

8965

Diag. Cht. No. 8553

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT (HYDROGRAPHIC)

Type of Survey HYDROGRAPHIC
Field No. SU-20-2-67
Office No..... H-8965

LOCALITY

State ALASKA
General Locality .. UPPER COOK INLET
Locality WEST OF KALGIN ISLAND

1967-74

CHIEF OF PARTY
N.E. TAYLOR, C.A. BURROUGHS

LIBRARY & ARCHIVES

DATE March 3, 1971

8965

HYDROGRAPHIC TITLE SHEET

H-8965

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.
SU 20-2-67

State Alaska
 General locality Upper Cook Inlet - Redoubt Bay
 Locality West of KALGIN ISLAND
 Scale 1:20,000 Date of survey July 24, 1967 - Aug. 31, 1967
3 June, 1967 & July 9 - Aug. 17, 1974
 Instructions dated 25 May 19 67 Supplemented Project No. OPR-469
 Vessel USC&GSS SURVEYOR, Launches 3, 4, and 6

Chief of party Norman E. Taylor
 Surveyed by Ship's Officers and Personnel see below

Soundings taken by echo sounder, ~~hand lead~~ XXXXXX pole

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Protracted by _____ Automated plot by Digital Plotter

~~Soundings checked by~~ XXXXXX Verified by Nicholas Lestenkof

Soundings in fathoms ~~XXXX~~ XX at ~~MLW~~ MLLW

REMARKS: see sepearte title sheet for 1974 season's
work for this survey by the Ship Fairweather.
following
Surveyed by Personnel for 1967 and 1974 season
A.D. Anderson, M.S. Asato, P.R. Chelgren, W.H. Dvorachek Jr.,
J. Gulley, F.L. Jeffries, W.L. Perryman, D.C. McConaghy,
J.A. Murphy, S.S. Nakoa, L.K. Nelson, R.F. Newell, J.W. O'clock,
J.L. Ogg, D.K. Rea, A.M. Snella, W.G. Wills, S.K. Yoshida.

Applied to Standards *J.K*

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-8965, PROJECT OPR-469
SCALE 1:20,000
USC&GSS SURVEYOR, CAPT. N. E. TAYLOR, COMMANDING
JULY AND AUGUST, 1968

A. PROJECT

This survey is part of Project OPR-469. The original instructions are dated 25 May 1967 and supplemental instructions 3 June 1967. *Supplemental instructions of Feb. 8, 1974 for addition hydro. in 1974*

B. AREA SURVEYED

The area surveyed is between Kalgin Island and the west shore of Cook Inlet, Alaska, and is contained between longitudes 151° 49' to 152° 19' and latitudes 60° 31' and 60° 22'. Junctions were made with concurrent survey H-8964 (SU-20-1-67), and the survey covers areas included in surveys H-3322, 1:100,000, 1911. This survey was conducted from 24 July to 31 August, 1967. *H-3322a(1911) 1:40,000, H-3318(1911) 1:40,000 & H-3355(1911) 1:100,000*

C. SOUNDING VESSELS

The SURVEYOR (purple ink) and its launches SU-3 (blue), SU-4 (purple), and SU-6 (green) were used for sounding vessels.

D. SOUNDING EQUIPMENT

Soundings in all areas were taken with Raytheon DE-723 fathometers, with the following serial numbers: ✓
 SURVEYOR, #138; Launch 3, #937; Launch 4, #938; Launch 6, #939 and #941.

Velocity corrections for the entire survey were ✓
 determined from combined data from three Nansen casts. These casts were taken at the following positions:

SU-111-67	60° 36.8' N	151° 41.4' W
SU-112-67	60° 32.7' N	152° 7.9' W
SU-113-67	60° 20.5' N	152° 10.8' W

Information gathered in these casts was processed ✓
 according to procedures outlined in the Hydrographic Manual. A series of positive corrections, increasing with depth, resulted from the calculations.

Bar check corrections encompass all fixed (TRA) corrections to the soundings. One set of corrections was calculated and applied to the entire survey. This was done by averaging and graphing the results of bar checks for each launch; the resulting graphs were similar enough to be combined into one set of corrections applicable to all areas. See report Corrections to Echo Soundings, OPR-469, Summer, 1967.

E. SMOOTH SHEET

The survey sheets used are one paper boat sheet, pricked by machine at PMC and hand drawn by the ship, and two mylar boat sheets, traced from the paper sheet. ✓
 Shoran distance circles were drawn on after the stations were located. The smooth sheet will be made with the computer-plotter at PMC. Shoran and sounding corrections will be entered at this stage of processing. The maximum probable error determined from shoran corrections is 0.03 miles.

F. CONTROL

Horizontal control for ¹⁹⁶⁷ hydrography consists of 3-point sextant fixes in roughly the western half of the channel between Kalgin Is. and the mainland and around the north end of the island, and shoran control in the eastern half of the channel, plus a few shoran-sextant fixes.

The majority of the hydro signals were located by an angle and a distance to within third order accuracy. A few signals were located by sextant cuts. On the west shore of Redoubt Bay these are: FAY, GUY, CAB, HIT, JEFF. On Kalgin Is. the signals cut in with a sextant are: NUT, MUG, LAY, ZOO, YAK, WIG, VET, ROG, REA. The last two are rocks off of the NE corner of Kalgin Island.

Shoran stations DRY and GIN were located by T2 angles and taped distances from triangulation stations close by.

No photogrammetric manuscripts were used to locate signals.

G. SHORELINE

Shoreline for the survey was taken from C&GS Chart 8553 and is not to be used for charting purposes. *Shoreline on final smooth sheet from T-12047, T-12344-47 & T-12350.*

H. CROSSLINES

Crossline coverage averages 10%, and agreement between the lines is excellent.

I. JUNCTIONS

Project instructions do not require junctions to be made with prior surveys.

This survey makes a junction ^{on the north} with the current survey H-8964 (SU-20-1-67), and no excess discrepancies were found with these junctions.

J. COMPARISON WITH PRIOR SURVEYS

Items on the pre-survey review verified in this survey are the following: 11 fm sounding at 60° 31.2' N, 152° 3.2' W verified; 2 3/4 fm sounding at 60° 23.2' N, 152° 12.2' W, changed to 1.8⁴ fm, same location; 1 1/2 fm at 60° 22.1' N, 152° 5.3' W, latitude changed to 60° 22.0' N, same depth. All other items on this survey sheet were not surveyed. *H-3322a (1911) 1:40,000, H-3318 (1911) 1:40,000 & H-3355 (1911) 1:100,000* See 1977 report VII

The surveys H-3322, 1:100,000, 1911^{are} the most recent surveys for comparison. In general the agreement is good. The main channel averages 1 to 3 fm shoaler overall, however the 50 fm contour extends slightly farther north than in the 1911 survey. The shoal running parallel off Kalgin Is. is roughly 1/2 fm deeper in the northern section and as much as 6 fm deeper in the southern section, and averages 1 fm shoaler in the intervening channel. The location and shape of the shoal are essentially the same. The area west of the channel is mostly the same except for somewhat shoaler soundings now on the north side of Harriet Point. *see Review Addendum*

The differences noted are probably due to erosion and deposition during the 66 year period between surveys; the 1964 earthquake did not affect the vertical datum greatly. Changes in the horizontal datum noted on our copy of H-3322 were taken into account in the comparison.

Additional changes to the survey are the addition of the Harriet Point light and the lighted buoy on the east side of the channel; see Aids to Navigation section.

K. COMPARISON WITH THE CHART 8553 *Print date Oct. 10, 66*

The chart 8553 which covers this area is made from the 1911 surveys^{of} H-3322, and the comparison made applies to both. *H-3322a, H-3318 and H-3355* 16660

L. ADEQUACY OF SURVEY

The area surveyed is complete and adequate to supercede ^{cede} ~~ceed~~ ✓
 prior surveys for charting. Shoreline comparison and nearshore soundings are not complete.

M. AIDS TO NAVIGATION

There are two aids to navigation not previously charted, and which were being constructed in the last few days of the field work: Harriet Point Light and Kalgin Island West Channel Lighted Bell Buoy 2. See [✓] *see Review Addendum*
 report on Landmarks for Charts for OPR-469, 1967, and Coast Guard Light List, Vol. III, 1967, p.246, corrected with Notice to Mariners change 40. The survey location of the light agrees well with the light list location, however the buoy location does not. This is probably due to the swift currents causing large buoy movement and weak signals used in locating it. This buoy has since been removed, and we recommend correspondence with the Alaska Field Office regarding its location. Since these aids were not operational before we left, we cannot offer an opinion of their adequacy.

N. STATISTICS ✓

VESSEL	NO. OF POSITIONS	NAUTICAL MI. SOUNDING LINE
SURVEYOR	287	192.0
Launch 3	802	196.6
Launch 4	734	126.5
Launch 6	894	235.0
TOTAL	2717	650.1

square miles covered by (3) survey sheets	54
number of bottom samples	50
number of current stations	4

P. RECOMMENDATIONS

Additional work completed in 1974 see this report.

Additional field work is recommended in the area ^{north} ~~south~~ of and also immediately west of Kalgin Island, which were not surveyed due to time limitations. The inshore area of Redoubt Bay was not surveyed with line spacing required by project instructions, but due to the character of this area we do not recommend further work there.

For future inshore work we strongly recommend that photogrammetry work be completed so that manuscripts can be furnished for field use. This would about double the efficiency of the survey.

Use of a helicopter is recommended for similar work in this area so men and equipment will not be ruined on the extensive mud flats.

Q. REFERENCES TO REPORTS

Special Report "Use of LCVP and Dredge for Bottom Sampling-
OPR-469, Summer, 1967" mailed to Dir., PMC, 14 Nov. '67. ✓

Special Report "Oceanographic Stations, Cook Inlet, Project
OPR-469, Summer, 1967.

Memorandum: Helicopters, Use of; 27 Sept. 1967.

Memorandum: Special Report on Current Observations,
Cook Inlet; 31 July 1967.

Coast Pilot Notes, 3 Nov. 1967.

"Corrections to Echo Soundings, OPR-469, Summer, 1967."

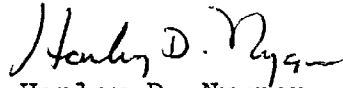
"Electronic Systems Calibration Report, OPR-469,
Summer, 1967."

Bradford Roth
Bradford Roth, LT(jg)

APPROVAL SHEET

Standard hydrographic procedures were used and the records of this hydrography were examined daily during its execution.

The smooth plotted positions on the boat sheets and the accompanying records have been inspected. This survey is complete and adequate except as noted in the recommendations and is approved for further processing.


Harley D. Nygren
Commanding

U.S. DEPARTMENT OF COMMERCE
ESSA COAST AND GEODETIC SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

March 4, 1968

~~XXXXXX~~ Pacific Marine Center

Plane of reference approved ~~is~~
~~XXXXXX~~ for

HYDROGRAPHIC SHEET 8963, 8964, 8965

Locality: Cook Inlet, Alaska

Chief of Party: N. E. Taylor, 1967

Plane of reference is mean lower low water

Tide Station Used (Form C&GS-681):

Drift River, Cook Inlet, Alaska *off limits of smooth sheet*
lat. 60°33'51", long. 152°08'03" used for 1967 season

Height of Mean High Water above Plane of Reference is as follows:

17.1 feet

Remarks *The 1974 addition work of H-8965 used*
tide stations at W. Kalgin Is. and Harriet Pt.

J. M. Symons
Chief, Tides and Currents Branch

TIDE NOTE

One temporary bubbler tide gage at Latitude ✓
60° 33' 51" N. and Longitude 152° 08' 04" W. was *off limits of*
set at the North East Survey Tower (NET) for the *H-8965*
hydrographic survey. MLLW is 8.6 feet above gage zero.
Between July 13, 1967 and July 29, 1967, MLLW was 6.4
feet above gage zero because the wrong scale paper was
used. The hourly heights between July 13-29 were
furnished by the Washington Office.

This tide gage used for 1967 work.

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H 8965 (1967 work)

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET & PNO, excess only.		1	BOAT SHEETS (6 parts, 3-mylar, 3-paper)		3 41	
DESCRIPTIVE REPORT		1	OVERLAYS preliminary		* 9	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES	*		1			
CAHIERS	1 3		with depth records			
VOLUMES	19 20					
BOXES 12			1 2			
T-SHEET PRINTS (List) T-12047, T-12345						
SPECIAL REPORTS (List)						

OFFICE PROCESSING ACTIVITIES

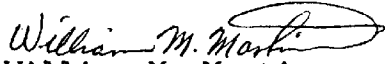
The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				
POSITIONS CHECKED		1575		
POSITIONS REVISED		92		
DEPTH SOUNDINGS REVISED		301		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		-		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		-		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		10		
JUNCTIONS		17		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		287		
SPECIAL ADJUSTMENTS		99		
ALL OTHER WORK		15 218		
TOTALS		631		
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY <i>Mohs/ro Lortenkf</i>	7/9/68		12/22/70	
REVIEW BY <i>KOZBENC WAK</i>	BEGINNING DATE		ENDING DATE	

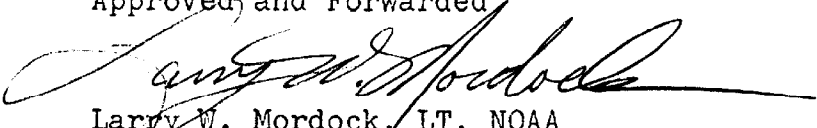
APPROVAL SHEET

The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report.)

Examined and Approved


William M. Martin
Supervisory Carto. Tech.

Approved and Forwarded


Larry W. Mordock, LT, NOAA
Acting Chief, Processing Division
Pacific Marine Center

HYDROGRAPHIC TITLE SHEET

H-8965

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.

SU-20-2-67

State ALASKA

General locality Upper Cook Inlet

Locality West Side of Kalgin Island

Scale 1:20,000 Date of survey July-August 1974

Instructions dated 8 February 1974 Project No. OPR-469-FA-74

Vessel FA-3 (Hull No. 1240), FA-4 (Hull No. 1233), FA-5 (Hull No. 1001), FA-6 (Hull No. 1243)

Chief of party CDR Charles A. Burroughs

Surveyed by FAIRWEATHER Personnel see title sheet for 1967 work.

Soundings taken by echo sounder, hand lead, pole Ross Fineline Fathometers (S/N 1046, 1054, 1047, 204065)

Graphic record scaled by Ross Digitizers

Graphic record checked by FAIRWEATHER Personnel

Positions verified

~~FIXED~~ by James L. Stringham Automated plot by PMC/Xynetics Plotter

Soundings

Verification by James L. Stringham

Soundings in fathoms FEET at XXXXX MLLW

REMARKS: Survey was run on GMT. The mean longitude of the survey is 152°06'W.

This survey finished up certain sections of Redoubt Bay and the west side of Kalgin Island, left by the NOAA Ship SURVEYOR in 1967. This survey completes boatsheet SU-20-2-67 and makes it adequate for charting.

Separate title sheet for 1967 season's work.

DESCRIPTIVE REPORT
NOAA SHIP FAIRWEATHER (MSS-20)
OPR-469-FA-74

SURVEY H-8965 (SU 20-2-67)

A. PROJECT

Project OPR-469-FA-74 was designed to provide sufficient data to update existing charts for vessels using Cook Inlet and approaches and exits to the Drift River oil platform. It was carried out according to the project instructions dated 8 February 1974 and the PMC OORDER. The 1974 work represents the completion of the survey begun in 1967 by the NOAA Ship SURVEYOR. ✓

B. AREA SURVEYED

This survey was conducted from 9 July 1974 to 17 August 1974, off the west coast of Kalgin Island. Three general areas were surveyed. The first area extends west from the west side of Kalgin Island, bounded on the north by latitude $60^{\circ} 30.7'N$, and on the south at latitude $60^{\circ} 21.7'N$. The western boundary is longitude $152^{\circ} 04'W$ from the northern boundary to latitude $60^{\circ} 27'N$. It then shifts to longitude $152^{\circ} 06'W$ and continues to the southern boundary. ✓

A second area is located 4 miles east of Redoubt Bay. It is somewhat rectangular in shape, stretching 5.7 miles north to south and approximately one to two miles in width. It is bounded on the north by latitude $60^{\circ} 30.7'N$ and on the south by latitude $60^{\circ} 25.0'N$. The eastern boundary is longitude $152^{\circ} 10.0'W$ and the western boundary is $152^{\circ} 14.0'W$. The third area is an approximate square, one mile to a side. This one square mile area is centered at latitude $60^{\circ} 22.5'N$ and longitude $152^{\circ} 07.5'W$. ✓

The survey included shoreline along the west side of Kalgin Island. To facilitate computer plotting, the survey was divided into two computer boatsheets denoted as H-8965A and H-8965B. Boatsheet H-8965A covers the southern portion of the survey up to latitude $60^{\circ} 27.0'N$. Boatsheet H-8965B covers the northern portion down to latitude $60^{\circ} 27.0'N$. ✓

C. SOUNDING VESSELS

The survey utilized launches FA-3, FA-4, FA-5, and FA-6. ✓

D. SOUNDING EQUIPMENT

All launches used the Ross Fineline fathometer. A TRA corrector of +0.4 fathom, based on bar checks taken during the project, was used for all the launches. The sound velocity correctors were determined by three Martek TDC casts taken within the project area. For details see Report on Corrections to Echo Soundings, OPR-469-FA-74. The depths of soundings on this sheet range from approximately 0 fathoms to 32 fathoms. ✓

Sounding Instruments:

<u>Vessel</u>	<u>Instrument</u>	<u>Model</u>	<u>S/N</u>	
FA-3	Ross Finline	200-A	204065	✓
FA-4	Ross Finline	5000	1054	
FA-5	Ross Finline	5000	1046	
FA-6	Ross Finline	5000	1047, 1054	

E. BOAT SHEET.

All data was plotted by the shipboard HYDROPLOT system. The boat-sheets were plotted by the ship's PDP8/e computer (S/N M-40-00000-1006) coupled with a Complot Plotter (model DP-3, S/N 4670-2). A modified transverse Mercator projection at a scale of 1:20,000 was used. Both computer sheets have no skew. The origin of H-8965A is latitude 60° 21' 30"N and longitude 152° 22' 00"W. The origin of H-8965B is latitude 60° 26' 00"N and longitude 152° 22' 00"W. A copy of the parameter tape printouts is appended. ✓

F. STATION CONTROL

All stations and signals were either located on triangulation stations, reference marks, or established third order resection, or third order traverse. The North American 1927 datum was used. For details see Appendix of Horizontal Control Data. ✓

G. POSITION CONTROL

The Hastings Raydist and Motorola Miniranger were used to control the hydrography on sheet SU 20-2-67. Calibration was by three point sextant fix. ✓

RAYDIST- Raydist electronic positioning equipment, operated in the range-range mode, was used to control the hydrography in the holiday on the west side of this survey. The pattern I station was located over PT 2 1963 1972 RM 2 and the pattern II station over DEEP 1964. Launches FA-5 and FA-6 were each equipped with a Raydist mobile transmitter, navigator, strip chart recorder and a 9 ft. whip antenna. The strip chart recorders were monitored and annotated at all times between calibrations. Electronic correctors were determined by averaging the calibrations, which were normally taken twice daily, weather permitting. ✓

Calibration of the Raydist navigator was accomplished by visual three point sextant fixes utilizing signals located over, or eccentric from, triangulation stations or fixed aids to navigation with known geodetic positions. ✓

Equipment operation was satisfactory for the survey. Some signal distortion due to atmospheric was experienced, but it was not of sufficient magnitude to preclude running. ✓

Electronic correctors, derived from the calibration data, were applied to the observed ranges before plotting on the boat sheet. Slope correctors were not required for the Raydist-controlled por- ✓

tion of the survey.

MINIRANGER- Miniranger electronic positioning equipment was used to control the inshore hydrography west of Kalgin Island. Miniranger base stations were located on Drift River Terminal SW LT and on HARRIET PT LIGHT 1967. Electronic correctors were determined by averaging the calibrations, which were normally taken twice daily, weather permitting. ✓

Electronic corrector determination for the Miniranger was by visual, three-point sextant fixes utilizing signals located over, or eccentric from, triangulation stations or fixed aids to navigation with known geodetic positions, weather permitting. During reduced visibility, calibration was accomplished by use of a rock with tethered buoy attached. The geodetic position of the rock was determined by third-order traverse. Electronic correctors, derived from the calibration data, and slope corrections via PM 340 were applied to the observed ranges before plotting on the field sheet. ✓

Equipment operation was generally satisfactory for the survey. Some difficulty was experienced due to shadow zones and multi-path fading but was not significant enough to be a major problem. ✓

H. SHORELINE

All shoreline details were obtained from manuscripts T-12347, T-12350, T-12346, T-12345, T-12047, and T-12344. Field edit was completed on all sheets. The low water line was adequately delineated where possible, but foul limit prevented soundings in some areas, particularly on the northern computer sheet. ✓

I. CROSSLINES

Approximately 60.3 n.m., or 10.9% of the hydrography on H-8965 is crosslines. The crossline soundings agreed well with the main scheme soundings, averaging less than one fathom variation. Agreement is considered excellent in view of the number of launches working on this survey. ✓

J. JUNCTIONS

This survey junctioned both with contemporary and prior surveys. Across the northern limit of the sheet, the survey junctioned with the FAIRWEATHER's 1974 work on sheet H-8964 (SU-20-1-67). Across the southern limit, the survey junctioned with the FAIRWEATHER's 1974 work on sheet FA-20-1-74. The rest of the junctions were with the NOAA Ship SURVEYOR's work on SU-20-2-67, filling in the holidays that were left in 1967. All junctions were excellent, with less than one fathom difference, except in the vicinity of latitude $60^{\circ} 23.4'N$ and longitude $152^{\circ} 06.6'W$. The current survey shows a 6.6 fathom peak sounding in amongst 10 and 11 ✓

fathoms, whereas the SURVEYOR's work of 1967 shows 8 and 9 fathoms. In this area there is a series of shifting sand ridges running in a northwest-southeasterly direction. The SURVEYOR in 1967 ran their sounding lines parallel to these ridges and apparently did not find the least depth. The current sounding lines were run perpendicular to the ridges and were able to detect the least depth. ✓

K. COMPARISON WITH PRIOR SURVEYS

This survey is in good agreement with the SURVEYOR's work in 1967, H-3322a, a 1911 survey at a scale of 1:40,000, and H-3322, a 1911 survey at a scale of 1:100,000. There are no major discrepancies with any of these surveys, and all depths agree with less than a one fathom difference. *see Review Addendum* ✓

L. COMPARISON WITH CHART

NOAA Chart 8553 is the largest scale chart available for this area. The chart dated December 29, 1973, 15th edition, at a scale of 1:194,154, is the most recent edition of the area. The survey compared very well with the charted soundings, considering the difference in scale. *see Review Addendum* ✓

M. ADEQUACY OF SURVEY

All fathogram field survey records were scanned and checked for deeps and peaks daily. This survey is complete and adequate to supersede prior surveys for charting. ✓

N. AIDS TO NAVIGATION

There are three aids to navigation within the survey sheet limits. The Kalgin Island West Channel Lighted Bell Buoy 2 is a seasonal buoy. Both HARRIET POINT LIGHT and KALGIN ISLAND SOUTH LIGHT are shown correctly on the chart and Light List except for "position approximate". Their geographic positions have been determined by third-order resection/traverse. See Horizontal Control Data in appendix. *see H-9485, 1974 off sheet limits see Review Addendum* ✓

O. STATISTICS

<u>Vessel</u>	<u>Total Positions</u>	<u>N.M.</u>
FA-3	1201	392.5
FA-4	187	57.6
FA-5	235	58.0
FA-6	917	203.4
Ship	4	0
		<u>711.5</u>

Total area - 37.2 sq. n.m.
Total bottom samples - 18

P. MISCELLANEOUS

Greenwich Mean Time was used for all survey records. ✓

Q. RECOMMENDATIONS

It is recommended that this survey be accepted and used for charting ✓
purposes.

R. REFERENCES TO REPORTS

Report On Corrections To Echo Soundings OPR-469-FA-74
Coast Pilot Report, OPR-469-FA-74 ✓
Electronic Systems Calibration Report, OPR-469-FA-74
Field Edit Reports, OPR-469-FA-74

S. DATA PROCESSING PROCEDURES

Program AM-100, version 11/10/72, was used on launch FA-6 to
acquire and compile all hydrographic on-line data. Program AM-
170, version 11/10/72, was used on launch FA-5 to acquire and ✓
compile all hydrographic on-line data. Launches FA-3 and FA-4
used ASI Loggers to compile all hydrographic on-line data.

Submitted by:



Andrew M. Snella, LTJG, NOAA

FIELD TIDE NOTE

Field tide reduction of soundings was based on predicted tides from Nikiski, Alaska corrected in accordance with data furnished by Tides Branch, copy attached, and with interpolation by PDP/8E computer utilizing AM500. All times of predicted tides are based on GMT. Times for recorded tides were based on 150°W time zone while tended by contract observers. The gages at Harriet Point and W. Kalgin Island were shifted to GMT when the FAIRWEATHER took over tending these gages.

Six Bristol Bubbler gages were installed by the NOAA Ship McARTHUR in six different locations in the project area. These gages were the responsibility of the McARTHUR until a minimum of 30 days of records were obtained, after which maintenance was transferred to the FAIRWEATHER. Location and period of operation is as follows:

Ninilchik	Lat. 60°03'16" N Lon. 151°40'11" W	23 May - 22 August
Chinulna Point	60°30'12" N 151°17'00" W	22 May - 22 August
Drift River (1974) pos. →	60°33'17" N 152°08'04" W	5 June - 18 August
<i>Drift R. tide sta. for 1967 has different pos.</i>		
Harriet Point	60°24'12" N 152°15'18" W	6 June - 18 August <i>used for H-8965-1974 work</i>
W. Kalgin Island	60°27'09" N 151°57'24" W	11 June - 17 August <i>used for H-8965-1974 work</i>
Cape Kasilof	60°20'20" N 151°22'40" W	19 June - 22 August

Ninilchik

Gage (S/N 68A9335) was installed by the NOAA Ship McARTHUR and began operation on 23 May. Records from that date to 15 July were submitted by the McARTHUR. This gage was in an area of much small boat activity and as a result of this the hose was broken several times. From 15 July to 22 August only 16 days of usable tide records were obtained. The dates for this usable data are 15 July - 20 July and 7 - 16 August. The marigram reads 18.5 feet greater than the staff.

Chinulna Point

Gage (S/N 63A2928) was installed by the NOAA Ship McARTHUR and began operation on 22 May 1974. Records from that date through 1 July were submitted by the McARTHUR. This gage gave consistently good data throughout operations. The gage and staff were removed on 22 August. The marigram reads 9.0 feet greater than the staff.

FIELD TIDE NOTE
(cont.)

Drift River

Gage (S/N 63A2921) was installed by the NOAA Ship McARTHUR and began operation on 5 June 1974. Records from that date through 16 July were submitted by the McARTHUR. This gage gave excellent results from 17 July through removal on 18 August. The staff was placed in a location close to the high water line and gage-staff comparisons were only possible at high tides. Thus only two comparisons were made, in both cases the marigram read 22.4 feet greater than the staff.

Harriet Point

Gage (S/N 67A16206) was installed by the NOAA Ship McARTHUR and began operation on 6 June 1974. Records from that date to 15 July were submitted by the McARTHUR. Due to a clock malfunction, the data from 16 July to 6 August has been rejected. The clock was changed on 6 August and good data was obtained from that date through removal on 18 August. The marigram reads 12.5 feet greater than the staff.

W. Kalgin Island

Gage (S/N 67A16209) was installed by the NOAA Ship McARTHUR and began operation on 11 June 1974. Records from that date through 3 July were submitted by the McARTHUR. This gage gave excellent results during the entire period of operation. The marigram reads 13.8 feet greater than the staff.

Cape Kasilof

Gage (S/N 68A9329) was installed by the NOAA Ship McARTHUR and began operation on 19 June 1974. Records from that date through 12 July were submitted by the McARTHUR. Due to gage malfunctions and repeated hose fractures, data from this gage was intermittent. Good records were obtained from 13 - 24 July and 30 July to 9 August and again from 20 August through removal on 22 August. The marigram reads 12.2 feet greater than the staff.

LEVELS

The FAIRWEATHER leveled out and removed the six tide gages. No field comparison of level records was made since the most current records from the McARTHUR were not available. It is suggested that comparison be made with the last set of levels run by the McARTHUR at each gage.

ZONING

It is recommended that all zoning be done by Tides Branch after reviewing all the available tide data for the various periods of operations, including that obtained from the additional gages maintained by the McARTHUR.

Supplemental
OPR-469-FA, RA-74

RECEIVED

BY

SUBJECT: Tidal Zoning For Boat Sheets JUL 15 1974

NOAA FAIRWEATHER (MSS20)

Time and range corrections have been computed for each boat sheet (field sheet) and should be applied to the predicted tides for Nikiski as furnished. The recommended corrections are as follows:

Sheet	Mean Range	Ratio	Time
A			
North of 60°14'	15.5	0.89	- 1 hr.
South of 60°14'	15.0	0.86	- 1 hr. 30 m.
B			
West of 151°50'	15.8	0.91	- 1 hr. 15 m.
151°50' to 151°40'	16.5	0.95	- 1 hr.
East of 151°40'	16.8	0.97	- 1 hr. 15 m.
C			
East of Kalgin Is. to 151°40'	16.5	0.95	- 1 hr.
East of 151°40'	17.0	0.98	- 45 m.
West of Kalgin Island	15.5	0.89	- 45 m.
D			
North of 60°20'	17.4	1.00	- 45 m.
South of 60°20'	17.0	0.98	- 1 hr.
E			
West of 151°40'	16.8	0.97	- 45 m.
East of 151°40'	17.2	0.99	- 45 m.
F			
West of 151°40'	16.2	0.93	- 30 m.
151°40' to 151°30'	16.8	0.97	- 30 m.
East of 151°30'	17.4	1.00	- 15 m.*

2

Sheet	Mean Range	Ratio	Time
G .			
East of 151°50'	16.2	0.93	- 30m.
West of 151°50'	15.8	0.91	- 30m.
H-8963	15.5	0.89	- 45m.
H-8964			
West of 152°00'	15.5	0.89	- 45m.
East of 152°00'	16.0	0.92	- 45m.
H-8965			
West of Kalgin Island	15.5	0.89	- 45m.
East of Kalgin Island	16.5	0.95	- 1 hr.

*Time should be corrected depending on distance from the reference station, Nikiski.

SOUND VELOCITY CORRECTOR ABSTRACT

The following sound velocity correctors are to be applied to all soundings on sheets:

FA 20-1-74	(H-9435)
FA 20-2-74	(H-9436)
FA 20-3-74	(H-9437)
Su 20-1-67	(H-8964)
Su 20-2-67	(H-8965)

Kenai rock investigation on H-8789

<u>Depth (fathoms)</u>	<u>Corrector (fathoms)</u>
00.0-05.5	+0.0
05.6-13.7	0.1
13.8-21.9	0.2
22.0-29.6	0.3
29.7-39.5	0.4
39.6-47.0	0.5
47.1-53.1	0.6
53.2-61.4	0.7
61.5-69.2	0.8
69.3-77.5	0.9

STATION LIST
OPR-469

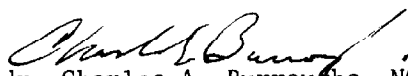
STA	O	LATITUDE	LONGITUDE	CRT	ELEV(M)	F(Khz)	TYPE/NAME	SOURCE
001	4	60° 17' 3478"	152 24 1956	139	22.0	149835	MORONI RM 2	601522
002	4	60 21 2778	152 21 0899	139	2.0		NORMAN 1967	601522
003	4	60 21 3966	152 18 4034	139	2.0	149835	GEORGE 1967	601522
004	4	60 23 4806	152 14 0644	139	24.0	12346 149835	HARRIET PT LT.	601522 Δ
005	4	60 25 3830	152 19 1006	139	64.0	T-12345	Δ MUTH 1944	601522 not on SS.
006	4	60 25 2308	151 58 2115	139	2.0	T-	Δ HARLEY 1967	601513 ✓
007	4	60 26 0876	152 19 2639	139	3.0	T-12345	Δ R. BAY S. BASE	601522 #35 AZO
008	274	60 31 3511	152 16 5453	139	3.0	T-12047	Δ R. BAY N. BASE	601521 ✓
009	4	60 35 1103	152 09 4301	139	5.0		DRIVER 1967	601521 H-8964
010	4	60 35 0085"	152 08 0633	139	2.4		RIFT 1966	601521 H-8964
011	4	60 33 1344	152 08 0800	139	16.0	149835	DRT SW LT.	601521 H-8964
012	4	60 20 4239	152 04 5746	139	20.0		S KALGIN LT.	601522
200	4	60 01 1332	151 42 1843	139	61.0	3300.4	DEEP 1964	601513
201	4	60 03 0385	151 39 4833	139	75.0		NINILCHIK CH.	601513
202	4	60 18 0361	151 27 1684	139	2.0		SIS 1963	601512
203	4	60 21 5578	151 22 2768	139	19.0	3300.4	PT 2 RM 2	601512
204	4	60 31 5777	151 04 5197	139	70.0		SOLDOTNA(USE)	601511
205	4	60 29 0819	151 50 0529	139	43.0		E. KALGIN LT.	601513
206	4	60 12 5342	151 24 4427	139	51.0		CLAM 1964	601512
207	4	60 30 3253	151 56 4494	139	79.0		N. KALGIN(ECC)	601514 H-8964
208	4	60 12 2046	151 25 4619	139	48.0	3300.4	PT 4 1963	601512

APPROVAL SHEET

H-8965

SU 20-2-67

The boatsheet and all accompanying records are hereby approved. The survey was conducted under my personal supervision and the boatsheet and other records were examined daily. This survey is complete and adequate to supersede prior surveys for charting.



Cdr. Charles A. Burroughs, NOAA
Commanding Officer
NOAA Ship FAIRWEATHER MSS-20

LIST OF SIGNALS ON H-8965 (SU-20-2-67)

Names used in

<u>Hydrographic Survey</u>	<u>No.</u>	<u>Origin of Station</u>
HARL	19	HARLEY, 1967
KED	18	G.P. COMPUTATION
JIM	17	G.P. COMP.
ION	16	G.P. COMP.
HEX	15	G.P. COMP.
NUT	14	Sextant cuts, L4, Vol. I, P.3-5#
MUG	13	Sext. cuts, L4, Vol. I, P.3-5.
LAY	12	Sext. cuts, L4, Vol. I, P.6,7.
GIN	11	NORTH KALGIN, 1944
EOG	10	G.P. COMP.
ERG	9	G.P. COMP.
DEB	8	G.P. COMP.
ZOO	7	Sext. cuts, L4, Vol. I, P.6,7. 18264
YAK	6	Sext. cuts, L4, Vol. I, P.6,7. 18264
COD	5	G.P. COMP.
WIG	4	Sext. cuts, L4, Vol. I, P.7.
BOX	3	G.P. COMP.
VET	2	Sext. cuts, L4, Vol. I, P.6,7. 18264
ALP	1	G.P. COMP.
ROG	45	Sext. cuts, L4, Vol. VI, P.52.
REA		Sext. cuts, L4, Vol. VI, P.50. Not plotted
RAG	28	G.P. COMP.
ICE	29	G.P. COMP.
CUE	30	G.P. COMP.
JAN	31	G.P. COMP.
FAY	32	Sext. cuts, L4, Vol. VI., P.7.
TUB	33	G.P. COMP.
SUE	34	G.P. COMP.
AZO	35	G.P. COMP.
GUY	36	Sext. cuts, L4, Vol. VII, P.11.
PRO	37	G.P. COMP.

Not

LIST OF SIGNALS ON H-8965 (SU-20-2-67)

cont.

NAMES used in

Hydrographic Survey

	<u>No.</u>	<u>Origin of Station</u>
WEE	38	G.P. COMP.
CAB	39	Sext. cuts, Lt, Vol. VII, P.11.
HIT	40	Sext. cuts, Lt, Vol. VII, P.11.
HAR	41	HARRY, 1944
JEF	42	Sext. cuts, Lt, Vol. VII, P.11.
HAT	43	HAT, 1967
ORG	103	G.P. Comp.
OHM	25	G.P. Comp
MOP	26	G.P. Comp
Dry	22	

SIGNALS H-8965

08965	001	60294241	151511731	ALP ✓
08965	002	60300922	151531354	VET <i>hydro sta.</i>
08965	003	60301169	151532074	BOX ✓
08965	004	60301886	151534487	WIG <i>hydro sta.</i>
08965	005	60303235	151543043	COD ✓
08965	006	60303828	151544873	YAK <i>hydro sta.</i>
08965	007	60304458	151550384	ZOO <i>hydro sta.</i>
08965	008	60305455	151552684	DEB ✓
08965	009	60305680	151554814	FRG ✓
08965	010	60304387	151570285	FOG ✓
08965	502011	△ N. KALGIN, 1944	60303290	151564473 GIN - <i>add name to SS.</i>
08965	012		60302151	151564755 LAY <i>hydro sta.</i>
08965	013		60295316	151565131 MUG <i>hydro sta.</i>
08965	014		60292962	151572916 NUT <i>hydro sta.</i>
08965	015		60292489	151582631 HEX ✓
08965	016		60292046	151582906 ION ✓
08965	017		60283313	151580482 JIM ✓
08965	018		60265676	151572334 KED ✓
08965	019	△ HARLEY 1967	60252309	151582115 HAL
08965	025		60322931	152155016 OHM <i>on H-8964</i>
08965	026		60315520	152160943 MOP <i>on H-8964</i>
08965	027	△	60313523	152165462 △ NOR REDOUBT BAY, N. BASE 1944
08965	028		60310725	152172549 RAG ✓
08965	029		60304881	152175108 ICE ✓
08965	030		60301094	152184193 CUE ✓
08965	031		60291353	152185561 JAN ✓ <i>△ on T-12345</i>
08965	032		60283040	152194174 FAY <i>Hydro sta.</i>
08965	033		60274280	152194886 TUB ✓
08965	034		60271022	152194912 SUE ✓
08965	035		60260928	152192680 AZO ✓ <i>△ on T-12345</i>
08965	036		60250070	152181553 GUY ✓ <i>hydro sta.</i>
08965	037		60244023	152171455 PRO ✓
08965	038		60243442	152161878 WEE ✓
08965	039		60241255	152153316 CAB ✓ <i>hydro sta.</i>
08965	040		60235819	152145005 HIT ✓ <i>hydro sta.</i>
08965	041	△	60234839	152140639 △ HAR4 HARRIET PT. LT. 1967
08965	042		60234182	152140288 JEF <i>Hydro sta.</i>
08965	043	△	60233572	152142137 △ HAT HAT 1967
08965	045		60294245	151504879 ROG
08965	046		60250000	152080000 No name, <i>hydro sta.</i>
08965	103		60214010	152184174 ORG ✓
000	503		60°31'13.780"	152°11'19.00" SHIP
	504		60°31'00.00"	152°12'00.00" NICK
	501		60°35'11.740"	152°09'43.330" DRY
	502		60°21'40.100"	152°18'41.740" GIN

7/8/76

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center:

Hourly heights are approved for Form 362

Tide Station Used (NOAA Form 77-12): W Kalgin Island *lat. 60°27'09" N*
Harriet Point *lat. 60°24'12" N*

Period: July 7-August 6, 1974

HYDROGRAPHIC SHEET: H-8965

OPR: 469

Locality: Cook Inlet, Alaska

Plane of reference (mean lower low water): 6.1 ft.-Kalgin Island
*-Harriet Point

Height of Mean High Water above Plane of Reference:

(1) 17.5 ft.-Kalgin Is., (2) 16.1 ft.-Harriet Pt.

Remarks: Recommended zoning:

1. East of 152°09.2' Zone direct on Kalgin Island
2. West of 152°09.2' Zone direct on Harriet Point

*Time period MLLW at Harriet Point

7/7 - 7/19	2.7 ft.
7/19 - 8/6	2.4 ft.
8/6 - 8/16	9.8 ft.

James C. Hubbard
Chief, Tides Branch

GEOGRAPHIC NAMES

Survey No.

H-8965

Name on Survey

On Chart No 8553
 On previous survey No
 On U S Hydrographic Maps
 From local information
 On local maps
 P. O. Guide or Map
 Rand McNally Atlas
 U. S. Light List
 Manuscript

	A	B	C	D	E	F	G	H		
COBBS COVE ✓									X	1
COOK INLET ✓									X	2
HARRIET POINT ✓	X									3
KALGIN ISLAND ✓	X								X	4
KATCHIN CREEK ✓									X	5
NORTHWEST POINT ✓									X	6
OLDMANS BAY ✓									X	7
REDOUBT BAY ✓									X	8
HARRIET CREEK										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

APPROVED

Chas. C. Harrington

STAFF GEOGRAPHER - 5142

16 Nov 1977

APPROVAL SHEET

FOR

SURVEY H- 8965

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position print-out has been made. A new final sounding print-out has been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the verifier's report.

Date: 5 Aug 1977

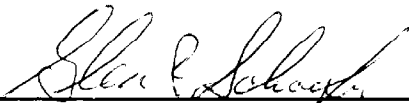
Signed: 

Title: Chief, Verification Branch

SUBMISSION STATEMENT

H-8965

Survey H-8965 is being forwarded without Hydrographic Survey Inspection Team Report or Administrative Approval. Fifty percent of the survey by area, was conducted and verified under procedure predating the delegation of approval authority to the marine center level. Review of that portion of the survey was instituted, and partially completed prior to the additional 1974 field work. The verification of the 1974 portion of the field work is complete and is hereby approved.



Glen R. Schaefer, CDR, NOAA
Chief, Processing Division



Date

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-8965

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET with smooth excess & PNO overlay	1	BOAT SHEETS 6 parts, ^{3-mylar} 3-paper	1 β
DESCRIPTIVE REPORT	2	OVERLAYS Boat sheets - prelim.	9 β

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS / SOURCE DOCUMENTS
CAHIERS smooth ENVELOPES			21			
CAHIERS	3	Raw Printout and Bathograms				
VOLUMES	20					
JXES			2			

T-SHEET PRINTS (List)
T-12047, T-12345

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				5712
POSITIONS CHECKED		5712		
POSITIONS REVISED		69		
DEPTH SOUNDINGS REVISED		515		
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
Verification of Control	16			
Verification of Positions		45		
Verification of Soundings		239		
Smooth Sheet Compilation		80		
ALL OTHER WORK		14		
TOTALS	16	378		291
PRE-VERIFICATION BY Karol M. Hoops	BEGINNING DATE 2/3/75		ENDING DATE 2/3/75	
VERIFICATION BY James L. Stringham	BEGINNING DATE 2/28/75		ENDING DATE 4/9/77	
REVIEW by Addendum } Inspection } J.T. Gallahan 85 hrs	BEGINNING DATE		ENDING DATE Oct. 27, 77	

Carstens 7hr 11/1/77

REGISTRY NO. H-8965

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey, the following shall be completed:

CARDS CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

PACIFIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO: H-8965

FIELD NO: SU-20-2-67

Alaska, Upper Cook Inlet, Kalgin Island

SURVEYED: 24 July - 31 August 1967
9 July - 16 August 1974

SCALE: 1:20,000

PROJECT NO: OPR-469

SOUNDINGS: DE-723 Fathometer and
Ross Fineline Fathometer

CONTROL: Visual, Shoran-Sextant,
Mini-Ranger & Raydist

Chief of Party.....CAPT Norman E. Taylor (SURVEYOR)
assumed command Aug 30, 1967 ~~CDR Harley D. Nygren (SURVEYOR)~~
CDR Charles A. Burroughs (FAIRWEATHER)
Surveyed by.....LTJG Bradford Roth & LTJG Andrew M. Snella
see Review Addendum for complete Personnel list.
Automated Plot by.....PMC Xynetics Plotter
Verified by.....Nicholas Lestenkof - 1967 work
James L. Stringham - 1974 work
July 9, 1977

I. INTRODUCTION

H-8965 (SU-20-2-67) was completed by the NOAA Ship FAIRWEATHER operating in accordance with Project Instructions OPR-469-FA-74 dated February 8, 1974. This basic survey is situated west of Kalgin Island, Alaska. Specifically, the limits are from Lat. 60°22'N to Lat. 60°31'N and from Long. 151°51'W to Long. 152°19'W.

The original survey ^{of} H-8965 ~~H-8964~~ was conducted in 1967 by the NOAA Ship SURVEYOR and launches. The survey was then verified, and a smooth sheet plotted at PMC and forwarded to Rockville. At that time, the determination was made to do additional work, since some inshore areas were not sounded and in other instances insufficient lines were run for proper junctioning. These areas are further detailed in the Project Instructions dated 8 February 1974.

The Hydrographic Survey Branch, Rockville, requested all work be plotted on one smooth sheet. To accomplish ~~this~~ ^{such} decisions were made to supersede 1967 data that did not coincide with 1974 data and correlate that data that would junction. In most cases, the verifier was able to junction the 1967 and 1974 work without excessive difficulty. However, the shoal located at Latitude 60°23.5'N and Longitude 152°06.5'W and extending NNE to Lat. 60°30.5'N and Long. 152°02.2'W reveals extensive disagreement between 1967 and 1974 work.

see Review Addendum

slightly in an area of extensive coverage by 1974 hydro.
A few shoaler 1967 soundings at Lat. $60^{\circ}24.5'$ and Long. $152^{\circ}06'W$ were placed in excess to ~~enable drawing of~~ *to aid in delineating the* good two fathom curve. *which comprise a small percentage of that seasons work*

All 1967 soundings east of approximate Long. $151^{\circ}55.8'W$ were placed in excess because of poor junction agreement and the smaller physical size of the PMC Xynetics Plotter, H-8965, 1967 survey. The following position numbers do not plot on the physical limits of H-8965; position 4887 thru 4895, day 235, 1967 work. No important soundings were found to exist east of Long. $151^{\circ}55.8'W$.
57.0

The 1974 soundings were reduced from Kalgin Island and Harriet Point Gages while 1967 soundings were reduced from Drift River tide gage. The difference in tide correctors could account for ^{some} disagreements between 1967 and 1974 work.

The bottom configuration is irregular, especially in the area of Latitude $60^{\circ}30'N$ and Longitude $152^{\circ}08'W$, believed to be caused by sand waves. Bottom characteristics are composed primarily of sand and rocks.

The 1967 SURVEYOR work was not recomputed by the Harris/Xynetics System. A few soundings were recomputed on a time and course method because of noticeable error in the Gerber Plot of H-8965. The 1967 survey by the Ship SURVEYOR contains 3189 positions of which an estimated 1000 positions were looked at. All detached positions were checked. The 1967 survey sounding listing contains 12494 soundings of which 80% of plotted soundings were checked, especially along the thirty fathom depth curve in the center of the sheet and the shoal area east of Harriet Point. NOAA Form 77-27 accompanying the 1974 reflects total count of positions and soundings changed.

II. CONTROL AND SHORELINE

See Sections F and G, 1967 and F, G and H, 1974 Ship's Report. Also, Notes To the Reviewer, Part IX, 1967 Verifier's Report, for an adequate discussion of control.

The following Class I Unreviewed Manuscripts were used to transfer shoreline:

<u>Manuscript</u>	<u>Date of Photography</u>	<u>Date of Field Edit</u>
T-12047	<i>Aug. 1966</i>	June 197 ⁴ ₅
T-12344 <i>Sp. 92474</i>	June 1967 and July 1970	August 1974
T-12345 <i>Sp. 92475</i>	July 1966, 1967 and 1970	July 1974
T-12346 <i>Sp. 92476</i>	July 1966, 1967 and 1970	June 1974
T-12347 <i>Sp. 92477</i>	June 1967 and July 1970	July, August 1974
T-12350 <i>Sp. 92479</i>	June 1967 and July 1970	July, August 1974

The dotted zero curve was not transferred from the manuscripts to the smooth sheets because of disagreement between the T-sheet and hydrographic information. Please see Field Edit Report, Upper Cook Inlet, Alaska, OPR-469, Summer 1974, Introduction (Attached).

III. HYDROGRAPHY

Hydrography incorporated in this survey H-8965, 1967 is adequate to delineate bottom characteristics and to draw depth curves, except for a holiday in the area of Lat. $60^{\circ}31'N$ and Long. $151^{\circ}56'W$. In this area, the zero thru three fathom could not be accurately drawn.

Because of the extreme tidal range, the crosslines agree ^{only} within 3 to 4 tenths of a fathom. The junction agreement between the 1967 work and 1974 work averages a 3 to 5 tenth disagreement with extreme cases of 1 to 1.5 fathoms in less than ten fathoms of water.

IV. CONDITION OF SURVEY

The smooth sheet and other hydrographic records of the 1974 work are adequate and conform to the requirements of the Provisional Hydrographic Manual with the exception of:

- a. Adequate junction was not effected in the field between the 1967 work and 1974 work. Especially in the area of the shoal at Lat. $60^{\circ}27'N$ and Long. $152^{\circ}04'$. Because of the bottom sedimentation being sand and the large tide range, the junction should have been attempted in deeper water rather than on top of the shoal. This hampered agreement in the depth curves. *Conflicting 1967 soundings were excessive*
- b. The junction between H-8964 and H-8965 was not completed in the field, note the holiday in the junction area just north of Kalgin Island.
- c. Junction problems with H-9435, 1974 were not addressed in the report.
- d. Kalgin Island West Channel Lighted Bell Buoy 2 was not located during the 1974 work.

V. JUNCTIONS

H-8965, 1967 junctions to the north with H-8964, 1967. The junction agreement was good except east of $151^{\circ}57'W$. A holiday exists in junction area at Lat. $60^{\circ}31'N$ and Long. $151^{\circ}56.5'W$. Several soundings have been placed in excess east of $151^{\circ}57'W$ by more confident soundings found on H-8964, 1967. Junction note and curves are inked. *see Review Addendum*

H-8965, 1967 junctions to the south with H-9435, 1974. The junction agreement was only fair. H-8965 was in most cases much shoaler than H-9435 causing dashed 5 and 10 fathom depth curve for agreement. Junction note and curves are inked.

VI. COMPARISON WITH PRIOR SURVEYS

see Review Addendum

This survey was compared with the following prior surveys: H-3322, 1911, scale 1:100,000 sounding in feet; H-3322A, 1911, scale 1:40,000 soundings in feet; H-3355, 1911, scale 1:100,000 sounding in feet; and H-3318, 1911, scale 1:40,000 sounding in feet.

Considering the year and scales of the prior surveys, the agreement between H-8965, 1967 and the above listed priors is acceptable. Contributing factors for disagreement between H-8965 and priors are; datum shifts, soundings in feet at small scales, ^{bottom changes} and surveying methods. Generally, the basic bottom topography is the same as the prior surveys reflect.

H-3322A, 1911 is source for the 3/4 fathom PSR dashed sounding at approximate Lat. 60°26.7'N and Long. 152°00.3'W which is confirmed by H-8965, 1967.

H-8965, 1967 is adequate to supersede the above listed prior surveys in the area of common coverage.

VII. COMPARISON WITH CHART

see Review Addendum

H-8965, 1967 was compared to C&GS Chart 8553, 15th Ed., December 29, 1973. Several of the important charted soundings originate with H-8964, 1967 and H-8965, 1967 data. Most of the remaining soundings originate from the prior surveys discussed previously.

The dashed PSR sounding of 1 1/2 fathoms at approximate Lat. 60°22.15'N and Long. 152°05.3'W, source of this sounding is unknown, is confirmed by this survey.

The Kalgin Island Lighted Bell Buoy 2 should be retained as charted; no additional information is supplied by H-8965, 1974.

H-8965 is adequate to supersede charted information within the common area.

VIII. COMPLIANCE WITH INSTRUCTIONS

H-8965, 1967 adequately complies with Project Instructions, dated 8 February 1974, except for making adequate junction between 1967 work and 1974 work.


IX. ADDITIONAL FIELD WORK

The combination of 1967-1974 survey data forms an adequate basic survey. No additional field work is recommended.

Examined and approved,


James S. Green
Chief, Verification Branch

Respectfully submitted,


James L. Stringham
Cartographic Technician
9 July 1977

H-8965

Information for Future Presurvey Reviews

This is a good basic survey of Redoubt Bay. The bottom is generally stable except for the offshore shoals which are subject to change due to sediment shifting.

<u>Position Index</u>		<u>Bottom Change Index</u>	<u>Use Index</u>	<u>Resurvey Cycle</u>
<u>Lat.</u>	<u>Long.</u>			
602	1520	4	2	50 years
602	1521	5	2	25 years
602	1522	4	1	50 years

OFFICE OF MARINE SURVEYS AND MAPS
MARINE SURVEYS DIVISION
HYDROGRAPHIC SURVEY REVIEW ADDENDUM

REGISTRY NO. H-8965

FIELD NO. SU-20-2-67

Alaska, Upper Cook Inlet, Redoubt Bay, West of Kalgin Island

SURVEYED: July 24 - August 30, 1967; July 9 - August 17, 1974

SCALE: 1:20,000

PROJECT NO.: OPR-469

SOUNDINGS: DE-723 Depth Recorder
Ross Finline Digital
Depth Recorder

CONTROL: Shoran, Visual Fixes
on Shore Signals,
Raydist (Range-Range)
Motorola Mini-Ranger
(Range-Range)

Chief of Party (Ship SURVEYOR)	N. E. Taylor (1967)
(Ship FAIRWEATHER)	C. A. Burroughs (1974)
Surveyed by	A. D. Anderson, M. S. Asato
.....	P. R. Chelgren, W. H. Dvorachek, Jr.
.....	J. Gulley, F. L. Jeffries
.....	W. L. Perryman, D. C. McConaghy
.....	J. A. Murphy, S. S. Nako
.....	L. K. Nelson, R. E. Newell
.....	J. W. O'Clock, J. L. Ogg
.....	D. K. Rea, A. M. Snella
.....	W. G. Wills, S. K. Yoshida
Automated Plot by	Xynetics Plotter (PMC)
Verified by	N. Lestenkof, J. Stringham
Review Addendum by	J. T. Gallahan
	Date: October 27, 1977
Inspected by	J. T. Gallahan

1. Introduction

This report will be considered as a Hydrographic Survey Review Addendum for H-8965 (1967-74). The original review covering the 1967 work is not available and is presumed lost. Therefore, the 1974 PMC Verifier's Report shall be retained and also serve the purpose of the Hydrographic Survey Review for H-8965 (1967-74).

Items not included in the 1974 Verifier's Report shall be discussed in this report.

A prominent feature on the present survey is the extensive shoal area between Kalgin Island and the mainland. This shoal, centrally located at latitude 60°27', longitude 152°04', is 6 miles in length and extends in a general north-south direction. A combination of a sandy bottom and current action have created this typical middle ground shoal which is subject to continuous change.

2. Control and Shoreline

The source of control is adequately described in parts F and G of the Descriptive Report for the respective years.

The origin of the shoreline and topographic items are listed in the 1974 Verifier's Report.

The mean high water line is shown for guidance only; the true position is shown on the topographic surveys mentioned above.

3. Junctions

An adequate junction has been effected with H-8964 (1967-74) on the north and H-9435 (1974) on the south.

4. Comparison with Prior Surveys

a. H-2978 Rec. (1908) 1:120,000

This small-scale reconnaissance survey lacks sufficient reliable information for an adequate comparison of any cartographic value.

b. H-3322 (1911) 1:100,000 H-3355 (1911) 1:100,000

H-3322 (1911) covers the major part of the common area with the present survey. H-3355 (1911) covers a much smaller portion. A comparison of depths between these prior offshore surveys and the present survey reveals generally good agreement except in isolated areas where differences as great as 2 1/2 fathoms may be attributed to the shifting of shoals. Shoals charted from these surveys should be revised to agree with present survey information.

c. H-3318 (1911) 1:40,000 H-3322a (1911) 1:40,000

A comparison of the depths between these prior inshore surveys and the present survey reveals general agreement. The stable shoreline is in

good agreement with the present survey except in the area of Harriet Point where apparent stream sediment has extended a sand spit feature 250 meters in a southeast direction. The bare rock charted at latitude $60^{\circ}24.7'$, longitude $152^{\circ}16.2'$ is from H-3322a (1911). The present survey has a rock awash baring 12 feet at MLLW from T-12346 (1966-74) at this location. Therefore, this bare rock should be deleted from the chart and replaced with a rock awash symbol.

** shown
at this
Location*

The present survey is adequate to supersede the prior surveys within the common area.

5. Comparison with Chart 16660 (Previously numbered 8553), latest print date December 18, 1976

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration, supplemented by information from the boat sheet and the verified smooth sheet of the present survey.

Attention is directed to the following:

(1) The bare rock charted at latitude $60^{\circ}25.3'$, longitude $152^{\circ}16.5'$ has a probable origin from H-3322a (1911) of a zero sounding erroneously transferred to the chart as an islet. Neither the present survey nor T-12346 (1966-74) reveals the existence of a rock in the area; therefore, this charted islet should be removed from the chart.

*Islet removed
from chart*

(2) Discrepancies exist between the charted rock information and that shown on the present survey. The charted rock information should be revised to agree with the present survey.

b. Aids to Navigation


Harriet Point Light charted at latitude $60^{\circ}23.7'$, longitude $152^{\circ}14.0'$ originates with Local Notice to Mariners 36 of 1967. (NM 40/67). This light is shown as a triangulation station on T-12346 (1967-74) and the present survey and is used as a miniranger base control station. The charted position should agree with the true position and the designation PA deleted from the chart. Harriet Point Light adequately marks the feature intended.

*Deleted
PA from
chart*

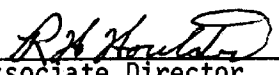
Kalgin Island West Channel Lighted "BELL buoy 2" charted at latitude $60^{\circ}26.9'$, longitude $152^{\circ}06.5'$ originates with Local Notice to Mariners

36 of 1967 (NM 40/67). This seasonal lighted bell buoy listed in the 1974 Light List is not shown on the present survey.

Examined and Approved:



Chief
Marine Surveys Division



Associate Director
Office of Marine Surveys
and Maps

