	<u>Scale</u>
TP-01387	June, 1988	1:20,000
TP-01388	June, August 1988	1:20,000
TP-01390	June, August 1988	1:20,000

The following shoreline change is depicted on the smooth sheet with a dashed red line and was transferred from the field sheet without supporting positional information. This revision is adequate to supersede the common photogrammetrically shoreline.

<u>Feature</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
HWL	57/17/24	133/16/05

3. HYDROGRAPHY

Except as noted below and elsewhere in this report, hydrography 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;

c. show the survey was properly controlled and soundings are correctly plotted.

The following isolated shoal soundings which differ from the surrounding soundings as much as 11 meters were not investigated for least depths.

<u>Sounding</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
4.9 meters	57/17/32.06	133/16/38.45
8.1 meters	57/17/31.15	133/16/20.40

Holidays exist in the following areas. These areas listed below are small inshore gaps in coverage near islets or the shoreline. These holidays do not degrade the usefulness of this survey for charting purposes.

<u>Latitude(N)</u>	<u>Longitude(W)</u>
57/17/30	133/16/00
57/17/33	133/16/36
57/17/24	133/15/40
57/17/21	133/15/47

4. CONDITION OF SURVEY

With the exception of the following, 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, March 1993 edition, except for the following.

In section M, the hydrographer claims this survey is adequate to supersede prior survey H-1996. However in section K the hydrographer acknowledges that a final comparison with this prior survey will be conducted during office processing. Unless an adequate comparison is completed by the hydrographer there is insufficient basis to claim the present survey supersedes a prior survey.

5. JUNCTIONS

Survey H-10466 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10465	1993	1:10,000	West
H-10467	1993	1:10,000	East

The junctions with surveys H-10465 and H-10467 are not complete. Depth curves depicted

The junctions with surveys H-10465 and H-10467 are not complete. Depth curves depicted on survey H-10466 are the metric equivalent of the fathom depth curve values depicted on chart 17360. There is excellent agreement between soundings, however, the depth curves shown on surveys H-10465 and H-10467 delineate different depths and, therefore, do not agree. Soundings have been transferred to survey H-10466 from both surveys to better portray the bottom in the common areas.

6. COMPARISON WITH PRIOR SURVEYS

H-1996(1889-92) 1:80,000

Survey H-1996 covers the entire area common to survey H-10466. There is an average difference in depths of four meters with extreme cases of 10 to 18 meters. These extremes occur on steeply sloping bottoms. In most cases, the prior soundings are shoaler. This area has experienced earthquakes, possible isostatic rebound and natural accretion and erosional processes. These processes, the different horizontal datums, the greater sounding coverage and relative accuracy of the data acquisition techniques account for the depth differences between the surveys.

There are no AWOIS items, which originate with the above mentioned prior surveys.

In accordance with Hydrographic Survey Guideline No. 39, the effects of the 1964 Prince William Sound earthquake were considered in the comparison of this survey. No reasonable adjustment value for prior soundings could be determined.

Survey H-10466 is adequate to supersede the prior survey within the common area.

7. COMPARISON WITH CHART

Chart 17360 23rd Edition, February 8, 1992; scale 1:217,828

a. Hydrography

Charted hydrography originates with the prior survey mentioned in section 6 and miscellaneous sources and requires no further discussion.

Survey H-10466 is adequate to supersede charted hydrography within the common area.

b. AWOIS

AWOIS item 51884 originates with a miscellaneous source. Refer to the hydrographer's report for discussion and disposition of this feature.

There are no controlling depths found within the survey area.

d. Aids to Navigation

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

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

The hydrographer reported three dangers to the U. S. Coast Guard. A copy of the report is attached. No additional danger to navigation reports were generated during office processing.

8. COMPLIANCE WITH INTRUCTIONS

Survey H-10466 adequately complies with the project instructions except where noted in this report.

9. ADDITIONAL FIELD WORK

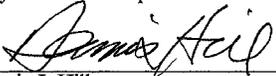
This is an adequate hydrographic survey. Additional field work on a low priority basis is recommended to investigate soundings for least depths and holidays, as noted in section 3 of this report.


C.R. Davies
Cartographer

APPROVAL SHEET
H-10466

Initial Approvals:

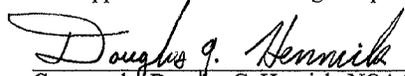
The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproval of charted data. The digital data have been completed and all revisions and processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts have been made and are included with the survey records. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.



Dennis J. Hill
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

Date: 4-6-94

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.

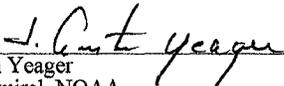


Commander Douglas G. Hennick, NOAA
Chief, Pacific Hydrographic Section

Date: 4/6/94

Final Approval

Approved:



J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

Date: 8/10/94

