10336

Diagram No. 8202-3

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-10-3-90

Registery No. H-10336

LOCALITY

State Alaska

General Locality Icy Strait

Sublocality South Passage

1990

CHIEF OF PARTY
CAPT J.C. Albright

LIBRARY & ARCHIVES

DATE February 3, 1992

☆U.S. GOV. PRINTING OFFICE: 1985—566-054

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17302
17300
16016 NC

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.: H-10336

FIELD NO.: RA-10-3-90

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State: Alaska

General locality: Icy Strait

Locality: South Passage

Scale: 1:10,000 Date of survey: April 12 - May 18, 1990

Instructions dated: February 22, 1990 Project No.: OPR-0186-RA

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

Chief of party: Captain John C. Albright, NOAA

Surveyed by: LTJG Glang, LTJG Haines, ENS Schoonover, ENS Muench, ENS Webber, ENS Ward

Soundings taken by echo sounder, ~~hand lead~~, pole: DSF-6000N

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Verification by: E.H. Brown Automated plot by: PHS Xynetics Plotter

Evaluation by: G.E. Kay

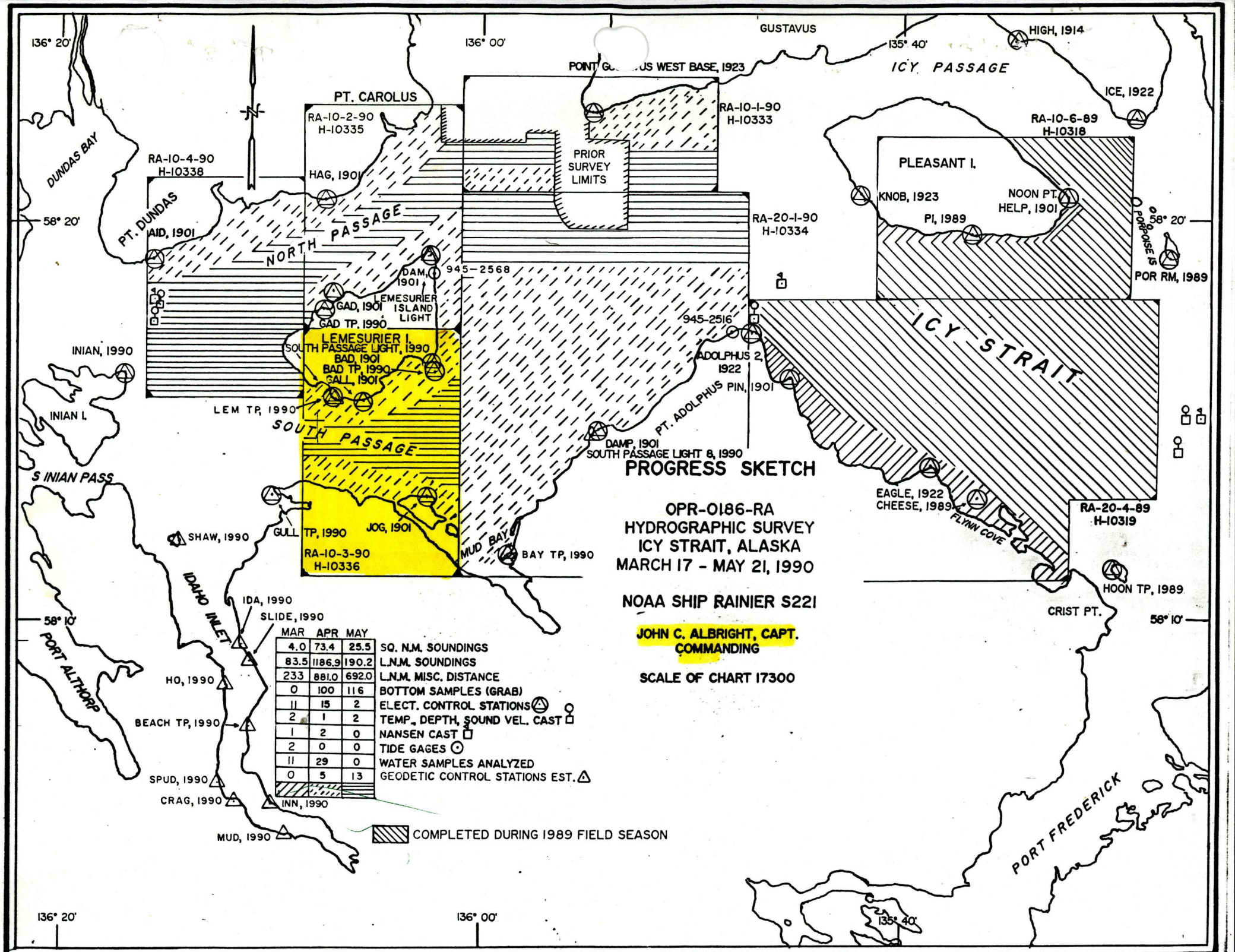
Soundings in meters ~~fathoms~~ ~~feet~~ at ~~MLW~~ MLLW and decimeters

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

SC 1-30-97
KWW 3/25/93

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

U.S. GOVERNMENT PRINTING OFFICE: 1986 - 652-007/41215



PROGRESS SKETCH

OPR-0186-RA
HYDROGRAPHIC SURVEY
ICY STRAIT, ALASKA
MARCH 17 - MAY 21, 1990

NOAA SHIP RAINIER S221

JOHN C. ALBRIGHT, CAPT.
COMMANDING

SCALE OF CHART 17300

MAR	APR	MAY	
4.0	73.4	25.5	SQ. N.M. SOUNDINGS
83.5	1186.9	190.2	L.N.M. SOUNDINGS
233	881.0	692.0	L.N.M. MISC. DISTANCE
0	100	116	BOTTOM SAMPLES (GRAB)
11	15	2	ELECT. CONTROL STATIONS
2	1	2	TEMP., DEPTH, SOUND VEL. CAST
1	2	0	NANSEN CAST
2	0	0	TIDE GAGES
11	29	0	WATER SAMPLES ANALYZED
0	5	13	GEODETIC CONTROL STATIONS EST.

Descriptive Report to Accompany Hydrographic Survey H-10336

Field Number RA-10-3-90
Scale 1:10,000
April-May 1990

NOAA Ship RAINIER
Chief of Party: Captain John C. Albright

A. PROJECT

This basic hydrographic survey was completed in Icy Strait, Alaska as specified by Project Instructions OPR-O186-RA dated February 22, 1990. This survey is designated Sheet E on the revised sheet layout dated February 16, 1988.

This survey is one in a series that will provide contemporary hydrographic data for updating existing nautical charts and for planned larger scale coverage of Icy Strait and vicinity. It responds to requests from the Southeastern Alaska Pilots' Association, NOAA, and federal, state, and local government agencies.

This survey was completed using procedures outlined in the January 1989 edition of the Field Procedures Manual for hydrographic surveying (FPM).

B. AREA SURVEYED

The survey is located in southeast Alaska, 48 NM west of Juneau, in South Passage of Icy Strait, and encompasses the area between Lemesurier Island and Chichagof Island.

The eastern and western limits are longitudes 136°01'00"W and 136°08'30"W, respectively. The survey is bounded to the north by Lemesurier Island and latitude 58°17'09"N. The southern limits are Chichagof Island and Goose Island. Data acquisition was conducted from April 12, 1990, to May 18, 1990 (DN 102 to 138).

The shoreline around Lemesurier Island, west of Willoughby Cove, is very steep with numerous cliffs and ledges. The shoreline around Chichagof and Goose Islands is generally characterized as a foul area and includes many scattered rocks, reefs, and ledges.

The bathymetry south of Lemesurier Island is steeply sloping except for a 50-meter shoal area 1.5 nautical miles south of Willoughby Cove. The bathymetry north of Chichagof and Goose Islands is generally gently sloping with several reefs that bare at MLLW located within 0.5 nautical mile of the shoreline.

Bottom samples throughout the survey area consisted primarily of fine green sand, broken shells, and medium pebbles.

On DN 131 at 2130 UTC a skiff drove behind (south of) Goose Island. The area was observed to be shoal, foul with rocks, and not safely navigable by a survey launch.

C. SOUNDING VESSELS

All data were acquired by NOAA Ship RAINIER and the four automated survey launches shown below:

Vessel	EDP No.	Operation
RAINIER	2120	AML/Nansen Casts
RA-3	2123	Hydrography Shoreline Verification
RA-4	2124	Hydrography Shoreline Verification
RA-5	2125	Hydrography Shoreline Verification Bottom Samples AML Casts
RA-6	2126	Hydrography Shoreline Verification

No changes to the standard sounding configurations were necessary.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

RAINIER and all survey launches were equipped with the Raytheon DSF-6000N echo sounders shown below. The echo sounders were operated in the HIGH + LOW (HIGH DIGITIZED) function using manual gain controls on both high and low frequencies to obtain the best analog trace. Soundings were recorded in meters and tenths of meters. Six-meter bar checks were conducted and recorded daily, using both the LOW and the HIGH + LOW (HIGH DIGITIZED) functions. The echo sounders were operated in accordance with the Provisional Instructions "Raytheon DSF-6000N Echo-Sounder Operating and Processing Instructions," dated July 5, 1983, and the N/CG2 memorandum "DSF-6000N Depth Errors as a Function of Receiver Gain," dated May 23, 1986.

Raytheon DSF-6000N Echo Sounders

Vessel	Serial No.	DN(1990)
2123	A114N	103-115
	B046N	116-134
2124	A103N	134-138
2125	A117N	106-136
2126	B046N	102-107
	A114N	116-137

The echo sounders were continuously monitored during data acquisition. All sounding data were scanned at least two times, not only to ensure all significant peaks were inserted, but also to verify the digitized depths. While running over steep or irregular areas, the echo sounders sometimes failed to track properly. Running at minimum speeds usually alleviated this problem, but marginal analog traces could not always be avoided.

Bar check lines were calibrated by RAINIER personnel during January 1990 at PMC. Calibration forms are included in the Spring 1990 Corrections to Echo Soundings Data Package for OPR-O186-RA.

Corrections to Echo Soundings

Corrections to echo soundings were determined for static draft, heave, velocity of sound through water, settlement and squat, and predicted tides. Sounding correctors apply to both narrow and wide beams of the DSF-6000N echo sounder. Supporting data and computations for all corrections to echo soundings, except heave, are included in the Spring 1990 Corrections to Echo Soundings Data Package for OPR-O186-RA.

Static Draft

For all launches, the distance from the transducer face to the gunwale was measured with a large metal carpenter's square. Static draft measurements were then determined by dropping a leadline from the gunwale to the water and subtracting this distance from the distance measured with the carpenter's-square. The measurements from the gunwale to the waterline were conducted with the fuel tanks averaging 3/4 full and three people aboard. A transducer depth of 0.6 meter was determined for all launches on March 20, 1990. This transducer depth agrees with the launches' historical records.

Heave

Corrections for heave were applied while scanning echograms. The scanning technique used in comparing the analog trace with the digital record eliminated any significant fluctuations resulting from sea action.

Sound Velocity

Correctors for the velocity of sound through water were determined from casts 6 and 8 listed below:

Cast No.	Deepest Depth (m)	DN	Geographic Position
6	157	115	58°17'54"N, 136°15'48"W
N4*	150	115	58°17'54"N, 136°15'48"W
8	190	133	58°17'55"N, 136°15'27"W

N=Nansen cast

* Data not applied to echo soundings as results were almost identical to those of cast No. 6.

Sound velocity correctors were acquired with an AML SVP Profiler, S/N 3042, calibrated at the Northwest Regional Calibration Center (NRCC) in Bellevue, WA, on March 27, 1990.

Thermometers used for the Nansen casts were calibrated between April 26, 1989, and January 25, 1990, at NRCC. Two Beckman Salinometers, S/N 24663 and S/N 59265, were calibrated at NRCC on February 7, 1990, and March 9, 1990, respectively.

The Nansen cast No. N4 was taken on the same day as AML cast No. 6, as a check to ensure the AML sensors were operating properly. The sound velocities determined by the two methods showed excellent agreement.

The surface water temperature and the corresponding sound velocity increased over time during 1990. Sound velocity profiles showed significant regional variation within the project area as well; therefore, sound velocity correctors were applied regionally as well as temporally to this survey. The casts used for each velocity table, and the days to which each velocity table applies, are shown below:

Velocity Table No.	Cast No.	Applicable DN
5	6 DN 115	102-116 24
7	8 DN 133	129-138

Velocity correctors were computed using the PC program VELOCITY (version 1.11) in accordance with Hydrographic Survey Guideline 69 (HSG 69) dated November 15, 1989. Printouts of velocity tables used in the HDAPS Post Survey program are ~~appended to this report~~. Filed with the survey records.

Velocity Table Number 5 contains correctors extrapolated to depths in excess of thirty percent of the deepest depth listed above. These correctors were determined for another survey and are not applicable to this survey.

Settlement and Squat*

* On June 29, 1990, RAINIER determined the HDAPS Survey and Post Survey Programs do not apply settlement and squat correctors. The hydrographer recommends the Offset Tables be applied to the smooth sheet when the HDAPS Post Survey Program is modified. This information has been applied.

Settlement and squat correctors were determined for three of the automated survey launches in Shilshole Bay, WA, on February 23 (Vesno 2124 and 2126) and March 13, 1990 (Vesno 2125). Vesno 2123 was tested at the working grounds on April 12, 1990, near Pt. Aldolphus in Icy Strait. Vesno 2125 was retested on May 20, 1990, at Bartlett Cove, AK, near the working grounds because the March 1990 correctors for this launch varied slightly from 1989 data. Correctors from 1989 were applied to data from Vesno 2123 and 2125 during aquisition until 1990 correctors became available. Final Field Sheets were prepared with 1990 data.

All tests were conducted over a hard bottom in depths well exceeding seven times the vessels' drafts. Both sea and wind were calm. Observations were made through a Zeiss Ni2 leveling instrument (S/N 103453) to a rod held vertically on deck, directly over the transducer. Correctors were computed in accordance with Hydrographic Manual 4.9.4.2.

The following is a summary of all Offset Tables used on this survey and their applicable period:

Vessel No.	Offset Table No.	Period used online (DN)
2123	1 (1989)	101-128
	3	129-138
2124	4	101-138
2125	1 (1989)	101-128
	5 (1989)**	129-138
	5 (1990)	*used for FFS only*
2126	6	101-138

** Offset Table 5 (1989) is identical to Offset Table 1 (1989).
Offset Tables 3, 4, 5 (1990), and 6 were used to prepare final field sheets. Copies of all offset tables are appended to this report. *

Tide Correctors

Tidal zoning and correctors applicable to predicted tides for the Sitka, Alaska, reference tide station (945-1600) were provided on the Tidal Zoning Chart accompanying the Project Instructions, and are shown below.

Zone 1	Time Corrections	Ratio
South of line between Pt. Carolus and 58°46'30"N, 135°49'50"W to line below	High water: +10 min Low water: +15 min	x1.54
ZONE 2 West of line between 58°12'35"N, 135°58'20"W and southeastern tip of Lemesurier Island to line below	High water: +10 min Low water: +10 min	x1.47
ZONE 3 West of line between 58°12'54"N, 136°04'12"W and 58°15'30"N, 136°05'45"W	High water: +10 min Low water: +10 min	x1.40

Although all three zones encompass parts of the survey area, the majority of data was acquired within the second zone. Therefore, the correctors from this zone were applied to all soundings. HDAPS listings of the data used to generate tide corrector tables are appended to this report. *
ON the Field Sheet.

Tide gages were installed and maintained by RAINIER personnel at stations on the east side of Lemesurier Island (945-2568) and at Point Adolphus (945-2516). The field tide records and the Field Tide Notes for these stations have been forwarded to N/OMA121 in accordance with HSG 50 and FPM 4.3. Requests for approved tides have been forwarded to N/OMA121. Copies of the Field Tide Notes and the requests for approved tides are appended to this report. *

* Filed with the SURVEY Records.

E. HYDROGRAPHIC SHEETS

All field sheets were prepared aboard RAINIER on an automated Bruning Zeta 924-A plotter. The HDAPS system draws graticules based on a Universal Modified Transverse Mercator projection. The two 1:10,000-scale final field sheets are designated RA-10-3E-90 and RA-10-3W-90 (HDAPS Plotter Sheet Table Nos. 18 and 19). Two NAD27 grid ticks were plotted on the final field sheets for ease in comparing with charted and prior survey soundings. ✓

Each final field sheet has an accompanying 1:10,000-scale overlay showing position numbers for DP's and bottom samples. Two additional 1:10,000-scale overlays for RA-10-3E-90 show 25- and 50- meter splits. ✓

In addition, there are eight 1:2,500-scale plotter sheets showing 10-meter shoal development:

HDAPS PLOTTER SHEET NO.	SCALE	DESCRIPTION
18	1:10,000	RA-10-3E-90
19	1:10,000	RA-10-3W-90
49	1:2,500	RA-10-3E-90, Dev 49
56	1:2,500	RA-10-3E-90, Dev 56
57	1:2,500	RA-10-3E-90, Dev 57
60	1:2,500	RA-10-3E-90, Dev 60
61	1:2,500	RA-10-3E-90, Dev 61
63	1:2,500	RA-10-3E-90, Dev 63
66	1:2,500	RA-10-3E-90, Dev 66
67	1:2,500	RA-10-3W-90, Dev 67

✓

All field sheets, accompanying field records, and this Descriptive Report are being forwarded to the Pacific Hydrographic Section (N/CG245) for verification. ALL hydrographic data were verified and evaluated.

F. CONTROL STATIONS

Positions for all existing stations are from the NGS data base. All existing stations were recovered in accordance with methods stated in FPM 5.2.4. New stations meet Third-Order Class 1 standards and were positioned via traverse method. Geographic positions are based on the North American Datum of 1983 and the Geodetic Reference System 1980 Ellipsoid. Further information is included in the Spring 1990 Horizontal Control Report for OPR-O186-RA. ✓

A list of the geodetic stations used to control this survey is appended to this report. ✓

G. HYDROGRAPHIC POSITION CONTROL

Soundings were located using Motorola Mini-Ranger Falcon 484 microwave, multi-range positioning equipment. ✓

Positioning Equipment

The following tables summarize the mobile console/RT pairs and shore transponders used during this survey.

Mobile Equipment

EDP No.	Vessel	Console/RT	DN
2123	RA-3	D0051/B1405	103-134
2124	RA-4	E0148/F3413	134-138
2125	RA-5	F0245/F3414	106-136
2126	RA-6	E0138/E2716	102-118
		E0138/911615	119-137

Shore Equipment

Transponder Serial No.	Code	Transponder Serial No.	Code*
911059	1	C1883	B/11
B1106	2	G3500	C/12
E2713	3	F3256	E/14
B1413	5	G3501	F/15

* hexadecimal/numerical designations

Baseline Calibrations

Opening baseline calibrations were conducted over water in accordance with FPM 3.1.2.1. Calibrations were conducted at Sand Point, Lake Washington, Seattle, on DN 058-061 over a measured distance of 1423 meters

Final field sheets were plotted with the 1990 opening baseline calibration correctors. Detailed information, calibration data, and descriptions of the baselines can be found in the Spring 1990 Electronic Control Package for OPR-O186-RA.

Critical systems checks were conducted in accordance with FPM 3.1.2.2. Printouts of the HDAPS SURVEY program Position Quality Page confirmed that the error circle radius (ECR) and maximum residual values were acceptable at times of hydrography.

Problems and Unusual Position Configurations

On DN 119, the RT unit, S/N E2716, in Vesno 2126 failed. The RT unit was replaced with a spare, S/N 911615. Both RT units had been previously calibrated with console S/N E0138.

Null zones and erratic ranges were occasionally experienced due to the destructive interference of direct and reflected microwaves. Due to these null zones, line of sight interruptions, etc., a small amount of data were acquired with ECR's or maximum residuals above the acceptable limits. Time-and-course interpolations were used during data processing to correct the position of these data if they plotted off of the vessel track. ✓

Antenna Offset Distances

The antenna offset distance was 0.0 meters for all launches as each launch had its antenna located over the transducer. The distances are included in Offset Tables 1, 3, 4, 5, and 6. ✓

H. SHORELINE

Two shoreline maps (T-sheets) were used to transfer shoreline detail to the final field sheets. Lemesurier Island shoreline originates from a 1:10,000-scale enlargement of TP-01316 (1:20,000; NAD83). Chichagof and Goose Island shorelines originate from a 1:10,000-scale enlargement of TP-01319 (1:20,000; NAD83). ✓

Shoreline verification was conducted either at or near lower low water in accordance with FPM 7.0. ✓

Detached positions (DPs) taken at lower low water indicate that the T-sheet photography was flown during a stage of tide higher than MLLW. T-sheet rocks were found to be isolated boulders, reefs, islets or high points within foul areas or ledges. Changes in shoreline detail are shown in red on the final field sheets. ✓

DPs were recorded on the master printouts. Detailed 1:10,000-scale paper plots showing all DPs and notes relating to each feature are included with the sheets submitted with this survey. Position numbers for all DPs are plotted on the two DP overlays. Heights are recorded in meters and are corrected to predicted MLLW. The heights recorded for islets refer to the features' highest points. ✓

The locations of four T-sheet rocks and two charted rocks in the vicinity of 58°13'03"N, 136°05'45"W, were inspected by position no. 2684 on DN 116. The features fall within the limits of a foul area and could not be distiguished individually. at Latitude 58/13/09.84 N Longitude 136/05/40.21 W ✓

One charted rock and one T-sheet rock at 58°13'26"N, 136°07'50"W, were inspected on DN 116 by position no. 2668. They were not distinguishable from the rest of the shoreline. at Latitude 58/13/29.75 N Longitude 136/07/47.76" W ✓

The charted rock at 58°13'~~22~~ 24.55"N, 136°07'~~05~~ 00.28"W, was determined by position no. 2672 on DN 116 to be the T-sheet rock at 58°13'24"N, 136°06'59"W. The rock sits 1.~~0~~8m above MLLW. ~~on the end of a small spit and is very prominent.~~ ✓

The T-sheet rock at 58°13'17"N, 136°06'30"W, is described by position no. 2679 on DN 116 and is located at 58°13'17.02"N, 136°06'~~27~~ 26.77"W. It is an exposed portion of bedrock ~~0.3 m above MLLW.~~ CnV D² Meters at MLLW. ✓

Two charted rocks at 58°15'43"N, 136°04'30"W, and 58°15'48"N, 136°04'27"W, were inspected on DN 115 and are described by position nos. 2551-2553 as part of a broken ledge. The charted rocks apparently represent this feature but are charted slightly offshore. At Position #2552, Latitude 58/15/46.27N, Longitude 136/04/30.93W. CHART AREA AS SHOWN ON the SMOOTH SHEET.

A group of charted and T-sheet rocks on the Chichagof Island shoreline between meridians 136°05'00"W and 136°06'00"W were inspected on DN 116 and lie within the limits of a foul area defined by position nos. 6217 to 6224. The features were not individually distinguishable from the surrounding landscape. CENTERED ON Position #6221, at Latitude 58/13/10.84N, Longitude 136/05/06.42W. Chart area as shown on smooth Sheet.

The T-sheet rock at 58°13'18"N, 136°03'19"W was found to be a submerged feature 0.6 meters during main scheme hydrography (position no. 2623+3) at 58°13'17.91"N, 136°03'19.60"W. The feature is a submerged extension of the reef described by position numbers 6184 to 6188. CHART AREA AS SHOWN ON the SMOOTH SHEET.

Recommendation: The hydrographer recommends that shoreline detail from this survey be used to supersede prior shoreline information. CONCUR Chart area as shown on Smooth Sheet.

Disprovals OF Shoreline MAPs detail.

The following disprovals were conducted at or below lower low water. A visual search was conducted for each item lasting an average of ten minutes within a 30 meter radius of the shown position. Positioning was accomplished by using two or more ranges from Falcon Mini Rangers with ECRs and maximum residuals within acceptable limits.

The vicinity of the T-sheet rock at 58°16'06"N, 136°04'26"W was inspected on DN 103 between position nos. 8039 and 8040. The rock was not individually distinguishable from the surrounding shoreline. Position # 8039 at Latitude 58/16/08.34N Longitude 136/04/32.67W

The vicinity of the T-sheet rock at 58°16'16"N, 136°03'57"W was inspected on DN 103 by position no. 8034. The rock was not individually distinguishable from the surrounding shoreline. Latitude 58/16/16.90N, Longitude 136/03/51.23W.

The vicinity of the charted rock at 58°16'58"N, 136°02'06"W was inspected on DN 102, position no. 8001, and the rock was not seen, DO NOT CONCUR HOWEVER A rock WAS Positioned 32 METERS FROM the Charted rock at Position #4440 at Latitude 58/16/57.53N, Longitude 136/02/07.56W. This confirms the Charted rock. The present rock is more accurate.

The vicinity of the charted rock at 58°17'04"N, 136°02'04"W was inspected on DN 136, position no. 4439, and the rock was not seen. Position #4438 is 74-meters from the Charted rock at Latitude 58/17/02.46N, Longitude 136/02/07.53W. CHART AREA AS SHOWN ON SMOOTH SHEET. CHART AREA AS SHOWN ON SURVEY

The vicinity of the charted rock at 58°17'26"N, 136°02'04"W was inspected on DN 136, position no. 4432, and the rock was not seen, HOWEVER, THE T-SHEET AND HYDROGRAPHY HAVE DELINEATED A LEDGE. CHART AREA AS SHOWN ON SMOOTH SHEET. Position #4432, Latitude 58/17/09.91N, Longitude 136/02/02.92W.

The vicinity of the charted rock at 58°13'16"N, 136°03'27"W was inspected on DN 134, position no. 4006, and the rock was not seen, HOWEVER SHOAL SOUNDINGS OF 1³(A) AND 2⁴(B) METERS ARE FOUND IN THE AREA. At Latitude 58/13/15.83N, Longitude 136/03/25.51W. CHART AREA AS SHOWN ON SMOOTH SHEET.

Recommendation: The hydrographer recommends that shoreline detail from this survey be used to supersede prior survey information. CONCUR CHART AREA AS SHOWN ON SMOOTH SHEET.

(A) 1³ Position #2623/3 Latitude 58/13/17.91N, Longitude 136/03/19.60.
(B) 2⁴ Position #2619/6 Latitude 58/13/13.54N, Longitude 136/03/25.54

I. CROSSLINES

A total of 22.1 nautical miles of crosslines were run perpendicular to mainscheme lines, representing 9.8% of the mainscheme hydrography. Crossline soundings agree to within one meter with mainscheme soundings, except in areas of steep bottom topography. The vessel acquiring crossline data did not always collect the corresponding mainscheme data. ✓

J. JUNCTIONS

See Evaluation Report section 5

This survey junctions with H-10335 (1:10,000; 1990) to the north, east of Lemesurier Island, H-10338 (1:10,000; 1990) to the west, and H-10334 (1:20,000; 1990) to the east. No irregularities were found when comparing soundings and depth contours. While minor discrepancies occur over steeply sloping areas, overall agreement of overlapping soundings between surveys is excellent, with all soundings agreeing to within 2 meters of the junction soundings. ✓

K. COMPARISON WITH PRIOR SURVEYS

See Evaluation Report section 6

This survey was compared to the following prior surveys: ✓

H-2618 (1:40,000; 1902):

The majority of the soundings on the 1:10,000 enlargement of H-2618 were illegible, making a direct comparison to the prior survey futile. Soundings on the 1:40,000 copy of H-2618 are also difficult to read, particularly at the inshore areas. Those soundings that were legible showed good agreement to within four meters. ✓

The majority of soundings on chart 17302 were carried forward from ~~this survey;~~ H-2618 ✓ therefore, a more comprehensive comparison is made in Section L.

CL-802 (SP-3-64; 1964):

One sounding was carried forward from CL-802 onto Chart 17302. A 30 fm (54.9 m) shoal is charted at 58°14'48"N, 136°03'12"W. 50 meter line spacing revealed a depth of 53 meters at 58°14'57"N, 136°02'54"W (position no. 8504+6). ✓

Recommendation: The hydrographer recommends the soundings and least depths acquired from this survey be used to supersede those of CL-802 within their common areas. CONCUR

L. COMPARISON WITH THE CHART

This survey was compared to a 1:10,000-scale enlargement of NOS Chart 17302, 15th Edition, May 20/89, 1:80,000 (NAD83). ✓

Comparison of Sounding Features

All but the one sounding noted above on Chart 17302 were carried forward from H-2618. Overall agreement between this survey and the chart is good, with agreement to within four meters. Some discrepencies were found near the inshore areas, where this survey revealed some depths shoaler than charted depths. The most probable cause for the discrepencies is wide line spacing on the prior survey. Additional causes may also be the techniques used for positioning and sounding during the prior survey, and the irregularity of the bottom. The discrepencies are listed below.

The vicinity of a 12 fm (21.9 m) depth charted at 58°13'12"N, 136°02'30"W was developed by 25 m spacing. Many shoaler depths including a 9.0 m (position no. 8547+4) were found within a 200 meter radius seaward of the charted 12 fm depth. at Latitude 58/13/15.16 N, Longitude 136/02/22.76W.

~~On an east-west line~~ Between a charted depth of 6 fm (11.0 m) at 58°13'12"N, 136°03'42"W and 10 fm (18.3 m) at 58°13'30"N, 136°03'00"W a 6.3 m shoal was found. The shoal is described by position no. 4267+4 and is ~~located~~ at 58°13'29"N, 136°03'27"W.* A charted depth positioned 28.90" 1.34"

A least depth of 9.7 m was found at 58°16'~~56~~ 56.46"N, 136°01'~~45~~ 43.04"W near a charted sounding of 14 fm (25.6 m) at 58°16'48"N, 136°01'42"W. The least depth is described by position no. 8750+3 and was developed using 10 m line spacing.*

A least depth of ~~6.5~~ 7.1 m was found at 58°13'~~15~~ 14.50"N, 136°01'~~55~~ 55.47"W near a charted sounding of 8 fm (14.6 m) at 58°13'12"N, 136°02'00"W. The least depth is described by position no. 8535+5 and was developed using 10 m line spacing.*

A shoal of 49 m (26.8 fm) was discovered at 58°15'~~37~~ 36.84"N, 136°04'~~03~~ 03.18"W that is uncharted. It is described by position number ~~4288+3~~ 4388/3. A 45 Meter shoal is located 240.6 Meters West. Position # 6097/9 Latitude 58/15/36.65 N, Longitude 136/03/48.49 W. Should be charted.

A least depth of 7.4 m was found at 58°13'~~26~~ 22.84"N, 136°03'01"W near a charted sounding of 10 fm (18.3 m) at 58°13'33"N, 136°03'00"W. The least depth is described by position number ~~2634+3~~ 2857/6 and was determined by using 10 m line spacing. There is additional shoaling evident in the immediate vicinity.

An uncharted shoal of 21.9 m in Willoughby Cove was found at 58°16'04 03.76"N, 136°03'~~25~~ 24.74"W. The shoal is described by position no. 4205+2 and was determined using 10 m line spacing.

* Denotes a reported danger to navigation

Recommedation: The hydrographer recommends sounding data from this survey be used to update the chart. Chart used as shown on Smooth Sheet. CONCUR

Comparison of Non-Sounding Features

Comparison of charted shoreline against this survey is discussed in section H.

AWOIS Items SEE EVALUATION REPORT section 7.b.

The following two AWOIS items are charted shoals, reefs, and submerged rocks. They were charted from sketchy and apparently conflicting information provided in CL225/10, H2618/14, and CL1461/70. The area was thoroughly investigated with closely spaced sounding lines and by visual observation at negative tides, with the following results:

AWOIS No. 51069:*1 This survey revealed a ~~10.0~~ 9.8 meter depth (position no. ~~6139+3~~ 2337/5) at ~~the described position of~~ 58°13'~~31~~27.38"N, 136°02'~~24~~33.98"W. A least depth of ~~2.9~~ 3.2 meters (position no. ~~4330~~ 2223) was found within a ~~400~~ 248 meter radius of the AWOIS item by using 25 meter line spacing. The hydrographer recommends deleting the AWOIS item as charted and applying data from this survey to the chart. CONCUR
at Latitude 58/13/23.30N, Longitude 136/02/39.64W.

AWOIS No. 51070:*2 This survey revealed a 3.1 meter depth (position no. 2067+1) at ~~the described position of~~ 58°13'~~24~~23.97"N, 136°03'~~42~~41.33"W. During shoreline verification, position nos. 6193-6195 described a reef exposed 1.7 meters at MLLW 200 m from the above AWOIS position. A least depth of 2.2 meters (position no. 2613+4) and a depth of ~~2.8~~ 3.1 meters (~~2608+1~~ 2622) were found within a 200 m radius of the described AWOIS item by using 25 meter line spacing. The hydrographer recommends deleting the AWOIS item as charted and replacing it with data from this survey. CONCUR

Dangers to Navigation

Fifteen dangers to navigation within the limits of this survey were reported by radio message and hard copy to the Seventeenth Coast Guard District and DMAHTC. Copies of the correspondence are appended to this report. Position numbers associated with each reported danger are included on the copy of the radio message.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede the areas common to the prior surveys listed in Section 6.10 of the Project Instructions.

N. AIDS TO NAVIGATION

One fixed aid to navigation, South Passage Light (Light List No. 24200), is within the survey limits. The field position was determined by horizontal control methods and meets Third-order Class I specifications (see Spring 1990 Horizontal Control Report). RAINIER's field position is compared against published and charted positions below:

Navigational Aid	Published Position*	Charted Postion	Field Position 7	
South Passage Light (Fl W 2.5s) Obscured from 121° to 280°	58°15.6'N 136°06.8'W	58°15'36"N 136°06'54"W	58°15'31.29~~8~~9"N 136°06'56.38~~8~~9"W	SEE EVALUATION REPORT section 7

*Source: United States Coast Guard Light List, Volume VI, 1990.

*1 AWOIS ITEM 51069 at Latitude 58/13/29.74N, Longitude 136/02/30.55

*2 AWOIS ITEM 51070 at Latitude 58/13/27.74N, Longitude 136/03/48.55

The light characteristics above, including the visible sector, were observed in the field and agree with charted and Light List characteristics. The light adequately serves the purpose for which it was established. A copy of NOAA form 76-40 is appended to this report.

The Coast Guard was informed of the above in a letter dated April 28, 1990. A copy of the letter is appended to this report.

Three privately maintained aids to navigation were found in the survey area. A dolphin (position no. 8013)*1 and a buoy (position no. 8028)*2 are located in Willoughby Cove near the house and gazebo shown on the field sheet. A second buoy (position no. 2547)*3 is located in Jacks Cove to the west of Willoughby Cove. Chart area as shown on smooth sheet.

There are no bridges, overhead cables, submerged pipelines, or ferry routes within the limits of the survey.

O. STATISTICS

Vessel:	2123	2124	2125	2126	Total
# of Pos	~~649~~ 702	~~460~~ 498	~~178~~ 193	~~789~~ 854	~~2076~~ 2247
NM Hydro	112.2	30.8	29.0	76.7	248.7

NM^2 Hydrography	12.2	Velocity Casts	2
Detached Positions	235	Tide Stations	2
Bottom Samples	51	Current/Magnetic Stations	0

P. MISCELLANEOUS

All bottom samples were submitted to the Smithsonian Institution.

No current measurements were made as no anomalous currents were observed within this survey's limits. However, tide rips were observed during shoreline verification on DN 115 near South Passage Light (position nos. 2560-2561) and on DN 102 at the eastern tip of Willoughby Cove (position no. 8012). Currents were estimated at 3-5 knots in both observations.

Also on DN 115, RAINIER experienced strong currents estimated at 4 knots while at anchor in Jacks Cove. The currents caused the anchor to drag and RAINIER subsequently had to move to safer anchorage in Willoughby Cove.

Q. RECOMMENDATIONS

None.

R. AUTOMATED DATA PROCESSING

Data acquisition and processing were accomplished with Hewlett-Packard (HP) 340M workstations and the following HDAPS programs:

*1 Position #8013 at latitude 58/16/23.08 N, longitude 136/03/34.98 W
*2 Position #8028 at latitude 58/16/26.95 N, longitude 136/03/21.90 W
*3 Position #2547 at latitude 58/15/56.94 N, longitude 136/04/38.85 W

Program Name	Version
SURVEY	4.13
SURVEY (PC-DAS)	3.55
POSTSUR	4.13
FILESYS	1.50
ABST	3.03
PLOTALL	1.30, 1.55
POINT	1.10
BACKUP	1.02
CONVERT	2.33
PRINTOUT	2.23
DIAGNOSTIC	2.15
INVERSE	1.01
INSTALL	1.20
CONPUTE	2.02
CONSTAT	2.02
CONPLOT	1.02
AUTOST (BIGAUTOST)	2.00

Detached positions for all bottom samples are included in Contact Table Nos. 34, 35 and 39. Copies of all contact tables are appended to this report.

The survey data, stored according to sheet number, were forwarded to N/CG245 on 32-track tape cartridges.

S. REFERRAL TO REPORTS

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

Title	Date Sent to N/CG245
Spring, 1990 Horizontal Control Report for OPR-O186-RA	July, 1990
Spring 1990 Electronic Control Data Package for OPR-O186-RA	July, 1990
Spring 1990 Corrections to Echo Soundings Data Package for OPR-O186-RA	July, 1990
Spring 1990 Coast Pilot Report for OPR-O186-RA	July, 1990

Respectfully Submitted,

Christopher J. Ward
Ensign, NOAA

Approved and Forwarded,

John C. Albright
Captain, NOAA
Commanding Officer

CONTROL STATIONS

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY
~~100~~	~~F~~	~~058:17:09.047~~	~~135:46:58.184~~	~~15~~	~~250~~	~~0.0~~	~~0.0~~		~~04/03/90~~
~~101~~	~~F~~	~~058:22:02.097~~	~~135:44:01.316~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
~~102~~	~~V~~	~~058:22:00.658~~	~~135:35:05.705~~	~~5~~	~~139~~	~~0.0~~	~~0.0~~		~~03/17/90~~
~~103~~	~~F~~	~~058:13:00.750~~	~~135:36:26.826~~	~~3~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
~~105~~	~~F~~	~~058:13:54.846~~	~~135:38:41.748~~	~~10~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
~~106~~	~~F~~	~~058:20:23.377~~	~~135:32:11.011~~	~~9~~	~~139~~	~~0.0~~	~~0.0~~		~~03/17/90~~
~~107~~	~~F~~	~~058:24:26.749~~	~~135:34:33.856~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
~~108~~	~~F~~	~~058:11:21.969~~	~~135:29:59.785~~	~~9~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
~~109~~	~~F~~	~~058:22:30.552~~	~~135:29:02.346~~	~~10~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
110	F	058:20:47.818	135:42:26.049	9	~~139~~250	0.0	0.0		03/17/90
~~112~~	~~F~~	~~058:23:13.034~~	~~135:49:27.324~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
~~113~~	~~F~~	~~058:16:00.946~~	~~135:45:18.766~~	~~13~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
~~114~~	~~F~~	~~058:19:02.314~~	~~135:27:19.259~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
~~115~~	~~F~~	~~058:21:14.164~~	~~135:24:44.196~~	~~8~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
~~116~~	~~F~~	~~058:19:30.080~~	~~135:36:48.509~~	~~11~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
119	F	058:16:25.074	136:02:19.250	11	250	0.0	0.0		04/03/90
~~120~~	~~F~~	~~058:19:00.821~~	~~136:02:27.081~~	~~10~~	~~250~~	~~0.0~~	~~0.0~~		~~04/03/90~~
121	F	058:14:46.247	135:54:25.037	14	250	0.0	0.0	2	04/03/90
~~122~~	~~V~~	~~058:19:06.224~~	~~136:02:50.149~~	~~0~~	~~0~~	~~0.0~~	~~0.0~~		~~00/00/00~~
~~123~~	~~V~~	~~058:20:40.574~~	~~136:06:22.997~~	~~0~~	~~0~~	~~0.0~~	~~0.0~~		~~00/00/00~~
124	F	058:15:28.422	136:05:36.899	8	250	0.0	0.0	B	04/03/90
125	F	058:13:05.322	136:02:32.343	10	250	0.0	0.0	F	04/03/90
~~126~~	~~V~~	~~058:13:28.804~~	~~136:08:23.540~~	~~0~~	~~0~~	~~0.0~~	~~0.0~~		~~00/00/00~~
~~127~~	~~V~~	~~058:19:08.242~~	~~136:02:27.086~~	~~0~~	~~0~~	~~0.0~~	~~0.0~~		~~00/00/00~~
128	F	058:22:47.408	135:54:44.931	13	250	0.0	0.0	5	04/03/90
~~129~~	~~V~~	~~058:15:36.000~~	~~136:06:48.000~~	~~0~~	~~0~~	~~0.0~~	~~0.0~~		~~00/00/00~~
~~130~~	~~V~~	~~058:14:54.000~~	~~135:54:18.000~~	0	0	0.0	0.0		00/00/00
~~131~~	~~V~~	~~058:20:30.117~~	~~136:07:23.370~~	~~0~~	~~0~~	~~0.0~~	~~0.0~~		~~00/00/00~~
~~132~~	~~F~~	~~058:18:16.785~~	~~136:07:04.282~~	~~10~~	~~250~~	~~0.0~~	~~0.0~~		~~04/12/90~~
~~205~~	~~F~~	~~058:13:54.846~~	~~135:38:41.748~~	~~10~~	~~250~~	~~0.0~~	~~0.0~~		~~03/17/90~~
133	F	058:16:16.743	136:02:14.424	11	250	0.0	0.0	E	04/16/90
~~134~~	~~F~~	~~058:20:30.117~~	~~136:07:23.370~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~		~~04/16/90~~
135	F	058:16:08.426	136:16:52.403	13	250	0.0	0.0	C	04/16/90
136	F	058:19:03.968	136:15:34.968	13	250	0.0	0.0		04/27/90
137	F	058:13:12.460	136:09:58.937	7	250	0.0	0.0	3	04/27/90
~~138~~	~~F~~	~~058:17:49.341~~	~~136:07:31.798~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~		~~04/27/90~~
~~200~~	~~V~~	~~058:16:10.395~~	~~136:16:58.703~~	~~3~~	~~139~~	~~0.0~~	~~0.0~~		~~00/00/00~~
139	F	058:11:48.296	135:58:34.324	4	250	0.0	0.0	4	05/11/90
140	F	058:15:38.126	136:07:13.227	5	250	0.0	0.0	1	05/15/90

110 - KNOB, *1923*
119 - BAD, *1901*
121 - DAMP, *1901*
124 - GALL, *1901*
125 - JOG, *1901*
128 - POINT GUSTAVUS WEST BASE, *1923*
133 - BAD TP, *1990*
135 - INIAN, *1970*
136 - AID, *1901*
137 - GULL TP, *1990*
139 - BAY TP, *1990*
140 - LEM TP, *1990*

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)

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

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
NOAA Ship RAINIER	Alaska	Icy Strait	7/19/90

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-0186-RA	N/A	H-10336	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. 24200	South Passage Light *	58°15'	31.297	136°06'	56.385		F-2-6-L 4-18-90	17300 17302

* Corrected by Horizontal Control DATA Submission, Icy Strait, Alaska, OPR-0186-RA-90 dated Dec. 5, 1990.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship RAINIER S221
1801 Fairview Avenue East
Seattle, Washington 98102

July 25, 1990

Director
DMAHTC
6500 Brooks Lane
Washington, D.C. 20315

Dear Sir:

While conducting hydrographic survey operations in Icy Strait, Alaska, the NOAA Ship RAINIER discovered 34 dangers to navigation. They have been reported to DMAHTC (NAVWARN) and the Seventeenth Coast Guard District. A copy of the correspondence describing the dangers is enclosed.

Sincerely,

John C. Albright
Captain, NOAA
Commanding Officer

Enclosures

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship RAINIER S221
1801 Fairview Avenue East
Seattle, Washington 98102

July 25, 1990

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

Dear Sir:

Attached is a confirmation copy of the radio message sent to your office regarding 34 dangers to navigation which I recommend for inclusion in the Local Notice to Mariners for the Seventeenth Coast Guard District. A copy of the chart showing the areas in which the dangers exist is also attached.

Sincerely,

John C. Albright
Captain, NOAA
Commanding Officer

Enclosures

cc: DMAHTC
N/CG221
PMC

NOS/43020 MH RTTY
EBA/242302Z JUL 90

PTTUZYUW RUHPTEF0017 2052112-UUUU--RUHPSUU.
ZNR UUUUU
P 242112Z JUL 90
FM NOAAS RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTC (NAVWARN) WASHINGTON DC//MCNM//
INFO NOAAMOP SEATTLE WA
ACCT CM-VCAA
BT
UNCLAS
NOAA SHIP RAINIER HAS FOUND 34 DANGERS TO NAVIGATION IN ICY STRAIT, ALASKA (PROJECT OPR-0186-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEYS H-10336 (SOUTH PASSAGE; ITEMS EA-EO), H-10334 (POINT ADOLPHUS TO MUD BAY; ITEMS MA-MJ), AND H-10335 (NORTH PASSAGE; ITEMS DA-DI). THESE DANGERS SUPPLEMENT THOSE REPORTED IN MY P 061610Z JUL 90 MESSAGE. THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

CHARTS AFFECTED:

17302	15TH ED	1:80,000	MAY 20/89	NAD83
17300	25TH ED	1:209,978	APR 29/89	NAD83
17318	2ND ED	1:80,000	JAN 12/85	NAD27

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.
EA to ED APPLY to H-10336 Unrevised Retained as Reported.

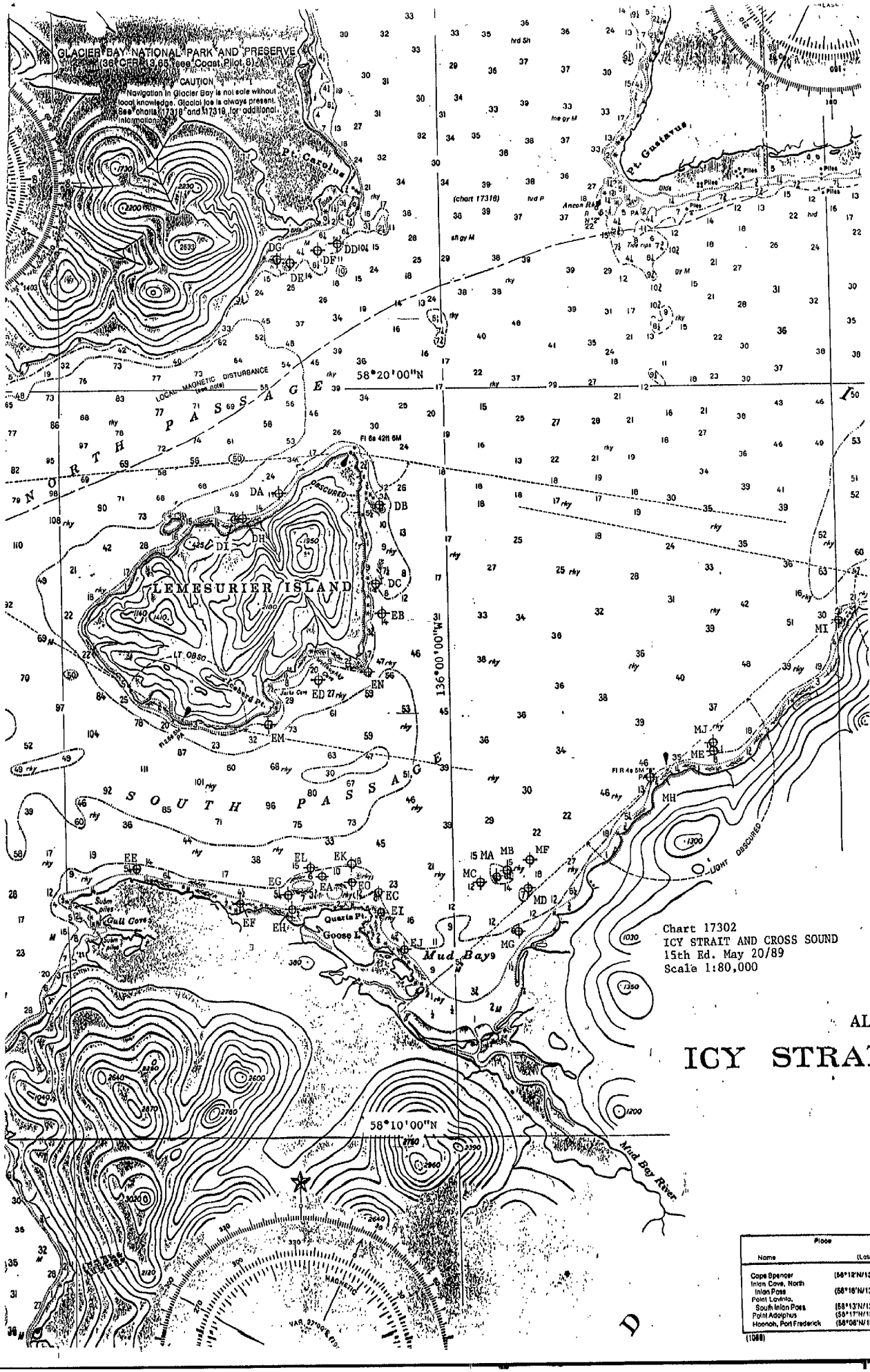
ITEM	DANGER	DEPTH	DATUM	LATITUDE	LONGITUDE	Pos. No.
EA.	SHOAL SUBM	3 1/4FM	NAD83	58-13-28.90N	136-03-27.34W	4267+4
EB.	SHOAL SUBM	5 1/4FM	NAD83	58-16-56.46N	136-01-45.03W	8750+3
EC.	SHOAL SUBM	3 1/2FM	NAD83	58-13-14.50N	136-01-55.47W	8535+5
ED.	SHOAL SUBM	12FM	NAD83	58-16-03.75N	136-03-24.82W	4205+2
EE.	ROCK COV	3/4FM	NAD83	58-13-34.22N	136-08-15.16W	2665
EF.	REEF AWASH	0FM	NAD83	58-13-12.32N	136-05-32.49W	6224
EG.	REEF AWASH	0FM	NAD83	58-13-15.00N	136-04-18.50W	6208 to 6211
EH.	REEF AWASH	0FM	NAD83	58-13-04.35N	136-04-12.00W	6204 to 6207
EI.	ROCK UNCOV	1FT	NAD83	58-12-59.50N	136-01-54.70W	6175
EJ.	ROCK UNCOV	2FT	NAD83	58-12-29.25N	136-01-18.30W	6167
EK.	SHOAL SUBM	7 1/2FM	NAD83	58-13-36.13N	136-02-39.80W	4094+2
EL.	SHOAL SUBM	8FM	NAD83	58-13-34.86N	136-03-42.82W	4030+4
EM.	SHOAL SUBM	6 1/2FM	NAD83	58-15-30.11N	136-04-43.08W	4400+2
EN.	SHOAL SUBM	7 1/2FM	NAD83	58-16-10.30N	136-02-06.50W	8624+9
EO.	SHOAL SUBM	1 1/2FM	NAD83	58-13-23.01N	136-02-38.50W	4330
MA.	ROCK SUBM	3FM	NAD83	58-13-28.43N	135-58-53.43W	6149+4
MB.	ROCK SUBM	5 1/4FM	NAD83	58-13-31.22N	135-58-38.60W	4607
MC.	ROCK SUBM	5 1/2FM	NAD83	58-13-22.06N	135-59-19.15W	4612
MD.	ROCK SUBM	6FM	NAD83	58-13-18.47N	135-58-06.37W	4611
ME.	ROCK SUBM	3/4FM	NAD83	58-15-05.13N	135-53-13.39W	4610
MF.	ROCK SUBM	5 3/4FM	NAD83	58-13-39.52N	135-58-02.64W	8923+4
MG.	ROCK SUBM	2 3/4FM	NAD83	58-12-45.32N	135-58-22.25W	4450+2
MH.	SHOAL SUBM	2 1/4FM	NAD83	58-14-44.22N	135-54-54.30W	4125+4
MI.	ROCK AWASH	0FM	NAD83	58-16-47.92N	135-49-59.74W	6053
MJ.	SHOAL SUBM	9 3/4FM	NAD83	58-15-12.56N	135-53-15.61W	6363+3
DA.	SHOAL SUBM	1 1/4FM	NAD83	58-18-36.83N	136-04-21.69W	4945+4
		1FM 2FT	NAD27	58-18-38.13N	136-04-15.10W	
DB.	SHOAL SUBM	1FM	NAD83	58-18-25.24N	136-01-45.24W	5002+4
DC.	SHOAL SUBM	1 1/2FM	NAD83	58-17-21.52N	136-01-46.51W	2155+5
DD.	SHOAL SUBM	4 1/4FM	NAD83	58-21-56.61N	136-02-37.82W	2039+1
		4FM 2FT	NAD27	58-21-57.91N	136-02-31.23W	
DE.	SHOAL SUBM	3/4FM	NAD83	58-21-42.80N	136-03-58.97W	2081+3
		0FM 4FT	NAD27	58-21-44.13N	136-03-47.38W	
DF.	SHOAL SUBM	5 1/2FM	NAD83	58-21-52.20N	136-03-10.36W	4365+8
		5FM 4FT	NAD27	[illegible]	[illegible]	

DG.	ROCK COV	1/4FM	NAD83	58-21-46.21N	136-04-14.15W	8241
		OFM 1FT	NAD27	58-21-47.51N	136-04-07.56W	
DH.	ROCK UNCOV	1/2FT	NAD83	58-18-14.14N	136-05-16.98W	4882
DI.	ROCK AWASH	OFM	NAD83	58-18-12.76N	136-05-30.12W	6028

NUMEROUS UNCHARTED ROCKS EXIST ALONG THE NORTH, EAST, AND SOUTH SHORES OF LEMESURIER ISLAND, AND ALONG SHORE FROM PT ADOLPHUS WEST TO LONGITUDE 136-09W. THESE UNCHARTED ROCKS EXIST GENERALLY AT OR NEAR THE LOW WATER LINE. THE AREA NORTH OF GOOSE ISLAND IS PARTICULARLY HAZARDOUS WITH SHOAL DEPTHS AND REEFS EXTENDING APPROXIMATELY 0.6NM OFFSHORE. MARINERS SHOULD EXERCISE CAUTION WHEN NAVIGATING CLOSE INSHORE IN THESE AREAS.

THIS IS ADVANCE INFORMATION SUBJECT TO OFFICE REVIEW. QUESTIONS CONCERNING THIS MESSAGE SHOULD BE DIRECTED TO THE CHIEF, PACIFIC HYDROGRAPHIC SECTION AT (206) 526-6835. A LETTER WITH ATTACHED CHARTLET IS BEING MAILED TO CONFIRM THIS MESSAGE.
BT
#0017

NNNN


GLACIER BAY NATIONAL PARK AND PRESERVE
(36 CFR 13.65 see Coast Pilot 9)
CAUTION
Navigation in Glacier Bay is not safe without local knowledge. Glacial ice is always present. See charts 17318 and 17319 for additional information.
Pt. Carolus
Pt. Gustavus
(chart 17316)
LOCAL MAGNETIC DISTURBANCE (see note)
58°20'00"N
NORTH PASSAGE
LEMESURIER ISLAND
OBSCURED
LT OBSC
136°00'00"W
SOUTH PASSAGE
Quarts Pt.
Goose I.
Mud Bay
LIGHT OBSCURED
58°10'00"N
Mud Bay River
MAGNETIC
VAR 21°00'E (1988)
Chart 17302
ICY STRAIT AND CROSS SOUND
15th Ed. May 20/89
Scale 1:80,000
AL
ICY STRAI
D
Place
Name
Cape Spencer (58°12'N/136
Inian Cove, North (58°16'N/136
Inian Pass
Point Lovinia, South Inian Pass (58°13'N/136
Point Adolphus (58°17'N/135
Hoonah, Port Frederick (58°08'N/135
(1988)

APPROVAL SHEET

for

H-10336

RA-10-3-90

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.

John Cawright

John C. Albright
Captain, NOAA
Commanding Officer

ORIGINAL

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: July 24, 1990

MARINE CENTER: Pacific

OPR: O-186-RA

HYDROGRAPHIC SHEET: H-10336

LOCALITY: South Passage, Icy Strait, Alaska

TIME PERIOD: April 12 - May 18, 1990

TIDE STATIONS USED: 945-2569 Lemesurier Is., Icy Strait, Alaska

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 8.41 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 12.3 ft.

REMARKS: RECOMMENDED ZONING

1. West of 135 58.5'W and East of 136 2.5'W, times and heights are direct.
2. West of 136 2.5'W and East of 136 5.5'W, times are direct and apply a X0.98 range ratio.
3. West of 136 5.5'W and East of 136 8.5'W, times are direct and apply a X0.95 range ratio.

Note: Times are tabulated in Greenwich Mean Time.

CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10336

Name on Survey	A ON CHART NO. 17302	B Chart No. 17300	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G TP-0319	H TP-0316	K	
ALASKA (TITLE)	X	X								1
CHICHAGOF ISLAND	X	X					X			2
GOOSE ISLAND	X	X					X			3
ICEBERG POINT	X	X						X		4
ICY STRAIT (TITLE)	X	X								5
JACKS COVE	X							X		6
LEMESURIER ISLAND	X	X						X		7
MUD BAY	X	X					X			8
QUARTZ POINT	X	X					X			9
SOUTH PASSAGE	X						X	X		10
WILLOUGHBY COVE	X	X						X		11
										12
										13
										14
										15
										16
				Approved:						17
										18
				Chief Geographer – N/CG2x5						19
				MAR 25 1991						20
										21
										22
										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-10336

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	8
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	9

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES						
ENVELOPES						
VOLUMES						
CAHIERS	2					
BOXES						

SHORELINE DATA

SHORELINE MAPS (List):	TP-01316, TP-01319
PHOTOBATHYMETRIC MAPS (List):	N/A
NOTES TO THE HYDROGRAPHER (List):	N/A
SPECIAL REPORTS (List):	None
NAUTICAL CHARTS (List):	17302 15th Ed., dated May 20, 1989

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			2247
POSITIONS REVISED			70
SOUNDINGS REVISED			190
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	69		69
VERIFICATION OF SOUNDINGS	304		304
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	76		76
COMPARISON WITH PRIOR SURVEYS AND CHARTS		27	27
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		46	46
GEOGRAPHIC NAMES			
OTHER* Digitization			13.5
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	449	73	535.5

Pre-processing Examination by LT. M. Brown	*Beginning Date* 8/1/90	*Ending Date* 8/16/90
Verification of Field Data by E. Brown, M. Sanders, T. Jones	*Time (Hours)* 449	*Ending Date* 10/25/91
Verification Check by J. Stringham, L. Deodato, G. Kay	*Time (Hours)* 44	*Ending Date* 11/14/91
Evaluation and Analysis by G. Kay	*Time (Hours)* 73	*Ending Date* 12/31/91
Inspection by D.J. Hill	*Time (Hours)* 3	*Ending Date* 1/16/92

EVALUATION REPORT
H-10336

1. INTRODUCTION

Survey H-10336 is a basic hydrographic survey accomplished by the NOAA Ship *RAINIER* under the Project Instructions for OPR-O186-RA, dated February 22, 1990.

This survey was conducted in Icy Strait, Alaska, and covers an area in South Passage situated between Lemesurier Island to the north and Chichagof Island and Goose Island to the south. The surveyed area extends from longitude 136/01/00W to longitude 136/08/30W and from latitude 58/17/12N south to latitude 58/12/10N. The shoreline around Lemesurier Island is very steep and rugged. The shoreline around the southern islands, Chichagof and Goose, is gentle, however, the offshore area is characterized by foul areas and reefs. The bottom consists of sand, pebbles and broken shells. Depths range from zero to 204 meters.

Predicted tides for Sitka, Alaska, tide station 945-1600, were used for the reduction of soundings during field processing. Approved hourly heights zoned from Lemesurier Island, Alaska, gage 945-2569, were used during office processing.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. The TRA, sound velocity and electronic correctors are adequate. An accompanying computer printout contains the parameters and the correctors.

A digital file has been generated for this survey as required by the specifications contained in Hydrographic Survey Guideline Number 53, Standard Digital Data Exchange Format, April 15, 1986. Certain feature descriptive information, however, may not be in the digital record due to restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete depiction of survey data.

2. CONTROL AND SHORELINE

Sections F and G of the hydrographer's report and the Horizontal and Electronic Control Reports for OPR-O186-RA, Spring 1990, contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are 1990 field and published values based on NAD 83. The smooth sheet and accompanying overlays are annotated with NAD 27 adjustment ticks based on values determined with the 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:	-1.265 seconds	(-39.130 meters)
Longitude:	+6.560 seconds	(+107.028 meters)

The year of establishment of control stations shown on the smooth sheet originates with NGS listing and the horizontal control report previously noted.

The quality of several positions exceeds limits in terms of error circle radius and residual. A review of the data, however, indicates that none of these fixes are used to position dangers to navigation. The soundings located by these fixes are consistent with surroundings. These fixes are considered acceptable.

The following shoreline maps apply to this survey.

	Photography Dated	Class
TP-01316	June 1987	III
TP-01319	June 1987	III

Changes to the shoreline manuscripts are shown on the smoothsheet as dashed red lines centered on the following positions. These changes have been transferred from the field sheet without supporting positional information.

Latitude North	Longitude West
58/15/54	136/04/45
58/15/33	136/05/15
58/15/42	136/07/13
58/15/52	136/07/48
58/16/00	136/08/16

3. HYDROGRAPHY

Except as noted below, hydrography is adequate to:

a. delineate the bottom configuration, determine least depths, and, draw the standard depth curves;

b. reveal there are no significant discrepancies or anomalies requiring further investigation; and

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

The zero curve could not be completely drawn because of the steepness and the foul nature of the shoreline.

4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change Number 3; the Hydrographic Survey Guidelines; and the Field Procedures Manual, except as follows.

a. The AWOIS items for investigation were never converted by the hydrographer to the NAD 83. Instead he used and referenced, in section 7 of the hydrographer's report, NAD 27 positions. These positions have been adjusted to NAD 83.

b. There are three T-Sheet rocks on TP-01316 that were neither verified or disproven by the hydrographer. These rocks have been added to the smooth sheet.

c. The bottom samples were not all annotated correctly, as the hydrographer listed some samples as "fine pebbles" *(fne P)*. The adjective fine should not be used with this noun.

5. JUNCTIONS

Survey H-10336 junctions with the following surveys.

Survey	Year	Scale	Area
H-10334	1990	1:20,000	East
H-10335	1990	1:10,000	Northeast
H-10338	1990	1:10,000	Northwest

The junctions with H-10335 and H-10338 are complete. Soundings and features have been transferred from these surveys to the junction area of survey H-10336 to better portray the area. The junction with survey H-10334 has not been formally completed since that survey was previously processed and forwarded for charting. The junction comparison was made using a copy. Soundings are in good agreement. A rock, an islet, and a kelp symbol have been transferred to survey H-10336 to better portray the foreshore area.

6. COMPARISON WITH PRIOR SURVEYS

H-2618(1902) 1:40,000

Survey H-2618 covers the entire area of the present survey. This prior survey does not compare well with the present survey. Differences in depths vary between 35 meters shoaler to 25 meters deeper. The general trend of the bottom is seen on the former survey, but the present survey better defines the bottom configuration than the former. Additional discrepancies between the two surveys were noted by the hydrographer and are discussed in sections K and L of the hydrographer's report.

There are no AWOIS items originating from prior survey H-2618 that apply to the survey H-10336.

Survey H-10336 is adequate to supersede prior survey H-2618 within the common area.

7. COMPARISON WITH CHART

Chart 17302, 15th Edition, dated May 20, 1989; scale 1:80,000, NAD 83

a. Hydrography

Charted hydrography originates with survey H-2618 and miscellaneous sources.

There is a charted 30-fathom sounding from CL 802/64 that was adequately investigated and disposed of in the hydrographer's report section L.

Survey H-10336 is adequate to supersede charted hydrography within the common area.

b. AWOIS

AWOIS items 51069 and 51070 originate with the same miscellaneous source, CL225/10. These items are located on the same general feature, a large shoal north of Goose Island. These items are adequately discussed by the hydrographer in section L of the hydrographer's report, supplemented as follows.

AWOIS items 51069 and 51070 contain a secondary reference to a charted submerged rock situated between the two AWOIS items at latitude 58/13/14N, longitude 136/03/07W, NAD 83.

This feature was thoroughly investigated and a reef found at this general location. Chart area as shown on the smooth sheet.

Survey H-10336 is adequate to supersede charted hydrography within the common area.

c. Controlling Depths

There are no charted channels with controlling depths within the area of this survey.

d. Aids to Navigation

South Passage Light (Light List Number 24200) is the only fixed aid to navigation within the limits of this survey and is positioned at latitude 58/15/31.297N, longitude 136/06/56.389W. This aid serves its intended purpose.

e. Geographic Names

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

f. Dangers to Navigation

The hydrographer reported 15 dangers to navigation to the USCG and DMAHTC on July 25, 1990. A copy of the message is attached. No additional dangers were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10336 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is a good hydrographic survey. No additional field work is recommended.

Gordon E. Kay
Cartographer

APPROVAL SHEET
H-10336

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.

for [signature] Date: 1/17/92

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

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.

[signature] Date: 1/22/92

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

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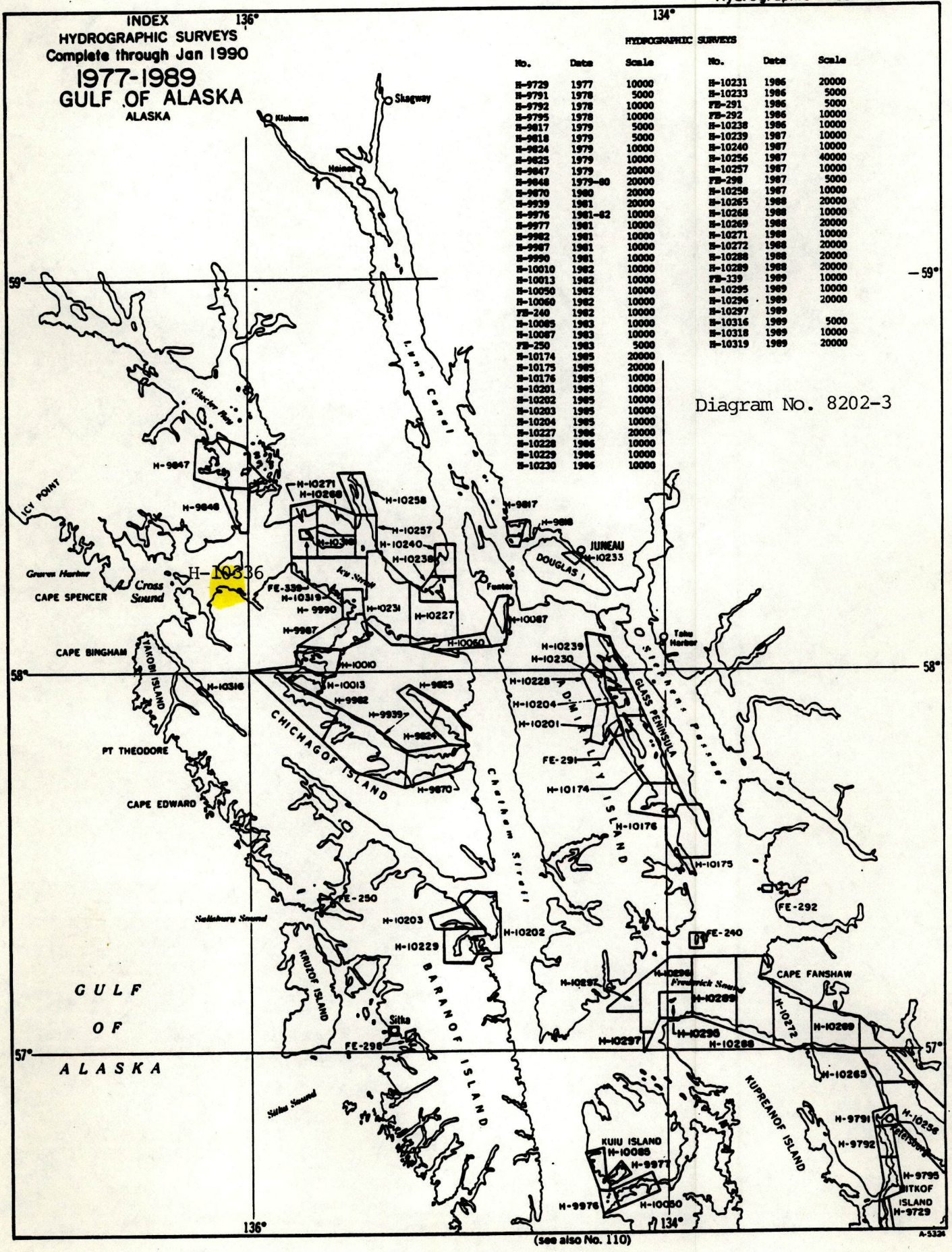
Final Approval

Approved:

[signature] Date: 3/24/93

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



HYDROGRAPHIC SURVEYS

No.	Date	Scale
H-9729	1977	10000
H-9791	1978	5000
H-9792	1978	10000
H-9795	1978	10000
H-9817	1979	5000
H-9818	1979	5000
H-9824	1979	10000
H-9825	1979	10000
H-9847	1979	20000
H-9848	1979-80	20000
H-9670	1980	20000
H-9939	1981	20000
H-9976	1981-82	10000
H-9977	1981	10000
H-9982	1981	10000
H-9987	1981	10000
H-9990	1981	10000
H-10010	1982	10000
H-10013	1982	10000
H-10050	1982	10000
H-10060	1982	10000
FE-240	1982	10000
H-10085	1983	10000
H-10087	1983	10000
FE-250	1983	5000
H-10174	1985	20000
H-10175	1985	20000
H-10176	1985	10000
H-10201	1985	10000
H-10202	1985	10000
H-10203	1985	10000
H-10204	1985	10000
H-10227	1986	20000
H-10228	1986	10000
H-10229	1986	10000
H-10230	1986	10000
H-10231	1986	20000
H-10233	1986	5000
FE-291	1986	5000
FE-292	1986	10000
H-10238	1986	10000
H-10239	1987	10000
H-10240	1987	10000
H-10256	1987	40000
H-10257	1987	10000
FE-298	1987	5000
H-10258	1987	10000
H-10265	1988	20000
H-10268	1988	10000
H-10269	1988	20000
H-10271	1988	10000
H-10272	1988	20000
H-10288	1988	20000
H-10289	1988	20000
FE-339	1989	10000
H-10295	1989	10000
H-10296	1989	20000
H-10297	1989	
H-10316	1989	5000
H-10318	1989	10000
H-10319	1989	20000

Diagram No. 8202-3

(see also No. 110)

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-10336

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
17300	10-24-91	Andrew K. Key	~~Full~~ Part Before ~~After~~ Marine Center Approval Signed Via Partial application Drawing No of sndgs. from preliminary sndg. plot.
17302	8-19-92	Russ Davies	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via Full Application Drawing No. of 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 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 Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.

SUPERSEDES CAGS FORM 8352 WHICH MAY BE USED

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-10336

INSTRUCTIONS

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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
17300	10-24-91	[signature]	~~Full~~ Part Before ~~After~~ Marine Center Approval Signed Via Partial application
			Drawing No. of sndgs. from preliminary sndg. plot.
17300	3-8-93	[signature]	Full ~~Part Before After~~ Marine Center Approval Signed Via
			Drawing No. 29
			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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			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.

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-10336

INSTRUCTIONS

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2. In "Remarks" column cross out words that do not apply.
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CHART	DATE	CARTOGRAPHER	REMARKS
			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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			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.