

8607

Diag. Cht. No. 8551-3.

Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey **Hydrographic**

Field No. **BO-10-5-61** Office No. **H-8607**

LOCALITY

State **Alaska**

General locality **Prince William Sound**

Locality **Culross Passage South**

1961

CHIEF OF PARTY

F. X. Popper

LIBRARY & ARCHIVES

OCT 4-1962

DATE

8607

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-8607

Field No. BO-10-5-61

State Alaska

General locality Prince William Sound

Locality Culress Passage ~~South~~

Scale 1:10,000 Date of survey 7/26/61 - 8/12/61

Instructions dated 18 November 1958

Vessel USC&GSS BOWIE

Chief of party F. X. Popper

Surveyed by J. M. Doherty, P. D. Montjoy

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

Fathograms scaled by R. Bruce

Fathograms checked by M. E. Natto, J. M. Doherty, P. D. Montjoy

Protracted by C. A. J. Pauw

Soundings penciled by C. A. J. Pauw

Soundings in fathoms ~~feet~~ at ~~MLLW~~ MLLW

REMARKS:

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.....
.....
.....
.....

K.W.W. 3/7/94

JK

DESCRIPTIVE REPORT

To Accompany

HYDROGRAPHIC SURVEY H-8607 FIELD NO. BC-10-5-61

Scale: 1:10,000

Date: 1961

USC&GS Ship BOWIE

F. X. Popper, Commanding

A. PROJECT:

This survey was conducted as a portion of project OPR* 277 in accordance with instructions dated 18 November 1958 and supplemental instructions dated 4 November 1960 and 14 January 1960. ✓

B. AREA SURVEYED:

This survey covers the area of Culross Passage South and the area surrounding Applegate Island in Port Nellie Juan. The approximate limits of this survey are Lat. 60°-37'N to 60°-40'N and Long 148°-06.5'W to 148°-13.0'W.

This survey joins prior survey H-7678, 1:20,000 1948, on the east, H-3973, 1:20,000 1917, on the south, contemporary survey H-8606 (BC-10-4-61), 1:10,000 1961, to the south and contemporary survey H-8608, 1:10,000 1961, (BC-10-6-61) on the north.

Hydrography was accomplished between 26 July and 12 August 1961.

C. SOUNDING VESSEL:

The majority of the hydrography was accomplished using Launch #184, a plastic diesel powered whaleboat. Two days work was done using Launch #95, a wooden diesel powered launch, and two days were done using the Ship BOWIE, one of the days being devoted exclusively to obtaining bottom samples.

Launch #184 is called launch 1 in the sounding volumes and it's work is designated using red lower case letters.

Launch #95 is called 6-A in the sounding volumes and it's work is designated by blue lower case letters.

Ship work is designated by blue upper case letters.

D. SOUNDING EQUIPMENT:

Soundings were taken by the launches using 808 type fathometers calibrated at a speed of 800 fms. per second. An EDO ~~model~~ ^{model} 185 was used by the Ship BOWIE.

The following are the serial numbers for the types of echo sounding equipment used: 808 Nos. 57-25 & 57-28, EDO 2.

To obtain the 808 fathometer corrections, phase comparisons were taken at the beginning of the field season, bar checks were taken twice daily during hydrographic operations and temperature and salinity casts were taken on each sheet to determine the velocity corrections which are shown on page C. of the appendix.

Phase comparisons were taken with 10 observations at each change of scale for each 808 fathometer. The observations were scanned from the fathogram and a mean correction determined. This correction was combined with the bar check correction to give the echo correction which is shown in the appendix on page B.

At the time the phase comparisons were taken a series of tests were run on each fathometer with the following results:

<u>Fathometer</u>	<u>Speed</u>	<u>Paper Advance</u>	<u>Radius Stylus Arm</u>
57-25	109 RPM	7.8 inch/4 min. (foot scale)	O.K.
57-28	"	"	"

Paper advance and speed checks were taken twice daily and recorded on the fathograms. Bar checks were taken twice daily for all launch hydrography.

The corrections for the EDO Model 185 were obtained by taking a daily simultaneous comparison between the 808 and EDO fathometers. A mean value was then determined and applied to all soundings made with the EDO Model 185 fathometer.

Because of the steep and irregular bottom, a striker, type NJ-3, was used on each 808 fathometer in order to obtain a satisfactory record.

Because of the irregular and steep bottom many side echos and scale changes were encountered. this caused some missed and erroneous soundings.

A paper slippage, caused by a worn out paper take-up spring belt, was encountered during the first part of the season. This was corrected by replacing the worn out spring belt.

No other serious problem was encountered.

E. SMOOTH SHEET:

The smooth sheet projection was computed and constructed by the Washington Office.

F. CONTROL:

Visual control by means of three point sextant fixes were used to control the hydrography for this entire survey.

Triangulation, photogrammetric and hydrographic signals were used as objects for control.

Photogrammetric control was used primarily in the area to the north and northeast of Applegate Island, due to a lack of triangulation stations in this area.

G. SHORELINE:

Shoreline for this sheet is taken from incomplete blue-line manuscripts T-11583, T-9121 and rough draft blue line manuscript T-9137. (Note: comparison at the time of this writing between tables in S.P.-5 and T-9137 and boat sheet shows that the manuscript has expanded. It does not agree with meter spacings in S.P.-5)

Shoreline on this sheet was verified by the hydrographer. Any new features added were located by sextant fixes.

The low water line is not completely defined in some areas due to the irregularity and steepness of the bottom which made close approaches to the shore dangerous. Shoreline was run at high tide to delineate the low water line as accurately as possible.

H. CROSSLINES:

Approximately 6% crosslines were run with good agreement at crossings.

I. COMPARISON WITH PRIOR SURVEYS:

There are no prior surveys of the area in Culross Passage itself. A comparison is made with adjoining surveys H-7678, 1:20,000 1948, and H-3973, 1:20,000 1917,.

The two rocks mentioned in item 1. of the Pre-Survey Review were not found in their reported locations after a 20 min investigation at low tide on July 31, 1961. A rock was found 50 meters north of the more easterly of the two rocks in Lat 60°-37.35'N, Long. 148°-08.10'W which bares 0.2ft at MLLW. This rock lies close to a foul area approximately 85 meters SE of Tri. Sta. WIRE.

Pre-Survey Review items 2,3 and 4 are covered in H-8606 BO-10-4-61.

K. JUNCTIONS:

Agreement at junctions with surveys mentioned in Section B is generally good considering the rough character of the bottom. Hydrographic Survey H-7678, 1:20,000 1948, at Lat. $60^{\circ}-37.5'N.$, Long. $148^{\circ}-06.5'W.$ shows a sounding of 226. This survey shows soundings of 213. The prior survey, in general, shows somewhat deeper soundings in this vicinity.

L. COMPARISON WITH CHART:

Chart 8517, 1:80,000, printed in 1950 and revised in 1959 is the largest scale chart of the area.

The rock awash shown on the chart at Lat. $60^{\circ}-38.15'N.$, Long. $148^{\circ}-8.6'W.$ was not found in this survey.

There are no soundings in Culross Passage on the chart.

The few soundings north of Applegate Island agree well with the soundings of this survey.

M. ADEQUACY OF SURVEY:

This survey is deemed adequate to be used for charting.

N. STATISTICS:

148 Nautical miles of sounding lines
1155 Positions
30 Bottom samples
4 Square miles of hydrography
1 Tide Station
0 Current stations

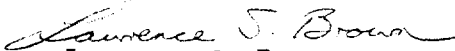
O. MISCELLANEOUS:

This sheet has not been smooth plotted at the time of this report. Additional comments will be furnished by the smooth plotter.

P. TABULATION OF APPLICABLE DATA:

- A. Signal List
- B. Fathometer Corrections
- C. Velocity Corrections
- D. Tidal Note

Respectfully submitted,


Lawrence S. Brown
LT, C&GS

APPROVAL SHEET

BO-10-5-61

Field work on this hydrographic survey was inspected daily by the Chief of Party. This survey is considered complete and no additional work is necessary. All records are approved and forwarded.

F. X. Popper

F. X. Popper
CDR., C&GS
Commanding Ship BOWIE

ACE 012
ACT 018
ADD 011
AID 031
AIM 035
AKE ^(QUAKE) 042
AMY 059
ANN 055
ANT 058
ARM 075
AXE 092

BAG 003
BAT 008
BED 021
BIB 030
BOB 060
BUS 087

CAB 100
COD 161
CON 165
COP 166
COW 169
CUR 187

DAY 109

DIM 135
DIP 136
DOG 163
DUD 181
DUO 186

EAT 208
EBB 200
EGO 236
ERG 273

FAR 207
FIG 233
FLY 249
FOP 266

GAG 303
GAL 304
GAT ^(NEGAT) 308
GEO 326
GIG 333
GUM 385

HOW 369

IDA 310
IRE ^(WIRE) 372

JAP 406
JAW 409
JOE 462
JUAN 480

LAP 407
LEO 426
LIG 433
LIP 436
LIV ^(COLIVE) 438

MAN 505
MAR 507
MID 531
MIM 535
MOO 566
MOP 568

NAT 508
NOR 567
NUX 589

OBI 603
ODD 611
OIL 634
OLD 641
OWL 694

PAD 601
PEG 623
PORT 667
POT 668
QUA 680
RAM ^(RUM) 705
RIP 736
ROS 767
RUB 780

SAD 701
SAM 706
SET 728
SHE 732
SIR 737

TAN 805
TIE 832
TIG 833

WAX 909
WED 921

YAK 904
YAM 905

SIGNAL LIST

BO-10-5-61

Hydrographic Name	Source	Hydrographic Name	Source
Ace ✓	T-9121	Lap	1948 Tri Sta LAPEL ✓
Act	Vol 1, p 3	Leo ✓	T-11583
Add ✓	T-11583	Lig	1948 Tri Sta PORT NELLIE JUAN LIGHT ✓
Aid	1948 Tri Sta Said	Lip ✓	T- 9137
Aim ✓	T-11583	Liv	1948 Tri Sta OLIVE ✓
Ake	1948 Tri Sta Quake ✓	Man ✓	T-9137
Amy ✓	T-9121	Mar ✓	"
Ant <i>Ann - T-11583</i>	"	Mid ✓	"
Arm ✓	"	Mim	1948 Tri Sta MIMIC ✓
Axe ✓	"	Moo ✓	T-11583
Bag	Vol 1, p 3	Mop <i>Nat - T-11583</i>	T-9137
Bat ✓	T-11583	Nor ✓	"
Bed ✓	"	Nux ✓	T-11583
Bib ✓	T-9121	Odd ✓	"
Bob ✓	T-11583	Oil <i>Old - T-11583</i>	T-9137
Bus ✓	T-9121	Obl ✓	T-9121
Cab	T-11583	Owl ✓	T-11583
Cod ✓	T-11583 & T-9137	Pad ✓	T-9137
Con <i>Cop - T-11583</i>	T-9121	Peg ✓	"
Cow ✓	T-11583	Port	1948 Tri Sta PORT ✓
Cur ✓	"	Pot ✓	T-11583
Day ✓	T-9137	Ram (Rum)	T-9121
Dim ✓	T-11583	Rip ✓	"
Dip ✓ <i>T-9121</i>	"	Ros	1917 Tri Sta ROSS ✓
Dog <i>Duo - T-11583</i>	Vol 1, p 3	Rub ✓	T-9121
Eat <i>Duo - T-11583</i>	T-11583	Sad ✓	Vol 5, p 50
Ebb ✓	T-9121	Sam ✓	T-9137
Ego ✓	T-9137	Set ✓	T-11583
Erg ✓	T-9121	She ✓	"
Far ✓	T-11583	Sir ✓	T-9137
Fig ✓	"	Tan ✓ <i>Tie - T-11583</i>	T-11583
Fly ✓	" & T9137	Tig	1948 Tri Sta TIGER ✓
Fop ✓	T-11583	Wax <i>Wed T-11583</i>	T-11583
Gag ✓	"	Yak	T-9121
Gal ✓	"	Yam ✓	T-11583
Gat	1948 Tri Sta NEGAT		
Geo ✓	T-9121		
Gig ✓	T-11583		
Gum ✓	T-9137		
How ✓	T-11583		
Ida ✓	"		
Ire	1913 Tri Sta WIRE ✓		
Jap ✓	T-11583		
Jaw ✓	T-9137		
Joe ✓	T-9137		
Juan	1917 Tri Sta JUAN ✓		

VELOCITY CORRECTIONS

<u>From</u>	<u>To</u>	<u>Correction</u>
0 Fms.	5 Fms.	+0 Fms.
5.1	10	+.1
10.1	20	+.2
20.1	35	+.3
35.1	50	+.4
50.1	65	+.5
65.1	85	+.6
85.1	100	+.7
100.1	120	+.8
120.1	140	+.9
140.1	160	+1.0
160.1	180	+1.1
180.1	200	+1.3

TOTAL FATHOMETER CORRECTION (ECHO)

(Bar Check Corr.+ Phase Corr.)

Fathometer #57-25

A Scale	-----	+0.2
B Scale	-----	-.4
C Scale	-----	-1.0
D Scale	-----	-1.5
E Scale	-----	-2.0

Fathometer #57-28

A Scale	-----	+0.2
B Scale	-----	+.2
C Scale	-----	-.3
D Scale	-----	+.2
E Scale	-----	+.8

-D-

TIDAL NOTE

Vicinity Applegate Island tide gage was used for this entire survey. It was located at Lat. $60^{\circ}-37.5'N$, Long. $148^{\circ}-15.0'W$ in the $150^{\circ}W$ time meridian. At this gage MHW was 17.6 ft on the staff and MLLW was 6.6 ft on the staff.

PROCESSING OFFICE NOTES - H-8607

E. SMOOTH SHEET

The projection was drawn in the Washington Office. The shoreline and control stations were applied and checked by personnel of the Seattle Hydrographic Processing Unit. The shoreline from T-9137, mentioned in the Field Report was adjusted square by square.

K. JUNCTIONS

Junctions with H-8606, to the south, and H-8608, to the north, have been compared and found in agreement.

Several 226-fathom soundings on H-7678 (1948) in the vicinity of Longitude $148^{\circ} 06' .5$ appear to be approximately 10 fathoms too deep as compared with the present survey.

L. COMPARISON WITH CHART

Comparison has been made with Chart 8517, 7th Ed., May 7, 1962.

Generally, the agreement is good, except that the smooth soundings are a few tenths of a fathom deeper generally than were the boat sheet soundings. The charted $5 \frac{3}{4}$ fathom sounding at Latitude $60^{\circ} 38' .1$, Longitude $148^{\circ} 07' .4$ is on the smooth sheet as 6.1 fathoms. The 10-fathom sounding at Latitude $60^{\circ} 37' .9$, Longitude $148^{\circ} 10' .5$ is 9.0 ✓ fathoms on the smooth sheet. The charted $8 \frac{3}{4}$ fathoms at Latitude $60^{\circ} 37' .5$, Longitude $148^{\circ} 11' .4$ is 9.1 fathoms on the smooth sheet. The charted $5 \frac{1}{4}$ fathoms at Latitude $60^{\circ} 37' .7$, Longitude $148^{\circ} 11' .7$ is 6.1 fathoms on the smooth sheet. The $7 \frac{3}{4}$ at Latitude $60^{\circ} 37' .8$, Longitude $148^{\circ} 11' .3$ is 8.1 fathoms on the smooth sheet.

Respectfully submitted

William M. Martin

William M. Martin
Supervisory Cartographer

Approved and forwarded

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

23
24
10/6
2-4-63

EHC

TIDE NOTE FOR HYDROGRAPHIC SHEET

Nautical Chart Division: R. H. Carstens

11/29/62

Plane of reference approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 8607

Locality Prince William Sound Alaska

Chief of Party: F. X. Popper

Plane of reference is mean lower low water reading
6.6 ft. on tide staff at Applegate Island
12.9 ft. below B. M. No 1 (1961)

Height of mean high water above plane of reference is 11.0 ft.

Condition of records satisfactory except as noted below:


Chief, Tides and Currents Branch

GEOGRAPHIC NAMES
Survey No. H-8607

Name on Survey	<div style="display: flex; justify-content: space-around; font-size: small;"> On Chart No. 8551 On previous survey On U. S. quadrangle Maps From local information On local Maps P. O. Guide or Map Rand McNally Atlas U. S. Light List </div>										K	B&N
	A	B	C	D	E	F	G	H				
APPLEGATE ISLAND	✓										✓	1
CULROSS ISLAND	✓										✓	2
CULROSS PASSAGE	✓											3
PORT NELLIE JUAN	✓											4
												5
												6
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												26
												27

George S. Baker
119 Oct 1962

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. ..8607..

Records accompanying survey: Smooth sheets ..1...;

boat sheets ..1...; sounding vols. ..7...; wire drag vols.;

Descriptive Reports ..1...; graphic recorder envelopes .4...;

special reports, etc.

.....

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

Number of positions on sheet

Number of positions checked

Number of positions revised

Number of soundings revised
(refers to depth only)

Number of soundings erroneously spaced

Number of signals erroneously plotted
or transferred

Topographic details Time

Junctions Time

Verification of soundings from
graphic record Time

Special adjustments Time

Verification by Total time Date

Reviewed by Time Date

VERIFIER'S REPORT OF HYDROGRAPHIC SURVEY NO. H-

The verifier should deal with the present hydrographic survey only, as the reviewer considers its relation to previous surveys and published charts. He should be thoroughly familiar with Chapters 3, 7 and 9 of the Hydrographic Manual.

1. The descriptive report was consulted and appropriate notes were made in soft pencil regarding action taken.
2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude.
3. All reference to survey sheets mentioned in the descriptive report include the registry number and year.
4. Geographic names of hydrographic features if on sheet are in slanting lettering and of topographic features in vertical lettering.
5. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken.
6. All positions verified instrumentally were check marked in the sounding records.
7. All critical soundings are clear and legible and are a little larger than the adjacent soundings.
8. The metal protractor has been checked within the last three months.
9. The protracting and plotting of all bad crossings were verified.
10. All detached positions locating critical soundings, rocks or buoys were verified.
11. The boat sheet was compared with the smooth sheet.

12. The spacing of soundings as recorded in the records was closely followed.
13. The bottom characteristics were shown on outstanding shoals.
14. The reduction and plotting of doubtful soundings were checked.
15. The transfer of contemporary topographic information was carefully examined.
16. All junctions were transferred and overlapping curves made identical.
17. The notation "JOINS H- (19--)" was added in ink for all contemporary adjoining or overlapping sheets now registered. Those not verified are shown in pencil.
18. The depth curves have been inspected before inking.
19. All triangulation stations and transfer of topographic and hydrographic signals were checked.
20. Heights of rocks were checked against range of tide.
21. Rocks transferred from topographic surveys have a dotted curve where shown thereon. Rocks located accurately by hydrographer are encircled by dotted red curve.
22. Unnecessary pencil notes have been removed.
23. Objects on which signals are located and which fall outside of the low water line have been described on the sheet.
24. The low water line and delineation of shoal areas have been properly shown.
25. Degree and minutes values and symbols have been checked.
26. Questionable soundings have been checked on the fathograms

27. Source of shoreline and signals (when not given in report).
28. All notes on sheet are in accordance with figure 171 in the Hydrographic Manual.
29. All aids located, with those on contemporary topographic sheets, have been shown on survey.
30. Depth curves were satisfactory except as follows:
31. Sounding line crossings were satisfactory except as follows:
32. Junctions with contemporary surveys were satisfactory except as follows:
33. Condition of sounding records was satisfactory except as follows:
34. The protracting was satisfactory except as follows:
35. The field plotting of soundings was satisfactory except as follows:
36. Notes to reviewer:

Verified by

Date

