

H110678

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-10-4-96
Registry No. ....	H-10678
LOCALITY	
State .....	Alaska
General Locality .....	Southern Stephens Passage
Sublocality .....	Eliza Harbor and Vicinity
.....	
19 96	
CHIEF OF PARTY CAPT Dean R. Seidel, NOAA	
LIBRARY & ARCHIVES	
DATE .....	APR 9 1997

**DIAGRAM 8201-4, 8252-3**

(A)

**Charts**

Ref: 161086, 161099, 161105-06

L-540/97

**PRODUCTS**

CP8

17365

17336

17363

17368

17320

17360

16016NC

**HYDROGRAPHIC TITLE SHEET**

H-10678

**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-10-4-96

State Alaska

General locality Southern Stephens Passage

Locality Eliza Harbor and Vicinity

Scale 1:10,000 Date of survey April 18 to May 1, 1996

Instructions dated 2/12/96, Change #1-3/7/96 Project No. OPR-0136-RA  
Change #2-4/11/96

Vessel NOAA Ship RAINIER, Launches (2122), (2123), (2124), (2125), (2126)

Chief of party CAPT Dean R. Seidel, NOAA

Surveyed by CAPT D. Seidel, LT M. Larsen, LT G. Noll, LT S. Lemke, LTJG M. Harrison,  
LTJG S. Meador, ENS N. Bennett, ENS J. Crocker, ST S. Baum

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

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: R. Davies Automated plot by HP Design Jet 650C

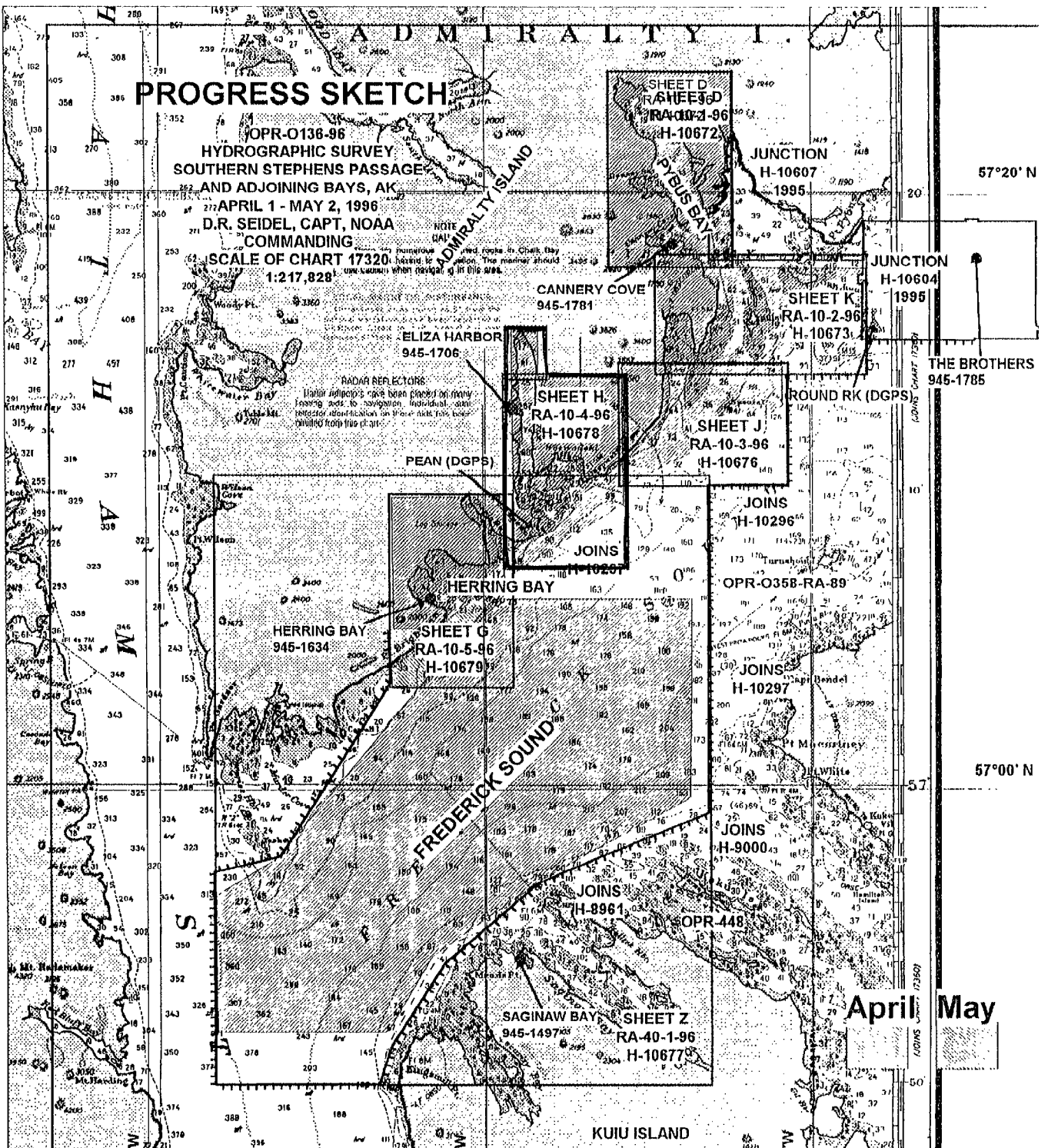
Verification by D. Doles, R. Davies

Soundings in fathoms ~~feet~~ at MHW MLLW and tenths

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.

*SA 4-9-97*

*AWOIS and SURVEY PWD 3/97*



**PROGRESS SKETCH**

OPR-0136-96  
 HYDROGRAPHIC SURVEY  
 SOUTHERN STEPHENS PASSAGE  
 AND ADJOINING BAYS, AK

27 APRIL 1 - MAY 2, 1996  
 D.R. SEIDEL, CAPT, NOAA  
 COMMANDING

SCALE OF CHART 17320  
 1:217,828

ELIZA HARBOR  
 945-1706

RADAR REFLECTORS  
 Harbor buoys have been placed on many  
 passing aids to navigation. Individual aid  
 reflector identification on these aids has been  
 omitted from this chart.

PEAN (DGPS)

HERRING BAY

HERRING BAY  
 945-1634

SHEET G  
 RA-10-5-96  
 H-10679

FREDERICK SOUND

SAGINAW BAY  
 945-1497

SHEET Z  
 RA-40-1-96  
 H-10677

KUIU ISLAND

SHEET D  
 RA-10-2-96  
 H-10672

SHEET H  
 RA-10-4-96  
 H-10678

SHEET J  
 RA-10-3-96  
 H-10676

SHEET K  
 RA-10-2-96  
 H-10673

April May

57°20' N

57°00' N

1:217,828



# Descriptive Report to Accompany Hydrographic Survey H-10678

Field Number RA-10-4-96

Scale 1:10,000

May 1996

NOAA Ship RAINIER

Chief of Party: Captain Dean R. Seidel, NOAA

## A. PROJECT ✓

This basic hydrographic survey was completed in Eliza Harbor and vicinity, Alaska, as specified by Project Instructions OPR-O136-RA dated February 12, 1996, and Change number 1 dated March 7, 1996. Survey H-10678 corresponds to sheet H as defined in the sheet layout included in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating existing nautical charts in Southeast Alaska. Requests for hydrographic surveys and updated charts have been received from the United States Coast Guard, the Southeastern Alaska Pilot's Association, and the Alaska Department of Transportation to support cruise, logging and commercial fishing industries.

## B. AREA SURVEYED ✓

The survey area is located in Eliza Harbor and the approaches to Woewodski Harbor. The survey's northern limit is bounded by the shoreline. The survey's western limit is 134° 18' 16" W, the eastern limit is 134° 10' 58" W, and the southern limit is 57° 06' 58" N. Data acquisition was conducted from April 18, 1996 (DN 109) to May 01, 1996 (DN 122).

## C. SURVEY VESSELS ✓

Data were acquired by RAINIER survey launches as noted below:

Vessel	EDP #	Operation
RA-2	2122	Hydrography Shoreline Verification
RA-3	2123	Hydrography Shoreline Verification
RA-4	2124	Hydrography Shoreline Verification
RA-5	2125	Hydrography Velocity Casts Bottom Samples

Vessel	EDP #	Operation
RA-6	2126	Hydrography Shoreline Verification

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

Most data were acquired with HDAPS. Some data were acquired with HYPACK for Windows ver. 5.9 (September 1995) with vessel 2122. All data were processed using HDAPS. A complete listing of software for HDAPS and HYPACK is included in Appendix VI. \*

#### E. SONAR EQUIPMENT ✓

Sonar equipment was not used on H-10678. *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. Sound velocity cast #7 was applied to all data collected during this survey. Sound velocity cast #8 was acquired within Eliza Harbor and compared to sound velocity cast #7. The velocity casts were compared and found to agree with a percent difference of less than 0.2.

Velocity Table #	Cast #	DN	Cast Position	Deepest Depth (m)	Applicable DN
7	7	115	57° 09' 12" N 134° 13' 06" W	194	109-122
	8	120	57° 11' 00" N 134° 17' 30" W	90	

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.

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". \*

\* Filed with the hydrographic data.

**Static Draft** ✓

A transducer depth was 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 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 through N/CG241 for the Juneau, Alaska reference station (945-2210). Tidal correctors as provided in the project instructions for H-10678 are:

Zone	Time Correction	Height Correction
19	-0 hr 12 min	X0.87
20	-0 hr 18 min	X0.86

Note: N/OES231 provided the above tide zones and correctors in a change to the Project Instructions dated April 4, 1996.

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

\* Filed with the hydrographic data.



Ketchikan, AK (945-0460) was used as the primary control station for datum determination at all subordinate stations.

RAINIER personnel installed Sutron 8200 digital tide gages at The Brothers (945-1785) on April 2, 1996, Herring Bay (945-1634) on April 9, 1996, Saginaw Bay (945-1497) on April 10, 1995, and Eliza Harbor (945-1706) on April 17, 1996. Each tide staff was connected to five bench marks during the opening level runs.

The tide stations operated with out any known problems or errors during data acquisition for this survey.

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 September 12, 1996 is attached.*

#### H. CONTROL STATIONS ✓ *See Eval Rpt., Section H.*

The horizontal datum for this project is NAD 83. First Order station ROUND ROCK, on Round Rock outside Pybus Bay, was the basis for control for this project as it was recovered in 1989 (OPR-O358-RA) and 1995. A static GPS vector from Second Order station PEAN, located at Point Napean, was used to check ROUND ROCK to 1:64,000. Reference mark measurements at PEAN confirmed that it had not been disturbed since its last recovery in 1989. The control stations are listed in <sup>this report</sup> Appendix III. See the OPR-O136-RA-96 Horizontal Control Report for more information.

#### I. HYDROGRAPHIC POSITION CONTROL ✓ *See Eval Rpt., Section 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.\* VHF differential reference stations were established at both ROUND ROCK and PEAN. The differences between the computed locations and the published positions were recorded by the MONITOR 3.0 program on DN 092-093 (ROUND ROCK) and DN 103-104 (PEAN) with a 1 meter offset between the Ashtech sensor and the reference GPS station. No multi-path or other systemic error was indicated for either reference station. The United States Coast Guard Differential GPS reference station at Gustavus, Alaska, was used for positioning of vessel 2122 during survey operations on DN 109, 115, 118, 119, and 120. No systematic differences in positions between the Gustavus Beacon and the VHF reference station are apparent.

##### 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, ROUND ROCK and PEAN or ROUND ROCK and GUSTAVUS 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 ROUND ROCK, PEAN and GUSTAVUS provided input for 12-hour daily comparisons. Some outliers were noted, but none indicated systematic or continuous errors in the GUSTAVUS beacon. Performance checks were performed daily while the beacon was in use. The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-O136-RA.

### Problems ✓

The reception of VHF correctors by vessel 2122 on DN 109, 115, 118, 119, and 120 was intermittent, so the Gustavus beacon was used for positioning. Sounding comparisons between these data and other boats' data indicated no systemic error in positioning.

*Data was analyzed during office processing and found to contain no significant problems. Concur J. SHORELINE See Eum Report, section 5.*

Shoreline maps from Coastal Mapping project CM-8810 was supplied by N/CS341 in Standard Digital Data Exchange Format (SDDEF). The digital file was projected to the survey grid with OPR-O136-RA geodetic parameters using program Shore version 2.0, provided by N/CS32, and stored in HYPACK (\*.DIG) format as well as HDAPS format. Shoreline was plotted at survey scale on 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. See the Shoreline Flow Chart and Limited Shoreline Verification "New Rules" memoranda in Appendix XII\* for more information regarding the NALL.

Predicted tides appeared to match actual conditions, leading the hydrographer to assume that manuscript compilation was either limited to features above MHW or that photography was flown at a mid-stage of tide. The manuscript high water line is the seaward extent of flora in most areas of this survey, with a fairly large gravel, sand, and rock beach fronting this foliage. Detached positions were acquired on manuscript features offshore of the NALL line to verify positions and determine extent of reefs and connecting ledges for items which were not fully represented on the manuscript.

Shoreline notes describing offshore features found and the nature of the foreshore are in the detached position folders and portrayed on the Detached Position and Bottom Sample final plot submitted with this survey. Field cartographic codes were assigned to detached positions; in general, rocks were assigned code 089 if near vertical datum and code 165 if submerged until their heights can be reduced in final processing. Heights are recorded in meters and decimeters and are corrected to predicted MLLW. All shoreline positions offshore of the NALL are plotted on the final field sheet. *Heights of rocks plotting offshore of the NALL line are shown on the smooth sheet in feet and have been corrected for approved tides. Heights of rocks plotting along the shoreline were not determined during survey operations. There were no revisions to the mean high water line.*

\* Filed with the hydrographic data.

## Charted Features ✓

Chart 17365, 11th Edition, March 23, 1991, 1:20,000 scale, (NAD 83) was enlarged to 1:10,000 for comparison purposes. Some positional differences are attributed to the enlargement process. Charted rocks offshore of the navigational area limit line were either identified as shoreline manuscript rocks or positioned as new rocks. Manuscript 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.

A charted rock in Woewodski Harbor located at charted position Lat. 57° 10' 20.8" N Lon. 134° 15' 05.3" W was not found during this survey. The location of the rock was surveyed using 25 meter line spacing with no indication of shoaling. A visual search of the area at low water with 5 to 10 meter water visibility proved unsuccessful. Kelp, observed by the hydrographer, growing on all rocks and reefs within the survey area, was not observed in the location of the charted rock. The hydrographer recommends that this rock be removed from the chart.

During this survey some disagreements between the charted shoreline and the shoreline maps as charted from Coastal Mapping project CM-8810 were observed by the hydrographer. The hydrographer recommends the shoreline from CM-8810 and this survey supersede the charted shoreline. *Do not CONCUR the charted rock will be brought forward from the prior survey, insufficient bottom coverage to supersede. Refer in CONCUR*

## K. CROSSLINES ✓

Crosslines agreed within 1 meter with mainscheme hydrography. Total mileage, including the shoreline buffer "NALL" was 24.8 nautical miles or 10.0% of total mainscheme hydrography.

## L. JUNCTIONS ✓ *See Eval Rpt., Section L.*

This survey junctions with survey H-10297, RA-20-2-89, 1:20,000, at the southern limit, H-10676, RA-10-3-96, 1:10,000, at the eastern limit and H-10679, RA-10-5-96, 1:10,000, at the western limit. Soundings were found to be in good agreement. Final comparison will be made at the Pacific Hydrographic Branch (PHB).

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

One prior survey covers this survey: H-1998, 1:10,000, 1889. The soundings from this prior survey were in agreement with the present survey, except on the numerous shoals where shoaler depths were frequently found during this survey due to modern equipment and larger survey scale. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.

**N. ITEM INVESTIGATIONS**

**Summary of AWOIS Items Assigned to this survey:**

<u>Number</u>	<u>Short Description</u>	<u>Search Used</u>	<u>Results</u>	<u>Day/Fix Number</u>
51877	Obstruction	Visual Search	Confirmed	121 / 40737

**Detailed Investigation Reports:**

**ITEM NO.:** AWOIS 51877  
 Rock Awash

**CHART NO.:** 17365 (1:20,000)  
**EDITION:** 11th Edition  
**CHART DATE:** March 23, 1991

**DESCRIPTION AND SOURCE OF ITEM:**

USGS Quad Sitka (A-1) 1948, rock awash scaled from chart. Subsequent photogrammetry (DM 10032-1989) did not show charted rock.

**SOURCE POSITION:** latitude (NAD27) 57° 10' 37.1" N (NAD83) 57° 10' 35.9" N  
 longitude 134° 15' 16.8" W 134° 15' 23.0" W

**SURVEY REQUIREMENTS:** Visual Search, Dive, Bottom Drag

**METHOD OF INVESTIGATION:**

Visual Search at low water, with complete bottom visibility.

**RESULTS OF INVESTIGATION:**

The rock was found during shoreline investigation and positioned by VN 2122, DN 115. The rock was later repositioned on DN 121 by VN 2124 since the first position was not a Detached Position. Detached position 40737 on DN 121 was used to position the rock as a shoaler point was located with the echosounder. Use position 22020 as a check position only.

*(0.9)<sup>rk</sup> at lat. 57/10/35.579N, long. 134/15/22.98W.*

**COMPARISON WITH PRIOR SURVEYS:**

No indication of the item exists on H-1998 (1889 1:10,000).

**COMPARISON WITH THE CHART AND CHARTING RECOMMENDATIONS:**

The hydrographer recommends ~~retaining~~ deleting the charted rock replacing it with a rock, *Submerged covers 0.9 fms* at MLLW, at the position of fix 40737 *at lat. 57/10/35.58N, long 134/15/22.98W.*

\* *The 0.9 submerged rock plots near Polivnoi Rocks (shown as 2 reef on smooth sheet) and cannot be shown at chart scale.*

**O. COMPARISON WITH THE CHART** *See Eval Report, section O.*

This survey was compared in the field to NOS chart 17365, 11th Edition, March 23, 1991, 1:20,000 scale, (NAD 83). In addition, an enlargement of this chart was used to place soundings converted to meters onto the boat sheet. The charted soundings were found to be in good agreement. Least depths from this survey were often shoaler due to modern survey equipment.

The hydrographer found no indications of the 4 f~~m~~ sounding located in Woewodski Harbor at charted position Lat. 57° 10' 23.1" N Lon. 134° 15' 08.1" W. The area was surveyed using 25 m line spacing with no indication of shoaling. The hydrographer believes the 4 f~~m~~ sounding is a misprint since comparison of the chart to the prior survey H-1998 shows the corresponding sounding on H-1998 to be 14 f~~m~~. The 14 f~~m~~ sounding from H-1998 is found in agreement with soundings of this survey. The hydrographer recommends removing the 4 f~~m~~ sounding and *concur* replacing it with soundings from this survey. Non-sounding features are discussed in Section J. Final comparisons will be made at PHB after application of real tide correctors.

### Dangers to Navigation ✓

Fifteen dangers to navigation within the limits of H-10678 were reported to the Seventeenth Coast Guard District, May 10, 1996. Copies of the correspondence can be found in Appendix I of this report.

### P. ADEQUACY OF SURVEY ✓

Survey H-10678 is complete and adequate to supersede prior soundings and features in their common areas. *concur*

### Q. AIDS TO NAVIGATION ✓

One aid to navigation exists within the survey area, Deepwater Point Light, which serves as an entrance light to Woewodski Harbor. See ~~Section Q, Descriptive Report. Insert, Appendix H.~~ *NOAA Form 16-40 (Attached)*

### R. STATISTICS ✓

NM Hydrography	241.6
Velocity Casts	2
Detached Positions	8
Selected Soundings	13,413
Bottom Samples	32
Tide Stations	4
NM <sup>2</sup> Hydrography	9.5
Dives	0

### S. MISCELLANEOUS ✓

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. Tidal currents in the North Passage to Eliza Harbor were observed between 3 to 4 knots on the max ebb and flood during the time of this survey. Secchi disk observations were performed during hydrographic data operations in this area on DN 121. General water visibility was 5-10 meters, which is common in this area before the spring plankton blooms, which usually occurs in late May.

**T. RECOMMENDATIONS** ✓

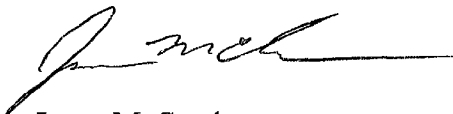
None

**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>
Spring 1996 Horizontal Control Report for OPR-O136-RA.	June, 1996	N/CS34
Spring 1996 Coast Pilot Report for OPR-O136-RA.	June, 1996	N/CS26
Project related data for OPR-O136-RA.	Incremental	N/CS34
Secchi Disk Observations for OPR-O136-RA	June, 1996	N/CS31

Respectfully Submitted,



James M. Crocker  
Ensign, NOAA

Approved and Forwarded,



Dean R. Seidel  
Captain, NOAA  
Commanding Officer

CONTROL STATIONS as of 19 Apr 1996 ✓

No	Type	Latitude	Longitude	H	Cart	Freq	Vel Code	MM/DD/YY	Station Name
1	F	057:15:35.178	133:56:12.977	17	250	0.0	0.0	04/01/96	ROUND ROCK, 1917
2	F	057:08:32.216	134:16:45.822	7	250	0.0	0.0	04/12/96	PEAN, 1917
3	F	057:15:59.415	134:05:00.129	14	250	0.0	0.0	04/15/96	GRAVE ISLAND, 1996 (Field Position)



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

May 9, 1996

Commander  
Seventeenth Coast Guard District  
Post Office Box 3-5000  
Juneau, Alaska 99802

**ADVANCE  
INFORMATION**

Dear Sir:

During the processing of hydrographic surveys H-10673, H-10676, and H-10678, in Southern Stephens Passage forty-five dangers to navigation have been discovered. These dangers affect the following charts:

<u>Chart</u>	<u>Edition/Date</u>	<u>Datum</u>
17320	11TH ED. JUN 01/91	NAD83
17360	29TH ED. JUL 09/94	NAD83
17363	11TH ED. APR 27/91	NAD83
17365	11TH ED. MAR 23/91	NAD83

It is recommended that these dangers to navigation be included in the Local Notice to Mariners.

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

Sincerely,

Dean R. Seidel  
Captain, NOAA  
Commanding Officer  
NOAA Ship RAINIER

Enclosure

cc: DMA/HTC  
PMC  
N/CS262





# ADVANCE INFORMATION

REGISTRY NUMBER H-10678

AFFECTED CHARTS: 17320 11TH ED. JUN 01/91 1:217828 NAD83  
17360 29TH ED. JUL 09/94 1:217,828 NAD83  
17363 11TH ED. APR 27/91 1:40,000 NAD83  
17365 11TH ED. MAR 23/91 1:20,000 NAD83

<u>ITEM</u>	<u>DANGER</u>	<u>DEPTH</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>
AE	ROCK	COVERS 2 3/4 FM	57/11/55.5	134/17/15.6
AF	ROCK	COVERS 3/4 FM	57/10/51.6	134/15/03.1
AG	SHOAL	COVERS 4 1/4 FM	57/10/51.1	134/14/33.1
AH	SHOAL	COVERS 2 1/2 FM	57/10/32.4	134/16/36.8
AI	ROCK	COVERS 2 FM	57/10/32.2	134/15/41.7
AJ	ROCK	COVERS 1 1/4 FM	57/10/24.2	134/15/24.0
AK	SHOAL	COVERS 1/2 FM	57/10/10.4	134/15/14.0
AL	ROCK	AWASH	57/10/06.5	134/14/04.7
AM	SHOAL	COVERS 2 1/2 FM	57/09/47.8	134/17/51.0
AN	SHOAL	COVERS 2 1/2 FM	57/09/35.6	134/16/57.6
AO	SHOAL	COVERS 1 1/4 FM	57/09/35.6	134/15/04.8
AP	SHOAL	COVERS 1 3/4 FM	57/09/21.0	134/15/36.7
AQ	SHOAL	COVERS 5 1/4 FM	57/08/54.7	134/15/40.1
AR	ROCK	COVERS 1 1/4 FM	57/08/35.7	134/16/28.6
AS	ROCK	COVERS 1 1/2 FM	57/07/50.4	134/18/12.1

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





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

January 23, 1997

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

Dear Sir:

During office review of hydrographic survey H-10678, Alaska, Southern Stephens Passage, Eliza Harbor and Vicinity, one rock and three shoal soundings were found and are considered potential dangers to navigation affecting the following chart.

<u>Chart</u>	<u>Edition/date</u>	<u>Datum</u>
17365	11th, 3/23/91	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  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

Enclosure

cc: DMA/HTC  
NCS/261



REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10678

Survey Title:           State:           ALASKA  
                          Locality:       SOUTHERN STEPHENS PASSAGE  
                          Sublocality:   ELIZA HARBOR AND VICINITY

Project Number: OPR-O136-RA, NOAA Ship Rainier

Survey Date:           April 18 - May 1, 1996

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

Chart affected:        17365 11th Edition/March 23, 1991, scale 1:20,000, NAD 83

<u>DANGER TO NAVIGATION</u>	<u>LATITUDE(N)</u>	<u>LONGITUDE(W)</u>
Rock awash	57/08/48.96	134/16/03.76
Shoal, covers 2 3/4 fathoms	57/10/03.67	134/14/59.73
Shoal, covers 8 1/2 fathoms	57/10/01.30	134/13/57.53
Shoal, covers 1 1/2 fathoms	57/13/55.93	134/17/55.12

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

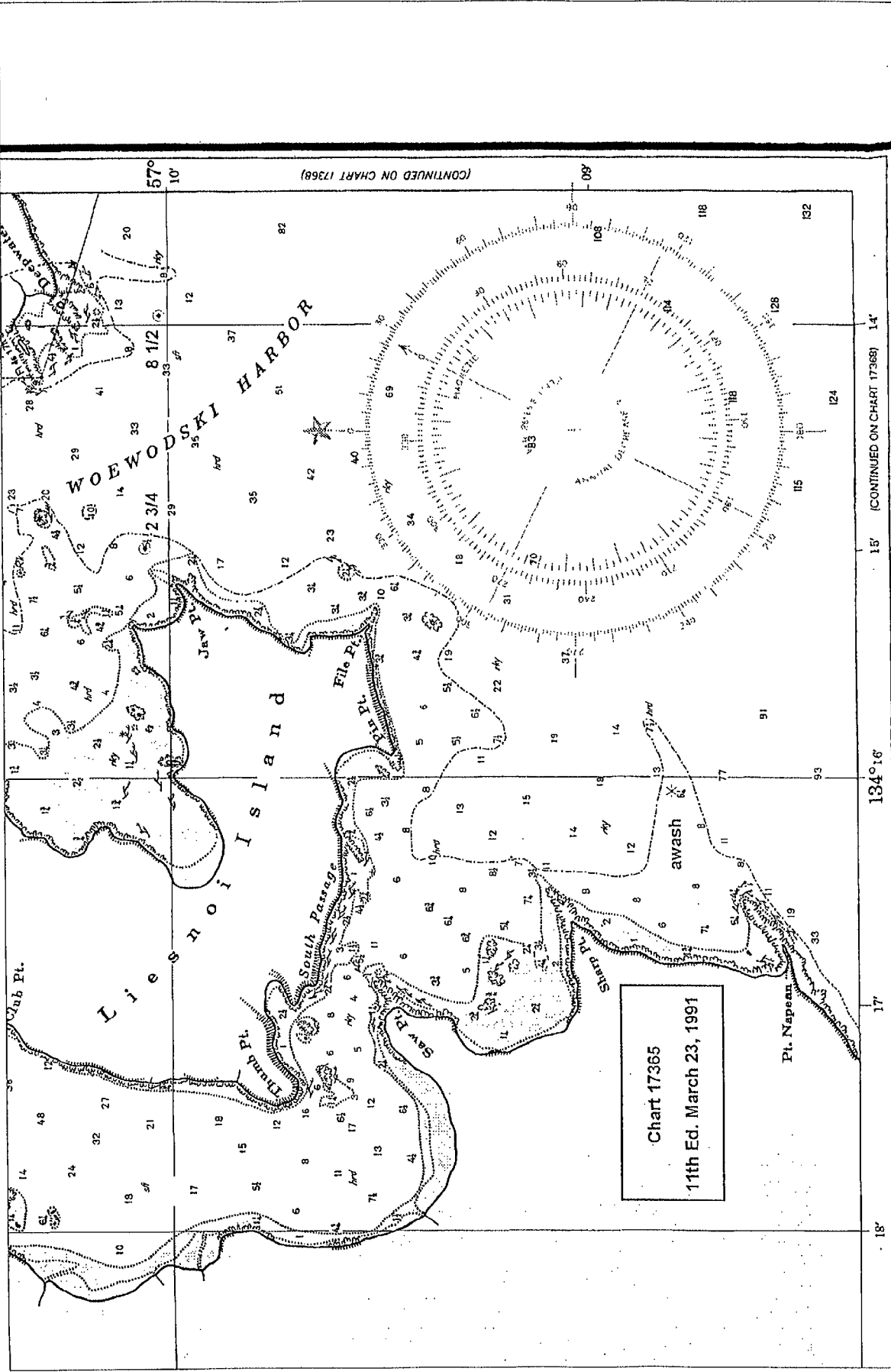


Chart 17365  
11th Ed. March 23, 1991

(CONTINUED ON CHART 17368)

15' (CONTINUED ON CHART 17368) 14'

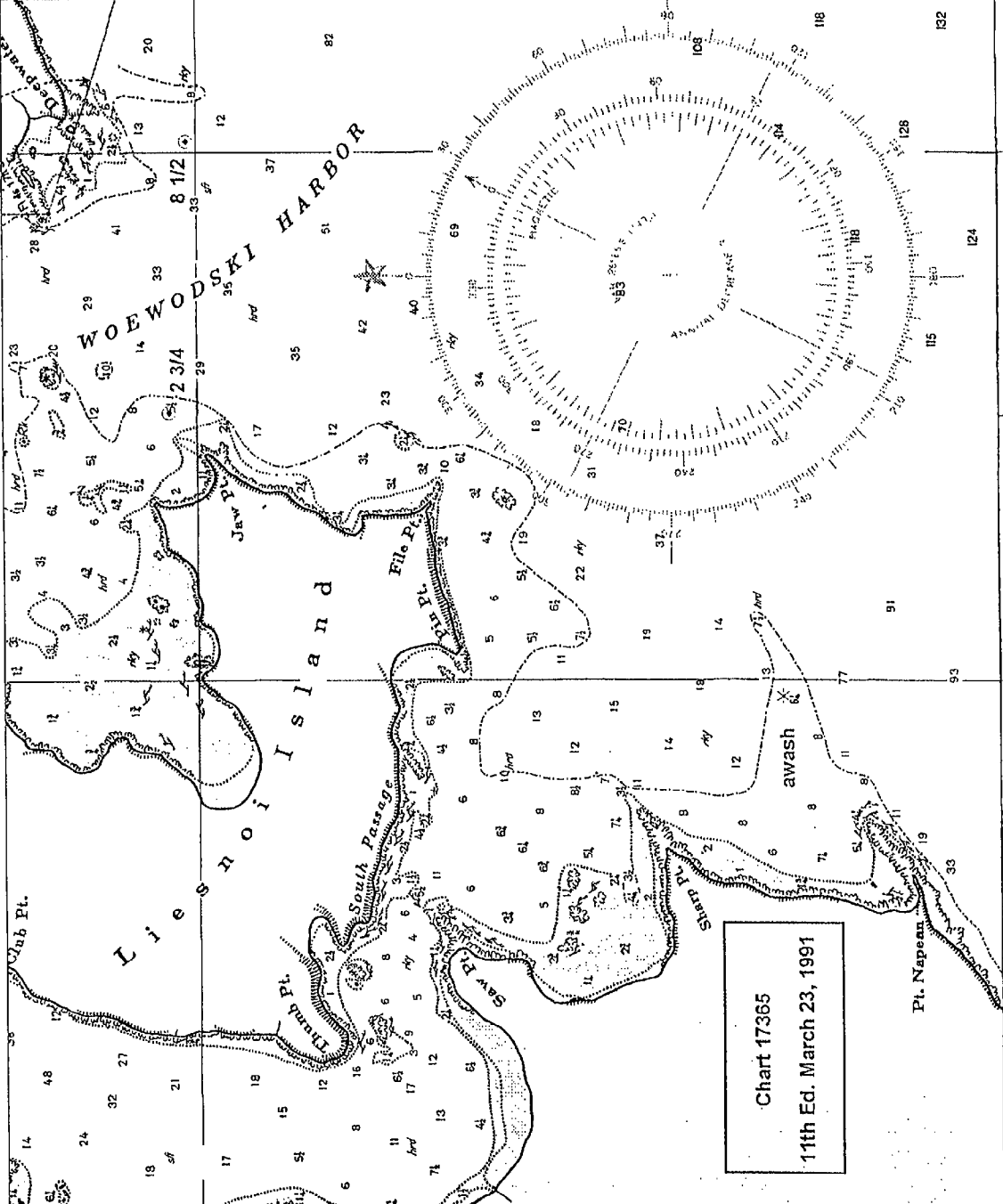
134°16'

17'

18'

57° 10'

08'



Woevodski Harbor

8 1/2

2 3/4

L'ieshoi Island

South Passage

Friend Pt.

Saw Pt.

File Pt.

Woevodski Harbor

awash

Pt. Napenn

Despina

Cab Pt.

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17365

17' (CONTINUED ON CAHRT 17360) 134°16'

18'

19'

15'

14'

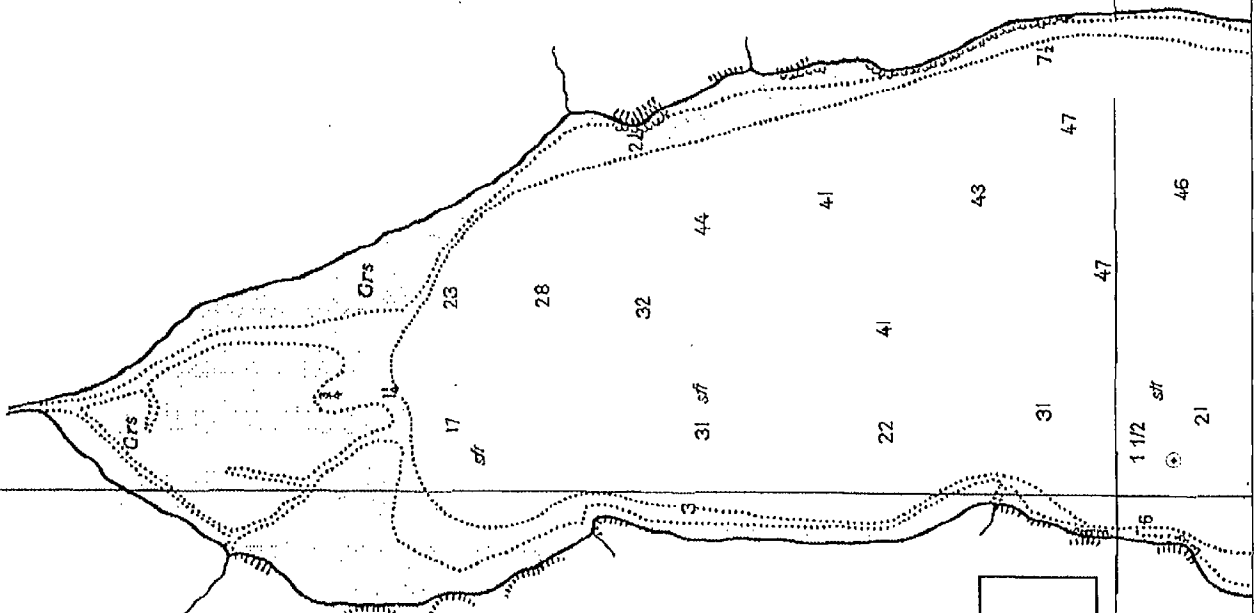


Chart 17365  
 11th Ed. Mar 23, 1991

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ALASKA - S

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APPROVAL SHEET

for

H-10678

RA-10-4-96

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

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



Dean R. Seidel  
Captain, NOAA  
Commanding Officer





UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
Office of Ocean and Earth Sciences  
Rockville, Maryland 20852

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**ORIGINAL**

**DATE:** September 12, 1996

**HYDROGRAPHIC BRANCH:** Pacific

**HYDROGRAPHIC PROJECT:** OPR-0136-RA

**HYDROGRAPHIC SHEET:** H-10678

**LOCALITY:** Eliza Harbor and Vicinity, Southern Stephens  
Passage, Alaska

**TIME PERIOD:** April 18 - May 1, 1996

**TIDE STATION USED:** 945-1634 Herring Bay, Frederick Sound, AK  
Lat. 57° 06.8'N Lon. 134° 22.8'W  
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 3.928 meters

**TIDE STATION USED:** 945-1706 Eliza Bay, Frederick Sound, AK  
Lat. 57° 11.3'N Lon. 134° 17.2'W  
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 4.039 meters

**TIDE STATION USED:** 945-1781 Cannery Cove, Pybus Bay, AK  
Lat. 57° 18.4'N Lon. 134° 08.0'W  
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 4.180 meters

**TIDE STATION USED:** 945-1785 The Brothers, Frederick Sound, AK  
Lat. 57° 17.7'N Lon. 133° 47.8'W  
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 4.229 meters



REMARKS: RECOMMENDED ZONING

Zone SEA25 -bounded by the polygon points:

LONGITUDE (W)	LATITUDE (N)
-134.119252	57.247369
-134.12829	57.278526
-134.17461	57.270584
-134.223011	57.18332
-134.002726	57.066095
-133.880569	57.090141
-134.119252	57.247369

Times are direct, and apply a X0.98 range ratio to heights using Cannery Cove, AK (945-1781).

Where data are not available for Cannery Cove, AK, times are direct, and apply a X1.02 range ratio to heights using Eliza Harbor, AK (945-1706).

Where data are not available for Eliza Harbor, AK, times are direct, and apply a X0.97 range ratio to heights using The Brothers, AK (945-1785).

Zone SEA26 -bounded by the polygon points:

LONGITUDE (W)	LATITUDE (N)
-134.002726	57.066095
-134.024114	57.019638
-134.360263	57.162783
-134.324654	57.262534
-134.282912	57.263669
-134.223011	57.18332
-134.002726	57.066095

Times and heights are direct using Eliza Bay, AK (945-1706).

Where data are not available for Eliza Bay, AK, times are direct, and apply a X1.03 range ratio to heights using Herring Bay, AK (945-1634).

page 3 of 3 pages for H-10678

Zone SEA27 -bounded by the polygon points:

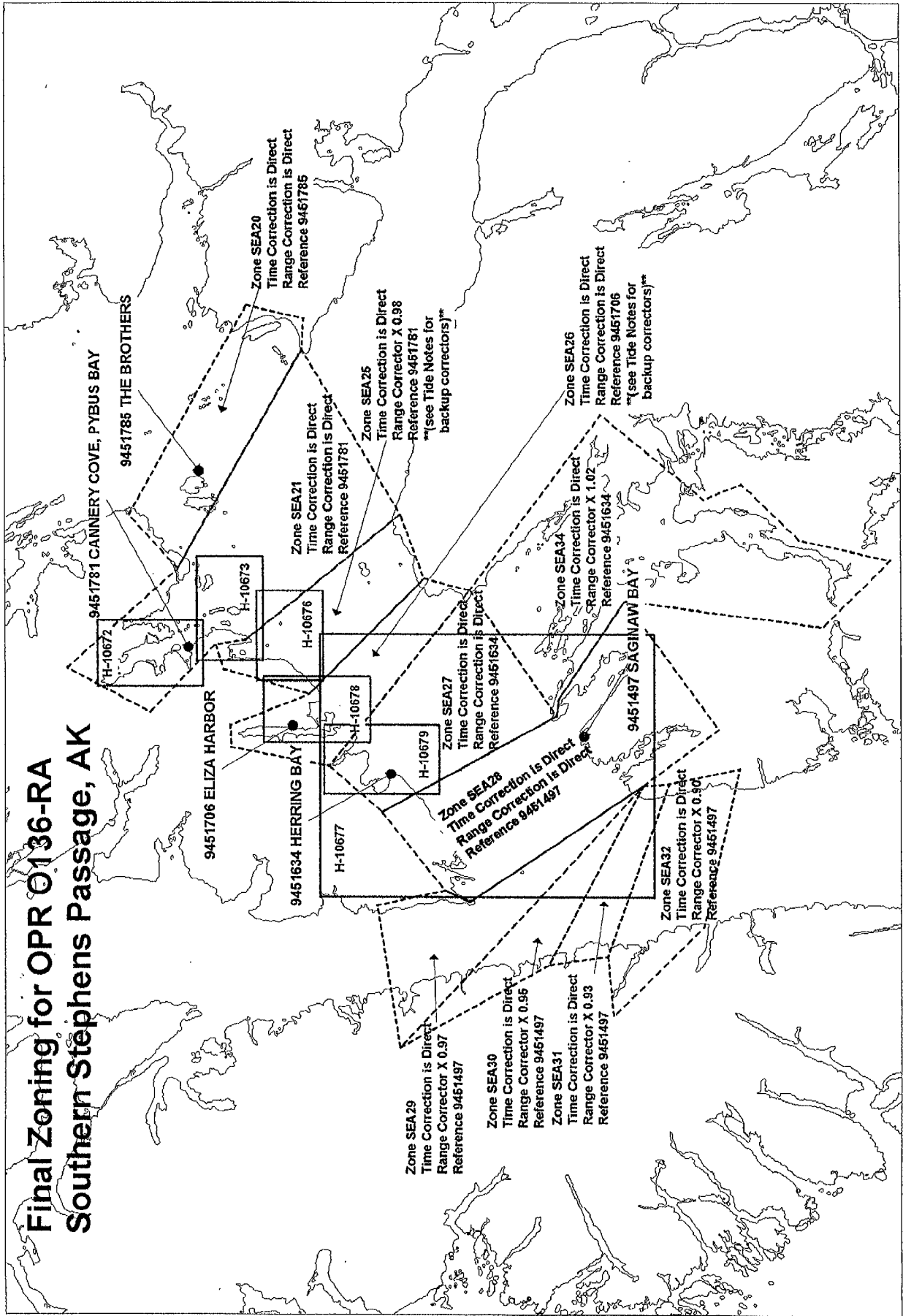
LONGITUDE (W)	LATITUDE (N)
-134.360263	57.162783
-134.447452	57.108927
-134.264348	56.931486
-134.024114	57.019638
-134.360263	57.162783

Times and heights are direct using Herring Bay, AK (945-1634).

**Note:** Times are tabulated in Greenwich Mean Time.

*William M. Gibson*  
CHIEF, DATUMS SECTION

# Final Zoning for OPR 0136-RA Southern Stephens Passage, AK



GEOGRAPHIC NAMES

H-10678

Name on Survey	CHART NO. 17305, 17308, 17300 CON U.S. QUADRANGLE MAPS FROM LOCAL INFORMATION ON LOCAL MAPS P.O. GUIDE OR MAP GRAND McNALLY ATLAS U.S. LIGHT LIST									
	A	B	C	D	E	F	G	H	K	
ADMIRALTY ISLAND	X		X							1
ALASKA (title)	X		X							2
BLUFF POINT	X		X							3
CLUB POINT	X		X							4
DEEPWATER POINT	X		X							5
ELIZA HARBOR	X		X							6
FILE POINT	X		X							7
FREDERICK SOUND	X		X							8
JAW POINT	X		X							9
LIESNOI ISLAND	X		X							10
LOG POINT	X		X							11
LOON POINT	X		X							12
NORTH PASSAGE	X		X							13
PIN POINT	X		X							14
PIO POINT	X		X							15
POLIVNOI ROCKS	X		X							16
POINT NAPEAN	X		X							17
SAW POINT	X		X							18
SHARP POINT	X		X							19
SOUTH PASSAGE	X		X			Approved				20
STEPHENS PASSAGE (title)	X		X							21
THUMB POINT	X		X			<i>Chris Colby</i>				22
WOEWODSKI HARBOR	X					Chief Geographer				23
						AUG 8 1996				24
										25

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
ACCORDION FILES	1		
ENVELOPES			
VOLUMES			
CAHIERS			
BOXES			

**SHORELINE DATA**

SHORELINE MAPS (List): DM-10031 and DM-10032

PHOTOBATHYMETRIC MAPS (List): NA

NOTES TO THE HYDROGRAPHER (List): NA

SPECIAL REPORTS (List): NA

NAUTICAL CHARTS (List): Chart 17363 11th ED., 4/27/91, Chart 17365 11th ED., 3/23/91, Chart 17368 5th ED

*OFFICE PROCESSING ACTIVITIES*

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS			
VERIFICATION OF SOUNDINGS			
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	117		117
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		22	22
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS	<b>TOTALS</b>	117	22
			139

Pre-processing Examination by <b>J. Stringham</b>	Beginning Date 5/22/96	Ending Date 5/23/96
Verification of Field Data by <b>D. Doles, E. Domingo, J. Stringham</b>	Time (Hours) 117	Ending Date 11/23/96
Verification Check by <b>R. Davies, B. Olmstead</b>	Time (Hours) 8	Ending Date 12/16/96
Evaluation and Analysis by <b>R. Davies</b>	Time (Hours) 22	Ending Date 1/22/97
Inspection by <b>B. Olmstead</b>	Time (Hours) 10	Ending Date 1/23/97

**EVALUATION REPORT  
H-10678**

**A. PROJECT**

The hydrographer's report contains a complete discussion of the Project information.

**B. AREA SURVEYED**

This survey was conducted in Southern Stephens Passage, Alaska. Specifically, Eliza Harbor and Woewodski Harbor between Point Napean and Deepwater Point on Admiralty Island.

The hydrographer has determined the inshore limits of safe navigation by defining a Navigable Area Limit Line throughout the survey area. Charted features and soundings inshore of this limit line have not been specifically addressed during survey operations and should be retained as charted. A page-size plot of the charted area depicting the limits of supersession accompanies this report as Attachment 1.

Depths range from 0 to 123 fathoms. The bottom consists primarily of mud, sand and shells.

**C. SURVEY VESSELS**

The hydrographer's report contains information relating to survey vessels.

**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, Versions 12 and 13.

At the time of the survey certification the format for the transmission of digital data had not been finally 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, created with the .dbf data and enhanced using the AutoCad system, is filed both in the AutoCad drawing format, i.e., .dwg; and in the more universally recognized graphics transfer format, .dxf. Copies of these data files will be retained at PHS 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 name text, line-type, 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 Guidelines No. 35 and No. 75.

---

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 on survey H-10678.

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

Sounding equipment is discussed in the hydrographer's report.

#### **G. CORRECTIONS TO SOUNDINGS**

Predicted tides for Juneau, Alaska were used for the reduction of soundings during field processing. Approved hourly heights zoned direct from Herring Bay, Eliza Bay, The Brothers, Frederick Sound and Cannery Cove, Pybus Bay, gages 945-1634, 945-1706, 945-1785 and 945-1781, were used during office processing. Soundings have been corrected for dynamic draft, actual tides and sound velocity. These reducers have been reviewed and are consistent with NOS specifications.

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

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

The positions of the horizontal control stations used during hydrography are published values based on NAD 83. The smooth sheet is annotated with a NAD 27 adjustment tick 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: -1.218 seconds (-37.667 meters)  
Longitude: 6.252 seconds (105.029 meters)

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

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

Differential GPS(DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. Several positions exceeded the limits in terms of horizontal dilution of precision (HDOP). A review of this data, however, indicates that none of these fixes are used to position dangers to navigation. NAD 83 is used as the horizontal datum for plotting and position computations.



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

## **J. SHORELINE**

Shoreline map DM-10031 and DM-10032, photography dated May 1989, scale 1:20,000 were compiled on NAD 83 and apply to this survey.

Shoreline drawn on the smooth sheet originates from 1:20,000 scale digital file provided by the Coastal Mapping Program. This file has been merged with the survey file during ACAD processing.

There were no MHW revisions on this survey.

## **K. CROSSLINES**

Crosslines are adequately discussed in the hydrographer's report.

## **L. JUNCTIONS**

Survey H-10678 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10297	1989	1:20,000	South
H-10676	1996	1:10,000	East
H-10679	1996	1:10,000	West

The junction with surveys H-10676 and H-10679 are complete. The junction with survey H-10297 was not formally completed since this survey was previously processed and forwarded for charting. Soundings are in good agreement.

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

H-1998(1889) 1:10,000  
H-1996(1889-92) 1:80,000  
H-2151(1892) 1:20,000  
H-2333(1897) 1:80,000

The surveys listed above cover the entire area of the present survey. Comparison with the present survey generally reveals differences of 1 to 4 fathoms between survey depths. There appears to be no consistent pattern of shoaling or an increase of depths. These differences can be attributed to greater sounding coverage and relative accuracy of the data acquisition

techniques. All critical depths originating from the prior surveys were adequately addressed during survey operations. However most ledges, reefs and isolated rocks from these prior surveys fall within the NALL limit line and should be retained as charted.

Except for the submerged rock brought forward from prior survey H-1998, at latitude 57/10/20.8N, longitude 134/15/05.3W, survey H-10678 is adequate to supersede the prior surveys within the common area. See Attachment 1 for the area of supersession. ✓

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

There was one AWOIS item within the survey area. It was adequately addressed in the Descriptive Report, section N.

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

Survey H-10678 was compared with the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
17363	11th	April 27, 1991	1:40,000	NAD 83
17365	11th	March 23, 1991	1:20,000	NAD 83
17368	5th	November 4, 1995	1:40,000	NAD 83

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

Charted hydrography originates with the prior survey mentioned in section M. The prior survey is discussed in section M and requires no further discussion.

Survey H-10678 is adequate to supersede charted hydrography within the common area. See Attachment 1 for the area of supersession. ✓

##### **b. Dangers to Navigation**

Fifteen dangers to navigation were reported to the USCG, DMAHTC and N/CS 261 on May 9, 1996. Four additional dangers to navigation were found during office processing. Copies of the reports are attached.

#### **P. ADEQUACY OF SURVEY**

Hydrography is adequate:

- a. delineate the bottom configuration, determine least depth, and draw the standard curves;
- b. reveal there are no significant discrepancies or anomalies requiring further investigations;

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 is one fixed aid to navigation located within the survey area. It was located and serves its intended purpose.

There are no charted landmarks or features that would be of landmark value within the survey area.

#### **R. STATISTICS**

Statistics are itemized in the hydrographer's report.

#### **S. MISCELLANEOUS**


Miscellaneous information is found in the hydrographer's report. There were no additional miscellaneous items noted during office processing.

#### **T. RECOMMENDATIONS**

This is a good hydrographic survey. Additional field work is recommended on a low priority basis to investigate the submerged rock mention in section J of the hydrographer's report and section M of this report.

#### **U. REFERRAL TO REPORTS**

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

  
C.R. Davies  
Cartographer



APPROVAL SHEET  
H-10678

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: 1/23/97  
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: 1/25/97  
Kathy Timmons  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

\*\*\*\*\*

Final Approval

Approved:

Andrew A. Armstrong III Date: Apr 8, 1997  
Andrew A. Armstrong III  
Captain, NOAA  
Chief Hydrographic Surveys Division

