

8534

8534

Diag. Cht. No. 8502-2

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. PF-20-1-60 Office No. H-8534

LOCALITY

State ALASKA

General locality Alaska South Coast

Locality Cape St. Elias

19 60

CHIEF OF PARTY

M.E. Wennermark, Capt., C&GS, Comdg.
USC&GS Ship PATHFINDER

LIBRARY & ARCHIVES

DATE 20 February 1963

HYDROGRAPHIC TITLE SHEET

H-8534

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.

PF-20-1-60

State ALASKA

General locality Alaska South Coast

Locality Cape St. Elias

Scale 1:20,000 Date of survey 14-22 June 1960

19 April 1960, Suppl. Instr.,

Instructions dated 29 April 1960, 9 May 1960 Project No. _____

Vessel USC&GS Ship PATHFINDER, and Launches 1, 2, 3, & 4

Chief of party M. E. Wennermark, Capt., C&GS, Comdg.

Surveyed by F.X. Popper, W.D. Barbee, R.M. Sundean, C.A. Burroughs & C.B. Carter

Soundings taken by echo sounder, hand lead, pole 808 Type Graphic Recorder

Graphic record scaled by Ship Personnel

Graphic record checked by Ship Personnel

Protracted by C. B. Ellis Automated plot by _____

Soundings penciled by C. A. J. Pauw

Soundings in fathoms ~~feet~~ at ~~MHW~~ MLLW _____

REMARKS: _____

Control: Shoran & Visual ?

This sheet was transferred April 1960, to the Seattle Processing

Office for completion. Sheet Verified by Nicholas Lestenkof.

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-8534 (PF-20-1-60)
CAPE ST. ELIAS

SCALE: 1:20,000
USC&GS Ship PATHFINDER

DATE: 11-22 JUNE 1960
M.E. WENNERMARK, COMDG.

(A) PROJECT - This survey was a part of Special Project 4-60. The original Instructions were dated 19 April 1960; Supplemental Instructions, 29 April and 9 May 1960. This hydrographic survey immediately preceded Wire Drag Survey H-8535 (PF-20-1-60 WD, 1:20,000, 1960).

(B) SURVEY LIMITS AND DATES - The survey covers an area around the south end of Kayak Island and extends Northward to $59^{\circ} 49' N$ and Southward to $59^{\circ} 43' N$. The eastern limit is $144^{\circ} 31' W$ and extends Westward to $144^{\circ} 41' N$. There are no modern surveys in this area. Prior surveys are all at small scale and copies were not furnished.

Signal building was begun 11 June and hydrography begun 14 June and completed 22 June with additional Shoran calibration observations made 25 June 1960.

(C) VESSELS AND EQUIPMENT - Hydrography was done by the Ship PATHFINDER and Launches 1, 2, 3, and 4.

Launch #1 was equipped with 808 type depth recorder No. 57-29 and Shoran indicator No. 581. Launch #1 worked on the South-westerly side of Kayak Island.

Launch #2 was equipped with 808 type depth recorder No. 57-22 and Shoran indicator No. 518. Launch No. 2 worked on the South-easterly side of Kayak Island.

Launch #3 was equipped with 808 depth recorder No. 57-23 and Shoran indicator No. 1352. Launch No. 3 worked on the Southwest side of Kayak Island in the area where Shoran was obscured by Pinnacle Rock. This Launch also did the inshore visual hydrography on the East and West sides of Kayak Island.

Launch #4 was equipped with 808 type depth recorder No. 74-S and Shoran indicator No. 1313. Launch No. 4 worked on the South and South-westerly portions of the sheet.

All depth recorders were calibrated for 800 fathoms per second.

All launches operated from the Ship PATHFINDER and have a turning radius of approximately 20 meters.

Work accomplished by various vessels may be identified on the sheet, using the following code : Ship PATHFINDER - Capital Blue.

Launch 1 - Lower Case - Blue
Launch 2 - Lower Case - Purple
Launch 3 - Lower Case - Green
Launch 4 - Lower Case - Red

(D) TIDE AND CURRENT STATIONS - Tide reducers were derived from hourly heights furnished by the Washington Office and are from the standard gage at Yakutat (135W). There were no height corrections. However, all heights were plotted and reducers entered in sounding volumes as 150W time zone.

No current stations were called for in the instructions. However, a 2-3 Knot current was estimated for the general area. (See "N" Recommendations- Wire Drag Survey H-8535 (PF-20-1-60WD) Descriptive Report).

(E) Smooth Sheet - The smooth sheet was constructed by hand aboard ship. Shoran arcs were drawn with a beam compass through at least three points plotted for each arc.

The shoreline was transferred from blue-line copies of Advance Manuscripts T-9958, T9959, and T-10925, SSe shoreline around Pinnacle Rock.

No effort was made to delineate either the high or low water line, because of heavy surf.

(F)(G)(I) CONTROL OF HYDROGRAPHY; SHORELINE AND TOPOGRAPHY: - There are two intersection stations that fall within the limits of this sheet; KYAK, 1898, and PINNACLE ROCK, 1903. Neither of these two stations was used for control, and were plotted on the sheet only as a reference.

Cape St. Elias Light is a photogrammetric location determined by the Division of PHOTOGRAMMETRY. A Sun Azimuth was observed a latitude $59^{\circ} 47' 56''$, longitude $144^{\circ} 35' 50''$ and an Azimuth determined for Cape St. Elias Light. The position of Cape Azimuth Mark (longitude hour 9 hrs, 38 min., 2313 seconds) is 6.0 meters East of signal Eli (H-8535) and is $18^{\circ} 33' 49''$ to CAPE. This observation point was used to rod in the following signals located by graphic control: Guy, Eli, Far, Eat; initialed on Cape St. Elias Light. Signals Ivy and Jay were located by Sextant cuts. Signals Abe, Boy, Cat, and Dog are photogrammetric locations. Signal Kim was located by the following positions and cuts:

Launch #2 - Volume 4, page 39 (calibration data)

Launch #2 - Volume 4 position 108c

Launch #2 - Volume 5 position 159c

Kim is the whitewashed concrete base of the old 1915 Cape St. Elias Light on the S.W. end of Pinnacle Rock. w.m.m.

The position of Launch #2 (Vol, 5, Pos. 159c, #H-8534) changed 0.15 statute mile from boat sheet to H-8535 smooth plot. This shift moved signal Kim 23 meters to the Southeast on the Smooth Sheet. The Smooth Sheet (H-8535) position is below the HWL; the signal was above the HWL. Planimetric manuscript T-9958 compiled November, 1960 moved the HWL approximately 20 meters west. It appears that compilation of the new manuscripts T-9958 and T-10925 from an August, 1960 flight line included not only more accurate delineation of the HWL, but also a slight azimuth shift between the

south end of Kayak Island and the south end of Pinnacle Rock.

SOUTHEAST ROCK (Ser) was located on H-8534 by using only the following cuts:

Position 1B, page 36, Vol 1, Ship PATHFINDER

Position 2B, page 36, Vol 1, Ship PATHFINDER

Position 1a, page 4, Vol 3, Launch 2.

A theodolite cut was taken from Cape St. Elias Light to Southeast Rock; the initial was on CAPE AZIMUTH MARK, and was from the north - the direction to Southeast Rock (Ser) $173^{\circ} 18' 30''$.

The Shoreline and Topography originated with Planimetric Manuscripts T-9958, T-9959 and T-10925, dated November, 1960, and January 1961

The Planetable (Graphic Control) Sheet was used to rod in Guy, Ely. Ear, and Eat is not registered. The sheet has no data other than signal location, and it was assumed the sheet would be destroyed when the signal positions were verified on H-8534 and H-8535.

The survey was controlled by two shoran stations. One station was located at the lighthouse with the antenna mounted on the catwalk around the light. The ship was used as the second station during the entire launch survey. The ship was located by a theodolite direction and a shoran distance from CAPE. This data is in Volume 9, H-8535 and Form 251 Observation of Horizontal Directions, Volumes 1 and 2, (H-8534 and H-8535). Ship's position Volume 9 also covers Ship's Position for H-8534. (See Special Shoran Report)(1960 Season).

(H) SOUNDINGS

Soundings were recorded by 808 type depth recorders. Bar checks were taken by each hydrographic launch each day the weather and sea conditions permitted. See Fathometer Report 1960 for additional information. Soundings were recorded in fathoms. Phase comparisons were obtained later during the season and used for this project. The same depth recorders were used throughout the season.

(J) ADEQUACY OF SURVEY

Plot of hydrography on boat sheets indicates that the survey is complete. Adequacy to supercede prior surveys will have to be determined after the smooth plot (see addendum from Processing Office)

(K) Crosslines

See addendum from Processing Office.

(L) Comparison with prior Surveys

See addendum from Processing Office.

(M) Comparison with Chart

See addendum from Processing Office

(N) DANGERS AND SHOALS - All dangers and shoals that were found are recorded in the Sounding Volumes and will be evident on the Smooth Sheet - See addendum from Processing Office.

(O) Coast Pilot Information

Contained in separate Coast Pilot Report.

- (P) AIDS TO NAVIGATION- There are two aids to navigation in the area:
1. Cape St. Elias Light (L.L. #2220) is on the South end of Kayak Island.
 2. Cape St. Elias Lighted Whistle Buoy 2 (L.L. #2221) is approximately 2.9 nautical miles, 200 degrees from Pinnacle Rock (See addendum from Processing Office).
- (Q) Landmarks for Charts
There are no additional landmarks for charting.
- (R) Geographic Names
No additions or changes are recommended.
- (S) Silted Areas
None were evident from boat sheet plot - See addendum from Processing Office.
- (T) By-Product Information
None

Respectfully Submitted,
Charles Bell, CQS
for C.B. Carter, Ens., C&GS
USC&GS Ship PATHFINDER

TO: PROCESSING OFFICE

SUBJECT: Smooth Projection - H-8534 (PF-20-1-60)

This projection has been completed and checked. G.P.'s were plotted and checked for each Shoran arc on CAPE.

The hydrographic signals Eat, Far, Eli, and Guy were transferred from the graphic control sheet. CAPE AZIMUTH MARK was determined from a Sun Azimuth and is the point from which the above signals were rodded in. The mark is 6.0 meters east of signal Eli. The azimuth^{CAPE} is $18^{\circ} 33' 49''$. The signals were pricked from the graphic control sheet to clear Mylar. By holding the Azimuth, Azimuth Mark station point, and CAPE, the signals were pricked through to the smooth sheet. There was evidently a shift in the signal overlay, because the distance between CAPE and Eat, CAPE and Far, and CAPE and Guy does not check. ^{checks ok} I do not believe it is distorted. This possible shift is mentioned because all of the visual work (approximately 200 positions) has been plotted on the smooth sheet.

There are many instances where cross reference to the Descriptive Report for H-8535 (Wire Drag) may be desirable. The section on Control, for instance, is almost a direct copy of the Wire Drag Report. Signal Kim is not plotted on this smooth sheet and may give you some difficulty. I'm certain there were more cuts taken than I have listed, but I could not find them in the Sounding Volumes. The signal was plotted on the boat sheet and used for calibrations. I am almost certain we did not use this signal for calibration before it was located. However, one of the cuts used to locate it on H-8535 (Wire Drag) was a calibration position.

There were no Shoran corrections assumed or used in boat sheet plot. I assume that is one reason for the 0.15 statute mile shift in the position of Launch #2 (position 159c, Vol. 5). This is one of the positions where a cut was taken to Kim. As I have stated in the Descriptive Report (Hydro H-8534), Kim was above the HWL, but plots below on the Smooth Sheet (Wire Drag H-8535). Fortunately, this signal was not used too much. See also Sec. (I) - General Notes - H-8535 (PF-20-1-60WD). I do not know whether the constant 0.02 statute mile Shoran error will show up on this sheet. Most likely it will. There were some lines run by launch #2 which were controlled by one shoran distance and a sextant angle. This occurred mainly where CAPE was obscured by Pinnacle Rock. In another instance, to the east of Pinnacle Rock, the ship was obscured and either the control was held by using CAPE and one angle or a three-point fix.

It might also be noted that in the sector obscured by Pinnacle Rock, the regular system of control was broken and the line continued on a straight, magnetic course until CAPE was out again and a good fix could be taken. There may be some CAPE distances recorded while in this sector. However, they should be used with discretion, since the signal from CAPE was obviously either bending around Pinnacle Rock, or being reflected from the mountain side behind the station. In either case, the distance from CAPE would be in error.

The statistics records for this sheet are all on the boat sheets and there is no record aboard (except total miles), so you will have to compile this sheet for the Descriptive Report.

Respectfully Submitted,

Charles B. Ellis
Charles B. Ellis, CQS, C&GS

TIDE NOTE
TO ACCOMPANY HYDROGRAPHIC SURVEY H-8534 (PF-20-1-60)
USC&GS Ship PATHFINDER

Tide Reducers were derived from hourly heights furnished by the Washington Office. No Tide Gage was established for this survey as per project instructions. A periodic check by radio was made to ascertain proper functioning of the Standard Gage at Yakutat. No time or height corrections were applied, however, it should be noted the gage at Yakutat is operated on 135 W, and the survey was done using 150 W time zone. The reducers were scaled and entered in the Sounding Volumes as 150 W.

FATHOMETER CORRECTIONS
SP-4-60

<u>LAUNCH</u>	<u>A</u>	<u>B</u>
2 (57-22)	+0.1	-0.9
3 (57-23)	+0.3	-0.9
4 (74-8)	+0.2	-0.7

TABULATION - VELOCITY CORRECTIONS
CAPE ST. ELIAS
Project SP-4-60

Ship PATHFINDER

<u>Corrn</u>	<u>Depth</u>
0.0	to 6.5 fm
+0.1	to 27.5 fm
+0.2	to 65.1 fm
+0.3	to 80 + fm

Launch Hydrography

<u>Corrn</u>	<u>Depth</u>
0.0	to 4.4 fm
+0.1	to 20.0 fm
+0.2	to 60.0 fm
+0.3	to 81.4 fm

Shoran Corrections

Ship Set # 1192

Station Cape - Rate

All ship hydro days for Ship

Rate station zero check between 99.756 and 99.765 Table 1

"	"	"	"	"	99.766 and 99.775	"	2
"	"	"	"	"	99.776 and 99.785	"	3
"	"	"	"	"	99.786 and 99.795	"	4

Distance in miles	Table 1	Table 2	Table 3	Table 4
0.00 - 2.83	+0.04	+0.03	+0.02	+0.01
2.84 - 6.17	+0.03	+0.02	+0.01	+0.00

Tabulated:

Checked: WGR

Superseded

Shoran Corrections

Launch #1 Set #581

Station CAPE - Rate

Rate station zero check between	99.776 and 99.785	Table 1
" " " " "	99.786 and 99.795	Table 2
" " " " "	99.796 and 99.805	Table 3

<u>Distance in miles</u>	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>
0.00 - 2.94	+0.04	+0.03	+0.02
2.95 - 6.25	+0.03	+0.02	+0.01

Station Ship - Drift

Drift station zero check between	99.771 and 99.780	Table 4
" " " " "	99.781 and 99.790	Table 5
" " " " "	99.791 and 99.800	Table 6

<u>Distance in miles</u>	<u>Table 4</u>	<u>Table 5</u>	<u>Table 6</u>
0.00 - 2.50	-0.01	-0.02	-0.03
2.51 - 5.83	-0.02	-0.03	-0.04
5.84 - 9.17	-0.03	-0.04	-0.05

Superseded

Shoran Corrections

Launch Set # 1313

Launch 4

Station Cape - Rate

All launch #4 hydro days

Rate station zero check between 99.776 and 99.785 Table 1

"	"	"	"	"	99.786 and 99.795	"	2
"	"	"	"	"	99.796 and 99.805	"	3
"	"	"	"	"	99.806 and 99.815	"	4

<u>Distance in miles</u>	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>	<u>Table 4</u>
0.00 - 3.35	+0.03	+0.02	+0.01	0.00
3.36 - 6.67	+0.02	+0.01	0.00	+0.01

Station Ship - Drift

Drift station zero check between 99.776 and 99.785 Table 5

"	"	"	"	"	99.786 and 99.795	"	6
"	"	"	"	"	99.796 and 99.805	"	7

<u>Distance in miles</u>	<u>Table 5</u>	<u>Table 6</u>	<u>Table 7</u>
0.00 - 2.60	+0.04	+0.03	+0.02
2.61 - 5.96	+ 0.03	+0.02	+0.01
5.97 - 9.29	+ 0.02	+0.01	+0.00

Tabulated: *cs*
Checked: *...GS*

Superseded

Shoran Corrections
Launch #3 Set #1352

Station CAPE - Rate

Rate station zero check between	99.764 and 99.773	Table 1
" " " " "	99.774 and 99.783	Table 2
" " " " "	99.784 and 99.793	Table 3
" " " " "	99.794 and 99.803	Table 4

<u>Distance in miles</u>	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>	<u>Table 4</u>
0.00 - 1.58	+0.03	+0.02	+0.01	0.00
1.59 - 4.88	+0.02	+0.01	0.00	-0.01
4.89 - 8.14	+0.01	0.00	-0.01	-0.02

Station Ship - Drift

Drift Station zero check between	99.779 and 99.788	Table 5
" " " " "	99.789 and 99.798	Table 6
" " " " "	99.799 and 99.808	Table 7
" " " " "	99.809 and 99.818	Table 8

<u>Distance in miles</u>	<u>Table 5</u>	<u>Table 6</u>	<u>Table 7</u>	<u>Table 8</u>
0.00 - 2.39	+0.01	0.00	-0.01	-0.02
2.40 - 5.67	0.00	-0.01	-0.02	-0.03
5.68 - 8.98	-0.01	-0.02	-0.03	-0.04

Superseded

SHORAN CORRECTIONS

Launch #2 Set #518

Station CAPE - Rate

Rate station zero check between	99.756 and 99.765	Table 1
" " " " "	99.766 and 99.775	Table 2
" " " " "	99.776 and 99.785	Table 3
" " " " "	99.786 and 99.795	Table 4
" " " " "	99.796 and 99.805	Table 5

<u>Distance in miles</u>	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>	<u>Table 4</u>	<u>Table 5</u>
0.00 - 2.96	+0.05	+0.04	+0.03	+0.02	+0.01
2.97 - 6.15	+0.04	+0.03	+0.02	+0.01	0.00

Station Ship

Drift station zero check between	99.766 and 99.775	Table 6
" " " " "	99.776 and 99.785	Table 7
" " " " "	99.786 and 99.795	Table 8
" " " " "	99.796 and 99.805	Table 9
" " " " "	99.806 and 99.815	Table 10
" " " " "	99.816 and 99.825	Table 11

<u>Distance in miles</u>	<u>Table 6</u>	<u>Table 7</u>	<u>Table 8</u>	<u>Table 9</u>	<u>Table 10</u>	<u>Table 11</u>
0.00 - 1.57	+0.12	+0.11	+0.10	+0.09	+0.08	+0.07
1.58 - 4.91	+0.11	+0.10	+0.09	+0.08	+0.07	+0.06
4.92 - 8.18	+0.10	+0.09	+0.08	+0.07	+0.06	+0.05

Tabulated: CBC
 Checked: WGS

Superseded

ADVANCE REPORT OF DANGERS TO BE CHARTED

Survey (Sheet) No. PF 20-1-60 **Datum** NA-1927 **Locality** Cape St. Elias **State** Alaska **Date** July 15, 1960
Chart & SR CGP & SR

M. E. Wernertmark, CAPT., Chief of Party

I recommend that the following dangers to navigation be charted. The positions given have been checked after listing. Checked by _____

Type of Danger	*Depth (Feet)	Latitude and Longitude		† From Charted Object or Natural Feature		‡ Chart Used		Date of Location	Remarks
		°	'	Seconds in Meters	True Bearing	Distance (Meters)	Object or Feature		
Shoal	7m. 8.0	59-44.4M	144-38.8M	203° 09'	N.H.L. 3.86	Cape St. Elias Lt.	8502 8513	8/28/58 4/28/52	June 1960 Cleared by 42.5 ft. @ MILM with wire drag. CONFIRMS DISPATCH OF 28 June 1960.

* Record least depth over danger reduced to plane of reference of charted soundings, using observed tides, if available.
† Record location both by geographic position and by true bearing with distance from object or natural feature shown on chart.
‡ Use largest scale chart and note print date given in lower left corner of chart.

NOTE - This form to be used during the season for prompt reports of uncharted dangers. If reports have been sent by wire, fill out this form and mail with confirmations. Enter dates of wires under "Remarks". Copies of reports on this form should be retained and submitted with the descriptive report.

PROCESSING OFFICE NOTES H-8534

E. SMOOTH SHEET

A new smooth sheet for this survey was constructed in the Processing Office, using standard methods of construction and checking, because, during the review of the original smooth sheet plotting, several errors were discovered in the computations of the shoran corrections. The shoran corrections were recomputed and this caused a shift in all shoran positions on the sheet. Rather than try to correct all of the positions on the old smooth sheet, a new one was made.

F. CONTROL

Sounding lines on this survey were controlled by visual sextant fixes, shoran and a combination of azimuth and shoran distance. Sextant fixes were used, on "c" day Launch No. 3 (green), for inshore areas on both sides of Cape St. Elias, and for positions 1b through 16b and 66c through 94c Launch No. 2 (violet) also in inshore areas on both sides of the Cape. The balance of the launch sounding lines were shoran controlled, using Station CAPE and the Ship as stations. The position of the Ship was controlled by one shoran distance and a theodolite measured azimuth from CAPE.

The area south and west of Pinnacle Rock, in which the shoran signal from CAPE was blanked out, was covered by a series of short lines by Launches 3 and 4. Considerable difficulty was encountered in plotting fixes in that area.

The shoran corrections for this survey were recomputed and, with the new values derived, the agreement appears reasonable. Originally the Ship shoran corrections were all based on the calibration of 25 June 1960. This did not seem reasonable, in view of the fact that calibrations on the 14th and 15th of June were in reasonable agreement with each other and differed from the 25 June calibration by about 0.03 mile. The Ship hydrography, which was done on 14 June, was plotted using a mean of the June 14 and 15 calibrations. By testing, it was discovered that the Launches also appeared to give better agreement if the Ship was positioned according to the 14 and 15 June calibrations. Ship corrections were computed and tabulated separately for June 14 and 15 and for June 25 also launch shoran corrections on Station SHIP were computed and tabulated for both calibrations of the Ship.

With the recomputation of shoran corrections the discrepancies noted in the field report have resolved themselves. The agreement between shoran and visual controlled work is now reasonably good.

G. SHORELINE

The shoreline was transferred from photogrammetric compilations T-9958 and T-9959. T-10925 shoreline was not used on the smooth sheet because

it was not adjacent to the sounded area.

H. CROSSLINES

Approximately 6% of the sounding lines on this survey are crosslines. The agreement at crossings appears satisfactory.

I. JUNCTIONS

No junction surveys available in Processing Office.

J. COMPARISON WITH PRIOR SURVEYS

No prior surveys were furnished.

K. COMPARISON WITH CHART

This survey was compared with Chart 8513, 6th Ed., Oct. 17, 1961, which was made up from the boat sheets of H-8534 and Wire Drag Survey H-8535. The agreement is satisfactory. See section of chart attached to this report.

L. ADEQUACY OF SURVEY

This survey appears to be complete and adequate for charting. It may be though that, because of the very rough bottom, some sharp pinnacles were missed.

M. AIDS TO NAVIGATION

The two aids to navigation shown on this survey, Cape St. Elias Light and Cape St. Elias Lighted Whistle Buoy 2, are both in the Light List.

N. STATISTICS

The hydrography on this survey was accomplished by the Ship PATHFINDER and Launches 1, 2, 3 and 4.

	<u>Positions</u>	<u>Nautical Miles</u>
Ship	200	73.1
Launch No. 1	101	19.0
Launch No. 2	530	91.7
Launch No. 3	187	48.0
Launch No. 4	<u>317</u>	<u>75.5</u>
Totals	1335	307.3

SHORAN CORRECTIONS

Ship Set #1192

Station Cape - Rate

		<u>14 & 15 June '60</u>	<u>25 June '60</u>
Rate Station Zero Check	99.756 to 99.765	Table 1	Table 5
	99.766 to 99.775	" 2	" 6
	99.776 to 99.785	" 3	" 7
	99.786 to 99.795	" 4	" 8

<u>Distance in Miles</u>	<u>Correction</u>			
	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>	<u>Table 4</u>
<u>14 & 15 June</u>				
0.00 - 2.26	+0.07	+0.06	+0.05	+0.04
2.27 - 7.81	+0.06	+0.05	+0.04	+0.03
7.82 - —	+0.05	+0.04	+0.03	+0.02
<u>25 June</u>	<u>Table 5</u>	<u>Table 6</u>	<u>Table 7</u>	<u>Table 8</u>
0.00 - 1.83	+0.04	+0.03	+0.02	+0.01
1.84 - 7.99	+0.03	+0.02	+0.01	0.00
8.00 - —	+0.02	+0.01	0.00	-0.01

SHORAN CORRECTIONS

Launch #1 - Set #581

Station Cape - Rate

Rate Station Zero Check	99.776 to 99.785	Table 1
" " " "	99.786 to 99.795	" 2
" " " "	99.796 to 99.805	" 3
" " " "	99.806 to 99.815	" 4

<u>Distance in Miles</u>	<u>Correction</u>			<u>Table 4</u>
	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>	
0.00 to 1.23	+0.05	+0.04	+0.03	+0.02
1.24 - 4.57	+0.04	+0.03	+0.02	+0.01
4.58 - 7.93	+0.03	+0.02	+0.01	0.00
7.94 - —	+0.02	+0.01	0.00	-0.01

SHORAN CORRECTIONS

Launch 2 - Set #518

Station Cape - Rate

Rate Station Zero Check	99.776 - 99.785	Table 1
	99.786 - 99.795	" 2
	99.796 - 99.805	" 3

<u>Distance In Miles</u>	<u>Correction</u>		
	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>
0.00 to 0.95	+0.04	+0.03	+0.02
0.96 - 4.28	+0.03	+0.02	+0.01
4.29 - 7.62	+0.02	+0.01	0.00
7.63 - 10.00	+0.01	0.00	-0.01

SHORAN CORRECTIONS

Launch 3 - Set #1352

Station Cape - Rate

Rate Station Zero Check	99.764 - 99.773	Table 1
	99.774 - 99.783	" 2
	99.784 - 99.793	" 3
	99.794 - 99.803	" 4

<u>Distance in Miles</u>	<u>Correction</u>			<u>Table 4</u>
	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>	
0.00 - 2.90	+0.030	+0.020	+0.01	0.00
2.91 - 6.30	+0.020	+0.010	0.00	-0.01
6.31 - 9.75	+0.010	0.00	-0.01	-0.02

SHORAN CORRECTIONS

Launch #1 - Set #581

Station Ship - Drift

	<u>14 & 15 June '60</u>	<u>25 June '60</u>
Drift Station Zero Check 99.771 to 99.780	Table 1	Table 4
99.781 to 99.790	" 2	" 5
99.791 to 99.800	" 3	" 6

(Ship Position determined from 14 & 15 June Ship Calibrations)

<u>Distance in Miles</u>	<u>Correction</u>		
	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>
0.00 - 0.83	+0.06	+0.05	+0.04
0.84 - 4.15	+0.05	+0.04	+0.03
4.16 - 7.49	+0.04	+0.03	+0.02

(Ship Position determined from 25 June Ship Calibration)

	<u>Table 4</u>	<u>Table 5</u>	<u>Table 6</u>
0.00 - 2.49	+0.03	+0.02	+0.01
2.50 - 5.82	+0.02	+0.01	0.00
5.83 - 9.18	+0.01	+0.00	-0.01

SHORAN CORRECTIONS

Launch #4 - Set #1313

Station Cape - Rate

Rate Station Zero Check	99.776 - 99.785	Table 1
	99.786 - 99.795	" 2
	99.796 - 99.805	" 3
	99.806 - 99.815	" 4

<u>Distance in Miles</u>	<u>Correction</u>			<u>Table 4</u>
	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>	
0.00 - 0.72	+0.040	+0.030	+0.020	+0.010
0.73 - 4.05	+0.030	+0.020	+0.010	0.000
4.06 - 7.38	+0.020	+0.010	0.000	-0.010

SHORAN CORRECTIONS

Launch #2 - Set #581

Station Ship - Drift

Drift Station Zero Check	99.775 - 99.784	Table 1	Table 5
" " " "	99.785 - 99.794	" 2	" 6
" " " "	99.795 - 99.804	" 3	" 7
" " " "	99.805 - 99.814	" 4	" 8

(Ship Position determined from 14 & 15 June '60 Ship Calibrations)

<u>Distance in Miles</u>	<u>Correction</u>			
	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>	<u>Table 4</u>
0.09 - 3.40	+0.07	+0.06	+0.05	+0.04
3.41 - 6.73	+0.06	+0.05	+0.04	+0.03
6.74 - --	+0.05	+0.04	+0.03	+0.02

(Ship Position determined from 25 June '60 Ship Calibration)

	<u>Table 5</u>	<u>Table 6</u>	<u>Table 7</u>	<u>Table 8</u>
0.00 - 1.07	+0.05	+0.04	+0.03	+0.02
1.08 - 4.38	+0.04	+0.03	+0.02	+0.01
4.39 - 7.73	+0.03	+0.02	+0.01	+0.00
7.74 - ---	+0.02	+0.01	0.00	-0.01

SHORAN CALIBRATION

Launch #3 - Set #1352

Station Ship - Drift

Drift Station Zero Check	99.776 - 99.785	Table 1	Table 6
	99.786 - 99.795	" 2	" 7
	99.796 - 99.805	" 3	" 8
	99.806 - 99.815	" 4	" 9
	99.816 - 99.825	" 5	" 10

(Ship Position determined from 14 & 15 June '60 Ship Calibration)

<u>Distance in Miles</u>	<u>Correction</u>				
	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>	<u>Table 4</u>	<u>Table 5</u>
0.00 - 1.72	+0.06	+0.05	+0.04	+0.03	+0.02
1.73 - 4.92	+0.05	+0.04	+0.03	+0.02	+0.01
4.93 - 8.16	+0.04	+0.03	+0.02	+0.01	+0.00

(Ship Position determined from 25 June '60 Ship Calibration)

	<u>Table 6</u>	<u>Table 7</u>	<u>Table 8</u>	<u>Table 9</u>	<u>Table 10</u>
0.00 - 2.85	+0.03	+0.02	+0.01	0.00	-0.01
2.86 - 6.18	+0.02	+0.01	0.00	-0.01	-0.02
6.19 - --	+0.01	0.00	-0.01	-0.02	-0.03

SHORAN CORRECTIONS

Launch 4 - Set #1313

Station Ship - Drift

Drift Station Zero Check	99.779 - 99.788	Table 1	Table 4
	99.789 - 99.798	" 2	" 5
	99.799 - 99.808	" 3	" 6

(Ship Position determined from 14 & 15 June '60 Ship Calibrations)

<u>Distance in Miles</u>	<u>Correction</u>		
	<u>Table 1</u>	<u>Table 2</u>	<u>Table 3</u>
0.00 - 0.95	+0.08	+0.07	+0.06
0.96 - 7.02	+0.07	+0.06	+0.05
7.03 - ---	+0.06	+0.05	+0.04

(Ship Position determined from 25 June '60 Ship Calibration)

	<u>Table 4</u>	<u>Table 5</u>	<u>Table 6</u>
0.00 - 2.30	+0.05	+0.04	+0.03
2.31 - 7.84	+0.04	+0.03	+0.02
7.85 - ---	+0.03	+0.02	+0.01

GEOGRAPHIC NAMES

Survey No. H-8534

Name on Survey	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">On Chart No. 8513</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">On previous survey No.</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">On U. S. quadrangle Maps</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">From local information</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">On local Maps</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">P. O. Guide or Map</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Rand McNally Atlas</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">U. S. Light List</div> </div>										K	BEN
	A	B	C	D	E	F	G	H				
Cape St. Elias	x										x	1
Gulf of Alaska	x											2
Kayak Island	x										x	3
Pinnacle Rock	x											4
Southeast Rock	x											5
												6
												7
												8
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George H. Bee

Geographic Names Section
21 March 1963

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8534...

Records accompanying survey: Smooth sheets .1...; boat sheets .1...; sounding vols. .9...; wire drag vols.; Descriptive Reports .1...; graphic recorder envelopes .5...; special reports, etc. .3-Mylar boat sheets and .3-Blue line man- uscripts Nos. T-9958, T-9959 & T10925,

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

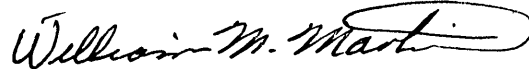
Number of positions on sheet 1335
Number of positions checked 150
Number of positions revised 3
Number of soundings revised (refers to depth only) 40
Number of soundings erroneously spaced 15
Number of signals erroneously plotted or transferred
Topographic details Time
Junctions Time
Verification of soundings from graphic record Time 90
Special adjustments Time

Verification by Nicholas Lestenkof Total time .118.. Date March 17, 74

Reviewed by Time Date

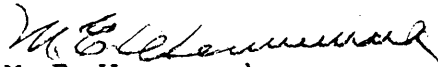
28.6 Square nautical miles.
5 Bottom samples

Respectfully submitted



William M. Martin
Supervisory Cartographer

Approved and forwarded



M. E. Wennermark
Captain, C&GS
Seattle District Officer

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-8534

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS		4	
DESCRIPTIVE REPORT		1	OVERLAYS			
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES	5					
CAHIERS						
VOLUMES		9				
BOXES						
T-SHEET PRINTS (List)						
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				1335
POSITIONS CHECKED		150		
POSITIONS REVISED		3		
DEPTH SOUNDINGS REVISED		40		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		15		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		---		
	TIME (MANHOURS)			
Verification of Control		2		
Verification of Positions		8		
Verification of Soundings		90		
Smooth Sheet Compilation		1		
ALL OTHER WORK		17		
TOTALS		118		
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY <i>Nicholas Lestenkof</i> Nicholas Lestenkof	26 February 1974		11 March 1974	
REVIEW BY	BEGINNING DATE		ENDING DATE	

VERIFIER'S REPORT
HYDROGRAPHIC SURVEY, H 8534

INSTRUCTIONS - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

CL - Check List Items: should be checked as having been completed during the verification processes.

R - Report Item: This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT	CL	R	Part III - JUNCTIONS (Continued)	CL	R
<p>Note: The verifier should first read the Descriptive Report for general information and problems.</p> <p>1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. Remarks Required: -- None</p>	X		<p>10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of Butt junctions and areas which are SUPERSEDED.</p>		X
<p>2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: -- None</p>	X		<p>Part IV - VOLUMES</p> <p>11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. Remarks Required: -- None</p>	X	
<p>3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None</p>	X		<p>12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following: (a) rocks (b) line turns (c) position values of beginning and ending of lines (d) bar check or velocity correctors (e) time recording (f) notes or markings on fathograms (g) was reduction of soundings accurately done? (h) was scanning accurate? (i) were peaks at uneven intervals missed? (j) were stamps completed? (k) references to adjacent features</p>		X
<p>Part II - SHORELINE AND SIGNALS</p> <p>4. Source of shoreline signals Remarks Required: -- List all surveys</p> <p>a. Give earliest and latest dates of photographs b. Field inspection date c. Field Edit date d. Reviewed-Unreviewed</p>	X				
<p>5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.</p>		X			
<p>6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Remarks Required: -- None</p>	X				
<p>7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required: -- List those signals still unidentified.</p>		X	<p>Part V - PROTRACTING</p> <p>13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None</p>	X	
<p>Part III - JUNCTIONS</p> <p>Note: Make a cursory comparison preliminary to taking soundings in area of overlap.</p> <p>3. All junctions of contemporary or overlapping sheets were transferred in colored ink and overlapping curves were made identical. Remarks Required: -- None</p>	X		<p>14. The protracting and plotting of all unsatisfactory crossings were verified. Remarks Required: -- None</p>	X	
<p>9. The notation in slanted lettering "JOINS H--- (19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None</p>	X		<p>15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None</p>	X	

Part V - PROTRACTING (Continued)		CL	R	Part VIII - AIDS TO NAVIGATION		CL	R
16. The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.			X	26. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey. Remarks Required: -- Conflicts of any nature listed.		X	
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.		X		27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification. Remarks Required: -- None		X	
Part VI - SOUNDINGS				Part IX - BOATSHEET			
18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None		X		28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information. Remarks Required: -- None		X	
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.		X		29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.		X	
20. The spacing of soundings as recorded in the ds was closely followed; Remarks Required: -- None		X		Part X - GENERAL			
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None		X		30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None		X	
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.		X		31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None		X	
Part VII - CURVES				32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet. Remarks Required: -- None		X	
23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the plotted curves inspected.			X	33. The bottom characteristics are adequately shown. Remarks Required: -- None		X	
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area not sounded in black dashed Remarks Required: -- None		X		Part XI - NOTES TO THE REVIEWER			
25. Depth curves were satisfactory except as follows: (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.		X		34. Unresolved discrepancies and questionable soundings.		X	
				35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.		X	
				36. Supplemental information.		X	
Verified by <i>Nicholas Lestenkof</i> Nicholas Lestenkof						Date 11 March 1974	

VERIFIER'S REPORT

H-8534

PF-20-1-60

This sheet was constructed and plotted at Pacific Marine Center, Seattle, Washington. Information relating to this will be noted under the heading by the number and letter as on the Verifier's Report, C&GS Form 946A.

PART II SHORELINE AND SIGNALS

5. Advance Manuscripts T-09958, T-09959 and T-10925 were not available to check the shoreline.

7. Signals EAT and JAY are positioned outside the HWL and have not been described. *No important*

PART III JUNCTIONS

10. There are no contemporary surveys available to make a junction comparison. The depth curves were left in pencil.

PART IV VOLUMES


12. Some hydrography done by the Ship PATHFINDER was inked without a comparison with the fathogram. The Ship's fathograms, A day, were not among the data received from Rockville and could not be located. The hydrography done by the Ship was in a relatively flat area, therefore, the soundings were inked. If the fathograms are found, the reviewer should re-evaluate the Ship's hydrography for A day.

PART V PROTRACTING

16. The positions were checked mostly by analyzing crossings, depth curves, course and time. Since the Ship was used as a shoran station, I felt this method of verification was more appropriate than checking every fifth position, beginning and end of lines. Procedures outlined in the manual were used on visual positions.

PART VII CURVES

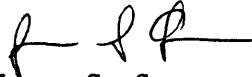
23. The depth curves were inspected by R.D. Lynn, Cartographic Technician, prior to inking.

Respectfully submitted,

Nicholas Lestenkof
Cartographic Technician

APPROVAL SHEET

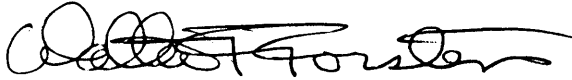
The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report)

Examined and approved,



James S. Green
Supervisory Cartographic Technician

Approved and forwarded,



Walter F. Forster, Cdr., NOAA
Chief, Processing Division
Pacific Marine Center

TIDE NOTE FOR HYDROGRAPHIC SHEET

April 23, 1963

Nautical Chart Division: R. H. Carstens

Plane of reference approved in
8 volumes of sounding records for

HYDROGRAPHIC SHEET 8534

Locality Cape St. Elias, Alaska

Chief of Party: M. E. Wennermark 1960

Plane of reference is mean lower low water

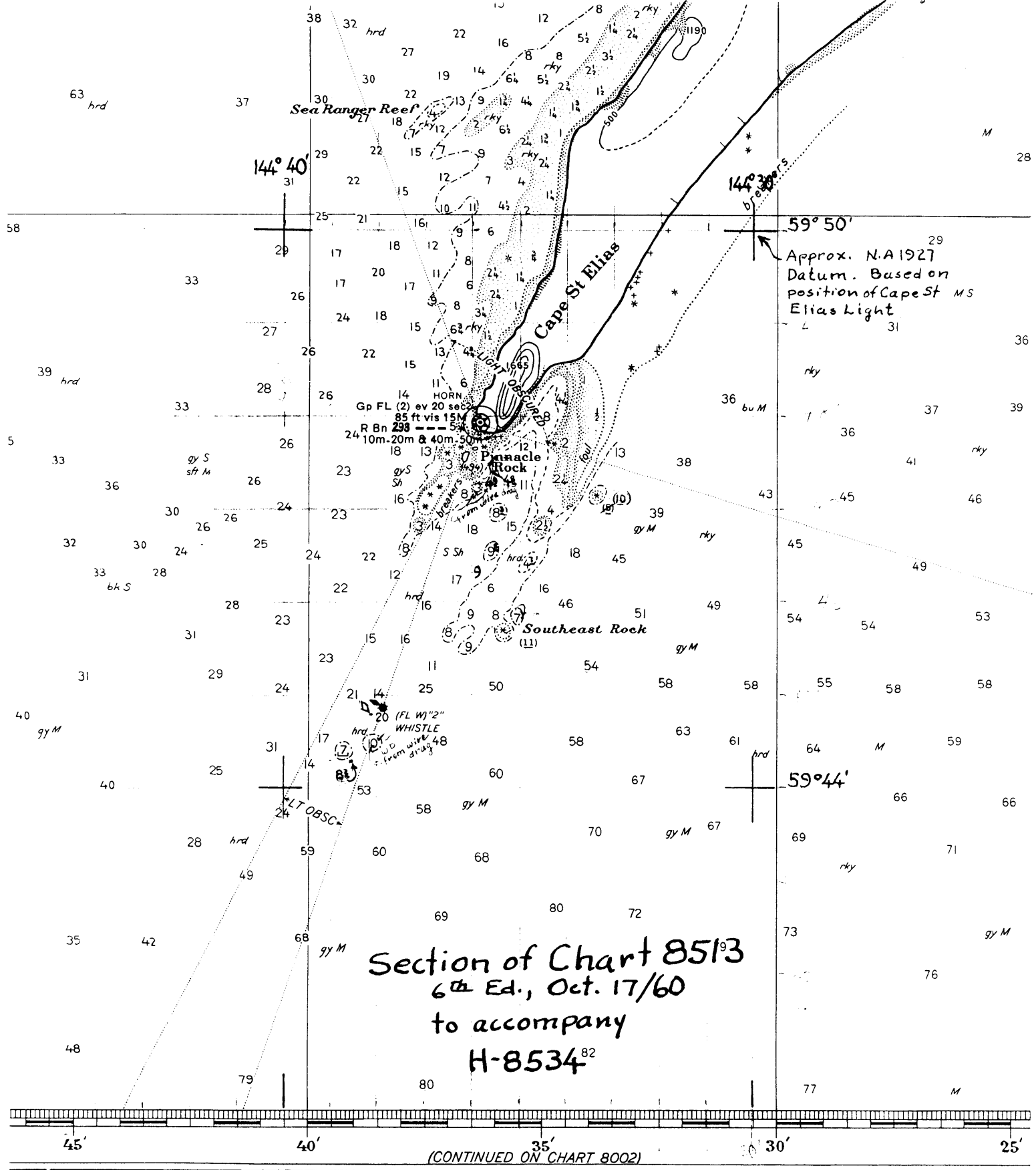
ft. on tide staff at

ft. below B. M.

Height of mean high water above plane of reference at the
working grounds is 9.2 ft.

Condition of records satisfactory except as noted below:


Chief, Tides and Currents Branch



Approx. N.A 1927 Datum. Based on position of Cape St MS Elias Light

Section of Chart 8513
 6th Ed., Oct. 17/60
 to accompany
 H-8534⁸²

(CONTINUED ON CHART 8002)

Compiled and printed at Washington, D. C. by
 U.S. DEPARTMENT OF COMMERCE
 Frederick H. Mueller, Secretary
 COAST AND GEODETIC SURVEY
 H. Arnold Karo, Director

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8534

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
4/26/63	8513	h.j.keeler	Part appd Before After Verification and Review, the correction
4-23-63	8002	h.j.keeler	Before After Verification and Review No correction thru Cht 8513 VRKP
8-14-62	8502	G.R.McCANN	Before After Verification and Review No correction thru Chart 8513 Dwg #4
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
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			Before After Verification and Review
			Before After Verification and Review

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.