

8233

Diag. Cmt. No. 8863-3

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. EX-4155 Office No. H-8233

LOCALITY

State Alaska

General locality Aleutian Islands, Andreanof Islands

Locality North Coast - Adak to Great Sitkin I.

194/55

CHIEF OF PARTY

S. B. Grenell

LIBRARY & ARCHIVES

DATE October 27, 1955

8233

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

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-8233

Field No. EX-4155

State Alaska

General locality Alutian Islands, Andreanof ~~Group~~ Islands

Locality Adak to Great Sitkin, North Coast Islands

Scale 1:40,000 Date of survey 28 May to 9 Sept. 1955

Instructions dated 16 December 1954 and 20 January 1955

Vessel Ship EXPLORER

Chief of party S. B. Grenell

Surveyed by S. B. Grenell, John Bowie, K. B. Jeffers, and E. F. Hicks

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

Fathograms scaled by Fathometer readers

Fathograms checked by K.B. Jeffers, G.E. Haraden, and H.A. Garcia

Protracted by S. B. Grenell, J. Bowie, K. B. Jeffers, and E. F. Hicks

Soundings penciled by K. B. Jeffers

Soundings in fathoms ~~FEET~~ at ~~MLLW~~ and are based on a velocity of sound of 800 fms./sec.

REMARKS: This is a combination boat and smooth sheet plotted on a
DINOPLEX sheet.

272

Descriptive Report

to accompany

Hydrographic Survey No. H-8233

(Field No. EX-4155)

Adak to Great Sitkin, ^{1.}North Coast

Aleutian Islands, Alaska

Project - 1218, Season 1955

Scale 1:40,000

Surveyed by: S. B. Grenell, J. Bowie, K. B. Jeffers, and E. F. Hicks.

A. PROJECT

This survey was accomplished in accordance with instructions for Project - 1218 (CS-218) as follows:

1. Revised Instructions - Project CS-218, dated 16 December 1954.
2. Letter 22/MEK, S-1-EX dated 20 January 1955. Subject, "Revision of Instructions Dated 16 December 1954, Project CS-218".

B. SURVEY LIMITS and DATES

This survey includes the offshore area north of Adak Island off Cape Moffett eastward to longitude 176° 00', see A-2 for revision of limits of area to be surveyed north of Adak.

Junctions were made with previous surveys as follows:

- H-8145 off Cape Moffett. *not in U.C. 6-14-56. Only*
- (1946) H-7605 between Adak and Great Sitkin Islands.
- (1952) H-7973 EPI controlled survey in the Bering Sea. *on W & N.W.*

The surveys cover part of H-6881, Navy Survey north of Adak Island, and H-6898, Navy Survey north of Great Sitkin.

Junctions were made with contemporary surveys as follows:

- H-8236 (EX-2155) inshore survey from Cape Moffett to Cape Adagdak. *(1956)*
- H-8237 (EX-2355) inshore survey of west and north coast of Great Sitkin Island.

C. VESSEL AND EQUIPMENT

All hydrography on this survey was accomplished by the Ship EXPLORER.

The turning radius of the ship is:
Full right rudder - 360 meters
Full left rudder - 275 meters

Soundings were scaled from continuous profiles recorded by 808 or Edo fathometers. In general the Edo fathometer was used in depths greater than 100 fathoms and the 808 fathometer in depths less than 100 fathoms. The Edo was used on fast speed to 1800 fathoms by attaching 2 extra needles. See special report on fathometer corrections.

D. TIDE AND CURRENT STATIONS.

A standard tide station was in operation at Sweeper Cove, Adak Island, throughout the season. A portable automatic tide gage was installed at Cape Kiugilik, Sand Bay, Great Sitkin Island on 11 June and was removed on 29 June. See tidal note attached to this report for notes on tide reducers.

Current Station No. 21 was occupied by a Roberts Radio Current Buoy in Sitkin Sound on the southern limit of this survey.

E. SMOOTH SHEET

This survey was plotted as a combination boat and smooth sheet. The projection was made in the Washington Office on a Dinoplex Sheet. See special report on the use of Dinoplex sheets which will be submitted at a later date. This is the first time a Dinoplex sheet has been used in this manner by this vessel. The projection held and there was little evidence of distortion in any part of the sheet.

Shoran arcs were drawn as soon as the shoran station masts were located. Topographic signals were transferred from final manuscripts of T-11537 and T-11538 on Great Sitkin Island.
1953-1955

A tracing cloth overlay was used as a working boat sheet on which uncorrected soundings were plotted. The positions were pricked thru to the smooth sheet as they were plotted. The position numbers were inked after all work was completed in the area surveyed.

Shoran calibrations were made by comparison of simultaneous visual fix and shoran positions. Calibration fixes were plotted on 20,000 scale boat sheets EX-2155 or EX-2255. The shoran corrections thus obtained were applied to shoran distances on the shoran abstracts which are submitted with the records for this survey.

In the area north of Great Sitkin Island (G-day) the hydrography is controlled by one shoran arc and a sextant angle. The shoran distance was corrected in each case and the sextant angle arc plotted by steel protractor. The inshore part of the work (H-day) on the north and east side of Great Sitkin is controlled by sextant angles on shore signals.

Soundings were corrected for draft, initial setting error, phase corrections, and tide where applicable.

F. CONTROL STATIONS

TANK Shoran Station located by theodolite cuts.
AXLE Shoran Station located by theodolite cuts.
SAND Shoran Station located by traverse and cuts from Great Sitkin (USN) 1934.
Akuyan 1953.
Picture Point 1953.
Pinnacle off Swallow Head 1953.
Teapot Rock 1953.

Topographic signals on Great Sitkin were located by photogrammetric methods and compiled on manuscripts T-11537 and T-11538. ¹⁹⁵³ of 1955.

Stations Tank, Balsa, Drew, Acorn and Al-29 were used for calibration fixes and plotted on EX-2155(H-8236).

Stations War, RF-2, Hid, Little-Tanaga and Ice were used for Shoran calibrations and plotted on EX-2255.

Stations Saver RM 1, Akuyan, and Great Sitkin were used for shoran calibrations and plotted on EX-2355. H-8237

G. SHORELINE AND TOPOGRAPHY

No shoreline or topography ~~is~~ shown on this sheet. Air photos of the area were field inspected and forwarded to the Washington Office for compilation of shoreline manuscripts. The shoreline detail will be shown on the inshore 1:20,000 scale hydrographic surveys.

¹⁹⁵³
from T-11537 and T-11538 of 1955.

H. SOUNDINGS

Soundings were scaled from continuous profiles recorded on Edo fathometer No. 4 in deep water and from 808 type recorders Nos. 113-S, 50, and 136-SP. Tide reducers were not used in depths greater than 150 fathoms. Edo soundings were corrected for draft and variation of the initial from the zero setting. 808 soundings were corrected for draft, phase, and variation from the initial setting of two (2) fathoms. A number of simultaneous soundings were recorded from 808 and Edo graphs as a check on the corrections applied. Bottom samples were obtained by snapper type samplers and a wire sounding machine.

I. CONTROL OF HYDROGRAPHY

Most of the hydrography on this sheet is controlled by shoran distances from TANK and SAND or AXLE and SAND. Along the north coast of Great Sitkin Island lines were run on arcs from shoran station AXLE supplemented by one sextant angle on shore stations, see "G" day. Hydrography on "H" day is controlled by three point fixes on shore signals. See paragraph "E - SMOOTH SHEET" for further discussion of plotting control.

Zero checks on shoran stations were recorded at regular intervals to guard against drift of the sets. Corrections for variation of the zero check were not applied as they were comparatively negligible.

J. ADEQUACY OF SURVEY

The survey is complete and is adequate to supersede prior surveys. The survey complies with project instructions. The underwater slope from 100 to 1000 fathoms is indented by gullies or canyons which, in some cases, are not completely developed. Complete development of these features would require extensive expenditure of time and money, and no additional hydrography is recommended.

The junction with survey H-7273 is satisfactory except for two lines in longitude $176^{\circ} 24'.0$ and $176^{\circ} 28'.2$. The soundings on these two lines should be moved about one mile north to agree with soundings on this survey.

(1946)
The junction with H-7605 in Sitkin Sound is good on the east and west side of the sound. There are several crossings of two fathoms at some points near the center with the 1955 soundings less than those on H-7605 in all cases. *Replotting on H-7605 required.*

Junctions with this seasons inshore 1:20,000 scale surveys will be considered after those smooth sheets have been plotted. *TP4 of Review*

K. CROSSLINES

Crosslines constitute approximately 11 per cent of the survey lines. All crossings are good except in a few cases on steep slopes where slight displacement of a line will make perfect agreement. The crossing discrepancies range from 1 to 3 per cent of the depth. *TP2 of Review*

L. COMPARISON WITH PRIOR SURVEYS

There are no prior surveys of most of the area covered by this survey. A portion of a U. S. Navy survey, H-6881, scale 1:40,000 was resurveyed in the area north of Cape Adagdak, Adak Island. Agreement between the surveys is fair and the new work should supersede the old where the two do not agree. The new survey is probably much better controlled than the old one.

(1934)
A portion of U. S. Navy survey H-6898, scale 1:60,000, was resurveyed in area off the north side of Great Sitkin Island. Agreement between the two surveys is fair. The new survey should supersede the prior work.

M. COMPARISON WITH CHART

Chart No. 9193, print date 54-7/5 is the largest scale chart covering the area of this survey. The new survey indicates minor changes in the 100 and 1000 fathom depth curves. The 90 fathom and 175 fathom soundings approximately 2 miles north of Cape Adagdak, Adak Island are disproved. *TP6 of Review*

N. DANGERS AND SHOALS

There are no shoals or other dangers to navigation in the area surveyed.

O. COAST PILOT INFORMATION

There are no anchorages or restricted channels in the area surveyed. The north coasts of Great Sitkin and Adak are very rugged with steep slopes from the mountain tops continuing almost unbroken in grade to several hundred fathoms in depth. The coastal shelf is very narrow and ships of any draft can safely pass within one-half mile of the shore.

Tidal currents setting east or west with a maximum estimated velocity of 1.5 to 2.0 knots were encountered close inshore at Cape Adagdak. A northeasterly set of 1 to 2 knots was observed close under Saddle Point and Swallow Head. A northwest and southeast current was observed near Teapot Rock on the northeast side of Great Sitkin with an estimated velocity of one knot or less. In all cases the velocity of the current decreased with increasing depth and at a distance of 1.5 to 2.0 miles offshore the set was very slight.

See Coast Pilot Notes, U. S. Coast Pilot No. 9, Cape Spencer to Arctic Ocean, 1955, Field Season.

P. AIDS TO NAVIGATION

There is an unwatched light on Swallow Head whose position was determined on the photogrammetric compilation of manuscript T-11538.

There are no other visual aids to navigation in the area except natural objects such as Teapot Rock northeast of Great Sitkin and Acorn Rocks north of Adak Island.

The Coast Guard maintains a Loran Station at the foot of the western slope of Mt. Adagdak, Adak Island. The Station services loran rates 116 and 117. The loran tower shown on chart No. 9193 is no longer in existence and the symbol should be removed from the chart.

There are no ferry routes, bridges, overhead or submarine cables in the area surveyed.

Q. LANDMARKS FOR CHARTS

See Form 567 submitted separately.

A new radio mast on Adak Island should be charted. The loran tower symbol on Cape Adagdak should be removed from the charts. No other changes are required.

R. GEOGRAPHIC NAMES

See special report on Geographic Names, Adak, Kagalaska, Little Tanaga, and Great Sitkin Islands, 1955.

S. SILTED AREAS

No silted areas were noted.

T. BY-PRODUCT INFORMATION

Two oceanographic stations, Nos. 2 and 3, were observed in this area. Water samples were titrated for chlorinity and oxygen content for station No. 2. The samples for all stations will be titrated for chlorinity at the University of Washington Oceanographic Laboratory. Copies of all temperature observations were furnished the University.

At the request of the Oceanographic Department, U. of W. several plankton samples were taken for them. The university furnished nets, sample bottles and all other necessary supplies for this work.

Bathymograph observations were made at irregular intervals and the slides were forwarded to Washington with other records for transfer to the Hydrographic Office.

Z. TABULATION OF APPLICABLE DATA

1. Submitted with report.

- (a) 1 smooth sheet.
- (b) 1 tracing cloth overlay.
- (c) 4 volumes sounding records.
- (d) 1 envelope of fathograms.
- (e) 1 cahier of shoran abstracts.
- (f) 1 cahier - computations for location of shoran stations TANK, AXLE, and SAND attached to this report.

2. Submitted separately.

- (a) Special Report on Fathometer Corrections.
- (b) Special Report on Geographic Names Adak, Kagalaska, Little Tanaga, and Great Sitkin Island, 1955.
- (c) Report on Landmarks for Charts.
- (d) Coast Pilot Revision Notes, Coast Pilot No. 9.
- (e) Photogrammetric Manuscripts T-11537 and T-11538 compiled by Washington Office.
- (f) Tide Observations at Sweeper Cove and Sand Bay.
- (g) Current Observations at Station No. 21.

Respectfully submitted

Karl B. Jeffers
Karl B. Jeffers
CDR. USC&GS

STATISTICS

Hydrographic Survey H-8233

Field No. EX-4155

Ship EXPLORER

Project 1218

<u>Vol. No.</u>	<u>Day Ltr.</u>	<u>Date</u>	<u>No. Pos.</u>	<u>Wire Sdgs.</u>	<u>Sta. Mi.</u>
1	A	5-28-55	159	0	138.6
2	B	6-6-55	51	0	27.4
2	C	6-15-55	52	0	36.1
2 & 3	D	6-16-55	122	0	91.5
3	E	6-17-55	72	0	50.2
3	F	6-21-55	46	4	26.1
3 & 4	G	6-23-55	47	0	40.4
4	H	9-9-55	151	0	90.6
TOTALS			700	4	500.9

Area: 373.1 Sq. Sta. Miles.

TIDE NOTE

Hydrographic Survey H-8233

Field No. EX-4155

Hydrography on A, B, C, and H days was referred to the standard tide station at Sweeper Cove, Adak. All other soundings were corrected for tide as recorded by the portable automatic gage at Cape Kiugilak, Sand Bay. No time or range factor was applied for distance from the tide station in either case.

Position of Sweeper Cove tide gage	Latitude 50 51.7N
	Longitude 176 38.4W
Staff reading of MLLW 3.30 ft.	

Position of Sand Bay tide gage	Latitude 52 00.1N
	Longitude 176 10.5W
Staff reading of MLLW 3.6 Ft. - 6/11 thru 6/17/55.	
Staff reading of MLLW 2.4 ft. - 6/18 thru 6/29/55.	

APPROVAL SHEET

H-8233 (EX-4155)

All hydrography on this survey was accomplished under my direct supervision. This work was done in accordance with paragraph 4.14 of hydrographic instruction No. 2 dated 30 November 1954.

The survey is complete and adequate. No additional field work is required. The records and smooth sheet have been examined and are approved.



S. B. Grenell
Captain, U.S.C.&G.S.
Comdg. Ship EXPLORER

List of Signals for
H-8233 (EX-4155)

Name	Source
Axle* (Shoran)	Theodolite cuts
Baw	T-11538
Die	T-11537
Gar	T-11537
Hag	T-11538
Head (Swallow Head Lt.)	T-11538
Lan	T-11538
Pin	Pinnacle off Swallow Head 1953
P.P.	Picture Point 1953
Raz	T-11537
Rock	Teapot Rock 1953
Sand* (Shoran Sta.)	Theodolite cuts
She	T-11537
Tank*	Theodolite cuts
Use	T-11538
Yan	Aluyan 1953

* NOTE: Computations are attached to the descriptive report for H-8233.

LIST OF DIRECTIONS

Station REV(USN) 1933 State Adak I., Alaska
Chief of party S. B. Grenell Date 26 May 1955 Computed by G.E.H.
Observer G.E.H. Instrument 19295 Checked by F.X.P.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction*	Corrected direction with zero initial	Adjusted direction*
	° ' "	" "	"	° ' "	" "
SOUTH(USN)(CL-3) 1934	0 00 00.00			0 00 00.00	
AXLE	31 33 25.5				
FLAGPOLE	31 36 00.2				
ZETO(USN) 1934	48 07 23.7				

All observations made from instrument tripod.
No eccentricity of targets or instrument.

* These columns are for office use and should be left blank in the field.

Station: Ken

State: Maryland

Chief of party: C. V. H.

Date: 1917

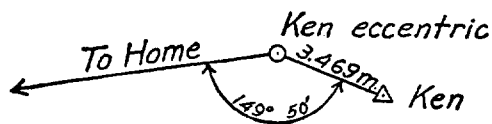
Computed by: O. P. S.

Observer: C. V. H.

Instrument: No. 168

Checked by: W. F. R.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction	Corrected direction with zero initial	Adjusted direction
	° ' "	' "	"	° ' "	' "
Chevy	0 00 00.00	- 7.31	"	0 00 00.00	' "
Tank west of Δ Dulce	29 03 37.0	-1 09.8		29 02 34.5	
Ken (center), 3.469 meters	176 42				
Forest Glen standpipe	313 24 53.0	+3 01.2		313 28 01.5	
Home	326 31 30.21	+ 31.93		326 32 09.45	
Bureau of Standards, wireless pole	352 17 20.8	+ 5.7		352 17 33.8	
Reno	357 28 48.63	- 1.16		357 28 54.78	
Reference mark, 16.32 m	358 31 20				



This form, with the first three and fifth columns properly filled out and checked, must be furnished by field parties. To be acceptable it must contain every direction observed at the station.

It should be used for observations with both repeating and direction theodolites.

The directions at only one station should be placed on a page.

If a repeating theodolite is used, do not abstract the angles in tertiary triangulation. The local adjustment corrections (to close horizon only) are to be written in the Horizontal Angle Record, and the List of Directions is to be made from that record directly.

Choose as an initial for Form 24A some station involved in the local adjustment, and preferably one which has been used as an initial for a round of directions on objects not in the main scheme. Use but one initial at a station. Call the direction of the initial $0^{\circ} 00' 00."$ 00, and by applying the corrected angles to this, fill in opposite each station its direction reckoned *clockwise* around the whole circumference regardless of the direction of graduation of the instrument. The clockwise reckoning is necessary for uniformity and to make the directions comparable with azimuths.

If a station has been occupied eccentrically, reduce to the center and enter in this form, in ink, the resulting corrections to the observed directions in the column provided for them. If an eccentric reduction is necessary, but not made in the field, leave the column blank. If the station was occupied centrally, and no eccentric reduction is required, put dashes in the column to show that no corrections are necessary.

Directions in the main scheme should be entered to hundredths of seconds in first-order triangulation; otherwise to tenths only. Points observed upon but once, direct and reverse, should be carried to tenths in first-order and second-order triangulation, and to even seconds only in third-order triangulation. In general, but two uncertain figures should be given.

It is recommended that the following simple plan of observing be used with a repeating instrument: Measure each single angle in the scheme at each station and the outside angle necessary to close the horizon. *Measure no sum angles.* Follow each measurement of every angle immediately by a measurement of its complement. Six repetitions are to constitute a measurement. The local adjustment will consist simply of the distribution of the error of closure of the horizon.

LIST OF DIRECTIONS

Station SOUTH(USN)(CL-3), 1934 State Adak I., Alaska

Chief of party S. B. Grenell Date 26 May 1955

Computed by F.X.P.

Observer F.X.P. Instrument 30657

Checked by FXP

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction*	Corrected direction with zero initial	Adjusted direction*
	° ' "	" "	" "	° ' "	" "
REV(USN), 1933	0 00 00.00			0 00 00.00	
BM #1, (SE)	233 51 14				
14.39 ft (distance to					
4.386 m center of pipe)					
AXLE (shoran)	272 38 05.6				
Flag Pole	273 02 09.4				
BM #2 (SW)	324 47 25				
13.74 ft (distance to					
4.188 m center of pipe)					

All observations made from instrument tripod.
No eccentricity of instrument or target.

* These columns are for office use and should be left blank in the field.

Station: Ken

State: Maryland

Chief of party: C. V. H.

Date: 1917

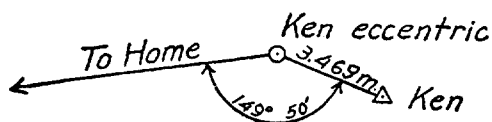
Observer: C. V. H.

Instrument: No. 168

Computed by: O. P. S.

Checked by: W. F. R.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction	Corrected direction with zero initial	Adjusted direction
Chevy.....	0 00 00.00	- 7.31	"	0 00 00.00	" "
Tank west of Δ Dulce.....	29 03 37.0	-1 09.8		29 02 34.5	
Ken (center), 3.469 meters.....	176 42				
Forest Glen standpipe.....	313 24 53.0	+3 01.2		313 28 01.5	
Home.....	326 31 30.21	+ 31.93		326 32 09.45	
Bureau of Standards, wireless pole..	352 17 20.8	+ 5.7		352 17 33.8	
Reno.....	357 28 48.63	- 1.16		357 28 54.78	
Reference mark, 16.32 m.....	358 31 20				



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It should be used for observations with both repeating and direction theodolites.

The directions at only one station should be placed on a page.

If a repeating theodolite is used, do not abstract the angles in tertiary triangulation. The local adjustment corrections (to close horizon only) are to be written in the Horizontal Angle Record, and the List of Directions is to be made from that record directly.

Choose as an initial for Form 24A some station involved in the local adjustment, and preferably one which has been used as an initial for a round of directions on objects not in the main scheme. Use but one initial at a station. Call the direction of the initial 0° 00' 00." 00, and by applying the corrected angles to this, fill in opposite each station its direction reckoned *clockwise* around the whole circumference regardless of the direction of graduation of the instrument. The clockwise reckoning is necessary for uniformity and to make the directions comparable with azimuths.

If a station has been occupied eccentrically, reduce to the center and enter in this form, in ink, the resulting corrections to the observed directions in the column provided for them. If an eccentric reduction is necessary, but not made in the field, leave the column blank. If the station was occupied centrally, and no eccentric reduction is required, put dashes in the column to show that no corrections are necessary.

Directions in the main scheme should be entered to hundredths of seconds in first-order triangulation; otherwise to tenths only. Points observed upon but once, direct and reverse, should be carried to tenths in first-order and second-order triangulation, and to even seconds only in third-order triangulation. In general, but two uncertain figures should be given.

It is recommended that the following simple plan of observing be used with a repeating instrument: Measure each single angle in the scheme at each station and the outside angle necessary to close the horizon. *Measure no sum angles.* Follow each measurement of every angle immediately by a measurement of its explement. Six repetitions are to constitute a measurement. The local adjustment will consist simply of the distribution of the error of closure of the horizon.

LIST OF DIRECTIONS

Station ZETO (USN) 1934 State Alaska
Chief of party S. B. Grenell Date 5-26-55 Computed by FXP
Observer FXP Instrument 30657 Checked by KBJ

OBSERVED STATION			Observed direction			Eccentric reduction			Sea level reduction*			Corrected direction with zero initial			Adjusted direction*		
			°	'	"	°	'	"	°	'	"	°	'	"	°	'	"
REV (USN) 1933			0	00	00.00							0	00	00.00			
Axle (Shoran mast)			85	38	29.1												

Observations from an instrument tripod
No eccentricity of instrument of signal

* These columns are for office use and should be left blank in the field.

Station: Ken

State: Maryland

Chief of party: C. V. H.

Date: 1917

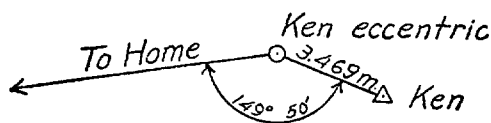
Observer: C. V. H.

Instrument: No. 168

Computed by: O. P. S.

Checked by: W. F. R.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction	Corrected direction with zero initial	Adjusted direction
	° ' "	' "	"	° ' "	' "
Chevy.....	0 00 00.00	- 7.31		0 00 00.00	
Tank west of Δ Dulce.....	29 03 37.0	-1 09.8		29 02 34.5	
Ken (center), 3.469 meters.....	176 42				
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Home.....	326 31 30.21	+ 31.93		326 32 09.45	
Bureau of Standards, wireless pole..	352 17 20.8	+ 5.7		352 17 33.8	
Reno.....	357 28 48.63	- 1.16		357 28 54.78	
Reference mark, 16.32 m.....	358 31 20				



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Choose as an initial for Form 24A some station involved in the local adjustment, and preferably one which has been used as an initial for a round of directions on objects not in the main scheme. Use but one initial at a station. Call the direction of the initial 0° 00' 00." 00, and by applying the corrected angles to this, fill in opposite each station its direction reckoned *clockwise* around the whole circumference regardless of the direction of graduation of the instrument. The clockwise reckoning is necessary for uniformity and to make the directions comparable with azimuths.

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COMPUTATION OF TRIANGLES

State: Adak Island, Alaska

11-0121

U. S. GOVERNMENT PRINTING OFFICE: 1928

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3						
1	AXLE	(77 47 32.7)'					3.611 882 -
2	ZETO	85 38 29.1'					0.009 933 -
3	REV	16 33 58.2'					9.998 742 -
1-3							9.455 031 -
1-2							3.620 557 -
		180 00 00.0'					3.076 846 -
	2-3						
1	AXLE	(61 04 40.1)'					3.563 163 -
2	REV	31 33 25.5'					0.057 854 -
3	SOUTH	87 21 54.4'					9.718 790 -
1-3							9.999 541 -
1-2							3.339 807 -
		180 00 00.0'					3.620 558 -
	2-3						
1							
2							
3							
1-3							
1-2							
	2-3						
1							
2							
3							
1-3							
1-2							

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comp FXR

546
20218

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

11-6863 U. S. GOVERNMENT PRINTING OFFICE: 1949

Comp PXP
AGEH

$$\begin{array}{r} 11467.59 \\ 7.7 \\ \hline 1139.5 \\ 7.2 \\ \hline 14.4 \\ \hline 1153.9 \end{array}$$

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 26—Rev. Apr. 11, 1930

First Angle of Triangle

Comp 1134
: 1941 — O — 305159

16 - = B617:65 ✓

$$00 + = 3274,00 \checkmark$$

POSITION COMPUTATION, FIRST-ORDER TRIANGULATION

4.

First Angle of Triangle

52-00-3092.41 ✓

04-2713.14 ✓

U. S. GOVERNMENT PRINTING OFFICE : 1961 — O - 305152

941-O-303152

POSITION COMPUTATION, FIRST-ORDER TRIANGULATION

First Angle of Triangle

Comp 45K

ABSTRACT OF DIRECTIONS

State Great Sitkin Island, Alaska

Station SAND (Shoran)

Computed by FXP

Date 24 May 1955

Observer HAG

Checked by FXP

Inst. No. 30657

POSITION NO.		STATIONS OBSERVED							
		Base B	Great Sitkin (USN) 1934	Base A					
(INITIAL)		° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "
0° 00'		04	23	07	42				
"		"	"	"	"	"	"	"	"
1	0.00	18.0 -	30.0 -						
2	0.00	18.3 -	26.7 -						
3	0.00	16.7 -	25.7 -						
4	0.00	16.5 -	26.8 -						
5	0.00								
6	0.00								
7	0.00								
8	0.00								
9	0.00								
10	0.00								
11	0.00								
12	0.00								
13	0.00								
14	0.00								
15	0.00								
16	0.00								
Sum,		4) 29.5 -	4) 29.2						
Mean,		17.4 -	27.3 -						
Cor. for ecc.,									
Direction,									

DO NOT WRITE IN THIS MARGIN

COMPUTATION OF TRIANGLES

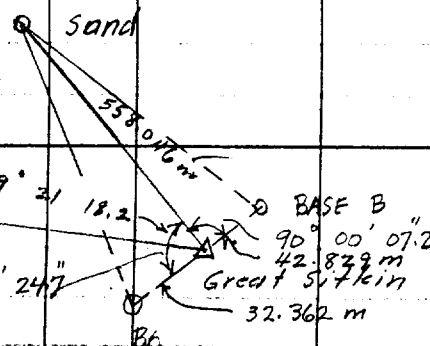
State: _____

11-9121

U. S. GOVERNMENT PRINTING OFFICE: 1929

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
2-3						42.829 m.	1.631 7379 ✓
1	Sand	04-23-17.4 ✓					1.116 2641 ✓
2	Base "B"	(85 36 35.4) ✓					9.998 7239 ✓
3	Great Sitkin	90 00 07.2 ✓					10.000 0000 ✓
1-3						558.118 ✓	2.746 7259 ✓
1-2							2.748 0090
2-3						32.362 ✓	1.510 0354 ✓
1	Sand	03 19 09.9 ✓					1.237 3038 ✓
2	Great Sitkin	89 59 24.7 ✓					10.000 0000 ✓
3	Base "A"	(86 41 25.4) ✓					9.999 2750 ✓
1-3							2.747 3392 ✓
1-2						557.974 ✓	2.746 6142 ✓
2-3						0.144	558.046 Mn Length.
1	Computation of base net at Shoran Station Sand, Cape Kingilik.						
2							
3							
1-3							
1-2							
2-3	A - Akuyin						
1							
2							
3							
1-3							
1-2							

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Comp. KBJ.

42.173

U.S. 689

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April 1942

FIRST ANGLE OF TRIANGLE									
2 Great Siffin to 3 Akuyan		166 57		48.5		3		to 2	
2d L		+ 39		18.2		3d L		to 1	
2		206 19		06.7		3		to 1	
2d		180 00		00.0		Δα		180 00	
1		26 19		16.9		α'		to 3	
φ	52 00	01.644	2 Great Siffin	λ	176 11	04.281	φ	3	
Δφ	+	16.183	558.046 m.	Δλ	-	12.970	Δφ		
φ'	52 00	17.827	1 Sand (Shoran)	λ'	176 10	51.311	φ'	1	

VALUES IN SECONDS									
Logarithms		Values in seconds		Logarithms		Values in seconds		Logarithms	
s		s		s		s		s	
2.746 670	52 00 09.74	52 00 09.74	52 00 09.74	52 00 09.74	52 00 09.74	52 00 09.74	52 00 09.74	52 00 09.74	52 00 09.74
9.952 474	551.0	2155	551.0	2155	551.0	2155	551.0	2155	551.0
8.569 932	(1303.5)	(651.75)	(1303.5)	(651.75)	(1303.5)	(651.75)	(1303.5)	(651.75)	(1303.5)
1.209 076	1st term	-16.1836	1st term	-16.1836	1st term	-16.1836	1st term	-16.1836	1st term
5.493 334	2d term	+1.0002	2d term	+1.0002	2d term	+1.0002	2d term	+1.0002	2d term
9.293 351	3d term	+1.0002	3d term	+1.0002	3d term	+1.0002	3d term	+1.0002	3d term
1.510 48	4d term	-16.1834	4d term	-16.1834	4d term	-16.1834	4d term	-16.1834	4d term
6.297 733	5d term	-16.1834	5d term	-16.1834	5d term	-16.1834	5d term	-16.1834	5d term
2.379 9	6d term	-16.1834	6d term	-16.1834	6d term	-16.1834	6d term	-16.1834	6d term

-HE3 ✓
Comp Knot.

R17C

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~DIVISION OF COASTAL SURVEYS~~

18 November 1955

Division of Charts: R. H. Carstens

Plane of reference approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 8233

Locality Adak Island, Aleutian Islands

Chief of Party: S. B. Grenell in 1955

Plane of reference is mean lower low water, reading

3.0 ft. on tide staff at Sweeper Cove, Adak I.

19.6 ft. below B. M. 16 (1951)

3.6 ft. on tide staff (6/11/55)	}	at Cape Kingilak, Great Sitkin I.
2.4 ft. " " " (6/18/55)		" " " " "
7.8 ft. below B. M. 1 (1955)		

Height of mean high water above plane of reference is 3.7 feet

Condition of records satisfactory except as noted below:

William Hofner

Acting Chief, Division of Tides and Currents. ^{Branch}

GEOGRAPHIC NAMES

Survey No. H-8233

GEOGRAPHIC NAMES										
Survey No. H-8233										
Name on Survey										
	A	B	C	D	E	F	G	H	K	
Alaska										1
Alutian Islands										2
Andreanof Islands										3
Bering Sea									BAY	4
Great Sitkin Island									"	5
Sitkin Sound					(current station)					6
Cape Kingiak					(one tide station)				BAY	7
Adak Island									"	8
Sand Bay										9
Cape Adagdak										10
Swallow Head										11
Saddle Pt.										12
Teapot Rock										13
Sweeper Cove					(one tide station)				BAY	14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. .8233....

Records accompanying survey:

Boat sheets; sounding vols. .4...; wire drag vols.;
bomb vols.; graphic recorder rolls .1-Env.
special reports, etc. 1-Descriptive report, 1-Cahier, 1-Smooth sheet,
and 1-Cloth overlay tracing (to serve as the boat sheet).....

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

Number of positions on sheet	.....	700
Number of positions checked	.....	58
Number of positions revised	.....	0
Number of soundings revised (refers to depth only)	.....	33
Number of soundings erroneously spaced	.....	0
Number of signals erroneously plotted or transferred	.....	0
Topographic details	Time	32 hrs
Junctions	Time	48 hrs
Verification of soundings from graphic record	Time	3 hrs

Verification by D.J. KENNON.....Total time 279.* Date June 6 1956

Reviewed by *Indgekind*.....Time 38 Date 6-20-56

* Includes time required to reink blue line print of smooth sheet and replot faulty plotting on H-7605

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8233

FIELD NO. EX-4155

Alaska, Aleutian Islands, Andreanof Islands, North Coast
Adak Island to Great Sitkin Island

Project No. CS-218

Surveyed - May - Sept., 1955

Scale 1:40,000

Soundings:

Control:

808 Fathometer
Edo Fathometer

Shoran
Sextant fixes on
shore signals

Chief of Party - S. B. Grenell

Surveyed by - S. B. Grenell, J. Bowie, K. B. Jeffers,
and E. F. Hicks

Protracted by - S. B. Grenell, J. Bowie, K. B. Jeffers,
and E. F. Hicks

Soundings plotted by - K. B. Jeffers

Verified and inked by - D. J. Kennon

Reviewed by - I. M. Zeskind 6-20-56

Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline originates with unreviewed air-photographic surveys T-11322, T-11323, T-11537, T-11538 and T-11539 of 1953-55.

The source of the control is described 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.

The survey covers the offshore area lying north of Adak and Great Sitkin Islands between long. 176°00' and 176°46'. The bottom consists of the island shelves and slopes of the above-mentioned islands to depths of about 1800 fms. Submarine

canyons and troughs indent the island slopes.

4. Junctions with Contemporary Surveys

An adequate junction was effected with H-7605 (1946) on the south. A portion of H-7605 in the junctional area with the present survey had been plotted in error as a result of mis-identification of a signal. Replotting of the sounding lines on H-7605 resolved conflicts of as much as 8 fms. in junctional depths. The junctions with the following surveys will be considered in the reviews of those surveys:

H-7973 (1952) on the west and north.
H-8236 (1955) inshore north of Adak Island.
H-8237 (1955) inshore west and northwest of Great Sitkin Island.

Project surveys on the east have not yet been received in the Washington Office.

5. Comparison with Prior Surveys

H-6881 (1933), 1:40,000
H-6892 (1934), 1:30,000
H-6898 (1934), 1:60,000

A comparison between these U. S. Navy reconnaissance surveys and the present survey reveals differences in depths of as much as 329 fms. Several of these discrepancies in depths are noted in paragraph 6 below. These discrepancies in depths are attributed to weak control, improper spacing of soundings and errors in depths on the Navy surveys.

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

6. Comparison with Chart 8863 (latest print date 1-14-52) Chart 9139 (latest print date 6-2-52) Chart 9193 (latest print date 7-5-54)

A. Hydrography

The charted hydrography originates principally with the previously discussed prior surveys which need no further consideration, with advance information of H-7973, 1952 (Bp. 49336), with trackline surveys of 1945 (Chart letter 243), 1946 (Chart letter 177), and from sources not readily ascertainable. The following discrepancies between the charted information and the present survey are noted:

1. The 90-fm sounding charted in lat. $52^{\circ}01.4'$, long. $176^{\circ}35.0'$, from H-6881 (1933), U. S. N., falls in present depths of 325 fms. and should be deleted from the chart. The charted sounding is considered to be out of position and should actually fall on the present survey about $\frac{1}{2}$ mile south-southwestward where comparable present depths are found.

2. The 175-fm. sounding charted in lat. $52^{\circ}01.6'$, long. $176^{\circ}34.0'$, from H-6881 (1933), U. S. N., falls in present depths of about 500 fms. and should be deleted from the chart. The charted sounding is considered to be disproved by the general depths and configuration of the bottom in the vicinity of the charted sounding. The sounding is believed to be out of position and should actually fall about 0.8 mile southwestward where comparable depths are found.

3. The landmark Loran Tower, charted in lat. $51^{\circ}59.58'$, long. $176^{\circ}36.7'$, from chart letter 660 (1950) no longer exists and should be deleted from the chart (See page 5, paragraphs P and Q of the Descriptive Report.).

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

B. Aids to Navigation

The only aid to navigation falling within the limits of the present survey is the untended light on Swallow Head, Great Sitkin Island. Its survey position is in substantial agreement with the charted position and adequately marks the feature intended.

7. Condition of Survey

- (a) The sounding records and Descriptive Report are complete and comprehensive.
- (b) The smooth plotting was accurately done.
- (c) Only two bottom characteristics were obtained in the area covered by the present survey.
- (d) In order to provide a satisfactory copy of the survey for registry a blue line lithographic print was made of the penciled smooth sheet originally submitted on Dinoplex. The projection, signal names and symbols and position numbers were re-linked before verification was begun.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions, except as noted in paragraph 7c above.

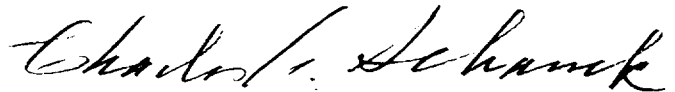
9. Additional Field Work Recommended

The survey is considered basic and no additional field work is recommended. As a matter of record attention is directed ✓
to the lack of bottom characteristics obtained in the area of the present survey, as noted in paragraph 7c above.

Examined and Approved:



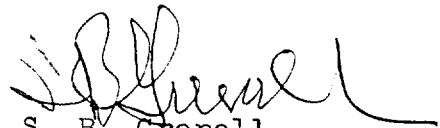
H. R. Edmonston
Chief, Nautical Chart Branch



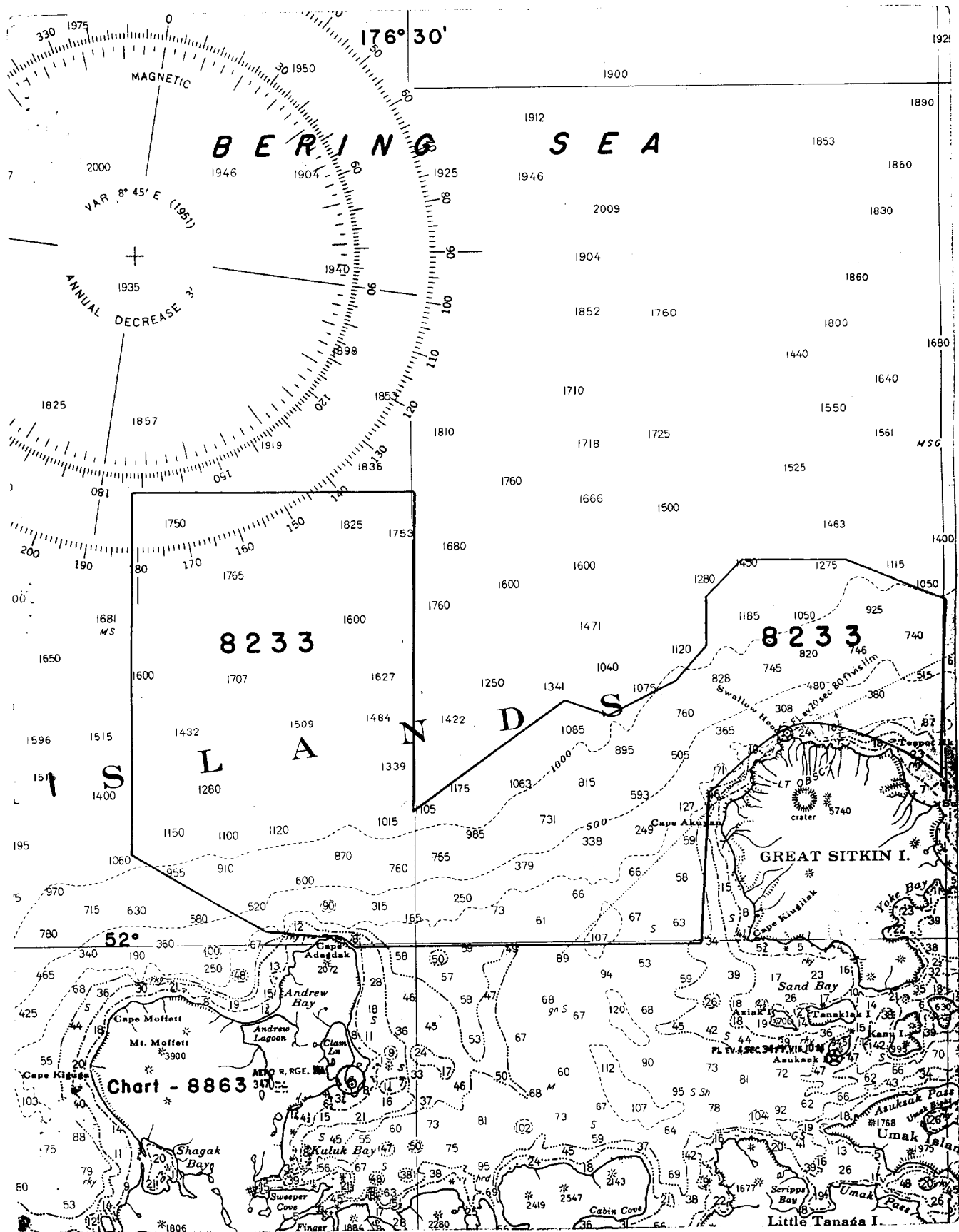
Charles A. Schanck
Chief, Chart Division



J. C. Bull
Chief, Hydrography Branch



S. B. Grenell
Chief, Division of Coastal Surveys



NAUTICAL CHARTS BRANCH

SURVEY NO. H-8233

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.