

8146

Diag. Cht. No. 8863-3.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. EX-2654 Office No. H-8146

LOCALITY

State Alaska - Aleutian Islands

General locality Andreanof Group-Adak Isl-
and

Locality Vicinity of Three Arm Islands

1945

CHIEF OF PARTY

S. B. Grenell

LIBRARY & ARCHIVES

DATE January 7, 1958

B-1870-1 (1)

8146

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

HYDROGRAPHIC TITLE SHEET

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

REGISTER No. H-8146

Field No. EX-2654

State Alaska - Aleutian Islands

General locality ~~Aleutian Islands~~, Andreanof Group - Adak Island

Locality Vicinity of Three Arm Bay

Scale 1:20,000 Date of survey 5 August to 6 September 1954

Instructions dated 19 March 1952, 20 February 1953, 4 May 1954, 28 June 1954,
and 23 December 1953

Vessel USC&GSS EXPLORER

Chief of party S. B. Grenell

Surveyed by K. B. Jeffers, J. C. Tison, Jr., M. E. Wennermark,
H. G. Conerly and D. M. Whipp

Soundings taken by fathometer, ~~graphic recorder~~, hand lead, ~~wire~~

Protracted by C. A. J. Pauw (5 PO)

Soundings penciled by C. A. J. Pauw

Soundings in fathoms ~~feet~~ at ~~MLLW~~ MLLW and are based on a

REMARKS: velocity of sound of 800 fms/sec.

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SHEET H-8146
(FIELD NO. EX-2654)
EAST SIDE ADAK STRAIT AND THREE ARM BAY ADAK ISLAND, ALASKA
PROJECT CS-218, SEASON 1954
SCALE 1:20,000
USC&GSS EXPLORER S. B. GREENELL, COMDG
SURVEYED BY:
K. B. JEFFERS J. C. TISON, JR.
M. E. WENNERMARK H. G. CONERLY
D. M. WHIFF

A. PROJECT:

This survey was executed in accordance with the following instructions for Project CS-218:

- (1). Original Instructions dated 19 March 1952.
- (2). Supplemental Instructions dated 20 February 1953.
- (3). Letter 22/MEK, S-1-EX, dated 4 May 1954 - Subject; "Hydrographic Surveys - Project CS-218".
- (4). Letter 22/MEK, S-1-EX, dated 28 June 1954 - Subject; "Current Observations - Project CS-218".
- (5). Supplemental Instructions dated 23 December 1953.

B. SURVEY LIMITS AND DATES:

The survey involves inshore hydrography along the eastern shore of Adak Strait, including all of Three Arm Bay, from the vicinity of the point midway between Eddy Island and Argonne Point southward along the western side of Adak Island to the vicinity of $51^{\circ}36'N$ and $176^{\circ}59'W$, northwest of Cape Yakak. The areas covered lie between the shore and off-shore hydrography accomplished on Sheets H-8140 and H-8139.

(1954) (1954)
Date of beginning survey - 5 August 1954
Date of completing survey - 6 September 1954

Junctions with prior surveys:

H-6882 - Adak Strait - Southern part (1933-35)
H-6888 - Three Arm Bay (1933-35)

Junctions with contemporary surveys:

(1954) H-8145 - Cape Moffett to Argonne Point
(1954) H-8139 - Adak Strait (north approach)
(1954) H-8140 - Adak Strait (south approach)
(1955) H-8238 - Adak Strait (s.e. approach)

C. VESSEL AND EQUIPMENT:

Hydrography on this sheet was accomplished by EXPLORER Launches No. 1, No. 2, and No. 3. ✓

808 fathometer No. 49 was in operation for all hydrography accomplished by Launch #1. The leadline was not used from this launch. ✓

808 fathometer No. 50 was in operation for all hydrography accomplished by Launch #2. The handlead was used for taking bottom samples and determining least depths on shoals. The leadline required no correction for length for any of these soundings. ✓

808 fathometer No. 60 was in operation for all hydrography accomplished by Launch #3. The handlead was not used from this launch. ✓

Bottom samples were obtained from the launch using the handlead equipped with snapper type sampling device or with tallow. ✓

All launches were equipped with shoran and most of the hydrography was shoran controlled (See Special Report on Shoran Corrections, 24 July to 12 September 1954). The hydrography in Three Arm Bay was controlled by sextant fixes on shore signals. *see Section I p. 4* X

D. TIDE AND CURRENT STATIONS:

A portable automatic tide gage was maintained at Cape Chlanak, Kanaga Island, while the hydrography was in progress, except for work accomplished on 6 September. On that date the tide reducers were derived from records of observed readings on a tide staff in Three Arm Bay, Adak Island. No time or range corrections were applied to any of the reducers. (See tidal note attached to this report). X

⊙ DRUM

Current Station No. 8 was occupied within the limits of this sheet with the Roberts Radio Current Meter at $51^{\circ}48'17''N$ and $176^{\circ}56'36''W$ near Argonne Point in Adak Strait in accordance with instructions. (689.88m) ✓

525.42m

E. SMOOTH SHEET:

The smooth sheet projection was made by hand and checked in the Seattle Processing Office. ✓

Shoran arcs were constructed in the Seattle Processing Office. The shoran arcs have not been checked and the sheet has not been checked for possible distortion. ✓

Triangulation stations, and topographic stations for which computed positions were available were plotted and checked in the Seattle Processing Office. The remaining topographic stations were transferred directly to the smooth sheet by the Processing Office from shoreline manuscripts compiled by photogrammetric methods. ✓

There is one hydrographic station within the area of this survey which was located by the hydrographer. This station will be plotted by the smooth plotter. (OPub)

F. CONTROL STATIONS:

Triangulation stations were established by:

S. B. Grenell - 1954
U. S. Engineers - 1943

Geographic positions for marked topographic stations TUNA, SEAL, RING, PIKE, and LAKE were computed from fourth order theodolite observations. *524 cards available*
Locations for SILO, YAKA, STEEL TOWER, and RADAR TOWER were also determined from fourth order observations.

ODRUM has 524 cards as Tidal Bench Mark

The positions for shoran stations KEEN and LANA were computed from theodolite observations and, in the case of KEEN, a short distance was measured. Neither station falls within the limits of this sheet. (See computations for positions of shoran stations KEEN and LANA included in the descriptive report for Hydrographic Sheet H-8139.)

The remaining topographic stations appearing on the sheet are photo-hydro stations from Shoreline Manuscripts T-11324, T-11325, and T-11329, and *11330, 11334* were located by photogrammetric methods from 1954 field inspection data. (See Field Inspection Report for Maps T-11322(part), T-11324, T-11325, T-11329(part), T-11330(part), and T-11334(part). *CA*

G. SHORELINE AND TOPOGRAPHY:

Shoreline and topography are from Shoreline Manuscripts T-11324, T-11325, T-11329, and T-11334 compiled from 1954 field inspection data. *and Reviewed*
(See reference section F.) The shoreline was transferred to the smooth sheet in part by the Seattle Processing Office and the remainder by EXPLORER officers.

All off-shore signals are on rocks.

The low-water line was not defined by soundings. The growth of kelp along rocky shoreline, breakers on beaches, and steep foreshores prevented sounding into the low-water line. In some areas the low-water line is in coincidence with the ledge or reef line and is delineated on the manuscript.

Kelp and foul areas are defined by the hydrography and in most cases were sketched on the boat sheet by the hydrographer during the progress of the survey.

It is to be noted that distances from the hydrographic launch to topographic features that are recorded in the sounding volume are always estimated distances unless otherwise noted. *V.*

See appendix I for discrepancies between hydrographic and topographic surveys. ✓

H. SOUNDINGS:

All soundings on sounding lines were obtained with echo sounding / equipment listed previously in paragraph C.

No leadline corrections were applied to any of the handlead soundings. ✓
Handlead soundings were obtained on shoals or at detached positions while obtaining bottom samples.

See also "Special Report on Fathometer Corrections - Ship EXPLORER / Season 1954." *SB Granell 1954/142*

I. CONTROL OF HYDROGRAPHY:

Hydrography was controlled mainly by shoran using stations KEEN and LANA. Hydrography in the Three Arm Bay area was controlled by sextant fixes on shore signals. *Begins with 1198 (green) Vol. 3 p. 23 to 612 (green) Vol. 3, p. 49 and 10 (blue) Vol. 6 to 926 (blue) Vol. 7. SB Granell 1954/141*

See "Special Report on Shoran Corrections, "Project CS-218, 24 July to 12 September 1954 for description of shoran stations and derivation of corrections applied to shoran distances. ✓

J. ADEQUACY OF SURVEY:

The survey is considered complete and adequate for charting purposes and complies with the Project Instruction's and practices noted in the Hydrographic Manual. There are no holidays in the sounding lines. ✓

See appendix I for discussion of junctions with adjoining surveys and comment with reference to depth curves. ✓

K. CROSSLINES:

Crosslines represent about 8% of the regular system of sounding lines. ✓

See appendix I for discussion with reference to discrepancies at crosslines. ✓

L. COMPARISON WITH PRIOR SURVEYS:

The only prior surveys within the area of this survey are those included in the U.S. Navy Aleutian Islands Survey Expedition of 1933, Reg. No. H-6882 and H-6888. Those surveys are not adequate and this survey supersedes them.

The previous survey of Three Arm Bay, H-6888, was not adequate and that area was resurveyed in accordance reference (3) Section A of this report. ✓

See #5 Review

M. COMPARISON WITH CHART:

This survey agrees in general with USCGS chart Nos. 9121 and 9193. A new least depth of 5.5 fms was found in the middle arm of Three Arm Bay. This will be noted in appendix I with the list of limiting features. This survey is an original basic survey and supersedes all presently charted information.

see P6
Review

N. DANGERS AND SHOALS:

The entire shoreline is fringed with rocks and kelp. A rock awash was discovered by the hydrographer at Lat. $51^{\circ}37.07'N$ and Long. $176^{\circ}59.41'W$ (scaled from boat sheet). This rock was delineated on the manuscript. It is located off-shore and near depths of 15 fms. (48c brown) T-11334.

Three significant depths were found as follows:

POS. NO.	DEPTH (FMS)	LAT. N.	LONG. W.	
107c 108 12 (Lch 2) (gn) 62 69 (HL)		$51^{\circ}45.7065$	$176^{\circ}53.6070$ (fathometer)	⑩
59g (green) "	81 ✓	$51^{\circ}44.98$	$176^{\circ}52.2730$	⑨
18g (green) "	52 ✓	$51^{\circ}44.895$	$176^{\circ}51.0098$	⑦

Considerable time was spent in developing the above features and the handlead was used on each one. *However the fathometer indicated the shoalest soundings in each case. Further development of those features is not recommended. * Except 69 handlead sdg. indicated above.

See appendix I for a list of limiting dangers and shoals found. ✓

O. COAST PILOT INFORMATION:

See "Coast Pilot Notes - U.S. Coast Pilot - Alaska, Part II, Yakutat Bay to Arctic Ocean - Ship EXPLORER - 1954" for Coast Pilot information and recommended anchorages. ✓

During the season the ship EXPLORER made frequent use of two anchorages in the middle arm of Three Arm Bay. These anchorages provided protection for most weather. There are numerous locations in the Three Arm Bay area that provide good anchorage for small boats. ✓

P. AIDS TO NAVIGATION:

There is one aid to navigation in the area of this survey published as Cape Yakak Light located on the southwest side of Adak Island at Lat. $51^{\circ}35.45'N$ Long. $176^{\circ}56.67'W$. ✓

There are no other aids to navigation in this area and no bridges, overhead or submerged cables, or ferry routes exist. ✓

Q. LANDMARKS FOR CHARTS:

There were several landmarks recommended for charting. See "Special Report on LANDMARKS FOR CHARTS - Ship EXPLORER - 1954 Season." (Chf. Letter 995/1954)

R. GEOGRAPHIC NAMES:

See "Special Report on Geographic Names - Bobrof - Kanaga - Adak Islands - USC&GS EXPLORER - Season 1954."

Z. TABULATION OF APPLICABLE DATA:

Data forwarded with this report:

1. Smooth Sheet H-8146.
2. Two Boat Sheets H-8146 (EX-2654a, EX-2654b).
3. Seven Sounding Volumes - 1 thru 7.
4. Fathograms for Launches No. 1, No. 2, No. 3.

Data forwarded separately:

- (a). Field Inspection Report for Maps T-11322(part), T-11324, T-11325, T-11329(part), T-11330(part), and T-11334(part) Project CS-218-Ph-34, Adak Island, Alaska, Ship EXPLORER 1954, forwarded 22 November 1954.
- (b). Tide data for Cape Chlanak tide station forwarded 11 October 1954.
- (c). Tide data for Three Arm Bay tide gage forwarded 11 October 1954.
- (d). Special Report on Shoran Corrections, 24 July to 12 September 1954 - Ship EXPLORER, forwarded 11 March 1955. *SB Grenell 1954/141*
- (e). Special Report on Fathometer Corrections - Ship EXPLORER - Season 1954, forwarded 25 February 1955. *SB Grenell 1954/142*
- (f). Special Report on Geographic Names - Bobrof, Kanaga, and Adak Islands - 1954, forwarded 18 November 1954.
- (g). Coast Pilot Notes - Ship EXPLORER, 1954, forwarded 20 December 1954.
- (h). Data for Current Station Observations on Station 8, forwarded 14 September 1954.
- (i). Second and Third Order Triangulation, Adak Strait - Ship EXPLORER 1954.
- (j). Fourth Order Triangulation, Adak Strait - Ship EXPLORER 1954.
- (k). Computations for positions of Shoran Stations KEEN and LANA included in Descriptive Report for Hydrographic Sheet H-8139.
- (l). Special Report on Non-floating Aids and Landmarks for Charts - Ship EXPLORER - 1954 Season. *Set 995 (1954)*
- (m). Season Report - Ship EXPLORER, Project CS-218, 1954, forwarded 30 November 1954. *SB Grenell 1954/104*

Photographic Report - SB Grenell (Filed in Geographic Branch)

Respectfully submitted,

Allan C. Haglund
Allan C. Haglund
Ensign USC&GS

STATISTICS

HYDROGRAPHIC SURVEY H-8146 (1954)

FIELD NO. EX-2654

SHIP EXPLORER

PROJECT CS-218

<u>VOL. NO.</u>	<u>DAY LTR</u>	<u>DATE</u>	<u>H.L. OR WIRE SDGS</u>	<u>NO. POS.</u>	<u>STAT. MI SDG LINES</u>
1 (Lch 2)	a	8/5/54	-	149	41.9
1 "	b	8/7/54	3	167	43.4
2 "	c	8/13/54	4	113	25.3
2 "	d	8/21/54	-	28	9.4
2 "	e	8/24/54	-	179	46.6
3 "	f	8/26/54	-	206	32.9
3 "	g	9/6/54	7	61	7.3
4 (Lch 3)	a	8/21/54	-	55	17.9
4 "	b	8/26/54	-	169	45.5
4 & 5 "	c	8/27/54	-	159	42.0
6 (Lch 1)	a	8/26/54	-	225	24.4
7 "	b	8/27/54	-	92	21.5
			14	1603	358.1

Total area of hydrography in this survey - 23.5 square statute miles.

-the

TIDAL NOTE

To accompany Hydrographic Sheet EX-2654, Reg. No. H-8146

Tide reducers for all but "g" day, Launch No. 2, were taken from the records of the Cape Chlanak gage with no corrections for distance from the station. ✓

The position of the gage was
Latitude 51-42.6 } Not on H-8146
Longitude 177-08.7 }

The staff reading of MLLW was 3.0 ft.

A gage was maintained in Three Arm Bay, Latitude 51-44.8', Longitude 176-50.75 with a MLLW staff reading of 2.9 ft., but due to mechanical troubles, it was not in operation on days that launches worked in Three Arm Bay. Comparison with Cape Chlanak gage, on other days, show very little difference in the tide at the two locations. ✓

On "g" day, Launch No. 2 (September 6) an observer read the staff while the launch was working. These observations were used for tide reducers for that day. ✓

APPROVAL SHEET

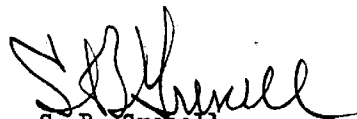
H-8146

EX-2654

The entire survey was accomplished by EXPLORER Launches No. 1, No. 2, and No. 3. The boat sheets and fathograms were inspected as the work progressed. The survey is complete and adequate. No additional field work is recommended. ✓

No positions were plotted by this command. All records and the smooth sheet were transferred to the Processing Office for plotting. ✓

The descriptive report, records, and smooth sheet have been examined and are approved. ✓



S. B. Grenell

Captain, C&GS

Comdg. Ship EXPLORER

SHORELINE AND TOPOGRAPHY

No discrepancies between the hydrography and topography were noted. There were two or three positions which plotted on shore but it is believed that they were accounted for by slightly erroneous shoran readings. *adjusted*

CONTROL OF HYDROGRAPHY

In the area near the entrance to Three Arm Bay some discrepancies between the visual and shoran controlled hydrography were observed. The differences appeared to be caused by the overland travel of the shoran signal from station KEEN. Adjustments were made so as to bring the shoran work into agreement with the visual. This also had the effect of improving the sounding lines in course and time.

ADEQUACY OF SURVEY

The junction with H-8139 *(1954)* has been checked and appears to be in agreement. A more thorough comparison will be made and depth curves will be correlated when that sheet is completed. *See T4 Review Junctional sdgs applied to H-8146*

CROSSLINES

The crosslines appear to be in reasonable agreement. Most of the area is of a broken bottom character with steep slopes. ✓

COMPARISON WITH CHART

Comparison with chart 9193, 3rd Ed. June 3/57

Charted depth	Lat. & Long.	Smooth sheet	Remarks
1 15 fms	51° 43'.15 176° 53'.6065	¹⁵ 14 fms	
2 11 fms	51° 43'.8 176° 53'.22	¹¹ 10.4 fms	
3 14 fms	51° 44'.75 176° 54'.25	✓ 13 fms	
4 17 fms	51° 45'.65 176° 55'.15	¹⁷ 16 fms	
5 19 fms	51° 45'.2 176° 51'.8	✓ 29 fms	The charted sounding appears 10 fms in error
6 27 fms	51° 45'.353 176° 52'.3517	¹⁵ 14 fms	
7 6 fms	51° 44'.85 176° 50'.98	✓ 5.2 fms	This sounding listed under dangers.
8 2½ fms	51° 44'.52 176° 51'.2	✓ 5.2 fms	It appears possible to enter South Arm with 5.2 fms ✓

Comparison with chart 9121, 2nd Ed. 8/25/52

The differences between this chart and the smooth-sheet are so numerous as to make a detailed comparison impractical. It appears that a complete revision of the soundings on this chart is called for. *Sec TP6 Review*

Respectfully submitted,

William M. Martin

WILLIAM M. MARTIN
Supervisory Cartographer

APPROVED AND FORWARDED:

Curtis Le Fever
CURTIS LE FEVER, CAPT., C&GS

SEATTLE DISTRICT OFFICER

GEOGRAPHIC NAMES PENCILED ON H-8146

ADAK ISLAND

ARGONNE POINT

CAPE YAKAK ,

CENTRAL POINT

HOOK POINT

LAKE POINT

MIDDLE ARM

NORTH ARM

SOUTH ARM

SPLIT POINT

THE THREE SISTERS

THREE ARM BAY

WEDGE POINT

TIDE NOTE FOR HYDROGRAPHIC SHEET

Chart Division: R. H. Carstens

30 January 1958

Plane of reference approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 8146

Locality Adak Island, Alaska

Chief of Party: S. B. Grenell in 1954

Plane of reference is mean lower low water, reading

3.0 ft. on tide staff at Cape Chlanak, Kanaga Island

8.5 ft. below B.M. 1 (1954)

2.9 ft. on tide staff at Three Arm Bay, Adak Island
11.3 ft. below B.M. 1 (1954) @ Drum

Height of mean high water above plane of reference is as follows:

Cape Chlanak = 3.4 feet

Three Arm Bay = 3.7 feet

Condition of records satisfactory except as noted below:


Signature

Chief, Tides Branch

GEOGRAPHIC NAMES

Survey No. H-8146

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
<u>Alaska</u>			for title							1
<u>Aleutian Islands</u>			"							2
<u>Andreanof Islands</u>			"							3
<u>Adak Strait</u>										4
<u>Adak Island</u>										5
<u>Cape Yakak</u>									BGN	6
<u>Lake Point</u>										7
<u>Hook Point</u>										8
<u>Wedge Point</u>										9
<u>The Three Sisters</u>										10
<u>Three Arm Bay</u>			(tide station)							11
<u>South Arm</u>										12
<u>Split Point</u>										13
<u>Middle Arm</u>										14
<u>Central Point</u>										15
<u>North Arm</u>										16
<u>Argonne Point</u>										17
										18
										19
Tide station off sheet:										20
<u>Cape Chlanak, Kanaga Island</u>										21
										22
										23
										24
										25
										26
										27
										M 234

Names approved 1-24-58

L. Heck

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8146.....

Records accompanying survey:

Boat sheets 2....; sounding vols. 7....; wire drag vols.;
bomb vols.; graphic recorder rolls 3-~~Envelopes~~
special reports, etc. 1-Smooth sheet and 1-Descriptive report.
.....

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

Number of positions on sheet	1603
Number of positions checked	41
Number of positions revised	34
Number of soundings revised (refers to depth only)	99
Number of soundings erroneously spaced	12
Number of signals erroneously plotted or transferred	0
Topographic details	Time 12
Junctions	Time 16
Verification of soundings from graphic record	Time 5

Verification by *C.R. Helmer*.....Total time 240 Date 4/2/58

Reviewed by *Indy skind*..... Time 38 Date 4/18/58

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8146

FIELD NO. EX-2654

Alaska-Aleutian Islands, Andreanof Islands-Adak Island,
Vicinity of Three Arm Bay.

Surveyed Aug.-Sept. 1954

Scale: 1:20,000

Project No. CS-218

Soundings:

Control:

808 Depth Recorder

Shoran

Hand lead.

Sextant fixes on
shore signals

Chief of Party - S. B. Grenell

Surveyed by - K. B. Jeffers, J. C. Tison, Jr., M E. Wennermark,
H. G. Conerly and D. M. Whipp

Protracted by - C. A. J. Pauw

Soundings plotted by - C. A. J. Pauw

Verified and inked by - C. R. Helmer

Reviewed by - I. M. Zeskind

Date: 4-18-58

Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline originates with reviewed air-photographic surveys T-11324 (1953-54), T-11325 (1953-54), T-11329 (1953-55), T-11330 (1953-55) and T-11334 (1953-55).

The source of the control is given in the Descriptive Report.

2. Sounding Line Crossings

The sounding line crossings are in good agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves were adequately delineated, except generally in depths less than 10 fms., where the foul character of the bottom prevented development to the low-water line.

The bottom is very irregular. Submarine features such as ledges, reefs, shoals, pinnacles and troughs contribute to the bottom irregularity.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-8145 (1954) on the north, with H-8139 (1954) on the west, with H-8140 (1954) on the southwest and H-8238 (1955) on the south.

5. Comparison with Prior Surveys

H-6882 (1933), 1-40,000

H-6888 (1933), 1-10,000

These U. S. Navy surveys cover the area of the present survey. A comparison between the prior and present surveys reveals the present depths generally to be from 1-4 fms. shallower than the prior depths in the North, Middle and South Arms of Three Arm Bay. Outside these areas differences in depths of 2-18 fms. between the prior and present surveys are noted. The prior depths here are generally deeper than the present depths. Some examples of these latter differences are as follows:

<u>H-6888 & H-6882</u> <u>depth-fms.</u>	<u>Location</u>		<u>H-8146</u> <u>depth-fms.</u>
	<u>Latitude</u>	<u>Longitude</u>	
22	51°44.77'	176°53.79'	12-17
37	51°44.24'	176°53.55'	19
47	51°43.98'	176°53.70'	41
25	51°43.80'	176°52.40'	19

These differences are probably caused by weak control and inaccuracies in depth determination on the prior surveys.

The comparison also reveals many discrepancies in the delineation of rocks.

Supplementary bottom characteristics have been carried forward from the prior surveys. The present survey with these additions is adequate to supersede the prior surveys within the common area.

6. Comparison with Chart 9121 (Latest print date 8-5-52)
Chart 9193 (Latest print date 6-3-57)

A. Hydrography

The charted hydrography originates with H. O. Chart 5633 (1935) which was compiled from the prior surveys previously discussed and which need no further consideration, supplemented by 2 soundings from the present survey--one from the boat sheet and one from the smooth sheet before verification and review. The 6-fm. sounding charted in lat. $51^{\circ}45.68'$, long. $176^{\circ}53.62'$, was revised to 6.9 fms. during verification and review of the present survey.

The present survey is adequate to supersede the charted information within the common area.

B. Aids to Navigation

There are no aids to navigation within the limits of the present survey.

7. Condition of Survey

- a. The sounding records and Descriptive Report are complete and comprehensive.
- b. The smooth plotting was accurately done except as follows:
 - (1) Soundings on lines ending at the shore were sometimes plotted at even intervals irrespective of the recorded uneven intervals.
 - (2) Five soundings were reduced in error by 5 or 10 fms.
 - (3) Rock elevations were inked on the smooth sheet vertically instead of slanting.

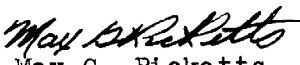
8. Compliance with Project Instructions


The survey adequately complies with the Project Instructions.

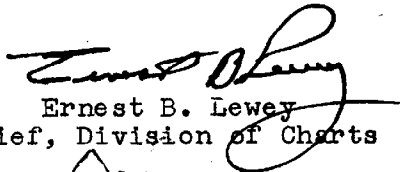
9. Additional Field Work Recommended

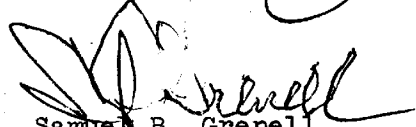
The survey is considered basic and no additional field work is recommended.

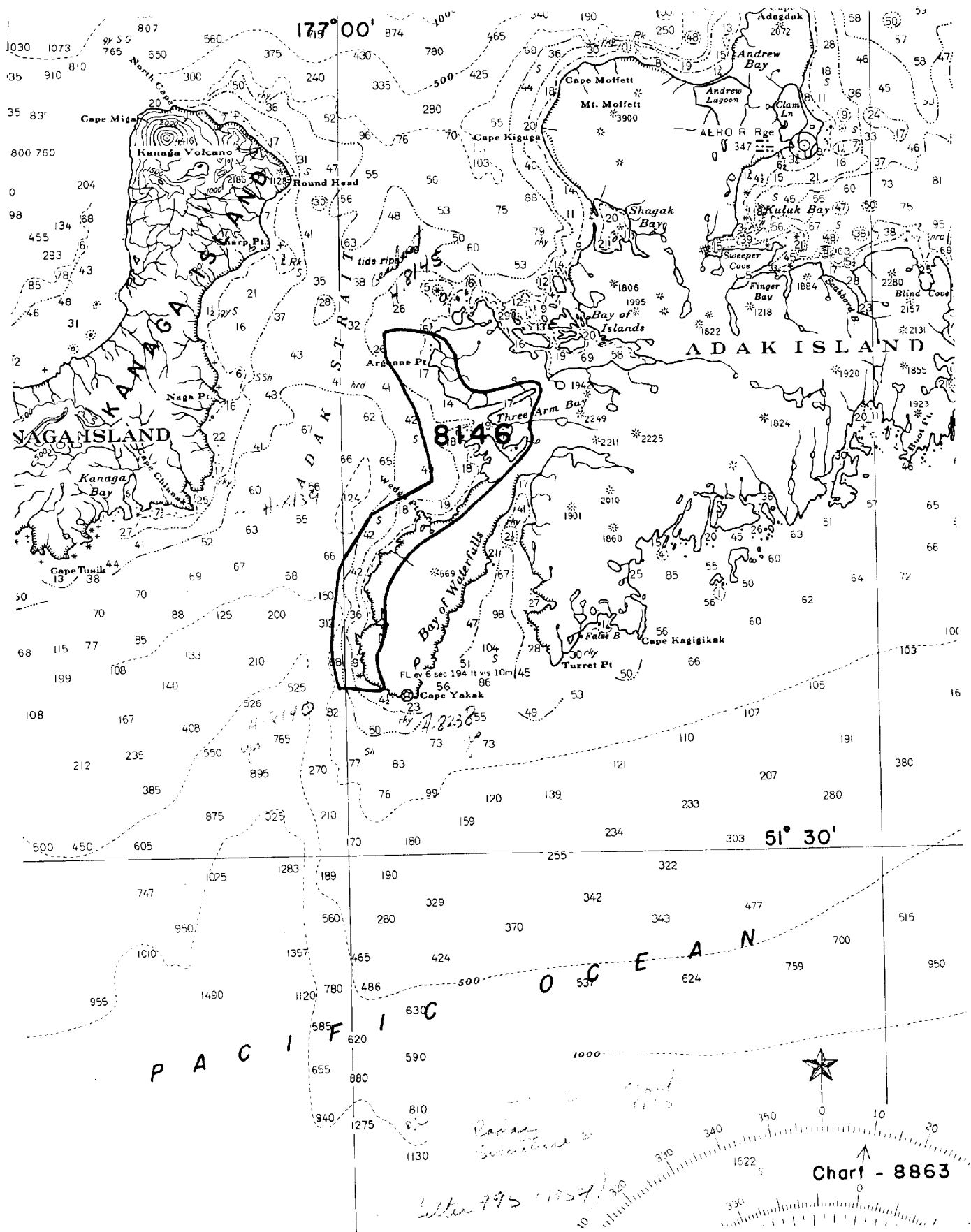
Examined and approved:


Max G. Ricketts
Chief, Nautical Chart Branch


Karl B. Jeffers
Chief, Hydrography Branch


Ernest B. Lewey
Chief, Division of Charts


Samuel B. Grenell
Chief, Division of Coastal Surveys



NAUTICAL CHARTS BRANCH

SURVEY NO. H-8146

Record of Application to Charts

[illegible]

M-2168-1

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.