

8087

Diag. Cht.No. 6380-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. LJ-05253 Office No. H-8087

LOCALITY

State Washington

General locality San Juan Islands

Locality Friday Harbor

194 53

CHIEF OF PARTY

Kenneth S. Uln

LIBRARY & ARCHIVES

DATE August 16, 1954

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. 8087

Field No. LJ 05253

State Washington

General locality San Juan Islands

Locality Friday Harbor

Scale 1/5 000 Date of survey 24 Aug. * 24 Nov. 1953

Instructions dated 11 March & 8 May 1953

Vessel LESTER JONES - Launch 92

Chief of party Kenneth S. Ulm

Surveyed by Kenneth S. Ulm, Charles A. Schoene, Jack Guth.

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

Fathograms scaled by George C. Palms

Fathograms checked by Charles A. Schoene and Jack E. Guth

Protracted by Clarence E. Pedersen

Soundings penciled by Clarence E. Pedersen

Soundings in fathoms ~~feet~~ at ~~MLW~~ MLLW and are true depths

REMARKS:

28/2

*where sections of HWL is
used from G.S. shown in red*

DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SURVEY H-8087 (FIELD NO. - LJ-05253)

FRIDAY HARBOR - WASHINGTON

SCALE 1:5000 OCTOBER & NOVEMBER 1953

SHIP LESTER JONES KENNETH S. ULM, COMDG.

CHARLES A. SCHOENE, CDR., C&GS, IN CHARGE OF FIELD WORK

A. PROJECT:

Authority for this project is contained in SUPPLEMENTAL INSTRUCTIONS - PROJECT CS-241 to Commanding Officer, LESTER JONES, dated 11 March 1953, and 8 May 1953. ✓

B. SURVEY LIMITS AND DATES:

This survey covers the area of Friday Harbor and a part of San Juan Channel between longitudes $122^{\circ} 57' 00''$ and $123^{\circ} 01' 15''$, and between latitudes $48^{\circ} 31' 30''$ and $48^{\circ} 33' 35''$.

Field work was begun on 24 August by signal building and triangulation. Hydrography was begun on 25 October, and all field work completed on 24 November 1953. ✓

This survey makes a junction with prior surveys H-2213, scale 1:10000, 1894; and H-2642, scale 1:10000, 1903. This survey makes a junction with survey H-8084 (Field No. LJ-1153) to the east.

C. VESSELS AND EQUIPMENT:

All sounding on this sheet was done from Launch No. 92, a standard diesel powered, motor launch operating from the LESTER JONES. A large number of leadline soundings were taken from a 16 foot skiff, along the docks and piers in Friday Harbor and also to verify many of the rocks and shoals. Launch No. 92 has a turning radius of about 20 meters. ✓

808 fathometer No. 75 mounted in launch No. 92 was used for all the echo sounding on this survey. The lead line was used in depths up to 20 fathoms to verify the least depths on shoals.

D. TIDE AND CURRENT STATIONS:

The standard tide gage located on the cantilever pier of the University of Washington Oceanographic Laboratory was used for the correction of all soundings with no time or range correction. Hourly heights were furnished by the Washington Office. No current stations were observed in the area covered by this survey. ✓

E. SMOOTH SHEET:

The smooth sheet is to be plotted by the Seattle Processing Office. ✓

F. CONTROL STATIONS:

Triangulation for this survey was established by J.J.G. in 1894, and L.C. Wilder in 1940. One station, BAKER 1953 was established by this party to furnish control for a graphic control survey south of Turn Island. Triangulation stations PICKLE, BRUIN, Warbass and LAST were re-observed in 1953 but there was no appreciable change in their positions.

Topographic stations were located by planetable on GRAPHIC CONTROL SHEETS "D"-53 and "E"-53 by this party, and also by theodolite cuts from triangulation stations. In most cases the theodolite cuts were plotted directly on the boat and smooth sheets, but a few of the positions were computed. A number of hydrographic signals on the south side of Shaw Island were located by sextant cuts and are shown on the boat sheet with blue circles. * G.C. sheets destroyed (Desc. Reports attached)

A list of signals attached to this report shows the names of each signal and the method of location. No unusual methods were used to locate hydrographic signals.

G. SHORELINE AND TOPOGRAPHY:

The shoreline on San Juan Island west of longitude 123° 00' should be obtained from Topographic Manuscript No. T-5591⁽¹⁹⁵³⁾, scale 1:10000. The remainder of the shore line should be taken from the original topographic survey of this area T-2230⁽¹⁸⁹⁵⁾. Some small corrections to the shoreline should be made from Graphic Control Sheets "D"-53 and "E"-53, and the docks in the vicinity of Friday Harbor as shown on the hydrographic survey.

No important discrepancies were noted between the hydrographic and topographic surveys of this area. The Processing Office should comment on any discrepancies noted in applying the shoreline to the smooth sheet. } *

The low-water line is adequately defined by the soundings except in a few places where the beach is quite steep and rocky and it was impractical to run the launch close enough to obtain zero soundings. * Review, par. 7c.

H. SOUNDINGS:

Except for leadline soundings on shoals and rocks, and alongside docks, all sounding was done by 808 recording fathometer No. 75 mounted in Launch 92. The fathogram for "e" day, 6 November was accidentally lost from the launch before it was scanned. The transducer units for the fathometer were located on the keel of the launch (just forward of amidships), protected by a wooden fairwater. The units gave satisfactory results in this position except for a few times when a piece of driftwood or kelp got caught under the boat. When this happened it was necessary to break the sounding line and reverse the launch until the obstruction was cleared.

In general, three bar checks were taken daily with the bar held at 2, 5 and 7 fathoms. The initial was set at 0.0 and kept there for all the sounding. The corrections obtained from the bar checks and from the temperature and salinity observations are explained in the Fathometer Report. A copy of the final velocity corrections will be included in this report.

No corrections were applied to the leadline soundings as the checks showed that any errors were generally less than 0.5 of one per cent. Also no corrections were applied for error in the lengths of bar check lines, for the same reason.

I. CONTROL OF HYDROGRAPHY:

Standard methods of control were used thruout this survey. The position of the sounding launch was controlled by three point fixes on shore objects. In a few places close to shore the position was spotted from the topography and designated "Boat Sheet Position". No unusual or substandard methods were used on this survey. In general, ranges were used to control the direction of the lines, but compass courses were used to a limited extent. ✓

J. ADEQUACY OF SURVEY:

This survey is complete and should supersede all prior surveys for charting purposes.

The junction with survey H-8084 ⁽¹⁹⁵³⁾ (Field No. 1153) to the east is satisfactory and the depth curves can be adequately drawn. The junction with the 1894 survey, H-2213 to the north is satisfactory, considering that the area will be resurveyed at an early date as a part of this *Review*, par. 4 project.

K. CROSSLINES:

Cross lines run on this survey were approximately 10%. In general the soundings on the crosslines were in good agreement with the regular soundings. A discrepancy was noted in a 34 fathom sounding (latitude $48^{\circ} 32' 42''$, longitude $122^{\circ} 58' 24''$) in the junction area with survey H-8084. ⁽¹⁹⁵³⁾ Discrepancies were also noted on the steep slopes on the north side of the east entrance to Friday Harbor (latitude $48^{\circ} 32' 12''$, longitude $122^{\circ} 59' 42''$). *Review*, par. 4

The Processing Office should comment on this paragraph after the soundings are penciled on the smooth sheet.

L. COMPARISON WITH PRIOR SURVEYS: *Review*, par. 5

There are two prior surveys of this area: H-2213, 1894, scale 1:10000; and H-2642, 1903, scale 1:10000.

In general there is good agreement between the new survey and H-2642 in the vicinity of Turn Island. A 5 fathom shoal was found on the new survey (latitude $48^{\circ} 31' 50''$, longitude $122^{\circ} 58' 02''$) which was not shown on survey H-2642.

The soundings on H-2213 appear to be generally correct but there are several obvious discrepancies. *Review*, par. 5

Following is a list of soundings which have been disproved and should be deleted from the charts:

- prior depths in agreement with pres. depths {
- a. 18 fm. sounding in Lat. $48^{\circ} 33' 18''$, Long. $123^{\circ} 00' 02''$ *Review*, #5
 - b. 21 fm. sounding in Lat. $48^{\circ} 33' 15''$, Long. $123^{\circ} 00' 12''$ } Disregard
 - c. 21 fm. sounding in Lat. $48^{\circ} 33' 13''$, Long. $123^{\circ} 00' 07''$ }
 - d. 27 fm. sounding in Lat. $48^{\circ} 32' 30''$, Long. $122^{\circ} 59' 40''$ *Review*, #5
 - e. 25 1/2 fm. sounding in Lat. $48^{\circ} 31' 57''$, Long. $122^{\circ} 59' 48''$ " , #5
 - f. 10 1/2 fm. sounding in Lat. $48^{\circ} 32' 02''$, Long. $123^{\circ} 00' 05''$ This prior
- sdg. only slightly out of position. Comparable depths about 30m. southward on present survey

M. COMPARISON WITH CHART: *Review*, par. 6

The largest scale chart of this area is USC&GS No. 6379, print date 53 - 3/2. In general this chart shows the same discrepancies and

(1894)
erroneous soundings as survey No. H-2213, but the following discrepancies are in addition to those listed in paragraph "L":

- a). The bare rock shown on the west side of Brown Island (latitude 48° 32' 24", longitude 123° 00' 28") should be charted with the rock awash symbol. *(now charted as rk. awash)*
- b). The rock awash shown on the west side of Turn Island (latitude 48° 31' 54", longitude 122° 58' 28") was not verified by this survey and should be deleted from the chart. ✓ *Review, par. 5B(4)*
- c). The bare rock shown on the west side of Turn Island (latitude 48° 31' 54", longitude 122° 58' 27") was verified by this survey, but it should be charted as a rock awash. ✓ *Review, par. 5B(4)*
- d). The bare rocks shown on the south side of Turn Island (latitude 48° 31' 45", longitude 122° 58' 12") were verified by this survey, but should be charted with rock awash symbol. *(chart revised accordingly)*
- e). The sunken rock shown south of Hoffman Cove (lat. 48° 32' 55", long. 122° 57' 35") was verified as a shoal with a least depth of 3.2 fms. by leadline. *(3-fms. now charted)*

N. DANGERS AND SHOALS:

- a). A shoal was found south of Hicks Bay (lat. 48° 32' 54", long. 122° 57' 57"), with a least depth by leadline of 5.5 fms., positions 135g ✓ and 136g. *135g. 136g.*
- b). A shoal was found on the northwest side of Brown Island (lat. 48° 32' 31", long. 123° 00' 25") with a least depth of 3.5 fms. by lead- ✓ line, positions 149s and 151s.
- c). The 2½ fm. charted shoal in the western entrance to Friday Harbor was verified by this survey with a least depth by leadline of 2.5 ✓ fms., position 124s.
- d). The 2½ fm. sounding charted on REID ROCK (lat. 48° 32' 57", long. 122° 59' 27") was verified by a leadline sounding of 2.7 fms. pos. 137h and 139h, and a leadline sounding of 2.8 fms. on pos. 13t. Due to the ✓ presence of heavy kelp at the time of this development, there was no assurance that the least depth was obtained, so it is recommended that the 2½ fms. now charted be retained. ✓ *(carried fwd. to pres. survey from H-2213 (1894))*

All charted dangers, shoals, and bare rocks were found as charted, or shoaler depths were found except as listed in paragraphs "L", "M" and "N".
Several charted bare rocks not listed were found to be awash on the present survey.

O. COAST PILOT INFORMATION:

Coast Pilot information is included in a special report, "Coast Pilot Notes - 1953", forwarded to the Washington Office 17 February 1954.

P. AIDS TO NAVIGATION:

There is only one fixed aid to navigation in the area covered by this survey, "TURN ROCK LIGHT". It's position was determined by triangulation in 1940 and was not relocated in 1953. *Rebuilt 1930*

A list of floating aids to navigation follows:

NAME	POSITION	DEPTH	POSITION NO.	DATE LOCATED
REID ROCK BUOY	48° 32' 56"	10 fms.	138e	11/6/53
MINNESOTA REEF	122° 59' 24"			
BUOY 1	48° 32' 17"	7½ fms.	4b(vol.13)	10/29/53
BUOY 2	122° 59' 09"			
BROWN ISLAND	48° 32' 04"	6 fms.	14L and	11/12/53
	122° 59' 50"		15L	

An inter-island ferry route crosses the area of this survey. The ferry terminal is in Friday Harbor, lat. 48° 32' 10", long. 123° 00' 48".

Q. LANDMARKS FOR CHARTS:

Form 567, Landmarks for Charts, was transmitted to the Washington Office 17 February 1954. The only landmark recommended for this area is a Union Oil Company sign in Friday Harbor.

R. GEOGRAPHIC NAMES:

A special report on geographic names has not been made for this project and is not deemed necessary. No additions or changes in geographic names are recommended for this area.

Z. TABULATION OF APPLICABLE DATA:

The following records have been forwarded to the Washington Office:

2 ea. Form 681 - Report, Tide Station, Friday Harbor	5/4/53
1 vol. - Tide Level Record - Friday Harbor	"
28 ea. - Recovery Notes, San Juan Islands	7/1/53
3 ea. - Description of Triang. Stas., San Juan Islands	12/7/53
26 ea. - Recovery Notes, San Juan Islands	"
1 vol. - Tide Level Record, Friday Harbor	"
2 copies - Season's Report, 1953, Ship LESTER JONES	1/13/54
2 copies - Form 567 - Landmarks for Charts, Project CS-241	2/17/54
2 copies - " " - NonFloating Aids to Navig., " "	2/17/54
2 copies - Coast Pilot Notes - Project CS-241, San Juan Is.	"

The following records have been transferred to the Seattle Processing Office:

3 vols. - Form 251a - Triangulation Observations, Proj. CS-241	1/15/54
24 sheets - Form 24a - Lists of Directions, Proj. CS-241	"
3 sheets - Form 28b - List of Geo. Pos., Proj. CS-241	"
2 alum. sheets - Graphic Control Survey, C-53, D-53, E-53	1/20/54
2 copies - Descriptive Report - Graphic Control Sheet C-53	"
2 copies - " " " " " D-53	"
2 copies - " " " " " E-53	"
2 copies - Airphotographic Field Insp. Report - 1953	"
4 ea. - Topo. Manuscripts, T-5591-S, T-5592, T-5590-N, T-5590-S	"
28 ea. - Photographs: 1008 thru 1016, 1029, 1030, 1035, 1036, 1037, 1043, 1044, 1045, 1062, 1063, 1064, 1065, 1073, 1074, 1104, 1105, 1106, 1107, 1108	"
2 ea. - Film positives: Topo. Survey No. T-2230	"
2 ea. - Bromoils: Topo. Surveys, 2230 & 1955	"
4 ea. - " Photo. " , T-5592, T-5590-S, T-5590-N, T-5591-S	"
3 ea. - Pricking cards	1/21/54

Following is a list of records now on hand that will be transferred to the Seattle Processing Office in the near future:

1 ea. - Boat Sheet, Survey No. 8087 (Field No. LJ-05253)
14 vols. - Sounding Records, " " " " "
17 ea. - Fathograms " " " " "
1 cahier - Tidal Data, curves and reducers - Friday Harbor

A list of hydrographic signals used is attached to page 1, Vol. 1 of the sounding records and is also attached to this report.

Respectfully submitted,

Charles A. Schoene
Charles A. Schoene,
Commander, USC&GS

Approved and Forwarded:

Curtis Le Fever
Curtis Le Fever,
Commander, USC&GS
Comdg., Ship LESTER JONES

LIST OF SIGNALS ON LJ-05253

TRIANGULATION STATIONS

BAKER (BAKER, 1953)
BERRY (BERRY, 1894, 1940)
BRO (BROWN, 1940)
BRUIN (BRUIN, 1894, 1940)
CAUT (CAUTION, 1940)
DAY (FRIDAY, 1894, 1940)
LAST (LAST, 1894, 1940)
MAT (MAT, 1894, 1940)
PICK (PICKLE, 1894, 1940)
RON (STRONG, 1894, 1940)
SLO (SLOPE₂, 1940)
SWIFT (SWIFT, 1894, 1940)
TURN (TURN₂, 1940)
ROCK (TURN ROCK LIGHT, 1940)
WAR (WARBASS, 1894, 1940)

HYDROGRAPHIC SIGNALS

BAG
COD
DIM
ICE
OIL
PUP
SUB
TOM
TRY
VEX

TOPOGRAPHIC STATIONS

<u>Sheet D-53</u>			<u>SHEET E-53</u>
ACE	KID	WED	BOB
BAT	LEO	YAM	CAT
BUM	LOG	ZAG	DOG
COP	MID	ZOO	ELF
CUT	NUL		FEZ
DOC	OAK		GIN
DUD	PAW		HOE
EAR	PIE		IVY
EIM	QUO		OWL
FEW	RAG		
FIX	REV		
FOX	RUB		
GAS	SAD		
GUS	SOX		
HID	SUE		
IDA	TAP		
JAP	TOY		
JOE	USE		
KEN	VET		

THEODOLITE CUTS

ABE	MUM
ADD	NIP
EGG	NOR
FAT	ODD
GAL	PEP
HEM	PIN
JOY	RAT
KEY	SKI
LEG	TUB

H 8087
LJ 05253

Friday Harbor.

Processing Office Notes.

Smooth sheet.

The projection ⁽¹⁸⁹⁵⁾ was made by hand on Whatman ⁽¹⁹⁵³⁾ paper. Topography is from photogrammetric sheet T 5591 and planetable sheet T 2230. Corrections to both these sources have been transferred in pencil from graphic control sheets LJ-D-53 and LJ-E-53 and indicated with notes and leaders. } *Review, par. 1.*

Details of soundings along wharves have been shown in inserts on scale of 1/ 1 000. These wharves and floats were drawn on a large scale on pieces of tracing paper by the field party. The field party also recorded positions at corners of wharves, etc. However, in plotting these positions it was noted that they did not always check with the topography. In some cases they plot inshore. Some slight reconciliation of the topography may be desirable. The sketches of the field party on tracing paper are attached to this report. *(Utilized & subsequently filed w/ fgms.)*

Triangulation data was taken from pages 695, 6, 707, 8 of the adjusted triangulation for Washington and from the field computations of Ulm 1953.

Topographic signals are from graphic control sheets LJ-D-53 and LJ-E-53.

Paragraph K Page 3 of this report.

Crossings on smooth sheet satisfactory in this area. ✓

The 34 fm. sounding does not seem unreasonable on the smooth sheet. *Review, par. 4.*

The depth curves at the east entrance to Friday Harbor, north side, are consistent on the smooth sheet. ✓

Paragraph M Page 4.

Item b. See the -0.4 fm. sounding at ϕ 48-31-55 *Review, par. 5 A.(4)*
 λ 122-58-29.

Add to Par.M the following items.

- | | |
|--|--|
| f) 1 Fm. S. of Turn I. ϕ 48-31-52 λ 122-58-10. | } <i>pres. depths
supersede
prior depths</i> |
| g) 1.9 Fm. " " ϕ 48-31-49 λ 122-58-11. | |
| h) 0 Fm. SE side Brown I. ϕ 48-32-04 λ 122-59-51. | |

Inked tracings 1, 2, 3, 4 & 5 attached.

These are minor variations, or clarifications, of topography noted by the plotter. *Utilized & then filed w/ fgms.*

Edgar E. Smith

6/30/54

Edgar E. Smith


H-8087
LJ 05253

Friday Harbor, Washington

Processing Office Notes

Smooth Sheet

It is noted from the record books that soundings were made with a lead line along the faces of the docks in Friday Harbor. These soundings are shown upon the boat sheet slightly offset from the dock faces, they are so shown upon the smooth sheet.. This practice seems to agree with page 728 of the hydrographic manual, and has been in common practice in this office.


Glenn W. Moore
OIC Seattle Processing Office
12 July 1954

TIDE NOTE

HYDROGRAPHIC SURVEY NO. H-8087 (FIELD NO. LJ-05253)

The standard tide gage at Friday Harbor was used for the reduction of all soundings on this survey. The gage is located on the Cantilever Pier of the University of Washington Oceanographic Laboratory (latitude $48^{\circ} 32'.8$, longitude $123^{\circ} 00'.4$).

4.65 feet corresponds to MLLW on tide staff as determined from levels run 24 November 1953. No corrections in time or height were applied to the observed tides. The Washington Office furnished hourly heights for the entire survey.

During the period 23-26 October some of the actual tides were missed because the gage was not operating properly. The Washington Office furnished the necessary reducers for this period also.

STATISTICS

HYDROGRAPHIC SURVEY H-8087 (FIELD NO. LJ-05253)

<u>DATE</u>	<u>VOL. NO.</u>	<u>DAY LETTER</u>	<u>NUMBER OF POSITIONS</u>	<u>STAT. MILES SOUNDINGS</u>	<u>LEADLINE SOUNDINGS</u>
<u>LAUNCH NUMBER #92</u>					
10/25/53	1	a	109	4.7	2
10/26/53	1	b	62	5.7	-
10/27/53	1&2	c	217	17.1	-
10/29/53	2&3	d	203	19.7	1
11/6/53	3&4	e	217	27.6	1
11/7/53	4&5	f	163	14.2	-
11/8/53	5&6	g	152	13.3	27
11/9/53	6	h	170	13.7	10
11/10/53	6&7	j	108	12.8	1
11/11/53	7	k	136	12.7	-
11/12/53	8	l	113	11.1	4
11/18/53	8&9	m	195	17.5	7
11/19/53	9	n	114	8.7	3
11/20/53	10	p	185	11.0	14
11/21/53	10	q	83	5.5	3
11/22/53	11	r	86	5.2	8
11/23/53	11	s	167	13.4	19
11/24/53	12	t	58	0.9	40
TOTALS			2538	214.8	140
<u>SKIFF</u>					
10/26/53	13	a	32		20
10/29/53	13	b	22		17
11/23/53	13	c	26		26
TOTALS			80		63
<u>DOCK SOUNDINGS</u>					
11/21/53	14	a	13		66
11/22/53	14	b	53		115
11/23/53	14	c	34		89
TOTALS			100		270
GRAND TOTALS			2718	214.8	473

TOTAL AREA OF SURVEY IS 6.8 SQUARE STATUTE MILES.

GEOGRAPHIC NAMES

Survey No. H-8087

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	
<u>Washington</u>			(for title)					BNY	1
<u>San Juan Islands</u>									2
<u>San Juan Island</u>									3
<u>San Juan Channel</u>									4
<u>Friday Harbor</u>			(water)						5
<u>Brown Island</u>									6
<u>Reid Rock</u>									7
<u>Shaw Island</u>									8
<u>Hicks Bay</u>									9
<u>Hoffman Cove</u>									10
<u>Turn Rock</u>									11
<u>Turn Island</u>									12
<u>Reef Point</u>									13
									14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25
									26
									27

Names approved

9-23-54

L. Heck

(see chart 6379 for
best placement of names)

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. .H-8087..

Records accompanying survey:

Post sheets ...1...; sounding vols. .14...; wire drag vols.;
bomb vols.; graphic recorder rolls .4 Env.

special reports, etc. 1 Smooth Sheet; 1 Descriptive Report; 1 Cover Sheet
San Juan Islands Friday Harbor;

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

Number of positions on sheet	.....	2718
Number of positions checked	.....	278
Number of positions revised	.....	12
Number of soundings revised (refers to depth only)	.....	134
Number of soundings erroneously spaced	.....	170
Number of signals erroneously plotted or transferred	.....
Topographic details	Time	80
Junctions H-8084 unverified (1953)	Time	16
Verification of soundings from graphic record	Time	344

Verification by.....*Chester F. Kypiec*.....Total time 460..... Date 26 July 1955

Reviewed by.....*J. A. Dinsmore*.....Time 48..... Date 29 Nov. 1955

839
6FU

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography:~~

25 August 1954

Division of Charts: R. H. Carstens

Plane of reference approved in
14 volumes of sounding records for

HYDROGRAPHIC SHEET 8087

Locality San Juan Islands, Washington

Chief of Party: K. S. Ulm in 1953
Plane of reference is mean lower low water, reading
3.6 ft. on tide staff at Friday Harbor
18.7 ft. below B. M. 2 (1932)

Height of mean high water above plane of reference is 7.0 feet.

Condition of records satisfactory except as noted below:

E. C. McKay
Tides Branch

Chief, Division of Tides and Currents.

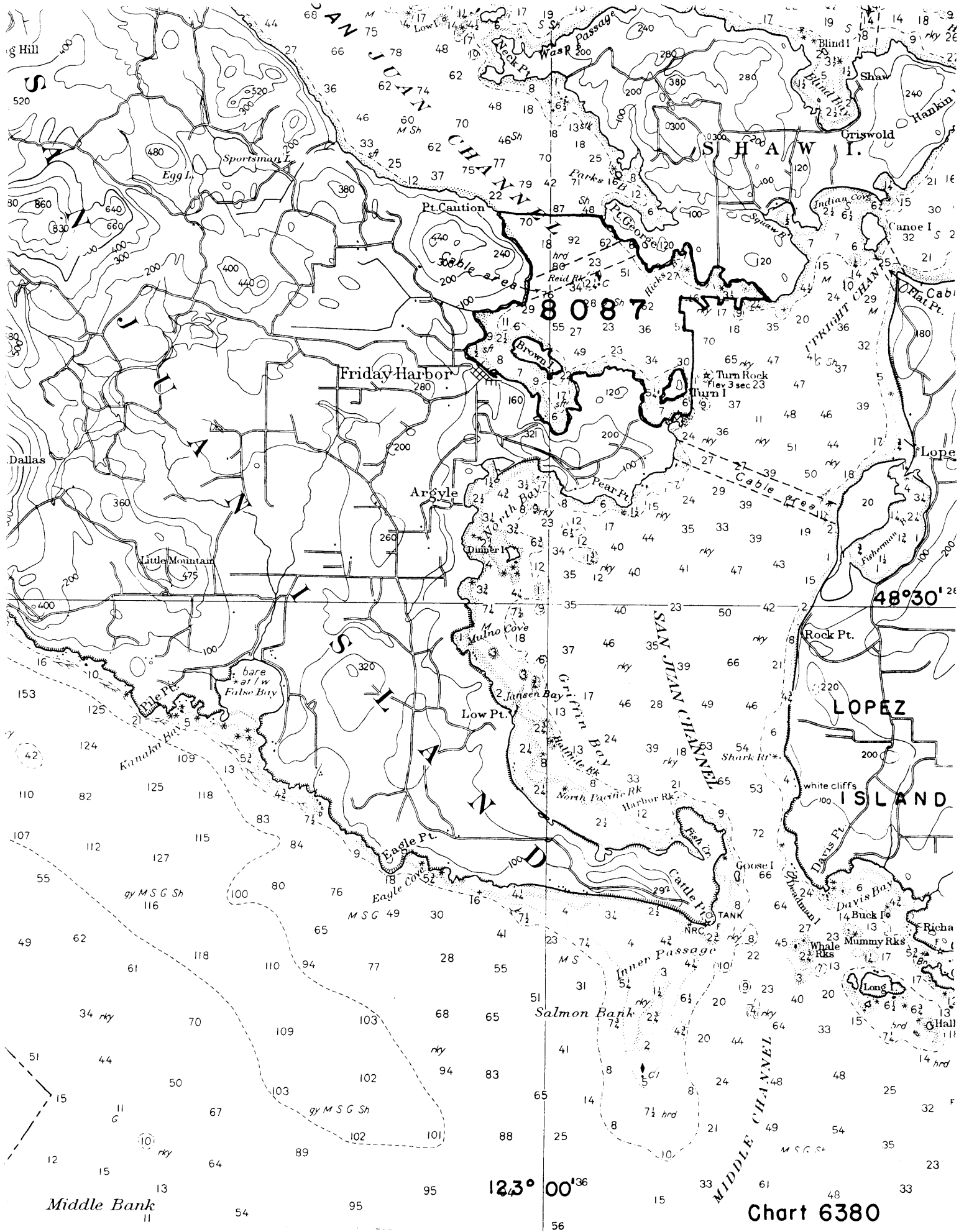


Chart 6380

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. D-53

REGISTER NO.

State WASHINGTON

General Locality SAN JUAN ISLAND

Locality FRIDAY HARBOR & SAN JUAN CHANNEL

Scale 1:5,000 Date of survey November, December, 1953

Vessel Ship LESTER JONES

Chief of party Kenneth S. Uln

Surveyed by Jack E. Guth

Inked by Jack E. Guth

Heights in feet above _____ to ground to tops of trees

Contour, Approximate contour, Form line interval _____ feet

Instructions dated _____, 19____

Remarks: _____

*no recoverable
sta. cards*

DESCRIPTIVE REPORT
TO ACCOMPANY
TOPOGRAPHIC SHEET D-53
USC&GSS LESTER JONES

Kenneth S. Ulm, Commander, C&GS
Chief of Party

AUTHORITY:

Authority for this survey was the Director's Instructions, Project CS-241, to the Commanding Officer, Ship LESTER JONES, 11 March 1953 and Supplemental Instructions, 8 May 1953. ✓

LIMITS:

The sheet extends between Longitudes $122^{\circ} 58' 45''$ and $123^{\circ} 01' 15''$, and Latitudes $48^{\circ} 31' 30''$ and $48^{\circ} 33' 35''$. ✓

CONTROL:

The control for this survey was furnished by second order triangulation executed by J.J.G. in 1889, 1894, 1897, and L.C.W. in 1940. ✓

SURVEYING METHODS:

Signals were located by intersections or traverse. Standard practice was followed throughout the sheet. ✓

Signal location was given priority and only that shoreline which could be rodded in without additional planetable set-ups was located.

Offshore rocks were located by rod readings.

COMPARISON WITH PREVIOUS SURVEYS:

Shoreline obtained on this sheet was compared with shoreline on topographic sheet No. T-2230, dated 1895 and no appreciable discrepancies were noted. ✓

(2)

GENERAL DESCRIPTION OF THE COAST:

In general there are no steep bluffs or cliffs which makes landings and ascent impossible.

The shore on Shaw Island is mostly of bed rock but gradual enough for landing and ascent. Landing in this area during rough seas is not desirable.

The shore on San Juan Island north of triangulation station BERRY is mostly of bed rock with some steep wooded stretches, but the entire shore is gradual enough to make landing and ascent possible. The shore just west of signal RAG, for about 0.2 miles is a gradual sand and gravel beach with a ten foot dirt bank just inshore from high water. The shore south of signal RAG to south of signal EAR is steep and wooded except for the waterfront at the town of Friday Harbor, which is built up of docks and piers. At triangulation station WARBASS there is a rock outcrop, but the cove to the west is a sloping grassy beach and excellent harbor for very small boats, and the beach to the south is sloping sand and gravel with a ten foot dirt bank just inshore of high water. The shore west of signal DOC to west of signal BUM is a gentle sloping sand beach, in the center of which is the Friday Harbor Shipyard. From signal BUM all around to signal TUB the shore is steep and wooded with some rock outcroppings.

The east shore of Brown Island is mostly steep and wooded with rock outcroppings, and the west shore is mostly gradual sloping sand and gravel beaches with some rock outcroppings.

GRAPHIC NAMES:

The geographic names that appear on Chart No. 6379 are adequate.

STATISTICS:

Number of hydrographic signals located	53
Statute miles of shoreline	0.7

Respectfully submitted,

Jack E. Guth
Jack E. Guth,
Ensign, C&GS

Approved and Forwarded,

Kenneth S. Ulm
Kenneth S. Ulm,
Commander, C&GS
Comdg., Ship LESTER JONES

*G.C. sheet to be destroyed as all
useful information has been
transferred to hydrographic survey
H-8087 (1953)*

V.A. Dinmore
29 Nov. 1955

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. E-53

REGISTER NO.

State WASHINGTON

General Locality SAN JUAN ISLAND

Locality SAN JUAN CHANNEL

Scale 1:5,000 Date of survey November, December, 19 53

Vessel Ship LESTER JONES

Chief of party Kenneth S. Ulm

Surveyed by Jack E. Guth

Inked by Jack E. Guth

Heights in feet above _____ to ground to tops of trees

Contour, Approximate contour, Form line interval _____ feet

Instructions dated _____, 19____

Remarks: _____

*No recoverable
sta. cards*

DESCRIPTIVE REPORT
TO ACCOMPANY
TOPOGRAPHIC SHEET E-53
USC&GSS LESTER JONES

Kenneth S. Ulm, Commander, C&GS
Chief of Party

AUTHORITY:

Authority for this survey was the Director's Instructions, Project CS-241, to the Commanding Officer, Ship LESTER JONES, 11 March 1953 and Supplemental Instructions, 8 May 1953. ✓

LIMITS:

The sheet extends between Longitudes $122^{\circ} 56' 45''$ W and $122^{\circ} 59' 15''$ W and Latitudes $48^{\circ} 31' 30''$ N and $48^{\circ} 33' 35''$ N. ✓

CONTROL:

The control for this survey was furnished by second order triangulation executed by J.J.G. in 1889, 1894, 1897, and L.C.W. in 1940. The triangulation station BAKER 1953 was established and used in control for this sheet. ✓

SURVEYING METHODS:

Signals were located by intersections or traverse. Standard practice was followed throughout the sheet. ✓

Signal location was given priority and only that shoreline which could be rodded in without additional planetable set-ups was located. ✓

Offshore rocks were located by rod readings.

COMPARISON WITH PREVIOUS SURVEYS:

Shoreline obtained on this survey was compared with shoreline on topographic sheet No. T-2230, date 1895. A slight discrepancy was noted in the vicinity of hydro signal DOG. No other discrepancies were noted. ✓

(2)

GENERAL DESCRIPTION OF THE COAST:

In general the shore is a gradual sloping beach of sand and gravel with outcropping rock points. The area is well sheltered from seas, and beach landings are made very easily. At signal HOE and a distance of a quarter of a mile either side there is a ten foot high vertical, dirt bank just inshore from high water line. All other areas are wooded just behind the beach except for the narrow sand spit, 100 meters southwest of signal GIN, which is covered at high water and connects the small island to the mainland. ✓

GRAPHIC NAMES:

The geographic names that appear on Chart No. 6379 are adequate. ✓

STATISTICS:

Number of hydrographic signals located 13 ✓
Statute miles of shoreline 0.3

Respectfully submitted,

Jack E. Guth
Jack E. Guth,
Ensign, C&GS

Approved and Forwarded,

Kenneth S. Ulm
Kenneth S. Ulm,
Commander, C&GS
Comdg., Ship LESTER JONES

*G.C. sheet to be destroyed as all
useful information has been
transferred to hydro. survey H-8087 (1953)*

V.A. Dismore
29 Nov. 1955

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8087

FIELD NO. LJ-05253

Washington, San Juan Islands, Friday Harbor

Project No. CS-241

Surveyed - Aug.-November, 1953

Scale 1:5,000

Soundings:

Control:

808 Fathometer
Hand lead

Sextant fixes on
shore signals

Chief of Party - K. S. Ulm
Surveyed by - K. S. Ulm, C. A. Schoene and J. E. Guth
Protracted by - C. E. Pedersen
Soundings plotted by - C. E. Pedersen
Verified and inked by - C. F. Kupiec
Reviewed by - T. A. Dinsmore 29 November 1955
Inspected by - R. H. Carstens

1.. Shoreline and Signals

The shoreline on the smooth sheet originates with the following sources:

- (a) East of $122^{\circ}59'45''$ from T-2230 (1895)
- (b) West of $122^{\circ}59'45''$ from T-5591 (1953)
- (c) Sections of shoreline shown in red from graphic control sheets LJ-D and E-53 and present survey revisions as shown on the boat sheet. The graphic control sheets will be destroyed as all useful information has been transferred to the survey smooth sheet. The Descriptive Reports of the G. C. sheets are attached to the Descriptive Report of the present survey.

The origin of the signals is given in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in very good agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated.

The most conspicuous submarine feature in the area is Reid Rock which rises abruptly from depths of 10-20 fms. to within 2.4 fms. of the surface in lat. $48^{\circ}32.96'$, long. $122^{\circ}59.43'$. Other offlying ledges, shoals and mounds contribute to the general unevenness of the bottom. The shoreline is fringed by protruding ledge and numerous rocks uncovering at M. L. L. W.

4. Junctions with Contemporary Surveys

The junction with H-8087 (1953) on the east will be considered in the review of that survey. Project surveys on the north have not yet been received in this office. However, charted depths at the north limits are in harmony with depths on the present survey.

5. Comparison with Prior Surveys

a. H-333 (1852), 1:214,240

This early small-scale reconnaissance survey may be disregarded as lacking sufficient reliable information for a comparison of any value.

b. H-2213 (1894) and H-2642 (1903), 1:10,000

These prior surveys taken together cover the area of the present survey. A comparison of the prior and present depths reveals no changes in bottom. However, some differences in depths are apparent. These are attributed mainly to the unevenness of the bottom and the more complete development of the area generally, on the present survey.

The following discrepancies are noted:

(1) The 18-fm. sounding charted in lat. $48^{\circ}33.29'$, long. $123^{\circ}00.02'$, from H-2213 should be disregarded. Falling in present depths of 30 fms., the prior sounding is considered to be out of position and should actually fall on the slope about 50 meters westward where comparable depths occur on the present survey.

(2) The 27-fm. sounding charted in lat. $48^{\circ}32.50'$, long. $123^{\circ}59.65'$, from H-2213 should be disregarded. Falling in 52-fm. depths on the present survey, the prior sounding was found to be misplotted on H-2213. In its corrected position about 200 meters northeastward, the prior 27-fm. sounding falls in comparable depths on the present survey. The 52-fm. sounding charted in lat. $48^{\circ}32.46'$, long. $123^{\circ}59.77'$, was

also misplotted on H-2213 and has been replotted 160 meters northeastward where it is now in agreement with present depths.

(3) The $25\frac{1}{2}$ -fm. sounding (uncharted) in lat. $48^{\circ}31.95'$, long. $123^{\circ}59.80'$, on H-2213 should be disregarded. Falling in depths of 19-20 fms. on both the prior and present surveys, the prior sounding is probably 5 fms. in error.

(4) The rock awash charted in lat. $48^{\circ}31.90'$, long. $123^{\circ}58.46'$, originates with a zero sounding on H-2642. Comparable depths were obtained on the present survey. The rock awash symbol should be deleted from the chart and a low-water spit substituted from the present survey. The bare rock charted about 35 meters southeastward from H-2642 should be revised to a rock awash uncovering 7 ft. at M. L. L. W. according to the present survey information.

The hydrographer states in the Descriptive Report (page 4, par. N. (d) that: "Due to the presence of heavy kelp at the time of development of Reid Rock, there was no assurance that the least depth was obtained." The $14\frac{1}{2}$ -ft. (2.4 fms.) sounding has therefore been retained from H-2213. Several bottom characteristics were also carried forward from the prior surveys.

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

6. Comparison with Chart 6379 (latest print date 5/23/55)

A. Hydrography

Charted hydrography originates principally with the previously discussed surveys which need no further consideration. Certain critical information from the present survey has been applied to the chart, prior to verification and review.

The low-water spot charted in lat. $48^{\circ}31.71'$, long. $122^{\circ}58.50'$, from the present survey before verification and review should be disregarded. The fathograms were apparently read at the top of grass. Subsequent revisions during verification resulted in present smooth-sheet depths of about 1 fm.

The rock awash charted in lat. $48^{\circ}31.81'$, long. $122^{\circ}58.63'$, from the present survey prior to verification and review should be disregarded. Originating with a minus 0.2-fm. sounding accompanied by a "rky" bottom characteristic, the fathograms has been rescanned during review resulting in a least depth of 0.5 fm. in the above locality.

The present survey entirely supersedes the charted information.

B. Aids to Navigation

The buoy charted in lat. $48^{\circ}32.30'$, long. $122^{\circ}59.18'$, was located about 60 meters southeastward on the present survey. The charted position more adequately marks the reef and shoal extending offshore.

The buoy charted in lat. $48^{\circ}32.95'$, long. $122^{\circ}59.29'$, marking Reid Rock was located about 115 meters westward on the present survey. The survey position more accurately marks Reid Rock.

Except as noted, the aids to navigation located on the present survey are in substantial agreement with the charted aids and adequately mark the features intended.

7. Condition of Survey

(a) The sounding records are complete except for the fathogram for "e" day, November 6, 1953, which was accidentally lost overboard before it could be rescanned. However, no critical soundings or discrepancies appeared in the recorded soundings for this day's work. The Descriptive Report covers all matters of importance.

(b) The smooth plotting was adequately done.

(c) The symbolization of rocks, reefs and ledges by the field party on the boat sheet caused considerable extra work and time in both the processing and verification of the smooth sheet. Ledge limits and high points of rocks within ledge and reef limits shown on the early topographic survey, T-2230 (1895), the source of the shoreline over most of the present survey, are incorrectly symbolized on the boat sheet by bare rock symbols. Although many of the rocks were subsequently re-located on the present survey as rocks awash, the erroneous symbolization of the rocks from the early topographic survey was not removed from or crossed out on the boat sheet, which in effect left a double entry on the boat sheet for a single rock. In general there is not sufficient information recorded in the sounding volumes to readily identify the rocks located by the present survey as being identical with those shown on the early topographic survey, and as a result the smooth plotter carried forward onto the smooth sheet, this double entry of rocks as shown on the boat sheet. It remained for the verifier to evaluate the rock information and to delete from the smooth sheet, the erroneous symbolization of rock information originating with the early topographic survey.

(d) Grass over some of the shoals recorded as a very heavy trace on the fathom scale and concealed the trace of the bottom. Had soundings been obtained on the foot scale in the search for

least depths on the shoals, possibly a more legible record would have been obtained.


8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.


9. Additional Field Work

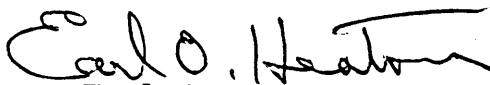
This is an excellent basic survey and no additional field work is required. ✓

Examined and Approved:


H. R. Edmonston
Chief, Nautical Chart Branch .


E. R. McCarthy
Chief, Chart Division


J. C. Bull
Chief, Hydrography Branch


Earl O. Heaton
Chief, Division of Coastal Surveys

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8087

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
	6379	E. S. Yearley	Partially Applied to CP 9-27-54 (RND) Before After Verification and Review
4-15-55	6380	R. K. De Landis	Partially applied Before After Verification and Review <i>there</i>
			Chart 6379
9-12-55	6300	R. K. De Landis	Completely applied Before After Verification and Review <i>there</i> <i>before</i>
			Chart 6380 Before After Verification and Review
4/4/57	6379	S. M. Gann	Before After Verification and Review <i>5700</i> Completely applied.
4/5/57	6380	S. M. Gann	Before After Verification and Review <i>970</i> Completely applied.
			Before After Verification and Review <i>completely appd</i>
8-7-57	6300	<i>E. M. Prognje</i>	<i>then chart 6380</i>
3-20-80	NEW CHART 18434	P. SHUMAR	FULLY APPLIED Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review

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.