

# 8906

Diag. Cht. No. 8201-3.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE  
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION  
COAST AND GEODETIC SURVEY

## DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PA-10-1-66 Office No. H-8906

### LOCALITY

State Alaska

General locality Southeast Alaska

Locality Duncan Canal

1966

CHIEF OF PARTY

B. I. Williams

LIBRARY & ARCHIVES

DATE July 25, 1969

USCOMM-DC 37022-P66

8906

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-8906

Field No. PA-10-1-66

State Alaska

General locality Southeast Alaska

Locality Duncan Canal

Scale 1:10,000 Date of survey 8 - 27 June 1966

Instructions dated 25 March 1966, 14 June 1965, 3 June 1966

Vessel Lamch CS-1191

Chief of party Bruce I. Williams, LCDR, USESSA

Surveyed by LTjg Charles R. McIntyre and ENS John O. Rolland

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

Fathograms scaled by R. Berg

Fathograms checked by J. O. Rolland, B. I. Williams, C. R. McIntyre

Protracted by C. Y. Molyneaux

Soundings penciled by C. Y. Molyneaux

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

REMARKS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Handwritten initials*

DESCRIPTIVE REPORT  
to accompany

SP-6-65 (PA-10-1-66) H-8906

Scale 1:10,000

USC&GSS PATTON

B. I. WILLIAMS, COMDG.

1966

A. PROJECT

This survey was accomplished under revised instructions for Special Project-6-65, Duncan Canal, Alaska dated 25 March 1966. The original Special Project instructions are dated 14 June 1965. Change No. 1, which eliminated the eastern shore from the project limits, is dated 3 June 1966.

B. AREA SURVEYED

*Barite* The area surveyed is the portion of sheet PA-10-1-66 necessary to provide sufficient hydrographic information to the Alaska ~~Perite~~ *Barite* Company for their shipping activity in the fall of 1966. This is the area between the 1965 PATTON hydrography in the vicinity of the Castle Islands and the upper limit of H-5019. Project limits extended along a parallel from the most southerly of the Castle Islands to within 1/4 mile of the eastern shore, then southeast including Grief Island and then to a parallel about 1/2 mile south of Grief Island joining the western shore.

Hydrography commenced on 8 June and was completed on 27 June 1966.

Satisfactory junctions were made with PA-10-2-65 and H-5019, 1:10,000, 1929.

C. SOUNDING VESSEL

All soundings were obtained with survey launch No. CS-1191.

D. SOUNDING EQUIPMENT

All soundings were obtained by a Raytheon DE-723 portable depth recorder, serial number 556.

Echo sounding corrections were determined by frequent bar checks to a depth of seven fathoms. Frequent leadline comparisons were made at various depths up to 20 fathoms to insure proper operation of sounding equipment.

Velocity corrections for depths greater than seven fathoms were computed from a serial temperature and salinity observation. Depths on shoals were verified with leadline.

The fathometer worked well throughout the survey, with no problems encountered other than a faulty fix works button on "J" day.

All depths are on "A" scale so no phase comparison was necessary.

#### E. SMOOTH SHEET

The smooth sheet is sheet intersections of grid lines and triangulation stations were plotted by machine in the Pacific Marine Center on 13 October 1966.

#### F. CONTROL

Control of hydrography was obtained solely by three-point sextant fixes on shore signals. All of the shore signals were built over triangulation stations. Triangulation was machine plotted with the exception of Grief, 1929. All plotting was checked.

#### G. SHORELINE

The approximate <sup>on boat sheet</sup> high water line was sketched in pencil from estimated distances taken while running the "O" fathom depth curve. There was no photo-hydro support at the time of the survey.

#### H. CROSSLINES

At least 10% of the hydrography is crosslines. Good crossings were acquired.

#### I. JUNCTIONS

Satisfactory junctions with surveys <sup>FE 4, 1965</sup> (PA-10-2-65) and H-5019 (1929) were made.

#### J. COMPARISON WITH PRIOR SURVEYS

No comparison with survey H-1808 (1:20,000; 1887) was made. It was felt that due to its age and inadequacy no conclusions could be drawn except pertaining to basic topographic trends.

#### K. COMPARISON WITH THE CHART

A comparison with chart 8201 (revised 7/20/64) was made, However, only dangers to navigation are discussed due to the small scale of the chart.

A lesser depth was found on the shoal at Lat.  $56^{\circ} 38.7N$ , Long.  $133^{\circ} 06.1W$ . The peak is located at Lat.  $56^{\circ} 38.60N$ , Long.  $133^{\circ} 05.85W$  and is covered one foot at MLLW.

A rock covered 2 feet at MLLW, not shown on the chart, was discovered SSW of Grief Island at the position Lat.  $56^{\circ} 36.94N$ , Long.  $133^{\circ} 04.28W$ . The submerged rock shown on the chart at Lat  $56^{\circ} 38.2$ , Long.  $133^{\circ} 04.7$  should be shown at Lat.  $56^{\circ} 38.31N$ , Long.  $133^{\circ} 04.65$  as a rock baring 11.3 ft at MLLW.

A reef baring 2 ft. at MLLW was discovered about 100 meters offshore of a small island. Position: Lat.  $56^{\circ} 36.77N$ , Long.  $133^{\circ} 05.73W$ . Several rocks awash accompany this reef.

#### L. ADEQUACY OF THE SURVEY

This survey is believed complete and adequate to supercede prior surveys for charting.

#### M. AIDS TO NAVIGATION

Only one aid to navigation existed within the survey limits at the time of the survey. This is a red nun buoy at Lat.  $56^{\circ} 38.6$ , Long.  $133^{\circ} 06.1W$  found on station and adequately locates the shoal in that vicinity.

#### N. STATISTICS

	<u>Ship</u> <u>PATTON</u>	<u>Launch</u> <u>1191</u>
No. of Positions	12	2166
Nautical Miles of Sounding Lines	0	260.4
No. of Bottom Samples	12	0
-----		
Total Area Surveyed (Square naut. miles)		4.2
Tide Stations		1
Temperature and Salinity Observations		1

O. MISCELLANEOUS

Strong tidal current streams caused many lines to veer abruptly. This caused difficulty in obtaining parallel 50 meter spaced lines. Portions of many lines are not plotted to avoid considerable confusion and cluttering of soundings. ✓

P. RECOMMENDATIONS

No other field work is recommended. ✓

Q. REFERENCES TO REPORTS

Other reports related to this survey are: ✓

Season's report

Fathometer Correction Report

## TIDE NOTE

to accompany

Hydrographic Survey H-8906 (PA-10-1-66)

A standard portable tide gauge, located on a small island southeast of Grief Island, controlled all hydrography on this sheet.

Station: Vicinity of Grief Island, Duncan Canal

Position: Lat.  $56^{\circ} 37.31N$

Long.  $133^{\circ} 03.13W$

Time Meridian:  $120^{\circ}W$

Value of MLLW on Staff: 5.2 feet above staff zero

Duration of Operation: 3 June to 27 June 1966

No corrections for time or height were applied to the observed tides.

## GEOGRAPHIC NAME LIST

Sheet H-8906 (PA-10-1-66)

The following geographic names have been penciled on the smooth sheet:

DUNCAN CANAL

GRIEF ISLAND

KUPREANOF ISLAND

LINDENBERG PENINSULA

PEARL ISLAND



## ABSTRACT OF CORRECTIONS TO ECHO SOUNDINGS

Launch 1191

RAYTHEON DE-723 FATHOMETER #556

## Tabulation of Bar Check Data:

<u>CORRECTION</u>	<u>MEASURED DEPTH</u>
0.25	1.0 fms.
0.28	3.0
0.31	5.0
0.39	7.0

Echo sounding corrections were determined by using bar check data down to 7.0 fms. Velocity corrections for depths below 7.0 fms. were determined from temperature and salinity observations taken on 6/15/66. The foregoing information was plotted on C&GS Form 117, Velocity Corrections, and the corrections were determined from the curve.

These corrections were used for all days of launch hydrography on survey H-8906 (PA-10-1-66), 8 June to 27 June 1966.

<u>CORRECTION</u>	to	<u>DEPTH</u>
0.3		6.0 fms
0.4		16.0
0.5		29.5
0.6		Deepest Sounding

All signals were built over triangulation stations.

<u>SIGNAL NAME</u>	<u>TRIANGULATION STATION</u>
CAB	Cabin, 1965
CLO	Clover, 1959
FARM	Farm, 1929
FOX	Fox, 1929
GRIEF	Grief, 1929
HANG	Hang, 1929
KEL	Kell, 1959
MEL	Mel, 1959
ODD	Odd, 1929
SLO	Slough, 1965
UPP	Upper, 1929

TIDE NOTE FOR HYDROGRAPHIC SHEET

October 31, 1967

~~Nautical Chart Division~~

Pacific Marine Center

Plane of reference approved in  
9 volumes of sounding records for

HYDROGRAPHIC SHEET 8906

Locality: Duncan Canal, SE. Alaska

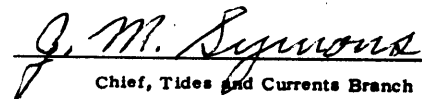
Chief of Party: B.I. Williams (1966)

Plane of reference is mean lower low water

Tide Station Used (Form C&GS-681):  
Vicinity of Grief Island  
Duncan Canal, SE. Alaska

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

Remarks

  
Chief, Tides and Currents Branch

APPROVAL SHEET

PA-10-1-66

The 1966 field work on this sheet was performed under the direct supervision of the Commanding Officer. The field records have been examined and are considered to be complete and adequate.



Bruce I. Williams  
Lieutenant Commander, ESSA  
Commanding, Ship PATTON

GEOGRAPHIC NAMES

Survey No. H-8906

Name on Survey	Source of Information										
	A	B	C	D	E	F	G	H	K		
Durcan Canal											1
Grief Island											2
Kupreanof Island											3
Lindenberg Peninsula											4
Pearl Island											5
Castle Islands											6
											7
											8
											9
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											27

PREPARED BY

*Frank W. Pickett*  
CARTOGRAPHIC TECHNICIAN

APPROVED BY

*[Signature]*  
CHIEF CARTOGRAPHER

HYDROGRAPHIC SURVEY STATISTICS  
HYDROGRAPHIC SURVEY NO. H-8906 (PA-10-1-66)

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	/	BOAT SHEETS	/
DESCRIPTIVE REPORT	/	OVERLAYS	1 (in volume 9)

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	/					
VOLUMES	9					
BOXES						

T-SHEET PRINTS (List) *Page T-13046 thru 13049*

SPECIAL REPORTS (List)

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				2178
POSITIONS CHECKED		633	100	733
POSITIONS REVISED		5	15	20
DEPTH SOUNDINGS REVISED		27	25	52
DEPTH SOUNDINGS ERRONEOUSLY SPACED		31	20	51
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0	0	—
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		0	2	2
JUNCTIONS		0	6	6
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		4	30	34
SPECIAL ADJUSTMENTS		0	25	25
ALL OTHER WORK		121	57	178
TOTALS		125	122	247

PRE-VERIFICATION BY	BEGINNING DATE	ENDING DATE
VERIFICATION BY <i>Cornelius A. J. Paus</i>	BEGINNING DATE <i>Dec 13, 1968</i>	ENDING DATE <i>Feb 24, 1969</i>
REVIEW BY <i>George Myers</i>	BEGINNING DATE <i>Feb 9, 1970</i>	ENDING DATE <i>Mar. 1, 1970</i>

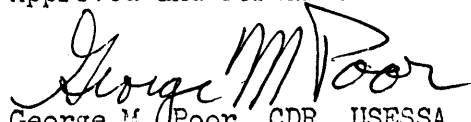
Approval Sheet

The smooth sheet has been inspected and meets the requirements of the Hydrographic Manual. (Note: Exceptions are noted in the verifier's report.)

Examined and Approved

  
William M. Martin  
Supervisory Carto. Tech.

Approved and Forwarded

  
George M. Poor, CDR, USESSA  
Chief, Processing Division, PMC

The shoreline for this survey was transferred from Incomplete Manuscripts T-13046, T-13047, T-13048 & T-13049, dated Dec. 1966, which were made up for the smooth sheet shoreline.

WMM

OFFICE OF HYDROGRAPHY AND OCEANOGRAPHY

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8906

FIELD NO. PA-10-1-66

Southeast Alaska -- Duncan Canal

SURVEYED: June 8, 1966, through June 27, 1966

SCALE: 1:10,000

PROJECT NO.: SP6-65

SOUNDINGS: DE-723 Depth  
Recorder

CONTROL: Sextant angles  
on shore signals

Chief of Party.....	B. I. Williams
Surveyed by.....	C. R. McIntyre
.....	J. O. Rolland
Protracted by.....	C. Y. Molyneaux
Soundings Plotted by.....	C. Y. Molyneaux
Verified and Inked by.....	C. A. J. Pauw
Reviewed by.....	G. K. Myers
.....	Date: March 1, 1970
Inspected by.....	R. H. Carstens

1. Description of the Area

This is a survey in the south end of Duncan Canal, extending from lat.  $56^{\circ}36.75'$  to lat.  $56^{\circ}39.0'$ . Grief Island and extensive ledges are located on the eastern side of the canal. Here dangerous reefs exist about  $\frac{1}{2}$  mile off-shore.

The bottom configuration of this area is characterized by steep slopes that lead to a gently sloping basin with depths increasing from 9 fathoms along the northern limit of the survey to over 30 fathoms in the southern portion. A trench having deepest depths of 15 fathoms is located along the abrupt eastern slope off Lindenberg Peninsula. In general, ledges extend intermittently along the shoreline and around the few small islets found in the area.



A number of rocky shoals rise sharply from deeper water and critical soundings of less than 5 fathoms exist within the 10 fathom depth curve. The predominant bottom characteristic is gray mud.

## 2. Control and Shoreline

The basic control is C&GS triangulation. All the signals were built over triangulation stations. Visual observations on shore signals were used to control hydrography.

The shoreline is from incomplete manuscripts, T-13046 through T-13049, based on 1965-66 air photography. There was no photo-hydro support at the time of this survey.

## 3. Hydrography

- A. Depths at crossings are in good agreement.
- B. The usual depth curves are adequately delineated. In the immediate vicinity of Grief Island the 1-fathom depth curve was determined where practicable.
- C. The development of bottom configuration and the investigation of least depths is considered adequate except for the least depth determination on several features such as the 6 fathom in lat.  $56^{\circ}36.8'$  long.  $133^{\circ}03.96'$  and the 4.4 fathom in lat.  $56^{\circ}37.85'$  long.  $133^{\circ}07.33'$ .

## 4. Condition of the Survey

The field plotting, sounding records and Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual, except for the following:

- A. Additional field remarks would have been desirable, to enable the verifier in properly delineating foul areas.
- B. It was necessary for the reviewer to replot many positions along slopes, as evidences of inaccuracies from improbable depth curves existed.

Also, fathograms were frequently rescanned in order to properly represent the submarine relief.

C. In many instances, depth curves were unnecessarily broken at soundings of equal depth or less.

D. During manual plotting, the control station points should be marked by a sharp pencil point, instead of inked as shown on the smooth sheet.

## 5. Junctions

Junctions, in accordance with revised Project Instructions, dated 25 March 1966, were made. In the northwest, junctional soundings within the common area of the present survey were transferred to FE4, 1965 (PA 10-2-65), in order to facilitate the future planning of work in this area. An adequate junction with H-5019(1929) on the south was made.

## 6. Comparison with Prior Surveys

H-1804	(1887)	1:80,000
H-1808	(1887)	1:20,000

The reconnaissance nature of the prior surveys provided no significant information of this area and a comparison with the present survey would be of little value. The present survey supersedes these prior surveys in the common area.

## 7. Comparison with Chart 8201 (latest print date 11/15/69)

### A. Hydrography

The charted hydrography originates with the previously discussed surveys, the present junctional surveys, and partial application of the present survey through the boat sheet (BP 70118).

The  $4\frac{1}{4}$  charted in lat.  $56^{\circ}38.67'$ , long.  $133^{\circ}08.6'$  from the boat sheet of the present survey was originally scanned in error and should be disregarded.

The sunken rock charted in lat.  $56^{\circ}38.2'$ , long.

133°04.6' is superseded by a present rock awash uncovering 12 ft.

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

B. Aids to Navigation

The aid on the present survey is in substantial agreement with the charted position and adequately marks the feature intended.


8. Compliance with Project Instructions

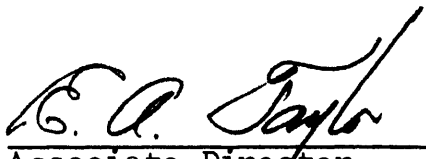
This survey adequately complies with the Project Instructions.

9. Additional Field Work

This survey is considered a very good basic survey and no additional field work is recommended.

Examined and Approved:

  
\_\_\_\_\_  
Chief  
Marine Chart Division

  
\_\_\_\_\_  
for Associate Director  
Office of Hydrography  
and Oceanography



