

H10673

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-10-2-96
Registry No.	H-10673
LOCALITY	
State	Alaska
General Locality	Southern Stephens Passage
Sublocality	Southern Approaches to Pybus Bay
1996	
CHIEF OF PARTY CAPT Dean R. Seidel, NOAA	
LIBRARY & ARCHIVES	
DATE	MAY 29 1997

DIAGRAM 8201-4

Ⓐ

Ref: Bp: 161499, L-673/97

PRODUCTS

17363

17320

17360

16016NC

HYDROGRAPHIC TITLE SHEET

H-10673

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-10-2-96

State Alaska

General locality Southern Stephens Passage

Locality Southern Approaches to Pybus Bay

Scale 1:10,000 Date of survey April 3 to April 27, 1996

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

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 S. Maenner, ENS E. Christensen, ENS N. Bennett, ENS J. Becker, ENS J. Crocker, SST J. Jacobson
Soundings taken by echo sounder, ~~hand lead~~ ^{Dives} DSF-6000N, Pneumatic Depth Gage

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

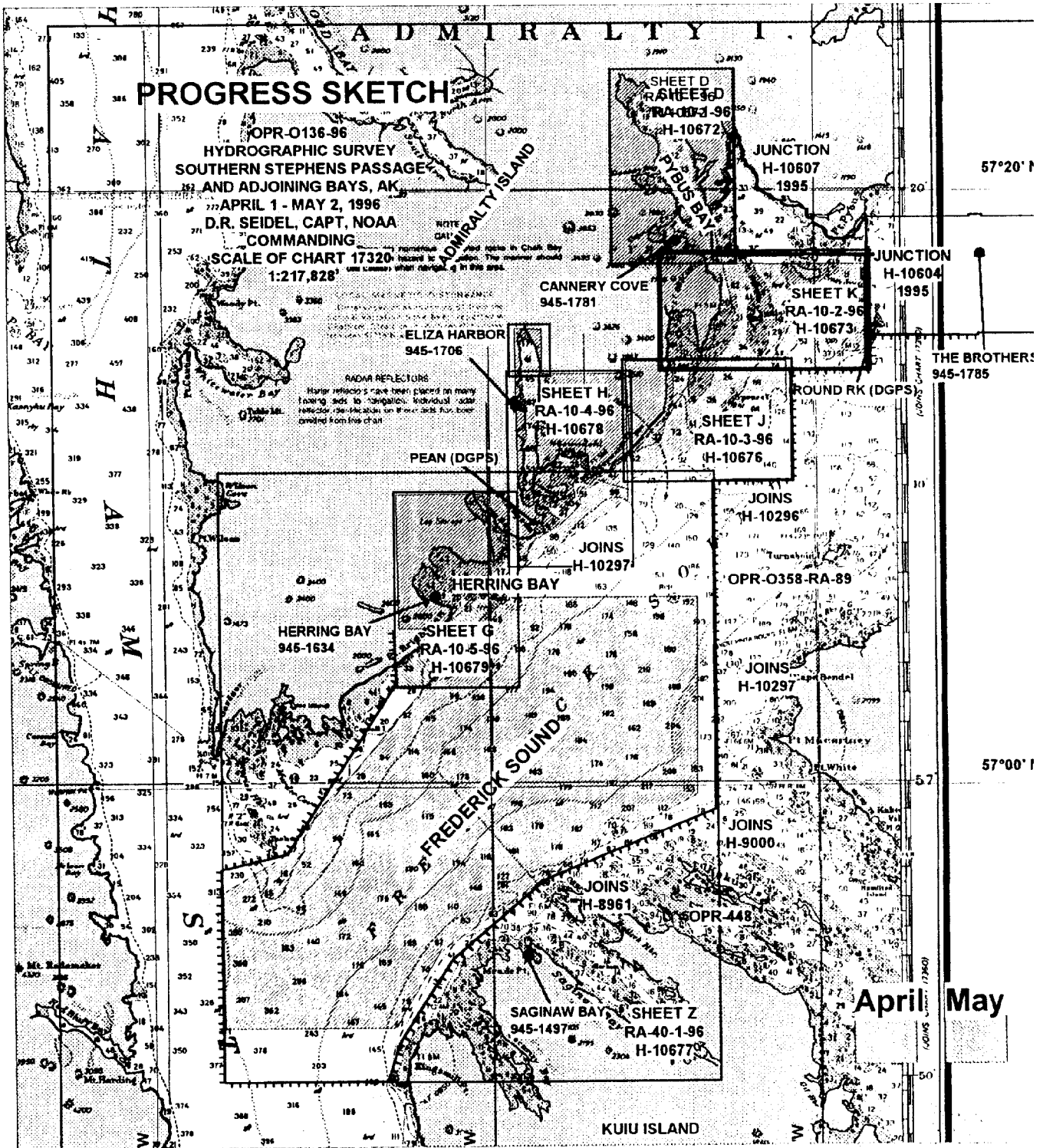
Soundings in fathoms ~~xxx~~ at ~~MLW~~ MLLW and tenths

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.

* Change No. 2 dated April 11, 1996

SL 5-29-97 AWOIS and SURF - RWD 5/97



PROGRESS SKETCH

OPR-0136-96
HYDROGRAPHIC SURVEY
SOUTHERN STEPHENS PASSAGE
AND ADJOINING BAYS, AK
APRIL 1 - MAY 2, 1996
D.R. SEIDEL, CAPT, NOAA
COMMANDING

SCALE OF CHART 17320
1:217,828

NOTE: Radar reflectors were placed in many locations in Chalk Bay, Eliza Harbor, and Pean (DGPS) to aid in navigation. The manner should be noted on the chart. Radar reflectors were placed in many locations in Chalk Bay, Eliza Harbor, and Pean (DGPS) to aid in navigation. The manner should be noted on the chart.

ELIZA HARBOR
945-1706

CANNERY COVE
945-1781

JUNCTION
H-10607
1995

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

JUNCTION
H-10604
1995

THE BROTHERS
945-1785

ROUND RK (DGPS)

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

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

PEAN (DGPS)

JOINS
H-10296

JOINS
H-10297

HERRING BAY

HERRING BAY
945-1634

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

OPR-0358-RA-89

JOINS
H-10297

57°00' N

FREDERICK SOUND

JOINS
H-9000

JOINS
H-8961

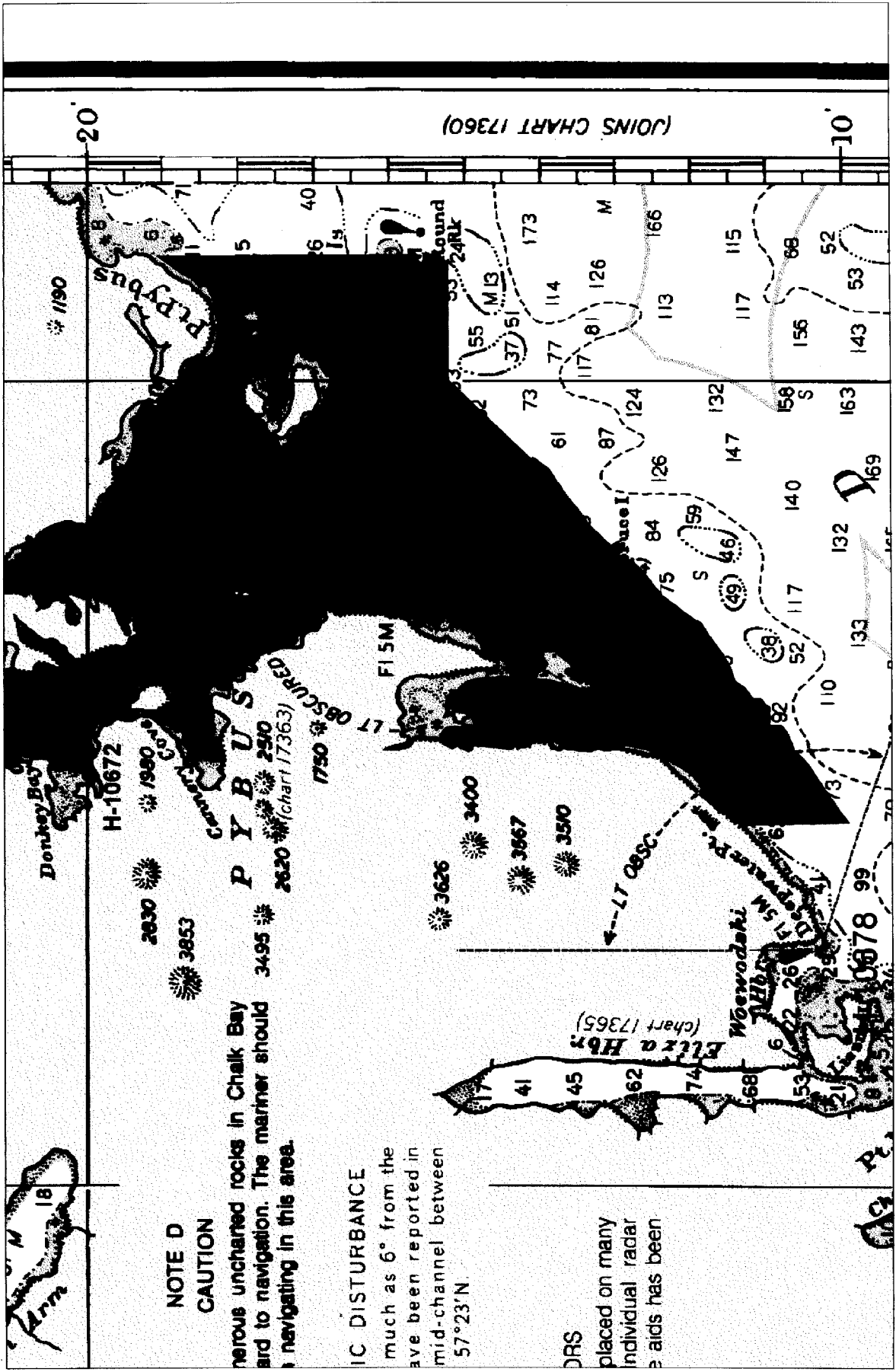
OPR-448

SAGINAW BAY
945-1497

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

April May

KUIU ISLAND



**NOTE D
CAUTION**

Perous uncharted rocks in Chalk Bay
ard to navigation. The mariner should
navigating in this area.

IC DISTURBANCE

much as 6° from the
ave been reported in
mid-channel between
57°23'N

DRS

placed on many
individual radar
e aids has been

(JOINS CHART 17360)

(chart 17365)

(chart 17363)

Descriptive Report to Accompany Hydrographic Survey H-10673

Field Number RA-10-2-96

Scale 1:10,000

April 1996

NOAA Ship RAINIER

Chief of Party: Captain Dean R. Seidel, NOAA

A. PROJECT ✓

This basic hydrographic survey was completed in Southern Approaches to Pybus Bay, Alaska, as specified by Project Instructions OPR-O136-RA dated February 12, 1996, and Change No. 1 dated March 7, 1996 and Change No. 2 dated April 11, 1996. Survey H-10673 corresponds to sheet K 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 ✓ See Eval Rpt., section B

The survey area is located in the southern approaches of Pybus Bay. The survey's western limit is bounded by the shoreline. The survey's northern limit is 57° 18' 00" N,* the southern limit is 57° 14' 10" N and the eastern limit is 133° 56' 54" W. Data acquisition was conducted from April 3, 1996 (DN 094) to April 27, 1996 (DN 118). * The northern limit is situated mostly along latitude 57° 17' 45" N.

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 Sound Velocity Casts Bottom Samples Shoreline Verification

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. * Dates of Survey are from April 3-27, 1996. There was no data collected in 1995 that affects this survey.

E. SONAR EQUIPMENT ✓

Sonar equipment was not used on H-10673. 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 ✓

Sound Velocity

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

Velocity Table #	Cast #	DN	Cast Position	Deepest Depth (m)	Applicable DN
2	2	099	57° 15' 46" N 133° 57' 56" W	192	094-104
5	5	109	57° 14' 13" N 134° 02' 20" W	152*	105-118

* Sound velocity cast number 5 extrapolated to 151.9 m. To accommodate survey depths, the table was deepened to 156.0 m.

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, ver 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". *

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 the spring of 1996. Calibration forms are included with project data for OPR-O136-RA. Bar checks were performed periodically and served as a functional check of the DSF-6000N.

Tide Correctors ✓

Predicted tides for the project were provided on diskette by N/OES334 through N/CG241 for the Juneau, Alaska reference station (945-2210). Tidal correctors as provided in the project instructions for H-10673 are:

Zone	Time Correction	Height Correction
18	-0 hr 6 min	X0.88
19	-0 hr 12 min	X0.87

Note: N/OES231 provided the above tide zones and correctors in an unofficial change to the Project Instructions dated April 4, 1996 (included in Miscellaneous Correspondence). The majority of this survey is in Zone 19 with the northwestern corner of the survey in Zone 18. Since this change was received after data collection for this survey had begun, the hydrographer used Zone 19. Change No 2. explains predicted tide zoning in detail.

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 an 8200 digital gage at Cannery Cove, Pybus Bay (945-1781) on April 1, 1996, and The Brothers (945-1785) on April 2, 1996. Each tide staff was connected to five bench marks during the opening level runs on April 1-2, 1996. Both tide gages collected data continuously without problems during data acquisition. After data collection was completed, closing levels were conducted at Cannery Cove, Pybus Bay on April 27, 1996 and The Brothers on May 2, 1996.

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 Sept 12, 1996 is attached.*

H. CONTROL STATIONS *See Evac Report, 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 ^{this report} Appendix III. See the OPR-O136-RA-96 Horizontal Control Report for more information.

I. HYDROGRAPHIC POSITION CONTROL ✓ *See Evac Report, 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 data printouts. *A VHF differential reference station was established at ROUND ROCK. The difference between the computed location and the published position was recorded by the MONITOR 3.0 program on DN 092-093 with a 1 meter offset between the Ashtech sensor and the reference GPS station. No multi-path or other systemic error was indicated. The United States Coast Guard Differential GPS reference station at Gustavus, Alaska, was used for positioning of vessel 2122 during development on DN 102. 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 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 two stations at ROUND ROCK and GUSTAVUS provided input for periodic comparisons.

* Filed with the hydrographic data.

Some outliers were noted, but none indicated systematic or continuous errors in the GUSTAVUS beacon. Performance checks were performed periodically 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 102 and 103 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. *Concur. Data was analyzed during office processing and found to contain no significant problems.*

J. SHORELINE *See final report, section J.*

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.

Observing that the predicted tides appeared to match actual tidal conditions, the hydrographer assumed 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 sloping rocky ledges fronting this foliage. There are a number of islet and rock groups which are delineated by the NALL and in most cases manuscript rocks are high points of ledges. The features inside the NALL are connected by ledges and gravel bars at mean lower low water. Detached positions were acquired on some manuscript features offshore of the NALL to verify positions.

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 limit 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 waterline.

* Filed with the hydrographic data

Charted Features ✓

Chart 17363, 11th Edition, April 27, 1991, 1:40,000 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.

K. CROSSLINES ✓

Crosslines agreed within 1 meter with mainscheme hydrography. Total mileage, including the shoreline buffer "NALL" was 51.8 nautical miles or 15.9% of total mainscheme hydrography.

L. JUNCTIONS *See Final Report, section L.*

This survey junctions with surveys: H-10672 (1:10,000, 1996) and H-10607 (1:10,000, 1995) at the northern limit, H-10604 (1:10,000, 1995) at the eastern limit and H-10676 (1:10,000, 1996) at the southern limit. Soundings were found to be in general agreement. Final comparison will be made at the Pacific Hydrographic Branch (PHB).

M. COMPARISON WITH PRIOR SURVEYS *See Final Report, section M*

Four prior surveys were compared: H-2002 (1:20,000, 1889), H-4511A (1:20,000, 1925-1926) and H-4511B WD (1:20,000, 1925-1926). *RAINIER found that only H-4511A was useful due to type and age of the prior surveys. The soundings from this most recent 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. * And H-1996 (1889-92) 1:80,000

N. ITEM INVESTIGATIONS ✓

Survey H-10673 contained seven AWOIS items described below:

Summary of Items Investigated:

<u>Number</u>	<u>Short Description</u>	<u>Search Used</u>	<u>Results</u>	<u>Day/Fix Number</u>
51203	Sounding	Echo Sounder	Confirmed	103 / 60911+1
51204	Sounding	Echo Sounder	Confirmed	103 / 60911+1
51206	Sounding	Echo Sounder	Confirmed	107 / 60986+0
51208	Sounding	Visual	Confirmed	102 / 60502+1
51209	Sounding	Visual	Confirmed	See 52108
51843	Obstruction	Visual	Confirmed	099 / 50259+8
52163	Sounding	Visual	Confirmed	099 / 60284+0

Detailed Investigation Reports:

ITEM NO.:

AWOIS 51203 ✓

Sounding

CHART NO.:

17363 (1:10,000)

EDITION:

11th Edition

CHART DATE:

April 27, 1991

DESCRIPTION AND SOURCE OF ITEM:

AWOIS item 51203 originated from survey H-4511B WD (1925-1926) as a 44 ft (7.3 fm) sounding. This sounding was not charted. Control on this survey was indicated as poor in the descriptive report. Survey H-4511A shows a 7.8 fm sounding in approximate area as the sounding listed above.

SOURCE POSITION:

NAD83

SE Alaska Datum

latitude 57° 14' 27.8" N

57° 14' 29.0" N

longitude 134° 03' 33.2" W

134° 03' 27.0" W

SURVEY REQUIREMENTS:

Echo Sounder Development, Diver Investigation, Bottom Drag

SEARCH RADIUS:

100 meters

METHOD OF INVESTIGATION:

An echo sounder development was conducted using 25 m spacing over the entire search area of AWOIS items 51203 and 51204. The shoal was further developed using a grid pattern with 10 m line spacing. A diver investigation was also conducted.

RESULTS OF INVESTIGATION

A series of three bedrock ridges were found by the divers. The shoal was identified by the divers but, unfortunately, the pressure from the MOD III was recorded incorrectly. Because of the extremely strong currents, the dive was not repeated. Echo sounder development conducted over the position that the divers identified as the shoalest, verified that VN 2126 on DN 102^H at position 60911+1 had determined the least depth of 2.4 meters at MLLW, based on predicted tides. The divers reported depths of approximately 20 feet (5.9 m) on personal dive depth gauges, which based on the tide corrector (-3.0 m), would correct to 2.9 m which is roughly equivalent to the findings of the echo sounder development. Position 60911+1 at Lat. 57°14'31.8"N, Long. 134°03'37.8"W, plots as a 1.3 FM RK based on final application of all correctors.

COMPARISON WITH PRIOR SURVEYS:

See Description and Source of Item.

COMPARISON WITH THE CHART AND CHARTING RECOMMENDATIONS:

Chart comparison revealed that the position of this covered rock is the most offshore danger of the foul area which extends to the south of Elliot Island. The hydrographer recommends charting the 1 1/4 fathom rock at latitude 57° 14' 31.8" N, longitude 134° 03' 37.8" N. *Concur*

(1.3 Fathom)

This rock was reported as a danger to navigation. *Concur*

ITEM NO.: AWOIS 51204 ✓
Sounding

CHART NO.: 17363 (1:10,000)
EDITION: 11th Edition
CHART DATE: April 27, 1991

DESCRIPTION AND SOURCE OF ITEM:

AWOIS item 51204 originated from survey H-4511B WD (1925-1926) as a 36 ft (6 fm) sounding. This sounding was not charted. Control on this survey was indicated as poor in the descriptive report.

SOURCE POSITION:

	NAD83	SE Alaska Datum
latitude	57° 14' 30.8" N	57° 14' 32.0" N
longitude	134° 03' 44.2" W	134° 03' 38.0" W

SURVEY REQUIREMENTS: Echo Sounder Development, Diver Investigation, Bottom Drag

SEARCH RADIUS: 100 meters

METHOD OF INVESTIGATION:

An echo sounder development was conducted using 25 m spacing over the entire search area of AWOIS items 51203 and 51204. The shoal was further developed using a grid pattern with 10 m line spacing. A diver investigation was also conducted.

RESULTS OF INVESTIGATION

See AWOIS 51203. *Depths of 3-7 fathoms were found in the area of AWOIS item 51204.*

COMPARISON WITH PRIOR SURVEYS:

See Description and Source of Item

COMPARISON WITH THE CHART AND CHARTING RECOMMENDATIONS:

See AWOIS 51203. *(1/4 Rk) Chart area of AWOIS items 51203 / 51204 with information as found by the present survey.*

ITEM NO.: AWOIS 51206 ✓
Sounding

CHART NO.: 17363 (1:10,000)
EDITION: 11th Edition
CHART DATE: April 27, 1991

DESCRIPTION AND SOURCE OF ITEM:

AWOIS item 51206 originated from survey H-4511B WD, a 1925-1926 wire drag survey as a 63 ft sounding; the wire drag cleared 52 ft. The sounding is charted as a 10 fm. Control on this survey was indicated as poor in the descriptive report.

SOURCE POSITION:

	NAD83	NAD27
latitude	57° 15' 33.8" N	57° 15' 35.0" N
longitude	134° 02' 12.7" W	134° 02' 06.5" W

SURVEY REQUIREMENTS: Echo Sounder Development, Diver Investigation, Bottom Drag

SEARCH RADIUS: 100 meters

METHOD OF INVESTIGATION:

An echo sounder development was conducted using 25 m line spacing over the entire search area. A ridge which runs north-south was identified. A development was conducted along the ridge using 10 m line spacing.

RESULTS OF INVESTIGATION:

Echo sounder development by VN 2125 on DN 108 determined a least depth of 19.0 meters (10 1/4 fm) at position 50409+1.

COMPARISON WITH PRIOR SURVEYS:

See Description and Source of Item.

COMPARISON WITH THE CHART AND CHARTING RECOMMENDATIONS:

The chart shows a 10 fathom sounding. The hydrographer recommends ^{removing} retaining the 10 fm sounding at latitude 57° 15' 33.8" N, longitude 134° 02' 12.7" W. *and charting a 10 1/4 fm at lat. 57/15/32.69 N, long. 134/02/15.84 W*

Because the least depth of this feature by the present survey is deeper than the presently charted sounding, this item was not reported as a danger to navigation. *concur*

ITEM NO.:	AWOIS 51208 and 51209 ✓ Sounding	CHART NO.:	17363 (1:10,000)
		EDITION:	11th Edition
		CHART DATE:	April 27, 1991

DESCRIPTION AND SOURCE OF ITEM:

AWOIS item 51208 originated from survey H-4143 WD, a 1920 wire drag survey, as a 15 ft sounding. This sounding was not cleared. Survey H-4511B WD, a 1925-1926 wire drag survey, cleared to 17 ft. The sounding is charted as a 2.5 fm. Control on this survey was indicated as poor in the descriptive report.

AWOIS item 51209 originated from survey H-4511B WD, a 1925-1926 wire drag survey, as an 11ft sounding. This sounding was not cleared. The sounding is charted as a 1.8 fm. Control on this survey was indicated as poor in the descriptive report.

Confusion exists in the prior descriptive report as to the possibility of AWOIS item 51208 and 51209 being the same feature.

SOURCE POSITION:

AWOIS 51208	NAD83	SE Alaska Datum
	latitude 57° 17' 18.8" N	57° 17' 20.0" N
	longitude 133° 58' 46.2" W	133° 58' 40.0" W
AWOIS 51209	NAD83	SE Alaska Datum
	latitude 57° 17' 25.8" N	57° 17' 27.0" N
	longitude 133° 58' 59.7" W	133° 58' 53.5" W

SURVEY REQUIREMENTS: Echo Sounder Development, Diver Investigation, Bottom Drag

SEARCH RADIUS: 250 meters

METHOD OF INVESTIGATION:

An echo sounder development using 25 m line spacing over the entire search area was conducted. The shoal was further developed using 10 m line spacing. A visual drift search was also conducted.

RESULTS OF INVESTIGATION:

During the drift search on DN 102, a rocky shoal was visually identified. Echosounder detached position 60502 was acquired with VN 2126 over the shoal with a least depth of 2.7 m.

COMPARISON WITH PRIOR SURVEYS:

See Description and Source of Item.

COMPARISON WITH THE CHART AND CHARTING RECOMMENDATIONS:

Chart comparison revealed a 1 3/4 fm and a 2 1/2 fm sounding in the vicinity of this rocky shoal. The shoal is in the center of a channel into Pybus Bay. The hydrographer recommends deleting the 1 3/4 fm at latitude 57° 17' 25.8" N, longitude 133° 58' 59.7" W and charting a 1 1/2 fm at latitude 57° 17' 24.8" N, longitude 133° 58' 57.4" W. Delete the 2 1/2 fm at latitude 57° 17' 18.8" N, longitude 133° 58' 46.2" W and chart soundings from this survey. *Concur*

** Based on the hydrographer's investigation, the evaluator concludes that AWOIS items 51208 and 51209 are the same feature as found in 1920 and 1925-26. The present survey substantiates the 1925-26 position. Depths of 13-14 fms were found in area of AWOIS 51208. This feature was reported as a danger to navigation. Do not concur. However, as the chart currently portrays 2 1/2 fm sounding, the requirement to report as a danger to navigation is not critical.*

ITEM NO.: AWOIS 51843 ✓
Obstruction

CHART NO.: 17363 (1:10,000)
EDITION: 11th Edition
CHART DATE: April 27, 1991

DESCRIPTION AND SOURCE OF ITEM:

AWOIS item 51843 originated from USGS QUAD Sitka (A-1), as compiled from a 1948 survey, as a rock awash. DM10031/39--REV does not show the rocks, however a rock does appear approximately 50 meters to the west.

SOURCE POSITION:	NAD83	NAD27
latitude	57° 14' 51.8" N	57° 14' 53" N
longitude	134° 06' 24.2" W	134° 06' 18" W

SURVEY REQUIREMENTS: Visual Search, Diver Investigation, Bottom Drag

SEARCH RADIUS: 75 meters

METHOD OF INVESTIGATION:

A visual investigation was conducted, water clarity 9 m, average water depth 5 m.

COMPARISON WITH THE CHART AND CHARTING RECOMMENDATIONS:

Chart comparison revealed a 1/2 fm sounding at the position of the rock. This rock is an offshore danger in the main channel into Pybus Bay. The hydrographer recommends deleting the 1/2 fm sounding at latitude 57° 16' 40.0" N, longitude 134° 01' 18.0"W and charting a rock at latitude 57° 16' 39.2" N, longitude 134° 01' 16.0" W. Rock uncovers 4 feet at MLLW. *concur*

This rock was reported as a danger to navigation. *Concur*

O. COMPARISON WITH THE CHART

This survey was compared in the field to NOS chart 17363, 11th Edition, April 27, 1991, 1:40,000 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 general agreement; when different, soundings from this survey were shoaler due to modern survey equipment with the exception of two soundings noted below. Non-sounding features are discussed in Section J. Final comparisons will be made at PHB after application of real tide correctors.

A 7 fathom (12.8 m) is charted at latitude 57° 14' 25.8" N, longitude 134° ^{05' 15"} 04' 25.0" W. This sounding originates from survey H-4511B WD. An echo sounder development was conducted at the position with a search radius of 50 m, using 10 m line spacing. The average depth found in the vicinity is 29 m*. The hydrographer recommends deleting the 7 fathom sounding and charting the soundings from this survey. *The required 100% bottom coverage was met to remove the wire-drag sounding. Survey depths range from 13.9 to 17 fathoms. Present survey depths of 6 fms were found 150 meters north of charted 7 fms. 50* *concur*

A 1 fathom is charted at latitude 57° 17' 06" N, longitude 134° 05' 43" W. This sounding originates from survey H-4511A. The sounding is on the NALL. Hydrography was conducted using 50 m line spacing and determined a 4.4 m depth. A visual search was conducted on DN 118 and a ledge projecting north from the shore was found. The hydrographer recommends retaining the sounding as charted. *The required sounding development was not met to supersede the charted 1 fm sounding. It was brought forward to this survey.* *concur*

Dangers to Navigation *See Eval Rpt., Section O*

Twenty-one dangers to navigation within the limits of H-10673 were reported to the Seventeenth Coast Guard District, May 9, 1996. Copies of the correspondence can be found in ~~Appendix I~~ of this report.

P. ADEQUACY OF SURVEY

Survey H-10673 is complete and adequate to supersede prior soundings and features in their common areas, *except for the sounding and feature mention in sections O and N.*

Q. AIDS TO NAVIGATION ✓

One aid to navigation exists within the survey area, Grave Island Light, which serves as an entrance light to the west channel of Pybus Bay. See Section Q, Descriptive Report Insert, *attached and Appendix II. NOAA Form 76-40.*

R. STATISTICS ✓

NM Hydrography 761.3
Velocity Casts 2
Detached Positions 22
Selected Soundings 15561
Bottom Samples 40
Tide Stations 2
NM² Hydrography 16.0
Dives 6

S. MISCELLANEOUS ✓

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. Secchi disk observations were not performed during hydrographic data operations in this area, but were performed on the contemporary junction survey H-10676. General water visibility was 5-10 meters, which is common in this area before the spring plankton blooms, which usually occurs in late May.

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

Unusually strong tidal currents of 2 to 3 knots were found during dive operations in the following areas: east of the large island of the San Juan Islands, in the West Channel and about 1 nm south of Elliott Island. *This information has been added to the smooth sheet as a note.*

On DN 107, VN 2123 collected data using fix numbers 30498 - 30635 which duplicated the fix numbers used on DN 106 by the same vessel. On DN 108, VN 2125 collected data using fix numbers 50172 - 50462 which duplicated the fix numbers used on DN 95, 99 and 100 by the same vessel.

T. RECOMMENDATIONS ✓

In addition to the recommendations in Section O, the hydrographer recommends adding a 50 fathom curve to NOS chart 17363, 11th Edition, April 27, 1991, 1:40,000 scale, (NAD 83).

Concur

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,


Stacy M. Maenner
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

**ADVANCE
INFORMATION**

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

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-10673 ✓**

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

<u>ITEM</u>	<u>DANGER</u>	<u>DEPTH</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>
A	ROCK	AWASH	57/17/40.5	133/59/38.8
B	SHOAL	COVERS 1 FM	57/17/27.3	134/04/23.4
C	ROCK	COVERS 1/2 FM	57/17/18.2	134/02/02.4
D	ROCK	COVERS 2 FM	57/17/16.1	134/06/11.4
E	SHOAL	COVERS 7 FM	57/17/09.6	134/03/37.8
F	SHOAL	COVERS 10 FM	57/17/09.2	134/04/48.7
G	ROCK	COVERS 3/4 FM	57/17/06.4	133/59/14.8
H	SHOAL	COVERS 3/4 FM	57/16/45.1	133/59/46.9
I	ROCK	COVERS 1 1/4 FM	57/16/42.7	134/04/22.3
J	ROCK	AWASH	57/16/39.2	134/01/16.0
K	SHOAL	COVERS 4 FM	57/16/28.3	134/04/12.4
L	SHOAL	COVERS 4 FM	57/16/24.3	134/05/08.5
M	SHOAL	COVERS 3 3/4 FM	57/15/57.5	134/04/00.2
N	ROCK	COVERS 1/4 FM	57/15/29.6	134/05/40.3
O	SHOAL	COVERS 2 FM	57/15/19.7	134/05/13.5
P	ROCK	AWASH	57/14/51.1	134/08/20.3
Q	ROCK	COVERS 1 3/4 FM	57/14/49.8	134/05/19.4
R	ROCK	COVERS 3/4 FM	57/14/42.7	134/07/54.4
S	SHOAL	COVERS 5 1/4 FM	57/14/37.6	134/05/08.8
T	ROCK	COVERS 1 1/4 FM	57/14/31.8	134/03/37.8
U	SHOAL	COVERS 3 FM	57/14/27.3	134/08/06.5

REGISTRY NUMBER H-10676

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

<u>ITEM</u>	<u>DANGER</u>	<u>DEPTH</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>
V	SHOAL	COVERS 2 FM	57/14/04.2	134/07/39.4
W	ROCK	COVERS 1 1/4 FM	57/14/03.8	134/06/16.5
X	SHOAL	COVERS 7 FM	57/13/44.4	134/05/53.0
Y	SHOAL	COVERS 3 1/2 FM	57/13/31.5	134/06/23.0
Z	ROCK	COVERS 3/4 FM	57/13/15.5	134/06/49.4
AA	ROCK	COVERS 1 3/4 FM	57/13/07.3	134/07/38.0
AB	SHOAL	COVERS 7 1/4 FM	57/12/48.0	134/07/46.6
AC	SHOAL	COVERS 7 1/2 FM	57/12/24.4	134/06/00.2
AD	ROCK	COVERS 1/4 FM	57/11/57.7	134/09/41.0

**ADVANCE
INFORMATION**

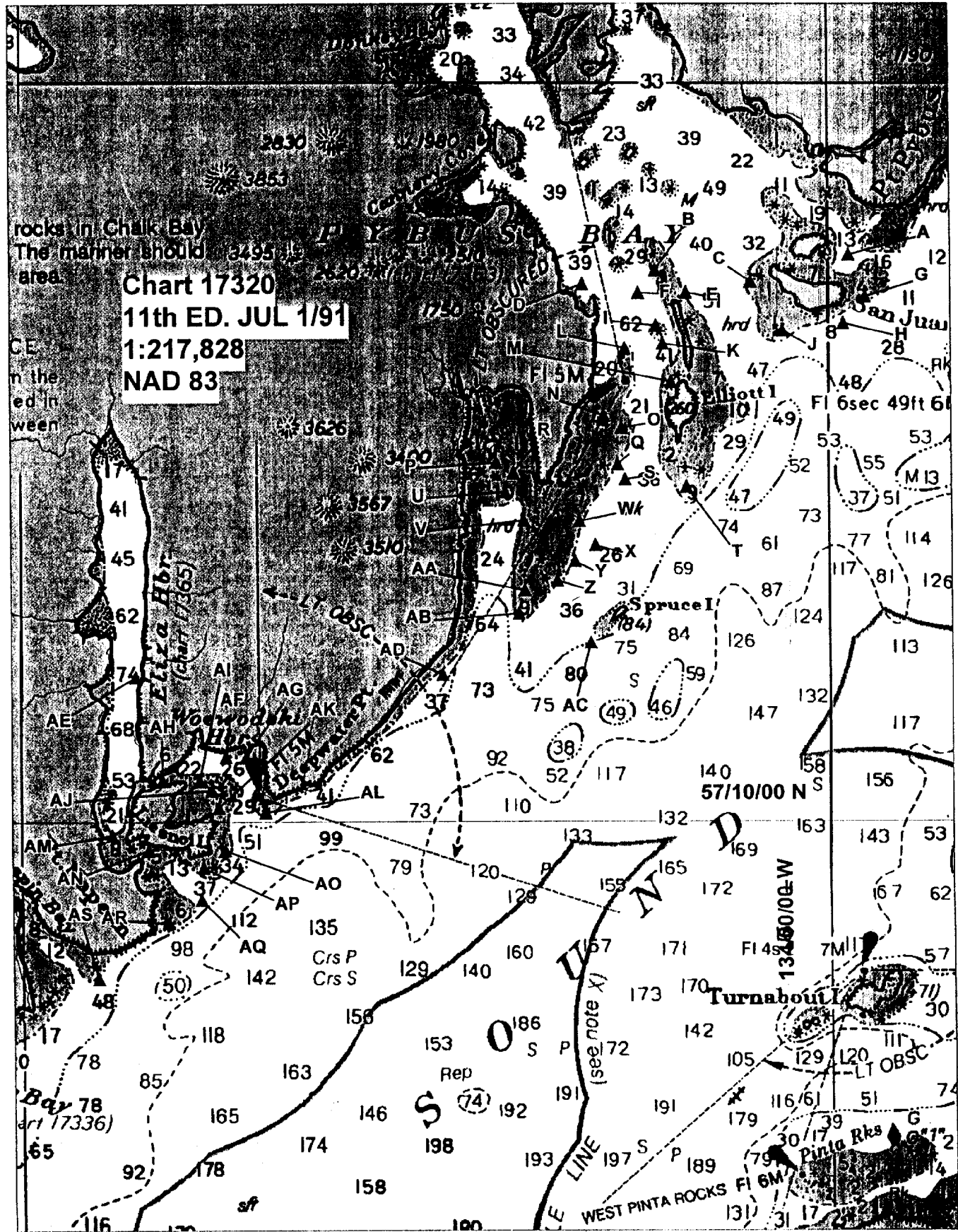
REGISTRY NUMBER H-10678

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.

ADVANCE
INFORMATION





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

February 3, 1997

**ADVANCE
INFORMATION**

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

Dear Sir:

During office review of hydrographic survey H-10673, Alaska, Southern Stephens Passage, Southern Approaches to Pybus Bay, one rock and twelve 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>
17363	11th, 4/21/91	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

Enclosures

cc: DMA/HTC
NCS/261



REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10673

Survey Title: State: ALASKA
 Locality: SOUTHERN STEPHENS PASSAGE
 Sublocality: SOUTHERN APPROACHES TO PYBUS BAY

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

Survey Date: April 3 - April 27, 1996

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

Chart affected: 17363 11th Edition/April 27, 1991, scale 1:40,000, NAD 83

<u>DANGER TO NAVIGATION</u>	<u>LATITUDE(N)</u>	<u>LONGITUDE(W)</u>
Rock, subm 3 fathoms	57/15/35.1	134/05/20.3
Shoal, covers 3 ½ fathoms	57/14/10.3	134/07/40.1
Shoal, covers 1 ½ fathoms	57/14/24.9	134/06/29.2
Shoal, covers 3 fathoms	57/14/17.5	134/06/01.3
Shoal, covers 6 ¼ fathoms	57/14/18.2	134/05/35.4
Shoal, covers 7 ½ fathoms	57/17/21.7	134/05/02.3
Shoal, covers 8 ¾ fathoms	57/16/08.0	134/03/50.0
Shoal, covers 7 ¾ fathoms	57/17/39.3	133/59/27.9
Shoal, covers 10 ¼ fathoms	57/17/42.0	134/01/46.1
Shoal, covers 10 fathoms	57/17/02.4	133/58/17.8
Shoal, covers 10 fathoms	57/17/04.8	133/57/48.1
Shoal, covers 10 ¼ fathoms	57/17/15.9	133/57/34.0
Shoal, covers 11 fathoms	57/17/34.5	133/57.04.2

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

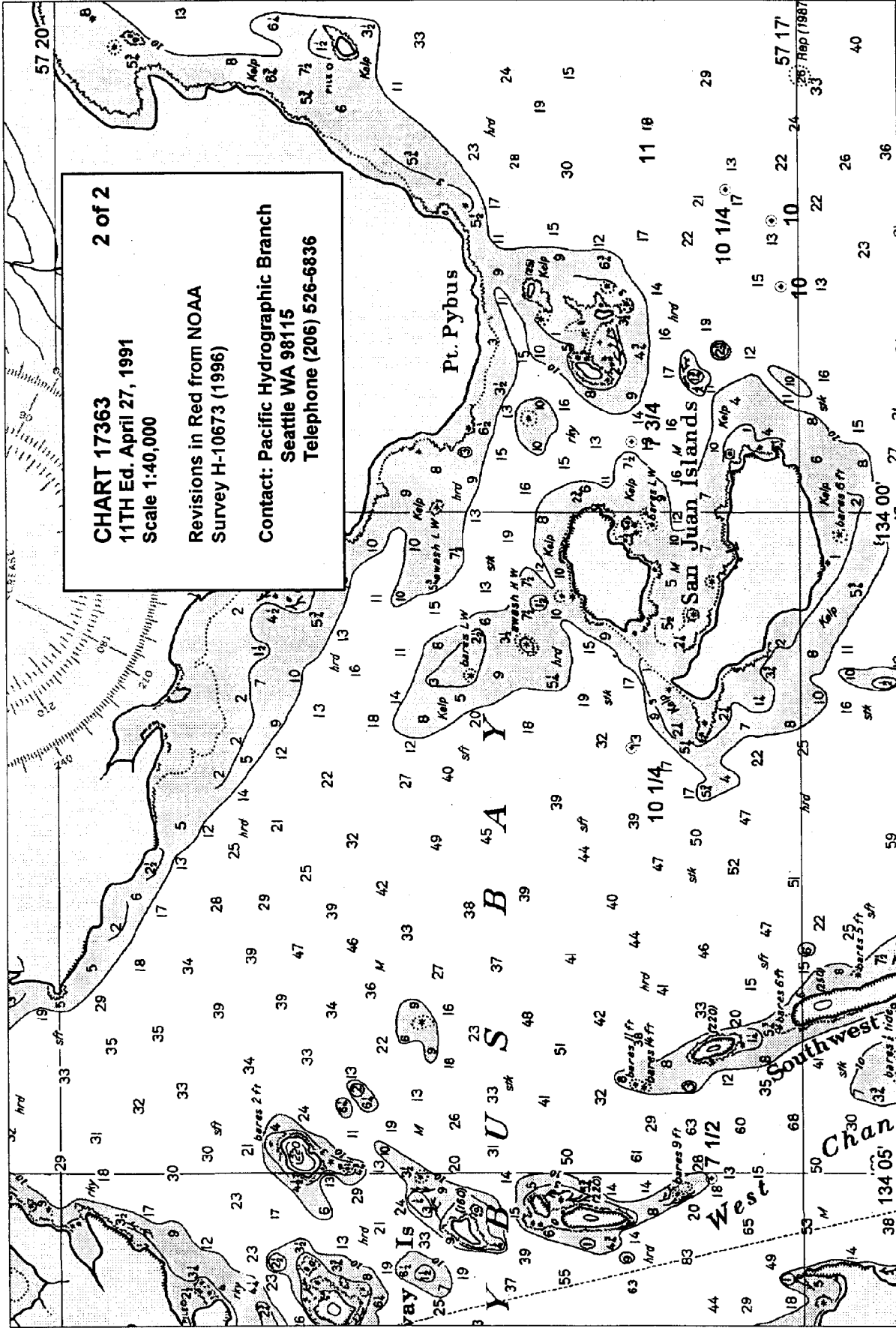


CHART 17363
11TH Ed. April 27, 1991
Scale 1:40,000

2 of 2

Revisions in Red from NOAA
Survey H-10673 (1996)

Contact: Pacific Hydrographic Branch
Seattle WA 98115
Telephone (206) 526-6836

**ADVANCE
INFORMATION**

Section Q: Descriptive Report Insert ✓

Name of Aid: Grave Island Light
Light List #: 23575

Method of Positioning: 3rd Order GPS

Positioning Info

	Latitude N	Longitude W
Light List	57°16.0	134°05.0
Charted Pos.	57°15:57.6	134°05:00.0
Survey Pos.	57°15:59.415	134°05:00.129 ✓

Distance and direction from Survey to Charted position: 56m 000°T

Characteristics

Do Light Characteristics Match Light List? (y/n) y
If NO, what are the characteristics?

Do Obstruction Characteristics Match Light List? (y/n) n
If NO, what are the characteristics? The Light List states that the light is obstructed from 031°T to 167°T. The hydrographer observed 016°T to 165°T, this corresponds to the movement of the light from the southeast to the northeast side of the island.

APPROVAL SHEET

for

H-10673
RA-10-2-96

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.



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-10673

LOCALITY: Southern Approaches to Pybus Bay, Southern Stephens
Passage, Alaska

TIME PERIOD: April 3 - 27, 1996

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

REMARKS: RECOMMENDED ZONING

Zone SEA21 -bounded by the polygon points:

LONGITUDE (W)	LATITUDE (N)
-134.119252	57.247369
-134.12829	57.278526
-134.257082	57.34634
-134.17348	57.43187
-133.983188	57.31749
-133.566535	57.19033
-133.880569	57.090141
-134.119252	57.247369

Times and heights are direct using Cannery Cove, AK (945-1781).



page 2 of 2 pages for H-10673

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).

Note: Times are tabulated in Greenwich Mean Time.


CHIEF, DATUMS SECTION

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 17363, 17360		B ON PREVIOUS SURVEY		C ON U.S. QUADRANGLE MAPS		D FROM LOCAL INFORMATION		E ON LOCAL MAPS		F P.O. GUIDE OR MAP		G RAND McNALLY ATLAS		H U.S. LIGHT LIST		K		
ADMIRALTY ISLAND	X			X															1
ALASKA (title)	X			X															2
ELLIOTT ISLAND	X			X															3
FREDERICK SOUND	X			X															4
GRAVE ISLAND	X			X															5
LITTLE PYBUS BAY	X			X															6
LONG ISLAND	X			X															7
MIDWAY ISLANDS	X			X															8
POINT PYBUS	X			X															9
PYBUS BAY	X			X															10
ROUND ROCK*	X			X															11
SAN JUAN ISLANDS	X			X															12
SOUTHWEST ISLANDS	X			X															13
STEPHENS PASSAGE (title)	X			X															14
WEST CHANNEL	X			X															15
																			16
																			17
* Plots outside the survey limits.																			18
																			19
																			20
																			21
																			22
																			23
																			24
																			25

Approved:

Charles C. Loy
Chief Geographer

AUG 8 1996

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

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

SHORELINE DATA

SHORELINE MAPS (List): **DM-10031**
 PHOTOBATHYMETRIC MAPS (List): **NA**
 NOTES TO THE HYDROGRAPHER (List): **NA**
 SPECIAL REPORTS (List): **NA**
 NAUTICAL CHARTS (List): **Chart 17363 11th ED, April 27, 1991**

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			15561
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	141		141
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		29	29
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS			
TOTALS	141	29	170

Pre-processing Examination by J. Stringham	Beginning Date 5/21/96	Ending Date 5/23/96
Verification of Field Data by J. Stringham, D. Doles, R. Mayor, E. Domingo	Time (Hours) 141	Ending Date 12/23/96
Verification Check by B. Olmstead, R. Davies	Time (Hours) 3	Ending Date 2/5/97
Evaluation and Analysis by R. Davies	Time (Hours) 29	Ending Date 2/3/97
Inspection by B. Olmstead	Time (Hours) 11	Ending Date 2/11/97

**EVALUATION REPORT
H-10673**

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, the survey area lies in the southern approaches to Pybus Bay. Depths range from 0 to 82 fathoms. The bottom consists primarily of mud, pebbles and shells .

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.

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 PHB until data transfer protocols are developed and approved.

The drawing files necessarily contain information which is not part of the HPS data set such as geographic 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-10673.

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 Cannery Cove, Pybus Bay, Alaska, gage 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: -1.222 seconds (-37.795 meters)
Longitude: 6.246 seconds (104.689 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 systems 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, photography dated May 1989, scale 1:20,000 was compiled on NAD 83 and applies 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-10673 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10604	1995	1:10,000	East
H-10607	1995	1:10,000	North
H-10672	1996	1:10,000	Northwest
H-10676	1996	1:10,000	South

The junction with surveys H-10672 and H-10676 are complete. The junction with surveys H-10604 and H-10607 were not formally completed since these surveys were previously processed and forwarded for charting. There is good agreement between soundings, however the depth curves shown on surveys H-10604 and H-10607 delineate different depths, and therefore, are not in coincidence within the junction area.

M. COMPARISON WITH PRIOR SURVEYS

H-1996(1889-92) 1:80,000
H-2002(1889) 1:80,000
H-4511a(1925-26) 1:20,000

Surveys H-1996, H-2002 and H-4511a cover the entire area of the present survey. Comparison with the present survey generally reveals differences of 1 -2 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 operation, except as follows; a charted one fathom sounding at latitude

57/17/05N, longitude 134/05/50W was not adequately developed and has been brought forward from prior survey H-4511a. Most of the ledges, reefs and isolated rocks from the prior surveys listed above fall within the NALL limit line and should be retained.

Except for the one sounding mentioned above, survey H-10673 is adequate to supersede the prior surveys within the common area. See Attachment 1 for the area of supersession.

H-4511b WD(1925-26) 1:20,000

Wire-drag survey H-4511b covers the entire area of the present depths. All wire-drag hang and clearance depths were investigated and found to be deeper than found by the present survey, with the exception of a 7 fathom sounding (~~clearance depth~~) charted at latitude 57/14/25.8, longitude 134/05/15W. An adequate sounding development was accomplished to remove the 7 fathom ~~clearance~~ depth from the chart. Additional information can be found in the hydrographer's report, section O.

Survey H-10673 is adequate to supersede the prior wire-drag survey within the common area.

N. ITEM INVESTIGATIONS

There were seven AWOIS items within the survey area. They were adequately addressed in the Descriptive Report, section N.

O. COMPARISON WITH CHART

Survey H-10673 was compared with the following chart.

<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

a. Hydrography

Charted hydrography originates with the prior surveys mentioned in section M. The prior surveys are discussed in section M and require no further discussion.

Survey H-10673 is adequate to supersede charted hydrography seaward of the NALL limit line. See Attachment 1 for the area of supersession.

b. Dangers to Navigation

Twenty-one dangers to navigation were reported to the USCG, DMAHTC and N/CS 261 on May 9, 1996. Thirteen additional dangers to navigation were found during office processing. Copies of these 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, described and serves its intended purpose. There are no floating aids to navigation within the survey area.

There were no charted landmarks or features recommended by the hydrographer which would be of landmark value.

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

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

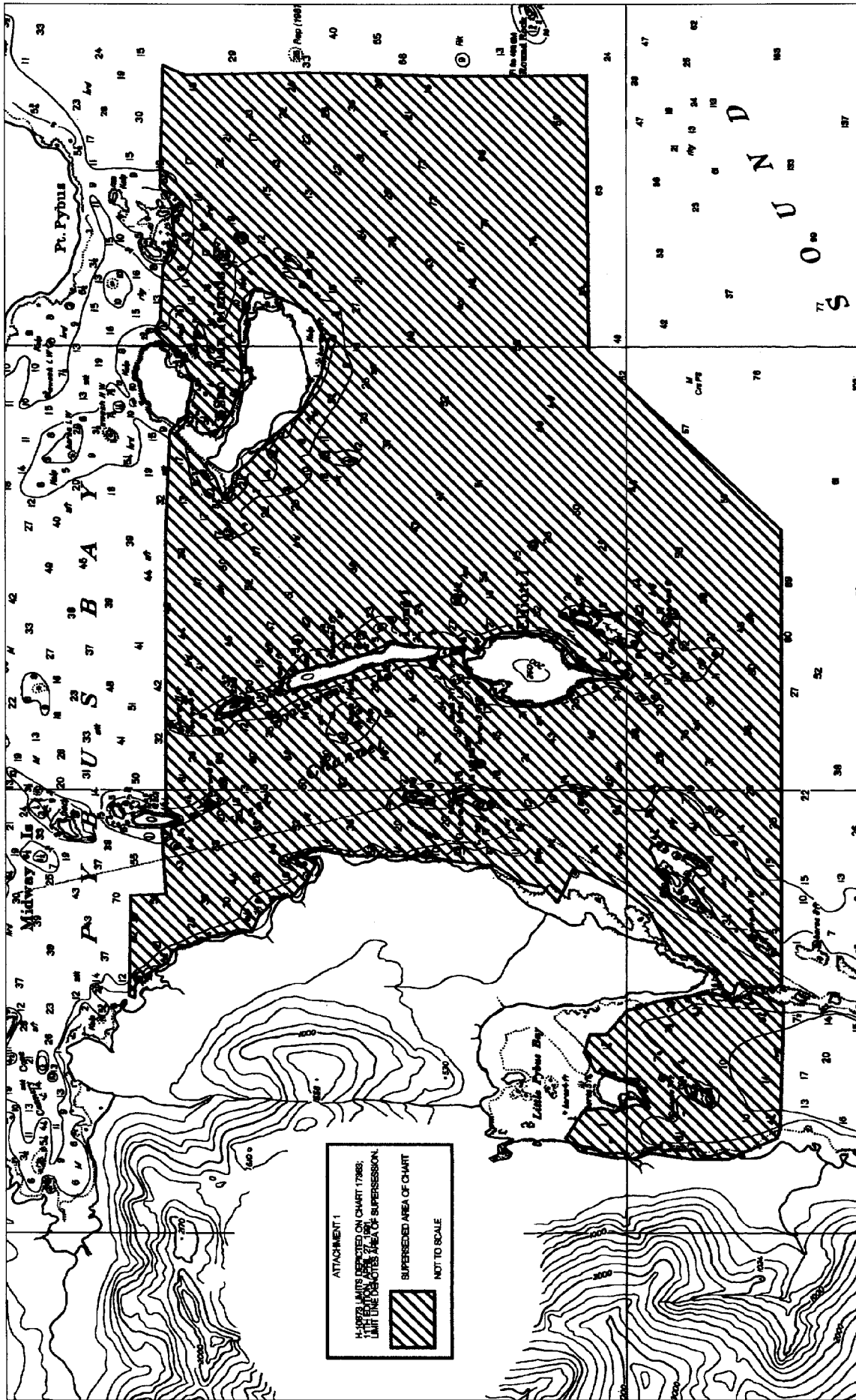
T. RECOMMENDATIONS

This is a good hydrographic survey. Additional field work is recommended on a low priority basis to investigate the charted one fathom sounding mentioned in section M of this report.

U. REFERRAL TO REPORTS

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

Charles R. Davies
C.R. Davies
Cartographer



APPROVAL SHEET
H-10673

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 disproof of charted data. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Bruce A. Olmstead Date: 2/11/97
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: 2/24/97
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:
Andrew A. Armstrong III Date: May 14, 1997
Andrew A. Armstrong III
Captain, NOAA
Chief Hydrographic Surveys Division

