

7735

Diag. Cht. No. 8864-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey ..... HYDROGRAPHIC

Field No. EX-2349 ..... Office No. H-7735

LOCALITY

State ..... ALASKA

General locality ..... ALEUTIAN ISLANDS

Locality ..... AMCHITKA ISLAND

194 9

CHIEF OF PARTY

H. A. Kano

LIBRARY & ARCHIVES

DATE ..... March 20, 1950

7735

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. H-7735

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 - ~~2349~~ <sup>7735</sup>

Field No. EX 2349

State ALASKA

General locality Aleutian Islands

Locality Amchitka Island

Scale 1: 20 000 Date of survey 22 July to 13 September 1949

Instructions dated 3 February 1938 and Supplemental Instructions thru 11 April 1949

Vessel EXPLORER Launches Nos. 1 and 2

Chief of party H. Arnold Karo

Surveyed by F. A. Riddell, J. S. Morton, M. A. Hecht, G. W. Moore.

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

Protracted by F. A. Riddell, G. W. Moore

Soundings penciled by G. W. Moore

Soundings in fathoms ~~FEET~~ at ~~MLW~~ <sup>MLLW</sup> ~~MLLW~~

REMARKS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SURVEY H-7735

Field No. Ex 2349

Amchitka Island

Scale 1 : 20 000

1949

USC&GSS EXPLORER

H. Arnold Karo, Commanding

Surveyed by: F. A. Riddell, J. S. Morton, M. A. Hecht, G. W. Moore.

A. PROJECT:

Instructions dated 3 February 1938, and Supplemental Instructions received through 11 April 1949 for Project ~~CS~~ 218.

B. SURVEY LIMITS AND DATES:

This survey comprises the inshore hydrography of the central portion of the north side of Amchitka Island. It joins contemporary surveys H-7731, 1949, 1:10,000 on the west, H-7739, 1949, 1:40000 on the north. It joins Hydrographic Sheet H-7042, 1949, 1:10,000 on the east. Field work began 22 July 1949 and was completed on 13 September 1949.

The survey was made in conjunction with other sheets and priority was given to accomplishing work on the south side of the island. This accounts for the considerable time that field work was engaged in.

C. VESSELS AND EQUIPMENT:

EXPLORER Launches Nos. 1 and 2 were used on this survey and each one was used during the entire period. Launch No. 1 equipped with shoran, attempted to extend hydrography where shoran fixes were available. Launch No. 2 was used to fill in by visual hydrography those areas where shoran control was not possible. Both Launches operated from the Ship EXPLORER.

The launches were operated at full speed, except in dangerous waters. The turning radius of neither launch was determined, however, the turning radius may be assumed to be 15 meters in accordance with Paragraph 7682 of the Hydrographic Manual.

Sonic depth recorders, type 808, were used to determine the depths. Numbers 50-A and 127-S were used in Launch No. 1. Number 49-J was used in Launch No. 2.

D. TIDE AND CURRENT STATIONS:

Tides are referred to the tide gage at Constantine Harbor and it was not found necessary to apply any time or range corrections. There were no current stations.

E. SMOOTH SHEET:

The projection was made in Washington on the projection ruling machine. The shoreline and signals were plotted on the smooth sheet by the Washington Office.

F. CONTROL STATIONS:

The existing triangulation had been accomplished by E. B. Roberts, in 1944. A breakdown of this work to provide 2 mile spacing along the beach was made by H. Arnold Karo in 1949. The topographic stations are from 1949 air photo compilation sheets T-5595, T-5597 and T-5598 and T-5599. Hydrographic stations were located by cuts from 3 point visual fixes.

Difficulty was encountered with topographic signals SOP and TOT both during the field work and during the plotting of the smooth sheet. It was found necessary to use hydrographic determination of these stations. They are shown as hydrographic stations on the smooth sheet.

G. SHORELINE AND TOPOGRAPHY:

The shoreline and topographic details are from 1949 air photo compilation Sheets T-5595, T-5597 and T-5599. The hydrographers found no inaccuracies in horizontal position. In a few places the hydrographers estimation of the amount rocks uncovered differed from the topographers estimation. Where the hydrographers estimate was made close to the doubtful height, his estimate is shown on the smooth sheet.

The low water line was not defined by the hydrography. This was prevented by the rugged coast line and the presence of impenetrable beds of kelp. Sounding lines were run as close to shore as safety of the launch permitted.

H. SOUNDINGS:

The depths were measured in fathoms by 808 depth recorders, and no unusual corrections were applied to the recorded depths.

I. CONTROL OF HYDROGRAPHY:

The hydrography was controlled by visual 3-point fixes and shoran distances. Launch No. 1 was equipped with shoran and it was used where shoran positions were possible. At a number of places this party used one shoran distance and one angle for a fix. In these places the crossings are not as good as where a combination of shoran and visual hydrography was not resorted to.

*Lat. 51° 31.96', Long. 179° 04.48'*  
Between 66 g and 69 g, Launch No. 1, the line crosses four others and is consistently about 2 fathoms deep. Indications are that the line should plot farther offshore. The smooth plotter could not reconcile this discrepancy by any of the usual methods. This line can be omitted without much harm to the spacing of the hydrography in this section, so these soundings are omitted from the smooth sheet.

*Lat. 51° 28.59', Long. 179° 10.81'*  
Soundings between 114 and 117 "g" day, Launch 1, do not agree with other lines. The area was completely covered by Launch 2, using visual fixes, and so the soundings of Launch 1 are omitted. Indications are that the shoran distance from CABLE are long, but the distances could not be rectified by the indicated corrections.

*Lat. 51° 24.97', Long. 179° 15.20'*  
Launch 1 line from 105 to 106 "k" day, falls between two other closely spaced lines. Depth curves indicate an inconsistency. This portion of the line has been rejected by the smooth plotter.

*Lat. 51° 27.85', Long. 179° 14.20'*  
Launch 2 line between positions 141 and 143 and between 169 and 172 "c" day are about 2 fathoms shoaler than the crossing hydrography of Launch 1. These sections can be omitted without excessive spacing. The smooth plotter could not reconcile the work by any of the usual methods, so the soundings are omitted from the smooth plot.

*Lat. 51° 26.64', Long. 179° 12.64'*  
The smooth plotter called the hydrographers attention to Launch 1 sounding line between 54 and 69 "k" day. The hydrographer plotted this line on the smooth sheet and made the following note: "Sounding lines from position 54 to 69 "k" inclusive, were plotted by the hydrographer, using the correct launch track and such other fix data as was consistent with the actual track of the launch. Since, the intersections of the shoran arcs were very weak, and visual fixes were impossible due to inability to properly indentify or see three shore signals simultaneously, it was necessary to reject such data as would not plot properly. Furthermore, it will be noted that due to the above causes and to differences of shoreline and reefs on the boat sheet and smooth sheet, that the lines as plotted do not coincide on the two sheets."

The method of determining shoran corrections is covered in a special report on this subject submitted separately. *Filed with fathograms for H-7735.*

J. ADEQUACY OF SURVEY:

The survey is complete and adequate to supersede prior surveys for charting. Junction with adjoining boat sheets are satisfactory and no holidays or excessive differences were found on the boat sheets. Depth curves can be adequately drawn at the junction of the boat sheets.

When the adjoining smooth sheets are plotted a comparison may be made with the finished smooth sheets. *See Review #4.*

Because of the irregular bottom and coast line it was found inadvisable to delineate the 4 and 6 fathom curves on the smooth sheet.

K. CROSSLINES:

The hydrography has 13 percent crosslines. All crossings except those listed in "I" above of this report are satisfactory.

L. COMPARISON WITH PRIOR SURVEYS:

There is a Russian survey of Cyril Cove at a scale of 1 : 28 000 (Chart 8851). The soundings agree with this survey as well as can be expected since the original survey was of a reconnaissance nature. Hydrographic Survey H - 7042 <sup>(1942)</sup> joins this work on the east and the soundings agree very well.

*Cyrl. Cove removed from Chart 8851 in Aug. 1950.*

M. COMPARISON WITH CHART:

The soundings on Chart 9123 agree very well with this survey. *See Review #6*

N. DANGERS AND SHOALS:

There were no important newly found dangers and shoals on this sheet since all shoals found are within one mile from shore.

O. COAST PILOT INFORMATION:

~~There~~ are no suitable anchorages on this sheet.

P. AIDS TO NAVIGATION:

There are no aids to navigation on this sheet.

Q. LANDMARKS FOR CHARTS:

T here are no recommended landmarks for charts.

R. GEOGRAPHIC NAMES: *B14*

There are no recommended new names on this sheet. All names penciled on the smooth sheet are from Chart 8864.

S - Y.

There is nothing to report under these headings.

Respectfully submitted,



Glenn W. Moore,  
Lt. Comdr. C&GS

Approved and forwarded:

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H. Arnold Karo, Comdr. C&GS  
Commanding Ship EXPLORER

STATISTICS FOR HYDROGRAPHIC SURVEY H - 7735

Field No. EX 2349

Date	DAY	Vol.	Number of Pos.	Statute Miles
<u>LAUNCH NO. 1</u>				
1949				
7/22	a	1	104	25.2
7/26	b	1	33	8.2
8/10	c	1 & 2	197	46.9
8/12	d	2	110	24.0
8/18	e	2	173	39.1
8/22	f	3	176	35.8
8/23	g	3 & 4	193	45.2
8/24	h	4	72	15.0
8/25	j	4	169	37.9
9/13	k	4 & 5	137	21.6
Total Launch 1			1364	298.9
<u>LAUNCH NO. 2</u>				
8/18	a	6	64	15.2
8/22	b	6	149	32.7
8/23	c	6 & 7	175	37.7
8/24	d	7	34	7.2
8/25	e	7 & 8	209	40.8
9/13	f	8	138	25.9
Total Launch 2			769	159.5
GRAND TOTAL			2133	458.4

Area equals 37.0 square statute miles.



TIDE NOTE


HYDROGRAPHIC SURVEY H - 7735 (EX 2349)

Portable tide gage located at Constantine Harbor, Amchitka  
Island: Latitude  $51^{\circ} 24' 8''$  N. Longitude  $179^{\circ} 16' 8''$  E.  
MLLW on tide staff 2.5 feet.

No corrections for difference in time or height were applied  
to observed tides. 165th meridian time (west) was used.

APPROVAL SHEET

The boat, smooth sheet and records have been inspected  
and approved.

  
H. Arnold Kafo, Comdr. C&GS  
Commanding Ship EXPLORER

## SHORAN SUMMARY

1949

1. The EXPLORER used the following shoran stations:

STEM (1949) on SE end of Little Sitkin Island at an elevation of 340 feet.

BIRD (1948 - 1949) on Bird Cape at NW end of Amchitka Island at an elevation of 167 feet.

CAPE (1949) on highest peak on NW end of Amchitka Island at an elevation of 876 feet. This was the same equipment as used at BIRD in 1949.

HART (1949) on highest peak near the center of Amchitka Island at an elevation of 1034 feet.

The PIONEER's stations CABLE and VALY on Semisopochnoi Island and TINY at Constantine Harbor, east end of Amchitka Island.

2. The ZERO SETTINGS were obtained by a comparison of the shoran distances and the computed distances obtained in the following manner.

On 27 August, triangulation stations RIM 2 and OTT 2 were occupied with theodolites and the ship's mast cut in simultaneously with shoran readings on CAPE and HART. True distances were obtained by computation.

On 4 September, sextant fixes on triangulation stations from both the Ship and Launch No. 1 were taken simultaneously with shoran readings on stations TINY and HART. True distances were computed.

Theodolite cuts were taken from stations WEB 2 and CHITKA on 6 June along with shoran readings from STEM and BIRD. Apparently these were not properly synchronized as the corrections obtained appear erroneous. The summations of the corrected shoran distances along the baseline do not agree with the true distances. Inasmuch as the same equipment was used at both BIRD and CAPE the correction obtained for CAPE has been applied to BIRD. Using correction for BIRD and the sums of 37 baseline crossings a correction was deduced for STEM.

No observations for corrections were made for the stations VALY and CABLE. The 1948 values for the equipment at these stations are therefore used.

With Launch 1 in the chocks, comparative distances were read with the Ship and the Launch to BIRD, STEM CAPE and HART. The launch distances were reduced to the ship distances and compared and the launch corrections thereby obtained.

SHORAN ZERO CHECK SETTINGS - EXPLORER - 1949

	SHORE SET	SHIP (1)	LAUNCH (5)
#1	VALY	99.816	not used
#2	HART	99.828	99.823
#3	TINY	99.809	99.803
#4	BIRD	99.822	99.820
	CAPE	99.822	99.826
#5	STEM	99.807	99.793
#6	CABLE	99.811	99.806

3. The shoran equipment gave little operational difficulties outside of the generators.

To correct this and to minimize radio communication transfer switches are to be installed at the shore stations so that the operators may change generators whenever convenient. Also variacs are to be supplied to the stations in case the AC output voltage will not come up to normal.

Two types of generators were used in Launch #1. A light "Onan" gasoline generator was mounted on the stern. An inboard belt driven AC generator was installed in the engine compartment. The output voltage of this was controlled by a variac and DC voltage obtained by rectification. The variac only permitted a variance in speed from 800 to 1200 rpm for the launch when using the inboard generator. It would be advisable to install a variable speed drive between the engine and generator. In any case a clutch should be inserted before the generator so that it may be cut out while the launch is dead heading or running visual hydrography. The generator mounted on the stern has only one defect - gasoline must be carried in the launch. With different pulleys or a variable speed drive the inboard generator will give just as good service as the gasoline generator.

VELOCITY CORRECTIONS

1949

808 Fath. Ship & Launches

<u>Corr'n. fms.</u>	<u>Depth fms.</u>
0.0	0.0 to 4.0
-0.1	4.1 to 8.3
-0.2	8.4 to 12.4
-0.3	12.5 to 17.0
-0.4	17.1 to 20.9
-0.5	21.0 to 24.9
-0.6	25.0 to 28.3
-0.7	28.4 to 32.0
-0.8	32.1 to 35.6
-1.0	35.7 to 43.2
-1.2	43.3 to 51.0
-1.4	51.1 to 59.2
-1.6	59.3 to 67.4
-1.8	67.5 to 75.0
-2.0	75.1 to 83.0
-2.2	83.1 to 90.9
-2.4	91.0 to 98.1
-2.6	98.2 to 105.8
-3.0	105.9 to 124.7
-3.5	124.8 to 146.7
-4.0	146.8 to 170.0
-4.5	170.1 to 196.0

RHC

## TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~

24 March 1950

Division of Charts: R. H. Carstens

Plane of reference approved in  
8 volumes of sounding records for

HYDROGRAPHIC SHEET 7735

Locality Amchitka Island, Aleutian Islands

Chief of Party: H. A. Karo in 1949

Plane of reference is mean lower low water, reading  
2.5 ft. on tide staff at Constantine Harbor  
9.9 ft. below B. M. 1 (1944)

Height of mean high water above plane of reference is 2.8 feet.

Condition of records satisfactory except as noted below:

*E.C. McKay*  
*Section*  
Chief, ~~Division of Tides and Currents.~~

GEOGRAPHIC NAMES  
 Survey No. H-7735

Name on Survey												
	A	B	C	D	E	F	G	H	K			
<u>Alaska</u>			(for title)								1	
<u>Alentian Islands</u>			" "								2	
<u>Rat Islands</u>			" "								3	
											4	
<u>Amchitka Island</u>									USNB		5	
<u>Chitka Point</u>											6	
<u>Cyril Cove</u>											7	
<u>Kirilof Point</u>									USNB		8	
<u>Kirilof Cove</u>									USNB		9	
											10	
											11	
											12	
				Names underlined in red are approved.								13
				2-23-50. L. Heck								14
											15	
											16	
<u>Constantine Harbor</u>			(location of tide gage)						USNB		17	
											18	
											19	
											20	
											21	
											22	
											23	
											24	
											25	
											26	
											27	

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7735 .....

Records accompanying survey:

Boat sheets ..3..; sounding vols. 8....; wire drag vols. ....;  
 bomb vols. ....; graphic recorder rolls ..1. en vel.  
 special reports, etc. ....  
 .....

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

Number of positions on sheet		2133	
		.....	
Number of positions checked		29	
		.....	
Number of positions revised		6	
		.....	
Number of soundings revised (refers to depth only)		29	
		.....	
Number of soundings erroneously spaced		28	
		.....	
Number of signals erroneously plotted or transferred		—	
		.....	
Topographic details	Time	20	
		.....	
Junctions	Time	16	
		.....	
Verification of soundings from graphic record	Time	5	
		.....	
Verification by <i>E. S. Sealey</i> .....	Total time	215	Date <i>Jan. 18, 1951</i>
		10	
		.....	
Reviewed by <i>Lu. Gaskew</i> .....	Time	28	Date <i>Mar. 9, 1951</i>
		.....	



DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7735

FIELD NO. EX-2349

Alaska, Aleutian Islands, Amchitka Island  
Surveyed in July - September, 1949      Scale 1:20,000  
Project No. CS-218

Soundings:

808 Fathometer

Control:

Sextant fixes on shore signals  
Shoran

Chief of Party - H. A. Karo  
Surveyed by - F. A. Riddell, J. S. Morton, M. A. Hecht and  
G. W. Moore  
Protracted by - F. A. Riddell and G. W. Moore  
Soundings plotted by - G. W. Moore  
Verified and inked by - E. G. Yearley  
Reviewed by - I. M. Zeskind, 9 March 1951  
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline originates with air-photographic surveys  
T-5595, T-5596, T-5597, T-5598 and T-5599 of 1949.

The source of the control is given in the Descriptive Re-  
port.

2. Sounding Line Crossings

Depths at crossings are in adequate agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves were adequately delineated except  
inshore from 10 fm. depths where kelp and the foul character  
of the bottom frequently prevented development to the low-  
water line.

The bottom is very irregular. Submarine features such as  
pinnacles, knolls, ledges and ridges contribute to the  
bottom irregularity.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-7731 (1949) on the west and with H-7042 (1949) on the east. The junction with H-7739 (1949) on the north will be considered in the review of that survey.

5. Comparison with Prior Surveys

H-6906 (1935) U.S.N., 1:150,000

A comparison reveals no appreciable differences between the few soundings on this small scale reconnaissance survey and present depths.

The present large-scale survey is adequately developed to reveal all hydrographic information necessary to supersede H-6906 within the common area.

6. Comparison with Chart 8864 (Latest print date 3/8/48)  
Chart 9123 (Latest print date 4/20/46)

A. Hydrography

The charted hydrography originates principally with the previously discussed prior survey which needs no further consideration, with several soundings from the present survey prior to verification and review and with a compilation of advance hydrographic information from surveys of this Bureau and the Hydrographic Office through 1945 (Bp. 40088).

During verification and review revisions of as much as 4 fms. have been made to the critical soundings charted from the unverified smooth sheet.

The present survey supersedes 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.
- c. Few bottom characteristics were obtained.

8. Compliance with Project Instructions

The present survey adequately complies with the Project Instructions, except as noted below in paragraph 9.

9. Additional Field Work Recommended

This is an excellent survey; however, the least depth, checked by leadline, should be determined on the following shoals:

<u>Depth Fms.</u>	<u>Latitude</u>	<u>Longitude</u>
5.4	51° 34.25'	179° 00.6'
4.7	51° 33.8'	179° 01.25'
9.5	51° 32.43'	179° 04.7'

Examined and approved:

*H. R. Edmonston*  
 H. R. Edmonston  
 Chief, Nautical Chart Branch

*Robert W. Knox*  
 R. W. Knox  
 Chief, Division of Charts

*L. S. Hubbard*  
 L. S. Hubbard  
 Chief, Section of Hydrography

*W. M. Scaife*  
 W. M. Scaife  
 Chief, Division of Coastal Surveys

Shoal indication of 9½ fathoms located in  
 latitude 51° 32.43', longitude 179° 04.7'  
 needs additional development.

*L. S. Hubbard*  
 L. S. Hubbard

# NAUTICAL CHARTS BRANCH

SURVEY NO. H-7735

## Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
7/27/50	8864	<i>GHE</i>	<i>Partially app'd</i> Before <del>After</del> Verification and Review
5/24/57	9102	<i>Wittmann</i>	<del>Before</del> After Verification and Review <span style="float: right;"><i>2M/2</i></span>
11/61	8864	<i>ME</i>	<del>Before</del> After Verification and Review
01/93	16450	DON CORDTS	<del>Before</del> After Verification and Review <i>Fully app'd</i> New metric chart
			Before After Verification and Review
			Before After Verification and Review
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			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.