H-10594

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-10-2-95

Registry No. H-10594

LOCALITY

State Alaska

General Locality Southern Stephens Passage

Sublocality Northeast Portion of Gambier Bay

1995

CHIEF OF PARTY
CAPT D.R. Seidel

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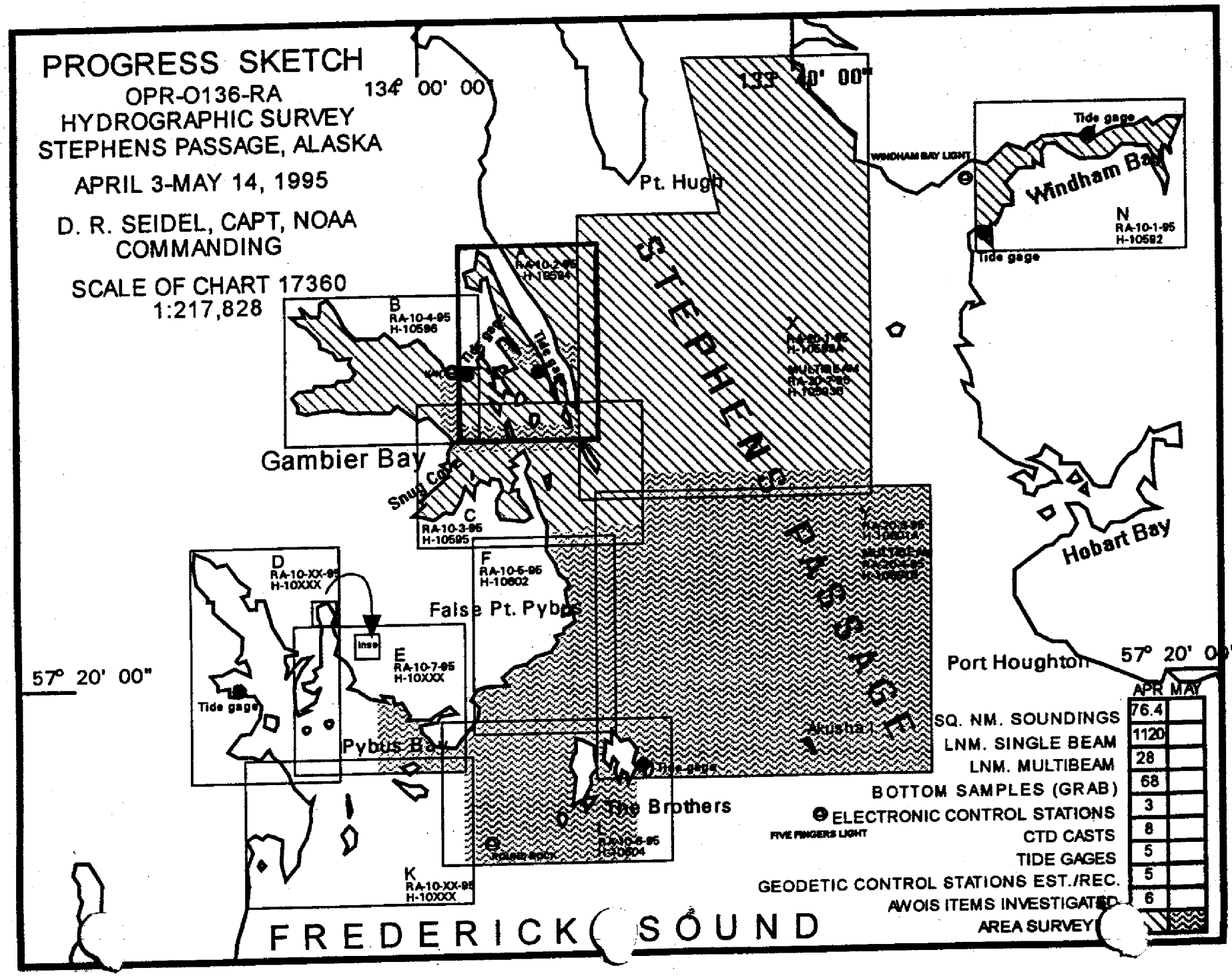
DATE April 23, 1996


PROGRESS SKETCH
OPR-O136-RA
HYDROGRAPHIC SURVEY
STEPHENS PASSAGE, ALASKA
APRIL 3-MAY 14, 1995
D. R. SEIDEL, CAPT, NOAA
COMMANDING
SCALE OF CHART 17360
1:217,828
134° 00' 00"
133° 20' 00"
57° 20' 00"
Pt. Hugh
STEPHENS PASSAGE
Tide gage
WINDHAM BAY LIGHT
Windham Bay
N
RA-10-1-95
H-10582
Tide gage
B
RA-10-4-95
H-10596
Gambier Bay
Snug Cove
C
RA-10-3-95
H-10595
F
RA-10-5-95
H-10602
D
RA-10-XX-95
H-10XXX
False Pt. Pybus
Inset
E
RA-10-7-95
H-10XXX
Tide gage
Pybus Bay
Hobart Bay
Port Houghton
Akusha I.
The Brothers
Tide gage
FIVE FINGERS LIGHT
L
RA-10-6-95
H-10604
K
RA-10-XX-95
H-10XXX
FREDERICK SOUND
APR MAY
SQ. NM. SOUNDINGS 76.4
LNM. SINGLE BEAM 1120
LNM. MULTIBEAM 28
BOTTOM SAMPLES (GRAB) 68
ELECTRONIC CONTROL STATIONS 3
CTD CASTS 8
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GEODETIC CONTROL STATIONS EST./REC. 5
AWOIS ITEMS INVESTIGATED 6
AREA SURVEY

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-10594

HYDROGRAPHIC TITLE SHEET

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-10-2-95

State: Alaska

General locality: Southern Stephens Passage

Locality: Northern Portion of Gambier Bay

Scale: 1:10,000 Date of survey: April 12-May 7, 1995

Instructions dated: 2/13/95, Change #1-3/28/95 Project No.: OPR-0136-RA

Vessel: NOAA Ship RAINIER (2120), (2122), (2123), (2124), (2125), (2126), (2129)

Chief of party: CAPT Dean R. Seidel, NOAA

Surveyed by: CAPT D.Seidel, LT D.Haines, LT M.Larsen, ENS S.Smith, ENS S.Maenner, ENS E.Christensen, CST F.Paranada, ST B.Roraback, ST M.Frost

Soundings taken by echo sounder, hand lead, pole: DSF-6000N, Pneumatic gauge, MODIII Diver L.D. gauge

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

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

~~Protracted by~~

Verification by: R. Davies

Soundings in ~~fathoms feet~~ Meters & Decimeters at ~~MLW~~ MLLW

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

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

DSC APR 23 1996 AWOIS and SURF - RWD 4/96

Descriptive Report to Accompany Hydrographic Survey H-10594

Field Number RA-10-2-95
Scale 1:10,000
April-May 1995

NOAA Ship RAINIER
Chief of Party: Captain Dean R. Seidel, NOAA

A. PROJECT ✓

This basic hydrographic survey was completed in the northeastern portion of Gambier Bay, Stephens Passage, Alaska, as specified by Project Instructions OPR-O136-RA dated February 13, 1995, and change no. 1 dated March 28, 1995.

Survey H-10594 corresponds to "sheet A" as defined in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating existing nautical charts. Requests for hydrographic surveys and updated charts have been received from the United States Coast Guard (USCG), the Southeast Alaska Pilot's Association, the Alaska Department of Transportation , and private interests such as cruise ship lines and local logging and fishing industries.

B. AREA SURVEYED ✓ See Eval Rpt, Section B

The survey area is the northeastern portion of Gambier Bay, located on the west shore of Southern Stephens Passage. The survey's eastern limit is bounded by 133°50.75'W outside of Gambier Bay south of 57°30'N and the east shore of Gambier Bay inside the bay. The western limit is bounded by 133°57.75'W. The survey's northern limit is bounded by 57°30'N outside of Gambier Bay and the north end of the northeast arm of Gambier Bay inside the bay. The southern limit is bounded by 57°27.25'N.

C. SURVEY VESSELS ✓

Data were acquired by RAINIER and six survey launches as noted below:

Vessel	EDP #	Operation
RAINIER	2120	Sound Velocity Cast
RA-2	2122	Hydrography Shoreline Verification

RA-3	2123	Hydrography Shoreline Verification Side Scan Sonar
RA-4	2124	Hydrography Shoreline Verification
RA-5	2125	Hydrography Bottom Samples Sound Velocity Cast
RA-6	2126	Hydrography Shoreline Verification Dives
RA-9	2129	Shoreline Verification

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

Data were acquired on RA-2 and RA-9 using Coastal Oceanographics' HYPACK, v 5.2, with the following program updates.

HYPACK Program Name	Version	Date Installed
HYSPEED.EXE	3/24/95	4/1/95
IOTEST.EXE	3/17/95	4/1/95

Processing was conducted using the HDAPS HP system. HYPACK (DOS) files were translated to a PC-DAS format using a Visual Basic program, HYPMENU version B1.5, B1.6 (installed 5/3/95), provided by N/CG24. The files were then loaded into HDAPS and processed in the same manner as PC-DAS data.

In addition, GPSINIT.BAT(5/19/94), was used to initialize the Ashtech GPS receiver.

Velocity corrections were determined using:

Program Name	Version	Date Installed
VELOCITY	2.11	5 Mar 1995

* Filed with the hydrographic data.

Problems ✓

On DN 127 a dive (PN 9015) was conducted on H-10594. The position was not saved to disk. It was manually entered and described in DP editor. All the information is correct in DP editor except the tide corrector. On DN 116, VN 2122, one critical line of hydrography could not be converted to HDAPS. The line was scanned and two soundings (10354, 10355) were entered manually to fill a gap. Again, the tide corrector was applied incorrectly. All three depths were reduced by hand and transferred to the final sheet as follows:

Pos #	Depth	Lat	Long	
9015	8.5 m	57°27'20" N	133°50'52" W	1 Rk plotted on SS
10354	1.9 m	57°28'41" N	133°53'26" W	2 plotted on SS
10355	1.8 m	57°28'39" N	133°53'26" W	

E. SONAR EQUIPMENT ✓

Side scan sonar (SSS) operations were conducted using an EG&G Model 260 image-corrected SSS recorder and a Model 272-T single frequency towfish. RA-3 was equipped with a thermal recorder. SSS data was acquired with RA-3 on DN 124 for location of AWOIS#51821 (wreck of the State of California). Serial numbers of the equipment used is located on the raw master printouts.*

The SSS towfish was configured with a 20° beam depression, the normal setting, which yields the best beam correction. The 100 kHz frequency was used throughout this survey. The 100 m range scale was used for this survey. The towfish was deployed from the stern of the launch.

A confidence check was performed by towing the fish over bottom texture features. Confidence checks were also possible during SSS operations due to numerous rocks, obstructions and bottom features.

The SSS was performed solely for the purpose of locating the AWOIS item, which was found on the second pass. Contacts were recorded on either end of the wreck.

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 or the low frequency digitized setting, depending on water depth.

Dive operations were conducted using both the MOD III Diver least depth gauge (Serial

* Filed with the hydrographic data.

#68333, calibrated 3/95) and the pneumatic depth gauge (Serial # 8503358N, calibrated 3/27/95). A least depth was taken with both instruments at each dive site.

Problems ✓

Depths acquired with the diver least depth gauge and the pneumatic gauge did not agree. The pneumatic gauge consistently recorded a depth less than the MOD III diver least depth gauge, by an amount approximately equal to two times the pneumatic guage corrector value. If the correction were applied in the opposite direction, the two would agree consistently to within 0.1m. The correction table supplied by Pacific Operations Section (OES214) this year has all negative values, where the table has historically been positive. The gauge will be returned to OES214 for recalibration. The hydrographer recommends using the diver least depth gauge readings until the results of the recalibration are forwarded. Least depths reported as Dangers to Navigation were recorded as the lesser of the MOD III diver least depth gauge reading and the echosounder reading from hydrography. The results of the recalibration showed that the corrector value for the pneumatic gauge was incorrect. Depth comparisons with the recalibrated pneumatic gauge and the MOD III gauge showed no significant difference.

G. CORRECTIONS TO ECHO SOUNDINGS ✓

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

Velocity Table #	Cast#	DN	Cast Position	Deepest Depth (m)	Applicable DN
3	3	111	57°31.8' N 133°38.5' W	480	108-117
5	5	122	57°33.6' N 133°44.6' W	494	121-139

The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 811), calibrated 03/31/95. Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) No. 69. A printout of the Sound Velocity Corrector Tables used in the HDAPS Post Survey program is included in the "Separates to be Included with Survey Data, IV. Sounding Equipment Calibrations and Corrections".* Casts 3 and 5 plot outside the survey area.

Static Draft ✓

A transducer depth was determined using FPM Fig 2.2 for vessels 2122-2129 in the spring of 1995. These values were entered into the offset tables* for each vessel.

* Filed with the hydrographic data.

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 2123-2129 was collected in Shilshole Bay, Washington in the Spring of 1995, and for 2122 in Windham Bay, Alaska in April 1995.

Offset Tables ✓

Offset tables* contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset tables 2-9 correspond to the number of the vessel. The offset tables were compiled with new measurements in the spring of 1995 and are contained in the "Separates to be Included with Survey Data"* Offset and layback were applied for RA-2 and RA-9 for hydrography, but not for shoreline verification. Corrections were applied on-line based on CMG. Horizontal corrections were not applied for the HDAPS launches.

Heave ✓

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

Bar Check ✓

Bar check lines were calibrated by RAINIER personnel during the winter inport 1994-1995. Calibration forms are included with project and data for OPR-O136-RA. Bar checks were preformed weekly and served as a functional check of the DSF-6000N.

Tide Correctors ✓

Predicted tides for the project were provided on diskette by N/CG241 for the Juneau, Alaska reference station (945-2210).

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

	Time Correction	Height Correction
High Water	-0 03	-1.4 ft
Low Water	+0 04	-0.1 ft

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

* Filed with the hydrographic data

RAINIER personnel installed 8200 digital gages at Good Island (945-1909) and Cannery Wharf (945-1906) on April 10, 1995 and at The Brothers (945-1785) on April 11, 1995. The staff was connected to five benchmarks at each station during all level runs. Opening levels were completed on April 12, 1995 at Good Island and The Brothers and on April 13, 1995 at Cannery Wharf. On April 13, 1995, it was discovered that the tide gage at Cannery Wharf had not been recording the data and the gage was immediately replaced. Except for the period mentioned above, all tide gages operated continuously during data acquisition. Closing levels were completed at Cannery Wharf and Good Island on May 13, 1995 and May 14, 1995, respectively. Elevations of all bench marks above the zero of the staff agreed within 0.002m of those determined during opening levels.

The station descriptions, field tide records, and Preliminary Field Tide Notes (Appendix V)* have been forwarded to N/OES212 in accordance with HSG 50 and FPM 4.3 . The final tide package will be forwarded to N/OES212 at the end of the project. A request for approved tides was forwarded to N/OES2 in accordance with FPM 4.2.3. Approved Tide Note dated September 13, 1995 is attached.

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

A listing of the geodetic stations used to control this survey is included in ~~Appendix III of~~ this report. The horizontal datum for this project is NAD83.

DGPS stations were installed on existing stations INDX and KAN. Station INDX is located on top of Five Fingers Light House, and station KAN is located on a prominent point in the northern section of Gambier Bay. These stations were recovered in accordance with methods stated in Section 5.2.4 of the FPM.

For further information see the "Spring 1995 Horizontal Control Report" that will be submitted at the end of the project.

I. HYDROGRAPHIC POSITION CONTROL ✓ See Eval Rpt, Section I.

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

Ashtech GPS

Method of Position Control ✓

VHF differential shore stations were established at stations INDX and KAN. The difference between the computed location and station KAN's published position were recorded by the MONITOR 3.0 program on a PC. Data from a 24-hour period were recorded and examined for signs of multi-path signal reflection, which was not evident. Scatterplot results are included in the "Project related data for OPR-O136-RA"* The

* Filed with the hydrographic data

scatterplot results for station INDX were obtained in the Spring 1993 Project. The area around station INDX remains undeveloped, and the geography unchanged.

Calibrations & Systems Check Methods ✓

System checks were performed in accordance with Section 3.4.4 of the FPM. Two observations of position were made from two independent DGPS base stations. The results were transferred to forms which are included in the project data for OPR-O136-RA. An abstract of the system checks is included in the "Separates to be Included with Survey Data, III. Horizontal Position Control and Corrections to Position Data". *

Problems ✓

None

J. SHORELINE ✓ See Eval Rpt, Section J

Shoreline map (T-sheet) DM-10029 were supplied by N/CG24 in paper and Standard Digital Data Exchange Format (SDDEF). The digital files were projected using OPR-O136 geodetic parameters using program Shore (update 2/6/95), provided by N/CG24, and stored in HYPACK (*.DIG) format. Shoreline was plotted at survey scale on boat sheets and processing sheets and was provided in digital form to the HYPACK boats.

The northern arm of Gambier Bay is covered by (TP-01166) and was not available in digital form. RAINIER personnel digitized this section using HYPACK and treated it as above.

Method of Shoreline Verification ✓

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

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

DPs taken during shoreline verification were recorded on the master printouts* and on the DP forms.* These indicate significant T-sheet features and features not found on the T-

* Filed with the hydrographic data.

sheet. Where possible, positions of some T-sheet features were verified during inshore mainscheme hydrography and annotated on the master printouts.*

Detailed 1:10,000 "Bottom Sample and Detached Position Plots" are provided showing all DPs, reference numbers, and notes relating to each feature. The information from these plots was transferred to a final field plot where possible. Where such information would interfere with the legibility of the final plot the appropriate cartographic symbol has been transferred, but height and position number information remains on the plot, which serves as an overlay (FPM 6.1.2.5). Verified T-sheet features were retained and shown in black. Changes to the shoreline features were shown in red, and new features are depicted in black. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in meters and are corrected to predicted MLLW. There were no changes to the shoreline shown in red. Changes to features along the shoreline were revised by the hydrographer as warranted and have been shown on the smooth sheet corrected for applied tides.

Changes and New Features ✓

Several changes and new features were found and are depicted on the final field plot. T-sheet islets and rocks were often identified as high points of new ledges or reefs. Concur

Disprovals ✓

None.

Recommendations ✓

The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information compiled on TP-01166 and DM-10029. Concur

Charted Features ✓

Charted rocks were either identified as new rocks, T-sheet rocks, high points or extensions of T-sheet ledges and reefs, with the following exceptions: Concur

A charted rock in the vicinity of 57° 28' 14.1" N 133° 53' 21.9" W was not found (Pos. #8614). Depths in the vicinity are approximately 35m, water visibility 10m. Hydrography was run in the area with 50m line spacing and the area was examined at or below MLLW. A T-sheet rock and new reef lie approximately 120m landward of the charted rock position. The hydrographer recommends removing the charted rock symbol. Chart reef as shown on the smooth sheet. Concur

Charted piles in the three coves near the old cannery are badly decomposed. One set of piles, near the location of the charted pier, extends into navigable water, but the pier is no longer in existence. Position 3522 (marks the seaward extent of these piles. Positions 3518, 3519 are disprovals of charted pilings. Depths in area 2m, water visibility 3m, 50m search radius, no indication of pilings on echosounder or visually. The other sets of piles are near the HW line and pose no threat to navigation. Photos were taken near high water

Position 3522 57° 28' 57.9" N 133° 57' 40.4" W
Position 3519 57° 29' 04.7" N 133° 56' 36.2" W
Position 3518 57° 29' 05.4" N, 133° 56' 39.8" W

* Filed with the hydrographic data.

on DN 134, and are included with the DP and Ref# forms.* The hydrographer recommends depiction of the piles as shown on the ~~final field sheet~~ smooth sheet. concur

K. CROSSLINES ✓

Crosslines are within 1-2 meter agreement with mainscheme hydrography except in areas of complex bathymetry. Crosslines totaled 16.9 nautical miles, representing 11.6% of the total mainscheme hydrography.

L. JUNCTIONS ✓ See Eval Rpt, Section L

This survey junctions with survey H-10596 (1:10,000, 1995) at the western limit, survey H-10595 (1:10,000, 1995) at the southern limit, survey H-10593 (1:20,000, 1995) at the eastern limit, and H-10175 (1:10,000, 1985). Soundings were found to be in general agreement. The final comparisons will be made at Pacific Hydrographic Section (PHS).

M. COMPARISON WITH PRIOR SURVEYS ✓ See Eval Rpt, Section M

Charted soundings originated from the following USC&GS prior surveys: H-1997 (1:20,000), 1889, H-1996 (1:80,000), 1889, H-3542 (1:5,000), 1913, H-4512B WD (1:20,000), 1925-26, and H-4512A (1:20,000), 1925-26. Due to higher density of sounding data, many least depths were found to be shoaler and several new features were located. Preliminary comparisons revealed no prior least depths which were shoaler than the current survey. Final comparisons will be done at PHS.

N. ITEM INVESTIGATIONS ✓

There was one AWOIS item assigned to H-10594.

AWOIS ITEM 51821

1. Area of Investigation

State:	Alaska
Locality:	Gambier Bay, Southern Stephens Passage
Reported Latitude:	57° 28' 25.0" N
Reported Longitude:	133° 56' 11.0" W
Datum:	NAD 83
Depth:	20 FMS (36.5 m)
Feature:	Wreck of State of California

2. Description of Source Item

The State of California sank in 1913, at which time the wreck was reported to lie near the

* Filed with the hydrographic data

beach with the bow in 20 FMS and stern in 36 FMS. In 1925, a wire drag survey was conducted in the area. The area over the wreck was cleared to 44 ft. The survey party recommended removal of the wreck symbol from the chart.

3. Survey Requirements ✓

Verify or disprove, determine least depth and position. Techniques to be used are echo sounder, 200% side scan sonar, salvage documentation, or diver investigation.

4. Method of Investigation ✓

Side scan sonar was conducted over the area on DN 124. The resulting SSS contacts and echosounder DP's were used as the center of a dive search. A dive investigation was conducted on DN 126.

5. Results of Investigation

Date:	DN 126
Time (UT):	1913
Measured Depth:	21.4 m
Predicted tide corrector:	-1.7 m
Corrected Least Depth:	19.7 m (10 3/4 FM) based on approved tides.
Position Number	8995
Latitude	57° 28' 23.87" N
Longitude	133° 56' 06.05" W
Datum:	NAD 83

The wreck was located and least depth measured by Mod. III diver least depth gage. The least depth is the jack-staff of the wreck, which lies on a steep slope, bow up. The stern of the vessel bears approximately 270° T from the bow position.

6. Comparison with Prior Surveys ✓

No prior surveys recorded a location or depth for the wreck. H-3542 noted the wreck close to the position reported on the present survey.

7. Comparison with the Chart and Charting Recommendations ✓

The wreck is not charted on NOS chart 17362, 9th Edition, May 5, 1990, 1:40,000 (NAD 83).

This item does not constitute a Danger to Navigation. Concur

Recommendation

The hydrographer recommends placing a submerged wreck, depth known, symbol (Chart 1, K22) at new location 57° 28' 23.87" N, 133° 56' 06.05" W. Chart 10594 WK. concur

O. COMPARISON WITH THE CHART ✓

This survey was compared to NOS chart 17362, 9th edition, May 5, 1990, 1:40,000, (NAD83). Charted soundings were found to be in general agreement. Non-sounding charted features are discussed in Section J, Shoreline. Final comparisons to be made at PHS. See sections O and M of the Evaluation Report for comparisons.

Dangers to Navigation ✓

Twelve dangers to navigation within the limits of H-10594 were reported to the Seventeenth Coast Guard District, May 15th, 1995. Copies of the correspondence can be found in ~~Appendix I of~~ this report.

P. ADEQUACY OF SURVEY ✓

Survey H-10594 is complete and adequate to supersede charted depths and features in their common areas. Do not concur see Eval Report sections M, T.

Q. AIDS TO NAVIGATION ✓

There was one fixed aid to navigation on H-10594. It was positioned to third order accuracy with GPS on DN 155. The position was the same as the position published in the Light List. A summary is provided in ~~Appendix VI~~ this report. Detailed information is contained in the "Spring 1995 Horizontal Control Report for OPR-O136-RA."

R. STATISTICS ✓

# Selected Soundings	13361
NM Hydrography	304.66
Velocity Casts	2
Detached Positions	147
Bottom Samples	33
Tide Stations	3
NM^2 Hydrography	7.4

S. MISCELLANEOUS ✓

Bottom samples were collected in accordance with Project Instructions. Samples have been stored and shipped to the Smithsonian Institution in accordance with Section 4.7.1 of the Hydrographic Manual.

Strong tidal currents were observed (maximum 2 knots) in the passages leading into inner Gambier Bay. Currents flood generally northwest and ebb southeast. No tidal current predictions are available within the sheet limits.

No unusual magnetic variations were noted.

T. RECOMMENDATIONS ✓

None

U. REFERRAL TO REPORTS ✓

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

Title	Date Sent	Office
Spring 1994 Horizontal Control Report for OPR-O136-RA	May 1994	N/CG245
Spring 1994 Coast Pilot Report for OPR-O136-RA	May 1994	N/CG245
Project related data for OPR-O136-RA	Incremental	N/CG245

Respectfully Submitted,

Shepard M. Smith
Ensign, NOAA

Approved and Forwarded,

Dean R. Seidel
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 4 May 1995 ✓

No	Type	Latitude	Longitude	N Cart	Freq	Vel Code	MM/DD/YY	Station Name
100	F	057:33:42.067	133:32:35.841	19 250	0.0	0.0	04/03/95	WINDHAM BAY LIGHT(GPS STATION)
101	F	057:16:13.398	133:37:53.480	30 250	0.0	0.0	04/03/95	INDK(GPS STATION) 1993
102	F	057:28:37.836	133:58:16.968	6 250	0.0	0.0	04/12/95	KAN 1924(GPS STATION)

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 15, 1995

ADVANCE INFORMATION

Director
DMAHTC
ATTN: MCNM
6500 Brookes lane
Washington, DC 20315-0030

Dear Sir:

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

Sincerely,

Dean R. Seidel
Captain, NOAA
Commanding Officer

Enclosures

P 150021Z MAY 95
FM NOAAS RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCCNAVWARN WASHINGTON DC//MCNM//
INFO NOAAMOP SEATTLE WA
ACCT CM-VCAA
BT

ADVANCE INFORMATION

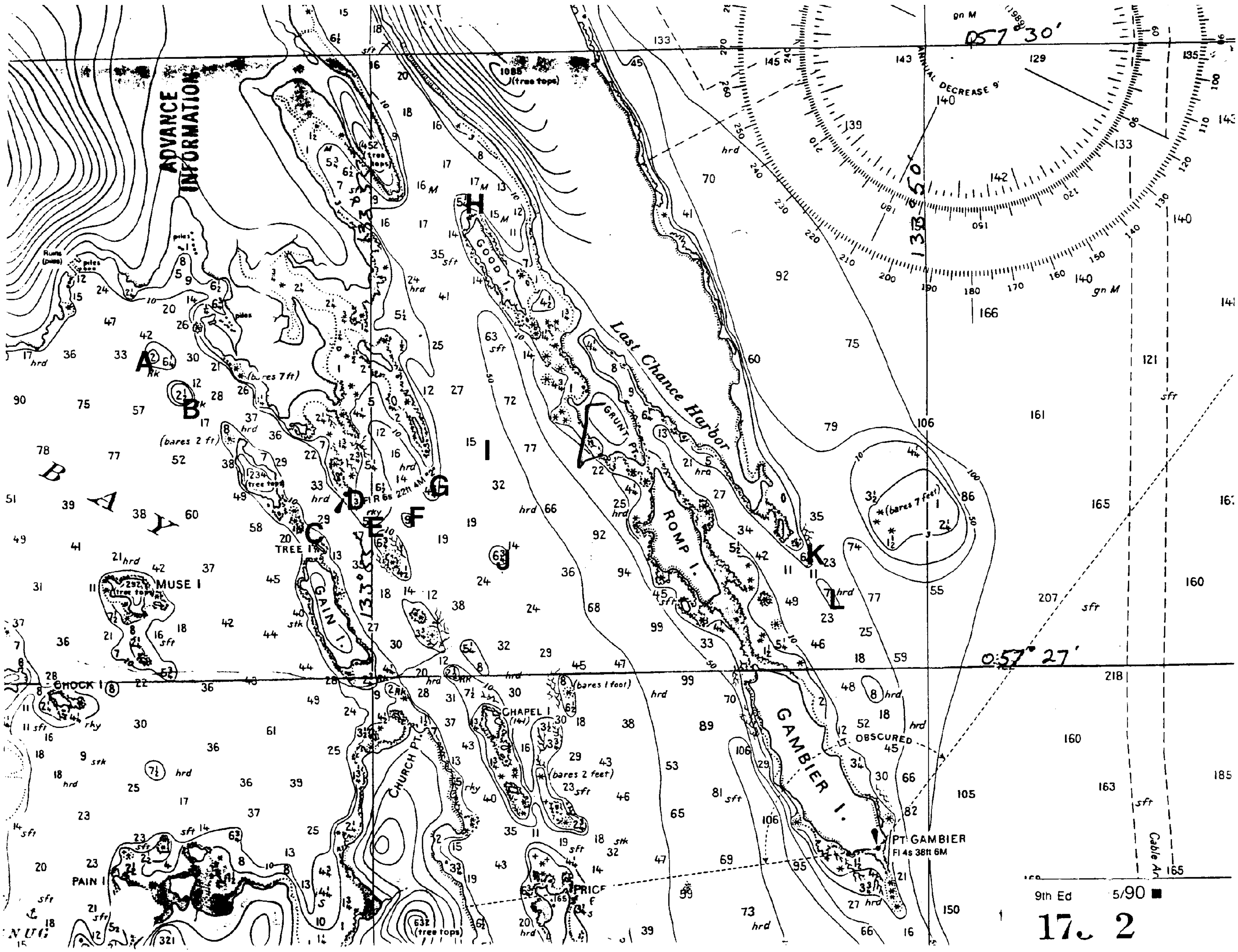
UNCLAS
NOAA SHIP RAINIER HAS LOCATED 12 DANGERS TO NAVIGATION IN SOUTHERN STEPHENS PASSAGE, ALASKA (PROJECT OPR-0136-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10594. THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

CHARTS AFFECTED: 17360 29TH ED JUL 9/94 1:217,828 (NAD83)
17362 9TH ED MAY 5/90 1:40,000 (NAD83)

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	DEPTH	LATITUDE	LONGITUDE	Fix #	
A.	ROCK	COVERS 1 1/2 fms	57/28/33.1N	133/56/57.2W	8997	28m
B.	ROCK	COVERS 2 fms	57/28/23.1N	133/56/40.1W	8999	37
C.	SHOAL	COVERS 5 1/4 fms	57/27/42.8N	133/55/32.9W	1244+4	9?
D.	SHOAL	COVERS 2 1/4 fms	57/27/52.2N	133/55/11.6W	1209+2	45
E.	ROCK	COVERS 4 1/2 fms	57/27/45.2N	133/55/02.2W	1479+3	84
F.	SHOAL	COVERS 8 1/2 fms	57/27/43.7N	133/54/37.7W	1476+3	15[illegible]
G.	ROCK	COVERS 4 1/4 fms	57/27/54.3N	133/54/27.3W	7934+7	8°
H.	SHOAL	COVERS 3 fms	57/29/15.2N	133/54/06.7W	8129+2	56
I.	SHOAL	COVERS 8 fms	57/28/06.4N	133/53/57.3W	1529+3	14?
J.	ROCK	COVERS 6 1/4 fms	57/27/33.2N	133/53/49.8W	1409+5	11?
K.	SHOAL	COVERS 2 3/4 fms	57/27/31.0N	133/51/05.8W	1426+3	53
L.	ROCK	COVERS 4 1/4 fms	57/27/20.4N	133/50/51.3W	3087	82

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


ADVANCE INFORMATION
BAY
A
B
C
D
E
F
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H
I
J
K
L
MUSE I
TREE I
GAIN I.
CHOCK I
PAIN I
CHURCH PT.
CHAPEL I
PRICE
GOOD I.
GRUNT PT.
ROMP I.
Last Chance Harbor
GAMBIER I.
PT GAMBIER
Fl 4s 38ft 6M
OBSCURED
(bares 7 ft)
(bares 2 ft)
(bares 1 foot)
(bares 2 feet)
(bares 7 feet)
(tree tops)
ANNUAL DECREASE 9'
133°50'
057°30'
057°27'
Cable Ar
9th Ed
5/90
17. 2

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [x] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [x] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
NOAA Ship RAINIER	Alaska	Southern Stephens Passage	5/15/95

The following objects HAVE [ ] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-0136-RA	N/A	H-10594	NAD 83

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
✓ L.L.23605	Gambier Bay Entrance Light 2 (GMBY) Fl R 6s	57 27	53.700 1661.26	133 55	13.510 225.31		F-GPS-L 4-24-95	17360 17362

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD	Captain Dean R. Seidel, NOAA	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	Ensign Joel Becker, NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U.S. GPO:1975-0-665-080/1155

Section Q: Descriptive Report Insert

Name of Aid: Gambier Bay Entrance Light 2
Light List #: 23605
Pos. # N/A Method of Positioning: (3rd Order) Hydro

Positioning Info

	Latitude N	Longitude W
Charted Pos.	57 27.9'	133 55.2'
Survey Pos.	57 27 53.70004	133 55 13.50961
	Easting	Northing
Charted Pos.	N/A	N/A
Survey Pos.	N/A	N/A

Difference Between Survey/Charted Position N/A m N/A deg T
Note: Positions round to same value with Light List significant digits.

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

New/Uncharted Aids (if info is known or easily obtained)
Date Established:
Maintained By: Private (y/n) ☐
Frequency of Maintenance:
Purpose:

APPROVAL SHEET

for

H-10594
RA-10-2-95

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
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: September 13, 1995

HYDROGRAPHIC SECTION: Pacific

ORIGINAL

HYDROGRAPHIC PROJECT: OPR-0136

HYDROGRAPHIC SHEET: H-10594 (amended)

LOCALITY: Northeast Portion of Gambier Bay, Stephens Passage, Alaska

TIME PERIOD: April 12 - May 7, 1995

TIDE STATION USED: 945-1909 Good Island, Gambier Bay, AK
Lat. 57° 29.2'N Lon. 133° 53.9'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -0.68 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 14.3 ft.

TIDE STATION USED: 945-1906 Cannery Wharf, Gambier Bay, AK
Lat. 57° 29.0'N Lon. 133° 57.6'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -2.36 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 14.1 ft.

REMARKS: RECOMMENDED ZONING

1. East of a line from points 57° 29.0'N, 133° 56.3'W to 57° 28.5'N, 133° 56.0'W to 57° 28.0'N, 133° 56.0'W to 57° 27.0'N, 133° 55.0'W, times and heights are direct on Good Island, AK (945-1909).

2. West of a line from points 57° 29.0'N, 133° 56.3'W to 57° 28.5'N, 133° 56.0'W to 57° 28.0'N, 133° 56.0'W to 57° 27.0'N, 133° 55.0'W, times and heights are direct on Cannery Wharf, AK (945-1906). If data are not available for Cannery Wharf, use Good Island (945-1909), applying times directly and a x0.99 range ratio to heights.

Notes: 1. Times are tabulated in Greenwich Mean Time.

2. Data for Good Island, AK (945-1909) are temporarily stored in file #745-1909. Data for Cannery Wharf, AK (945-1906) are temporarily stored in file #745-1906.

CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10594

Name on Survey	A ON CHART NO. 17362	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H	K U.S. LIGHT LIST	
ADMIRALTY ISLAND	X		X							1
ALASKA (title)	X		X							2
GAIN ISLAND	X		X							3
GAMBIER BAY	X		X							4
GOOD ISLAND	X		X							5
GRUNT POINT	X		X							6
LAST CHANCE HARBOR	X		X							7
MUSE ISLAND	X		X							8
ROMP ISLAND	X		X							9
TREE ISLAND	X		X							10
STEPHENS PASSAGE	X		X							11
										12
										13
										14
										15
										16
										17
										18
				Approved:						19
										20
				Curtis C. Lay						21
				Chief Geographer						22
				OCT 4 1995						23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27(H)
(9-83)

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER: H-10594

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	1					
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES				1		

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	*EVALUATION*	*TOTALS*
POSITIONS ON SHEET			13361
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	137.5		137.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		13	13
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	137.5	13	150.5

Pre-processing Examination by P Haines		*Beginning Date* 5-25-95	*Ending Date* 5-25-95
Verification of Field Data by R. Davies		*Time (Hours)* 137.5	*Ending Date* 12-27-95
Verification Check by B. Olmstead		*Time (Hours)* 1	*Ending Date* 12-28-95
Evaluation and Analysis by R. Davies		*Time (Hours)* 13	*Ending Date* 12-28-95
Inspection by B. Olmstead		*Time (Hours)* 8	*Ending Date* 12-29-95

EVALUATION REPORT
H-10594

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 and includes the northeast portion of Gambier Bay. Depths range from 0 to 294 meters. The bottom consists primarily of mud and pebbles.

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, Version 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 Guideline 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 used on survey H-10594. Refer to section E of the hydrographer's

report for additional information.

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 Good Island and Cannery Wharf, Gambier Bay, gages 945-1909 and 945-1906, were used during office processing. Soundings have been corrected for dynamic draft, actual tides and sound velocity. The offset values and velocity correctors are adequate.

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 field and 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: -1.221 seconds (-37.763 meters)
Longitude: 6.230 seconds (103.764 meters)

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

I. HYDROGRAPHIC POSITION CONTROL

Differential GPS(DGPS) was used to control this survey. NAD 83 is used as the horizontal datum for plotting and position computations. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. No positions exceeded the limits in terms of horizontal dilution of precision (HDOP).

J. SHORELINE

Shoreline maps TP-01166 and DM-10029 apply to this survey.

	PHOTO DATE	CLASS	SCALE	DATUM
TP-01166	July 1983	III	1:20,000	NAD 27
DM-10029	May 1989		1:20,000	NAD83

The shoreline drawn on the smooth sheet originates from 1:10,000 scale photogrammetric enlargements of the shoreline map. Shoreline from TP-01166 and DM-10029 have been digitized during office processing and merged with the survey file during ACAD processing. Changes to alongshore and offshore features shown on the shoreline maps were verified and revise as warranted during survey operations. These changes have been shown on the smooth sheet.

K. CROSSLINES

Crosslines are adequately discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10594 junctions with the following surveys.

Survey	Year	Scale	Area
H-10596	1995	1:10,000	West
H-10595	1995	1:10,000	South
H-10175	1985	1:10,000	Northeast
H-10593	1995	1:20,000	East

The junctions with H-10595 and H-10596 are complete. Soundings are in good agreement. The junction with survey H-10175 was not formally completed since this survey was previously processed and forwarded for charting. Soundings are in good agreement. The junction with survey H-10593 was not formally completed since the survey is in preliminary processing. The junction will be addressed in the Evaluation Report for H-10593.

M. COMPARISON WITH PRIOR SURVEYS

H-1996(1889-92) 1:80,000
H-1997(1889) 1:20,000
H-3542(1913) 1:5,000
H-4512A(1925-26) 1:20,000

The above listed surveys cover the entire area of the present survey. Present survey depths are generally shoaler with an average difference of 1 meter (0.5 fathoms) but extreme differences of up to 5 meters (2.7 fathoms). These differences can be attributed to greater sounding coverage, relative accuracy of the data acquisition techniques and possible isostatic

rebound and natural accretion and erosional processes.

Two prior survey depths originating from H-4512A, were not investigated adequately. A 12 fathom (21.9 meter) at latitude 57/27/24N, longitude 133/54/27W and a 0.5 fathom (0.9 meter) at latitude 57/28/36N, longitude 133/54/42W have been brought forward to the present survey.

Except for the two prior depths mention above, survey H-10594 is adequate to supersede the above mentioned prior surveys within the common area.

H-4512B WD(1925-26) 1:20,000

Wire-drag survey H-4512B covers the entire area of the present survey. All hang depths were adequately investigated and should be superseded by this survey with the exception of a 6.3 fathom (11.6 meter) depth at latitude 57/28/33N, longitude 133/56/50W. This depth has been brought forward to the present survey.

N. ITEM INVESTIGATIONS

AWOIS Item 51821, originating from a miscellaneous source, was investigated during survey operations. Discussion and disposition of this item has been adequately discussed in the hydrographer's report.

O. COMPARISON WITH CHART

Survey H-10594 was compared with the following chart

Chart	Edition	Date	Scale	Datum
17362	9th	May 5, 1990	1:40,000	NAD83

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

Except for the depths mention in section M, survey H-10594 is adequate to supersede charted hydrography within the common area.

P. ADEQUACY OF SURVEY

Except for the depths mention in section M, 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 are no floating aids to navigation located within the survey area. There is one fixed aid to navigation located within the survey area. It was located and serves its intended purpose. There are no landmarks within the survey area.

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

No additional miscellaneous items were noted during office processing.

T. RECOMMENDATIONS

This is a good hydrographic survey. Additional field work on a low priority basis is recommended to investigate the three depths mentioned in section M.

U. REFERRAL TO REPORTS

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

Charles R. Davies

C.R. Davies
Cartographer

APPROVAL SHEET
H-10594

Initial Approvals:

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

Bruce A. Olmstead Date: 1/2/96
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: 1/3/96
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

****

Final Approval

Approved:

Andrew A. Armstrong III Date: 6/12/96
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10594

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
17362	4/17/96	Russ Davies	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via Full application of
			Drawing No. Sndgs from smooth sheet.
17360	6-21-96	Russ Davies	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via Full Application of
			Drawing No. Sndgs from smooth sheet.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED