

8918

Diag. Cht. No. None

Form 504

U. S. DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Special Project-5-62

Type of Survey HYDROGRAPHIC

Field No. PF-12162 Office No. H-8918

LOCALITY

State CHRISTMAS ISLAND

General locality ANCHORAGE AREA, WEST SIDE

Locality 155°00" to 2°01'30" and
157°27'30" to 157°32'30"
32'

19 62

CHIEF OF PARTY

ARTHUR L. WARDWELL

LIBRARY & ARCHIVES

DATE _____

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8918

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.

Special Project. 5-62

REGISTER No. H-8918

Field No. PF-12-1-62

State CHRISTMAS ISLAND

General locality NORTH PACIFIC OCEAN

Locality 155°00" to 2°01'30" and 157°27'30" to 157°32'30"

Scale 1:12,000 Date of survey 28MARCH/2 APRIL 1962

Instructions dated 19 MARCH 1962

Vessel USC&GSS PATHFINDER, OSS-30

Chief of party A. L. Wardwell

Surveyed by J. Allen, R.A. Trauschke, W.J. Senkow

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

Fathograms scaled by Ship Personnel

Fathograms checked by Ships Officers

Protracted by L.L. Posey, M.J. Fleming, C.B. Ellis

Soundings penciled by R.F. Lanier, L.L. Posey, M.J. Fleming, C.B. Ellis

Soundings in fathoms ~~XXXX~~ at ~~MLLW~~ MLLW

REMARKS: Due to the time limitations imposed by the project instructions, this sheet is not considered final and complete, but is adequate

X.W.W. 6/17/61

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SURVEY
H- 8718 (PF-12162) CHRISTMAS ISLAND ANCHORAGE SURVEY
SCALE: 1:12,000 MARCH - APRIL 1962
USC&GS SHIP PATHFINDER ARTHUR L. WARDWELL, CAPT., COMDG.

A. PROJECT:-

The survey was conducted under authorization of telegrams dated 162328Z and 202142Z and INSTRUCTIONS - SPECIAL PROJECT 5-62, ANCHORAGE SURVEY, CHRISTMAS ISLAND, 211/pt S-2-PF, dated March 19, 1962.

B. AREA SURVEYED:-

The survey was accomplished between the periods 26 March and 6 April 1962. Hydrography was carried out between 28 March and 3 April 1962. Hydrography covered an area between $01^{\circ}55'N$ and $02^{\circ}01'5 N$, and junctioned with a prior survey made by the New Zealand Hydrographic Survey in the area of the entrance to London Dock. The offshore limit of the hydrography was the 300 fathom curve or the limit of the launch fathometer.

C. SOUNDING VESSELS:-

All hydrography was accomplished with the Ship PATHFINDER launches 2 and 3. Launch #2 (violet-lower case day letters) was used primarily for inshore work and splits. Launch #3 (green-lower case letters) was double shifted to work from sunrise to sunset in order to meet the required completion date.

D. SOUNDING EQUIPMENT:-

Throughout the project launch #3 used a "Raytheon Survey Fathometer", model DE-723, serial 143, launch #2 used an 808 fathometer, serial 57-23. Initials on both fathometers were set at 0.0 fathoms and maintained at that point throughout the survey. Where the initials varied from zero the proper correction was applied to the recorded sounding. The middle reed of both fathometers was frequently checked to determine that they were operating at the proper speed. Phase comparisons for the 808 fathometer are included in this report, but the 808 was never operated off the "A" scale. No phase corrections are necessary for the Raytheon fathometer. Velocity corrections were obtained through temperature and salinity observations made on 26 March 1962 at about the 300 fathom curve off Christmas Island. Bar check data was obtained in the usual manner, but due to the large velocity corrections in the area a velocity correction was applied to the observed data to arrive at a draft and instrumental correction. For the most part this correction was 0.2 fathoms. Virtually no soundings were obtained in the area between 240-250 fathoms due to the re-occurrence of the fathometer initial at 240.5 fathoms.

E. SMOOTH SHEET:-

The smooth sheet and boat sheets are polyconic projections made in the Washington Office. All sheets contained the UTM grid in red. The high temperatures and high humidity in the project area made all of the sheets very difficult to work with. In some of the squares there was found to be as much

as 7 meters distortion, therefore all control plotted on the smooth sheet was proportioned to allow for the distortion (a mathematical apportionment of the distortion errors was made rather than a visual one).

F. CONTROL:-

Three New Zealand survey stations were recovered in the area and all control for the area was taken off of these stations. Due to lack of adequate descriptions and sufficient time for proper recovery, all stations established were no better than topographic stations. Location of stations was accomplished by traverse methods, using known takeoff points and distances measured with a Tellurometer. No other methods were used for station locations, with the exception of station RAN, which was located by sextant.

All control was plotted on the smooth sheet using UTM grid.

G. SHORELINE:-

Shoreline was applied to the boat and smooth sheets from tracings made from an enlarged 1:50,000 topographic map of the area. It was felt that the distortion in enlarging the 1:50,000 survey was so great that it would not be practical for this command to ink on the shoreline as obtained by this method, therefore all shoreline on the smooth sheet was left in pencil.

H. CROSSLINES:-

About 10% crosslines were run. The soundings at crossings are satisfactory. *Verification use brown ink.*

I. JUNCTIONS:-

Good junctions were made with the New Zealand survey in the center of the project. Crosslines in the New Zealand survey indicated no necessity for a re-survey of the area.

J. COMPARISON WITH PRIOR SURVEYS:-

There were no prior surveys available for comparison of the area except the one listed above.

K. COMPARISON WITH THE CHART:-

The largest scale chart of the area is a British Admiralty chart number Q 6208 RESTRICTED, scale 1:15,000, 27 March 1959, Gnomonic Projection.

<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>DISCREPANCIES</u>
01°57.6'N	157°28.8'W	Charted depth of 6.0 fathoms, observed depth of 6.4 fathoms. 1/2 sdg. before pos. 245 b-day launch #3
01°57.4'N	157°29.8'W	Charted depth 5.5 fathoms, observed depth 4.5 fathoms. 1/2 sdg. before pos. 355 e-day launch #3
01°57.33'N	157°29.72'W	Charted depth 6.5 fathoms, observed depth 5.4 fathoms. On pos. 15 e-day launch #3
01°56.1-56.9N	157°30.0-30.1	Shoalest depth charted 6.4 fathoms, observed depth 4.9 fathoms. 1/2 sdg. before 54-e-day launch #3

L. ADEQUACY OF SURVEY:-

The survey is considered adequate and complete, only the smooth sheet is not considered to be complete. Depth curves can be adequately drawn to 200 fathoms except on the northern portion of the survey where soundings were not consistently obtainable to the 200 fathom curve.

M. AIDS TO NAVIGATION:-

The only fixed aid to navigation relocated was Bridges Point Light, 668,796.8E 219,2998 N. On the day of departure the Navy was locating day beacons on several stations established by this command, but no knowledge as to the accuracy of these locations was obtainable. It is believed that these signals will be used only as temporary aids to navigation in the anchorage area. Three floating aids to navigation were located as follows:

<u>DESCRIPTION</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>
Red & White Buoy - Flashing white every 6 sec.	01°58.6' ⁷⁵ N	157°29.1'W ^{pos 52c}
Red & White Buoy - Flashing white every 8 sec.	01°58.5' ⁵⁵ N	157°28.85'W ^{pos 172b}
Red & White Buoy - Flashing green every 5 sec.	01°58.65' [✓] N	157°28.6'W ^{pos 178b}

N. STATISTICS:-

<u>DAY LETTER</u>	<u>VOLUME</u>	<u>DATE</u>	<u>NO. OF POS.</u>	<u>NAUT. MI. SOUNDINGS</u>
<u>Launch No. 2 (violete-lower case letters)</u>				
a	XII	30 Mar.	110	8.0
b	XIII	31 Mar.	177	15.0
c	XIV	1 Apr.	111	10.0
d	XV	2 Apr.	125	7.3
e	XIV & XVI	3 Apr.	68	5.5
			<u>591</u>	<u>45.8</u>
<u>Launch No. 3 (green-lower case letters)</u>				
a	I & II	28 Mar.	159	19.3
b	III & IV	29 Mar.	268	28.7
c	V & VI	30 Mar.	344	36.1
d	VII & VIII	31 Mar.	339	38.2
e	IX & X	1 Apr.	363	36.1
f	XI	2 Apr.	49	4.5
g	XI	3 Apr.	5	0.0
			<u>1527</u>	<u>162.9</u>
			<u>2118</u>	

Total area surveyed = 4.7 square nautical miles.

One Oceanographic Station was observed.

One Current Station was observed.

The standard tide gage at Christmas Island was serviced.

One portable tide gage was installed.

Bottom samples taken - 11.

O. MISCELLANEOUS:-

No miscellaneous data was obtained.

P. RECOMMENDATIONS:-

This survey is considered adequate and complete for charting purposes.

Q. TABULATION OF APPLICABLE DATA:-

1. 3 copies of Boat Sheet PF12162 - to be forwarded.
2. Fathograms a thru e days Launch #2 - to be forwarded.
3. Fathograms a thru g days Launch #3 - to be forwarded.
4. Cronar positive of 1:50,000AMS quad Christmas Island, enlarge to 1:12,000 - to be forwarded.
5. Tide station report for installation of Christmas Island portable tide gage - to be forwarded.
6. Marigrams & tide curves, portable tide gage, Christmas Island - to be forwarded.
7. Current Observations, Christmas Island - to be forwarded
8. Control Data, Christmas Island - to be forwarded
9. Tide station report, Standard Tide Gage - forwarded to Pacific Tides Officer, 6 April 1962
10. One Mylar smooth plot, 8-day, launch #2, developments. - to be forwarded

Respectfully submitted,

Lavon L. Posey

Lavon L. Posey
LT. C&GS

TIDE NOTE

PROJECT SP-5-62

USC&GSS PATHFINDER

HYDROGRAPHIC SURVEY H-6918 (PF-12162)

CHRISTMAS ISLAND ANCHORAGE AREA

1962 FIELD SEASON

Tide reducers for all work done on SP-5-62 were obtained from a portable tide gage installed on the same pier as the Coast Survey Standard tide gage at Christmas Island.

All heights are referred to the standard tide gage staff, and a staff reading of 1.75 feet is taken as MLLW. Tide reducers for the entire project never exceeded 0.3 fathom and usually were 0.0 to 0.1 fathom.

The portable tide gage was installed on this project for the sole purpose of obtaining daily hourly heights for reduction of soundings without disturbing the standard tide gage records.

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GEOGRAPHIC NAMES

(Not pencilled on smooth sheet)

BRIDGES POINT
COOK ISLAND
NORTHWEST POINT
ST. STANNISLAS BAY

TABULATION OF VELOCITY CORRECTIONS
CHRISTMAS ISLAND
PROJECT SP-5-62

RANGE	CORR.	RANGE	CORR.
0.0 - 1.6	0.0	41.7 - 46.0	+2.1
1.7 - 3.6	+0.1	46.1 - 50.5	2.3
3.7 - 5.6	0.2	50.6 - 55.0	2.5
5.7 - 7.6	0.3	55.1 - 59.6	2.7
7.7 - 9.6	0.4	59.7 - 64.2	2.9
9.7 - 11.6	0.5	64.3 - 68.8	3.1
11.7 - 13.6	0.6	68.9 - 73.7	3.3
13.7 - 15.6	0.7	73.8 - 79.3	3.5
15.7 - 17.6	0.8	79.4 - 86.3	3.7
17.7 - 19.7	0.9	86.4 - 93.5	3.9
19.8 - 21.7	1.0	93.6 - 101.5	4.1
21.8 - 23.7	1.1	102 - 125.5	4.5
23.8 - 25.7	1.2	126 - 147.5	5.0
25.8 - 27.7	1.3	148 - 171	5.5
27.8 - 29.8	1.4	171.5 - 195.5	6.0
29.9 - 31.9	1.5	196 - 221	6.5
32.0 - 34.0	1.6	221.5 - 248	7.0
34.1 - 37.2	1.7	248.5 - 276.5	7.5
37.3 - 41.6	1.9	277 - 300	8.0

PHASE CORRECTIONS

808 FATHOMETER # 57-23

RAYTHEON # 143

B = -0.3 C = -0.3 D = -0.6

NONE

NOTE: ALL RANGES AND CORRECTIONS IN FATHOMS; VELOCITY CORRECTIONS
BASED ON A DRAFT OF 0.6 FATHOMS.

LAUNCH # 2
 SP-5-62 808 # 57-23 1962

DEPTH	FATH. RDG.	CORR.	DEPTH	FATH. RDG.	CORR.
1	0.7	+0.3	2	1.6	+0.4
1	0.7	0.3	2	1.6	0.4
1	0.8	0.2	2	1.6	0.4
1	0.8	0.2	2	1.6	0.4
1	0.7	0.3	2	1.8	0.2
1	0.5	0.5	2	1.8	0.2
1	0.6	0.4	2	1.8	0.2
1	0.8	0.2	2	1.6	0.4
1	0.7	0.3	2	1.8	0.2
1	0.5	0.5	2	1.7	0.3

MEAN \pm VEL. CORR. = $+0.32 - 0.0 = +0.32$

MEAN \pm VEL. CORR. = $+0.31 - 0.1 = +0.21$

DEPTH	FATH. RDG.	CORR.
4	3.5	+0.5
4	3.5	0.5
4	3.8	0.2
4	3.6	0.4
4	3.8	0.2

MEAN \pm VEL. CORR. = $+0.36 - 0.2 = +0.16$

MEAN OF MEANS = $+0.23$

Draft Corrections

LAUNCH # 3
SP-5-62 RAYTHEON # 143 1962

DEPTH	FATH. RDG.	CORR.	DEPTH	FATH. RDG.	CORR.
1	0.8	+0.2	2	1.8	+0.2
1	0.8	0.2	2	1.8	0.2
1	0.8	0.2	2	1.5	0.5
1	0.7	0.3	2	1.6	0.4
1	0.8	0.2	2	1.8	0.2
1	0.8	0.2	2	1.8	0.2
1	0.7	0.3	2	1.7	0.3
1	0.7	0.3	2	1.7	0.3
1	0.7	0.3	2	1.6	0.4
1	0.8	0.2	2	1.7	0.3
1	0.8	0.2	2	1.6	0.4
1	0.7	0.3	2	1.7	0.3
1	0.8	0.2	2	1.7	0.3
1	0.7	0.3	2	1.7	0.3
1	0.8	0.2	2	1.8	0.2
1	0.7	0.3	2	1.7	0.3

MEAN - VEL. CORR. = $+0.24 - 0.0 = +0.24$

MEAN - VEL. CORR. = $+0.30 - 0.1 = +0.20$

DEPTH	FATH. RDG.	CORR.
4	3.7	+0.3
4	3.5	0.5
4	3.6	0.4
4	3.6	0.4
4	3.5	0.5
4	3.4	0.6
4	3.5	0.5
4	3.7	0.3

MEAN - VEL. CORR. = $+0.44 - 0.2 = +0.24$

MEAN OF MEANS = $+0.23$

Draft Corrections

LIST OF SIGNALSList of Stations on H-8918 (PF-12162)

<u>Name used in</u> <u>Hydrographic Survey</u>	<u>Origin of Station</u>
ACE - - - - -	ACE 1962
ANN - - - - -	ANN 1962
BAR - - - - -	BAR 1962
DOG - - - - -	DOG 1962
DOT - - - - -	DOT 1962
GUL - - - - -	GUL 1962
LIT - - - - -	BRIDGES POINT LIGHT 2, 1962
MAS - - - - -	SPAL 56/W(NZHS)
RAN - - - - -	Vol. 121 Page <u>24</u>
RAT - - - - -	RAT 1962
RED - - - - -	RED 1962
TIE - - - - -	TIDE 56/Q(NZHS)
TIP - - - - -	TIP 1962
VIM - - - - -	RESIDENCY F.S. 56/M(NZHS)

(11)

APPROVAL SHEET

TO ACCOMPANY HYDROGRAPHIC SURVEY

H- (PF-12-1-62)

The field work for this survey was completed under my daily direction and supervision. The records are complete and the smooth sheet data indicates the survey is adequate to supersede prior surveys.



Arthur L. Wardwell

CAPTAIN, C&GS

Comdg., USC&GSS PATHFINDER

ADDENDUM TO DESCRIPTIVE REPORT
SHEET PF-12-1-62 (H-8918)

Due to inexperience, with the Raytheon Fathometer, all soundings deeper than 250 fathoms were reduced and recorded 10 fathoms too deep. This error was discovered on 10 April 1962 and all effected soundings were corrected in the sounding volumes.

No corrections have been made to boat or smooth sheet depths.

TIDE NOTE FOR HYDROGRAPHIC SHEET

March 7, 1967

~~XXXXXXXXXXXX~~: R. H. Carstens

Plane of reference approved in
16 volumes of sounding records for

HYDROGRAPHIC SHEET 8918

Locality: Christmas Island (West Side)

Chief of Party: A. L. Wardwell, 1962

Plane of reference is mean lower low water

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

Christmas Island

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

2.0 feet

Remarks


Chief, Tides and Currents Branch

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. 8918

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS		3	
DESCRIPTIVE REPORT		1	OVERLAYS		2	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	1					
VOLUMES						
BOXES						
T-SHEET PRINTS (<i>List</i>)						
SPECIAL REPORTS (<i>List</i>)						

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				
POSITIONS CHECKED				
POSITIONS REVISED				
DEPTH SOUNDINGS REVISED				
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS				
JUNCTIONS				
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS				
SPECIAL ADJUSTMENTS				
ALL OTHER WORK				
TOTALS				
PRE-VERIFICATION BY		BEGINNING DATE		ENDING DATE
VERIFICATION BY		BEGINNING DATE		ENDING DATE
REVIEW BY		BEGINNING DATE		ENDING DATE

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. _____

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review

CHART	DATE	CARTOGRAPHER	REMARKS
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
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