

# 8101

## WIRE DRAG

Diag. Cht. Nos. 8002-2 & 8102-3

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

### DESCRIPTIVE REPORT

Type of Survey Wire Drag

Field No. HO-0153 W.D. Office No. H-8101 W.D.

#### LOCALITY

State Southeast Alaska

General locality Revillagigedo Island

Locality Ward Cove

194 53

CHIEF OF PARTY

F. R. Gossett

LIBRARY & ARCHIVES

DATE March 22, 1954

B-1870-1 (1)

8101  
WIRE DRAG

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. ....

Field No. HQ-0153 W.D.,  
Special Wire Drag Survey

*Southeast*  
State *A* Alaska .....

General locality ~~S. E. Alaska~~ *Revillagigedo Island* .....

Locality *Ward Cove* .....

Scale *1:5,000* ..... Date of survey *14-24 Apr. 1953* .....

Instructions dated *23 March 1953* .....

Vessel *U.S.C. & G.S. S. HODGSON* .....

Chief of party *F. R. Gossett* .....

Surveyed by *F. R. Gossett and E. F. Hicks, Jr.* .....

Soundings taken by fathometer, ~~graphic recorder~~ <sup>and</sup> hand lead, ~~wire~~ .....

Fathograms scaled by *E. F. Hicks, Jr.* .....

Fathograms checked by *R. C. Munson* .....

Protracted by *R. C. Munson and E. F. Hicks, Jr.* .....

Soundings penciled by *R. C. Munson and E. F. Hicks, Jr.* .....

*Supplemental*  
Soundings in ~~fathoms~~ feet at ~~XXXX~~ MLLW *and are based on a velocity of sound of 800 fms/sec. \**

REMARKS: *Wire drag smooth sheet, accompanied by Area and Depth overlay* .....

*and supplemental hydrographic overlay.* .....

*\* Soundings on the wire-drag survey were obtained* .....

*by hand-lead and are at MLLW datum.* .....

*782*

DESCRIPTIVE REPORT

to accompany

SPECIAL WIRE DRAG SURVEY

WARD COVE, ALASKA

SURVEY WD ; FIELD NUMBER HO-0153

APRIL 1953

SCALE: 1:5,000

SHIP HODGSON

CHIEF OF PARTY: F. R. GOSSETT

SURVEYED BY: F. R. GOSSETT AND E. F. HICKS, JR.

A. PROJECT. - Instructions 22-sro, S-1-HO dated 23 March 1953 for Special ,  
Wire Drag Survey, Ward Cove, Alaska. (No project number).

B. SURVEY LIMITS AND DATES. - Wire drag survey covers the approaches to new  
wharf of Ketchikan Pulp Company on the northwest shore of Ward Cove to junctions  
with prior wire-drag survey H-3688 northward of Lat. 55° 23' 18".

A small amount of hydrography was done in the vicinity of the new pier to  
correct H-7869 for changes caused by construction. Changes in topography near  
the pier are shown on topographic sheet "A". (*graphic control T-7092A(1953)*)

Field work began on 14 April 1953 and was completed on 24 April 1953.

There was a large amount of construction activity in Ward Cove during the  
period of the survey, including a dredge, pile driver, and numerous tugs and  
barges. The wire drag work had to be scheduled closely with the contractor to  
clear equipment and anchors from the survey area. There were some delays but  
the general attitude of Ward Cove Builders was one of excellent cooperation.

C. VESSEL AND EQUIPMENT. - Launch No. 134 (the HODGSON's starboard launch) -  
was used as Guide Launch. This plane personnel boat is an open 24' plywood  
speed boat type. It is not very well suited for wire-drag but operated satis-  
factorily on this small project. Plotting was in the open on a board over  
the engine cover. The launch was equipped with a TCS radio for communication  
with the End Launch. The usual towline was secured at the bow with a tended  
adjusting line aft to assist in steering.

The small (43 ft.) tug HYAK which was furnished by the Ward Cove Builders  
was used as end launch. Drag was towed from towing bit amidships aft. The  
drag was set out and picked up from the HYAK since it afforded more working  
space than the plane personnel boat.

Motor whaleboat NO. 169 was used to tend the drag, including setting up-  
rights, tests and obtaining positions and least depths at groundings.

The drag gear was assembled on short notice and from what odds and ends  
that could be collected from the various storerooms and ships in Seattle.

A home made hand reel was used. This proved to be the most unsatisfactory ,

item of equipment. Picking up the drag and especially the big weights with this equipment was difficult and time consuming operation.

A 10 foot metal rod suspended from a float by a calibrated leadline was used as a drag tester. The rod was coated with fresh white lead for each test.

The end buoys were an obsolete type made from oil drums. Intermediate buoys were standard types. One end buoy weight was about 185 lbs., the other about 160 lbs. Toggle buoys were standard. Standard 1/8 inch ground wire was used. Fittings were an assorted lot of various types, but worked satisfactorily.

Launch No. 134 was used for the small amount of supplemental hydrography. 808 fathometer No. 62 was installed in this launch with transducers laying in after bilges.

D. TIDE STATIONS. - Observations from the standard tide gage in Ketchikan were used in the reduction of all records.

E. SMOOTH SHEET. - Smooth sheet projection was made by hand by the Seattle Processing Office. Shoreline and signals were transferred, plotted and verified by the Seattle Processing Office. Wire drag survey including Area & Depth overlay was smooth plotted by Ens. R. C. Munson. Supplemental hydrography was smooth plotted on an overlay tracing by Cdr. E. F. Hicks, Jr.

F. CONTROL STATIONS. - Control consisted principally of triangulation stations located in 1951 by R. J. Sipe, III GTZ, G-9089 pages 898 and 899. Six marked stations and two intersection stations were recovered. All stations were recovered except CABLE which had apparently been destroyed by construction work. No new triangulation was established. Eighteen additional hydrographic signals were located by this party by planetable on aluminum mounted sheet using graphic control methods. (See Topo Sheet A - Ward Cove, Alaska, HODGSON 1953.)

G. SHORELINE AND TOPOGRAPHY. - The face of the new steel and concrete wharf of the Ketchikan Pulp Company and short sections of shoreline in the vicinity (where changes had been made due to construction) are shown on Topographic Sheet A, Ward Cove, Alaska, HODGSON 1953.

H. SOUNDINGS. - Depths at wire drag buoys and on groundings which are recorded in the tender record book are by handlead. Depths shown on supplemental hydrographic survey are by 808 fathometer No. 62. (See Section U).

I. CONTROL OF HYDROGRAPHY AND WIRE DRAG. - Hydrography and wire drag are controlled by 3-pt. sextant fixes. Dual control was used for wire drag. Time of all units was synchronized. During most of the survey there was voice radio communication between the Guide and End launches. Wherever practicable the angle to end buoy was observed from middle object used in same fix. Plus indicated clockwise angle from the signal used and minus indicated a counterclockwise angle.

J. ADEQUACY OF SURVEY. - The survey is adequate to extend wire drag coverage from junction with previous H-3688 WD in latitude 55° 24' to new pier on northwest shore of Wards Cove. Junctions are adequate and in accordance with the instructions.

L. COMPARISON WITH PRIOR SURVEYS. - The new survey is in general agreement with prior surveys except where construction work in the vicinity of the new wharf had changed the topography and filling changed depths. Most critical change affecting navigation is the area off the northern part of the wharf. There is a new shoal area extending from about 40 to 120 feet off the northern 120 foot section of the wharf. A least depth of 19 feet was obtained *by hand lead during wire drag* in this area where H-7869 shows 40 to 65 feet. The contractor stated that this shoal was caused by an earth slide while constructing fill for the wharf. Also, the fill behind almost the entire length of the wharf is such that the angle of repose of the broken rock and boulders encroaches on the 30 foot depth curve along most of the face of the wharf. Only 23 to 25 foot drags could be carried thru with the end buoy close to the face of the wharf. In general 30 ft. was cleared to within 5 to 15 feet of the face of the wharf except at the north end near the 19 foot shoal. *\* 18 ft. least depth obtained by supplemental hydrography (fathometer).*

M. COMPARISON WITH CHART. - Chart should be corrected to include changes shown on this survey caused by construction work. A print of plan of the development which was furnished this party by the Ketchikan Pulp Company, thru Ward Cove Builders will be forwarded to the Office along with topographic sheet "A". *(1953)* The two outer corners of the dock and the base of a large stack (under construction) are common points between the print and the topo sheet. The contractor cautioned that the plan is still under construction and that the plan furnished was subject to frequent changes. *# EL - 610 (1954)*

N. DANGERS AND SHOALS. - The new shoal off the northern part of wharf is the only new danger found. This shoal was caused by construction and is described in paragraph "L". A least depth of 19 feet in Lat. 55° 24' 26.8", Long. 131° 43' 21.5" was found *by wire drag* and cleared with a 16 foot drag.

The toe of the slope of fill of broken rock and large boulders behind the wharf occasionally extends above the 30 ft. curve next to the face of the wharf. Construction work was still in progress during the survey and other changes in depths may yet be caused by the construction and spilling of materials.

O. COAST PILOT INFORMATION. - (See Coast Pilot Notes - HODGSON 1953).

The Ketchikan Pulp Company has under construction (1953) a large pulp mill on the northwest shore of "ard Cove. There is a steel pile and concrete wharf with a face of 800 feet and with 24 to 30 feet of water alongside. Approaches to the wharf from the south have been cleared by wire drag to 30 feet or more. Near the southwest end of the wharf a slip and adjustable rail ramp is under construction for loading and unloading railroad cars from barges. The company also has a 485 foot wooden pier (said to be temporary) at the north end of the Cove.

A new shoal area, said to be caused by a slide of construction materials, is from about 40 to 120 feet off the northern 120 ft. section of the concrete wharf. Least depth of 19 feet was obtained on this new shoal in April 1953. *(see RP L above)*

P. AIDS TO NAVIGATION. - There is a temporary mooring buoy 212 yards 021° degrees from Ward Cove buoy No. 1.

Location of floating aids, determined by hydrographic methods:

NAME	LAT.	LONG.	HYD.POS.
Ward Cove Buoy No. 1	55° 24' 12.7"	131° 43' 19.8"	11g
Mooring Buoy (temp.)	55° 24' 18.7"	131° 43' 15.7"	10g

Q. LANDMARKS FOR CHARTS. - The Pulp Mill is still under construction. Only part of structural steel was erected at time of survey. Definite landmarks should be described after completion of construction. The foundation of the main stack is shown on topographic sheet. It is not known how conspicuous this stack will be. An elevated tank was also to be constructed on the hillside but location was still indefinite.

U. MISCELLANEOUS. - Additional notes by the hydrographer, Cdr. E. F. Hicks, Jr., are appended.

Z. TABULATION OF APPLICABLE RECORDS. -

Topographic Sheet A, Ward Cove, HODGSON- 1953.

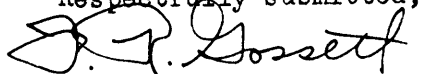
Print of plan of Pulp Mill (furnished by contractor).

Prints of bottom profiles in dock area (furnished by contractor).

NOTE: Records accompanying smooth sheet include, Supplemental Hydrography (overlay tracing), Area and Depth Sheet (tracing cloth), and strip tracings (by days or individual drag strips).

A preliminary report, and preliminary Area and Depth Sheet were forwarded on 9 Oct. 1953.

Respectfully submitted,



F. R. Gossett

CDR, USC&GS

Comdg., Ship HODGSON

# STATISTICS

## SPECIAL WIRE DRAG SURVEY, WARD COVE, ALASKA

### WIRE DRAG

DAY	DATE	POSITIONS				SDGS.	STA.MI.ALONG AXIS OF DRAG STRIP
		GUIDE	END	TENDER	TOTAL		
a	4/17/53	9	11	0	20	0	0.3
b	4/20/53	17	19	13	49	12	0.9
c	4/21/53	25	23	18	66	18	0.6
d	4/22/53	39	40	21	100	21	1.1
e	4/23/53	38	35	23	96	23	1.5
f	4/24/53	14	13	10	37	7	0.2
g	4/16/53			11	11	0	0.0
TOTALS		142	141	96	379	81	4.6

### HYDROGRAPHY

DAY	DATE	POS.	STA. MI.
a	4/24/53	81	2.2

NOTES BY-HYDROGRAPHER

(See Section U.)

In the construction of the wharf in Ward Cove there was considerable fill making the 1951 survey obsolete in that vicinity. Hydrography was done in this area and has been smooth plotted on an overlay of tracing paper in order that it may be transferred to Sheet H-7869 superseding that part of the 1951 survey.

The hydrography was executed with 808 fathometer No. 62, reeds calibrated for velocity of 800 fms. per second, launch No. 134 using sextant fixes on shore objects for horizontal control. The 808 transducers were placed in-board near the after part of the launch. They appear to be about six inches below the water line but with the bar at twelve feet a return was received at twelve feet and combined initial and draft correction of zero was used.

Phase comparisons were made as follows:

A	-	B	B	-	C
51.0		51.0	85.3		85.0
51.0		51.2	86.0		85.5
51.4		51.4	86.8		85.2
52.0		52.0	87.2		86.0
			88.0		86.2
			86.6		85.6
MEAN		51.4			

B Scale - Zero correction

C Scale - +1.0 ft. correction

There were several barges along the face of the wharf and at the northeast end which made it impractical to get complete coverage. There are attached to the records six sheets of tag line soundings taken by the contractor early in 1953. These soundings were reduced to MLLW using readings on tide staffs along the wharf. The contractor connected these staffs by spirit levels to an Alaska Road Commission bench mark. Also, the contractor made several simultaneous comparisons between one of these staffs and the Coast and Geodetic Survey staff at Ketchikan by means of telephone in order to make a water level connection. Correction was applied to the Ketchikan staff for distance of the zero below MLLW. The difference between the Alaska Road Commission mark and water level correction was said to be about 0.16 feet. None of the data for the reduction of soundings or correction of tide staffs is available but the information concerning this was furnished by Mr. H. F. Sanders who is Chief Engineer for the Ward Cove Builders. These soundings start at Bent No. 11 which is the southwest corner of the wharf or Topo Station JUT and extend out at right angle to the face of the wharf. The bents are ten feet apart and run to Bent No. 91 or Topo Station ABE.

The wharf was originally designed to be 900 feet long but changed to 800 feet by omitting 100 feet at the southwest end. The bent numbers were not changed hence the most southerly bent is No. 11.

In addition to the fathometer sounding a number of hand lead soundings were taken off the face of the wharf at all bents which were clear. These soundings are recorded in the sounding volume.

All soundings taken by this party were recorded in feet, reduced for tide,



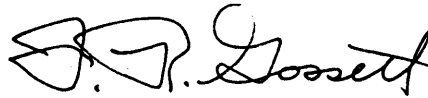
using hourly heights from Ketchikan furnished by the Office. -

*E. F. Hicks, Jr.*

E. F. Hicks, Jr.  
CDR, USC&GS

APPROVAL SHEET

Sheets and records of Special Wire Drag Survey, Ward Cove, Alaska,  
have been examined and are approved.



F. R. Gossett,  
CDR, USC&GS  
Comdg., Ship HODGSON

1/29/54

TIDE NOTE

Tide station used in reduction of all soundings and drag depths on this survey was the standard station at Ketchikan, Alaska.

Lat.  $55^{\circ} 20' 0''$  N

Long.  $131^{\circ} 37' 5''$  W

Hourly heights were furnished from the Washington Office.

# Hydrographic Surveys (Chart Division)

## HYDROGRAPHIC SURVEY NO. H-8101 Wire Drag

### Records accompanying survey:

Boat sheets ..3...; sounding vols. 1.....; wire drag vols. 2.....;  
bomb vols. ....; graphic recorder rolls .1 Env;  
special reports, etc. .1 Smooth Sheet; 1 Tender Vol.; 1 Descriptive Report;  
1 Env. Drag Strip Overlays; 1 Print of Plan of Pulp Mill; 6 Sheets Contractors  
bottom profiles; 1 Area & Depth Tracing; 1 Overlay Supplemental Hydrography;

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

Number of positions on sheet		WD - 150 hydro = 81
Number of positions checked		... 79
Number of positions revised		..... 5
Number of soundings revised (refers to depth only)		..... 2
Number of soundings erroneously spaced		..... 0
Number of signals erroneously plotted or transferred		..... 0
Topographic details	Time	..... 0
Junctions	Time	..... 4
Verification of soundings from graphic record	Time	..... 1

Verification by *John F. Skunk* ..... Total time 86 Date 12-7-55

Reviewed by *John F. Skunk* ..... Time 20 Date 12-14-55

# GEOGRAPHIC NAMES

Survey No. H-8101 Wire Drag

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	K
<u>Southeastern Alaska</u>									1
<u>Tongass Narrows</u>									2
<u>Ward Cove</u>									3
									4
									5
									6
									7
									8
									9
<u>Ketchikan</u>									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25
									26
									27

(recommend as General Locality in title)

Names approved  
3-26-54  
L. Heck

(tide station)

839

RHC

## TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Coastal Surveys~~

26 March 1954

Division of Charts: R. H. Carstens

Plane of reference approved in

4 volumes of ~~sounding records~~ for wire drag and sounding records for

HYDROGRAPHIC SHEET 8101

Locality Ward Cove, Alaska

Chief of Party: F. R. Gossett in 1953

Plane of reference is mean lower low water, reading

6.3 ft. on tide staff at Ketchikan

23.1 ft. below B. M. 24 (1921)

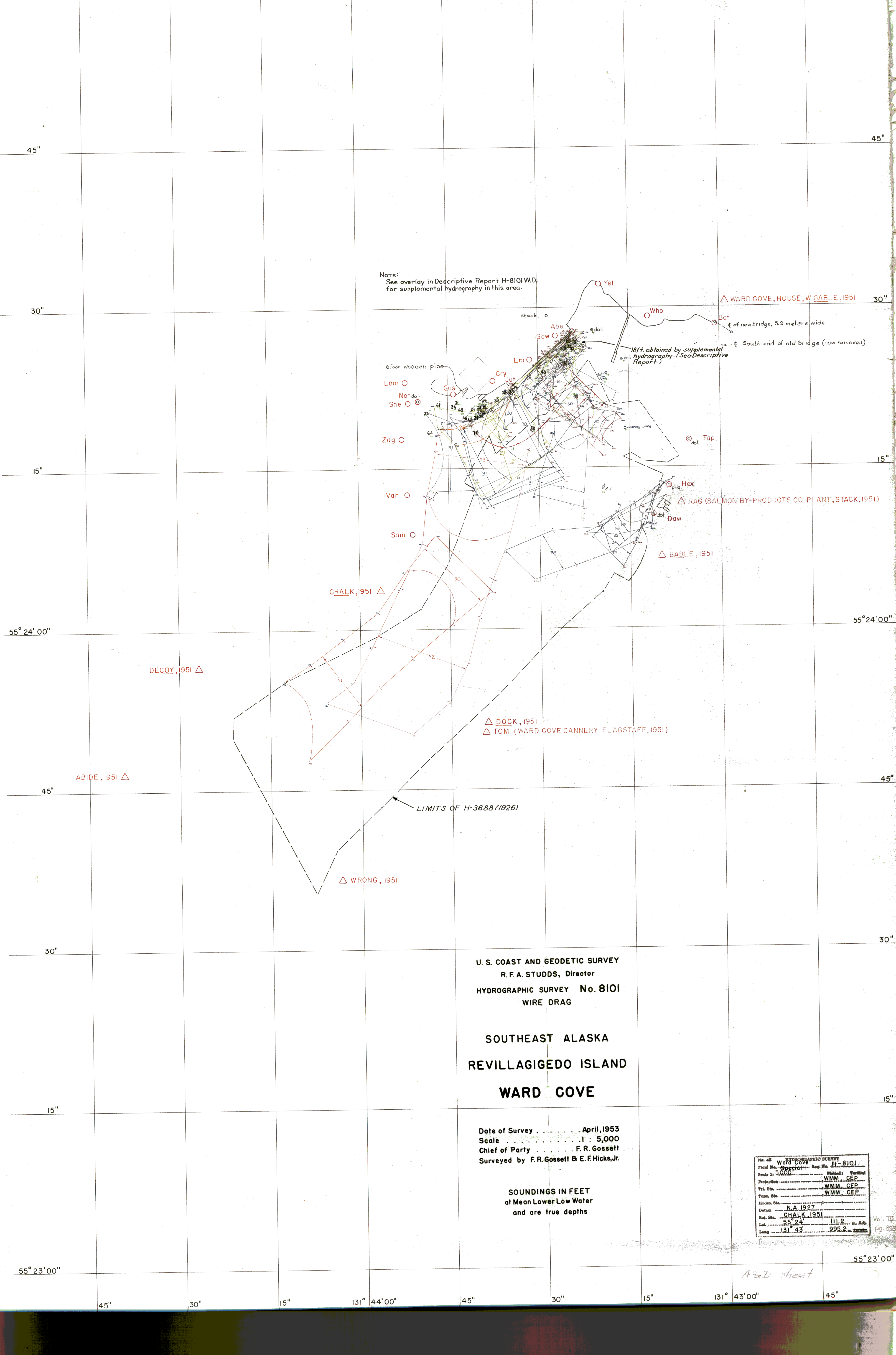
Height of mean high water above plane of reference is 14.5 feet.

Condition of records satisfactory except as noted below:

E.C. McKay

Section of Tides

Chief, Division of Tides and Currents.



NOTE:  
See overlay in Descriptive Report H-8101 W.D.  
for supplemental hydrography in this area.

△ WARD COVE, HOUSE, W. GABLE, 1951

△ of new bridge, 5.9 meters wide

△ South end of old bridge (now removed)

18ft. obtained by supplemental  
hydrography. (See Descriptive  
Report.)

6 foot wooden pipe

Lam O

Nor dol.

She O

Zag O

Van O

Sam O

CHALK, 1951 △

DECOY, 1951 △

ABIDE, 1951 △

△ DOCK, 1951  
△ TOM (WARD COVE CANNERY FLAGSTAFF, 1951)

△ WRONG, 1951

LIMITS OF H-3688 (1926)

U. S. COAST AND GEODETIC SURVEY  
R. F. A. STUDDS, Director  
HYDROGRAPHIC SURVEY No. 8101  
WIRE DRAG

SOUTHEAST ALASKA  
REVILLAGIGEDO ISLAND  
WARD COVE

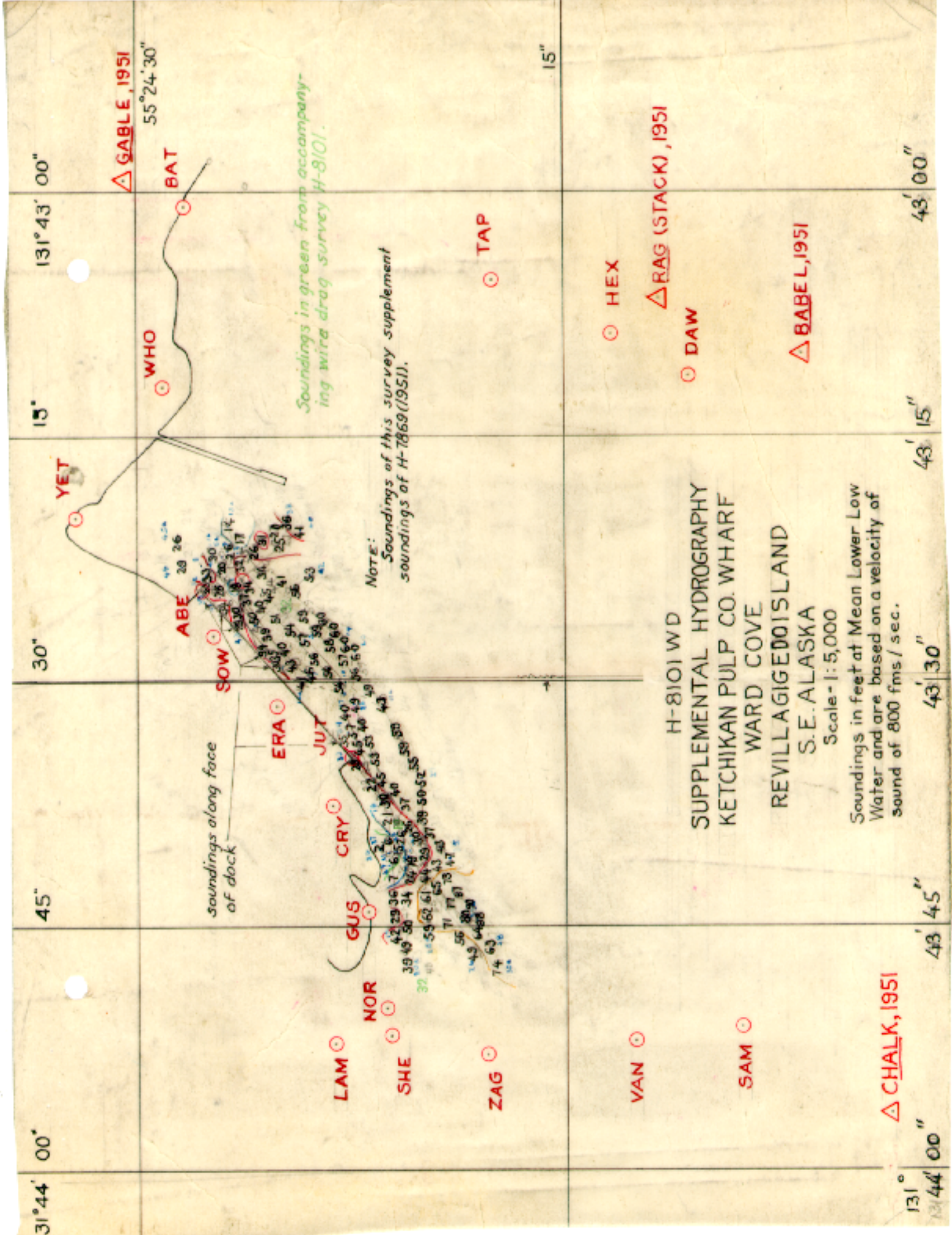
Date of Survey . . . . . April, 1953  
Scale . . . . . 1 : 5,000  
Chief of Party . . . . . F. R. Gossett  
Surveyed by F. R. Gossett & E. F. Hicks, Jr.

SOUNDINGS IN FEET  
at Mean Lower Low Water  
and are true depths

No. 43	WARD COVE	Rep. No. H-8101
Field No. Special	Scale 1:5,000	Projection WMM, CEP
Tri. Sta.	Topo. Sta.	Hydro. Sta.
Datum N.A. 1927	Ref. Sta. CHALK, 1951	Loc. 55° 24' 11.2"
Long 131° 43'		995.2 m. depth

ADD sheet





△ GABLE, 1951

55° 24' 30"

WHO

BAT

YET

ABE

SOW

ERA

JUT

CRY

GUS

NOR

SHE

ZAG

TAP

HEX

△ RAG (STACK), 1951

DAW

△ BABEL, 1951

H-8101 WD  
SUPPLEMENTAL HYDROGRAPHY  
KETCHIKAN PULP CO. WHARF  
WARD COVE  
REVILLAGIGEDO ISLAND  
S.E. ALASKA  
Scale - 1:5,000

Soundings in feet at Mean Lower Low  
Water and are based on a velocity of  
sound of 800 fms./sec.

△ CHALK, 1951

131° 44' 00"

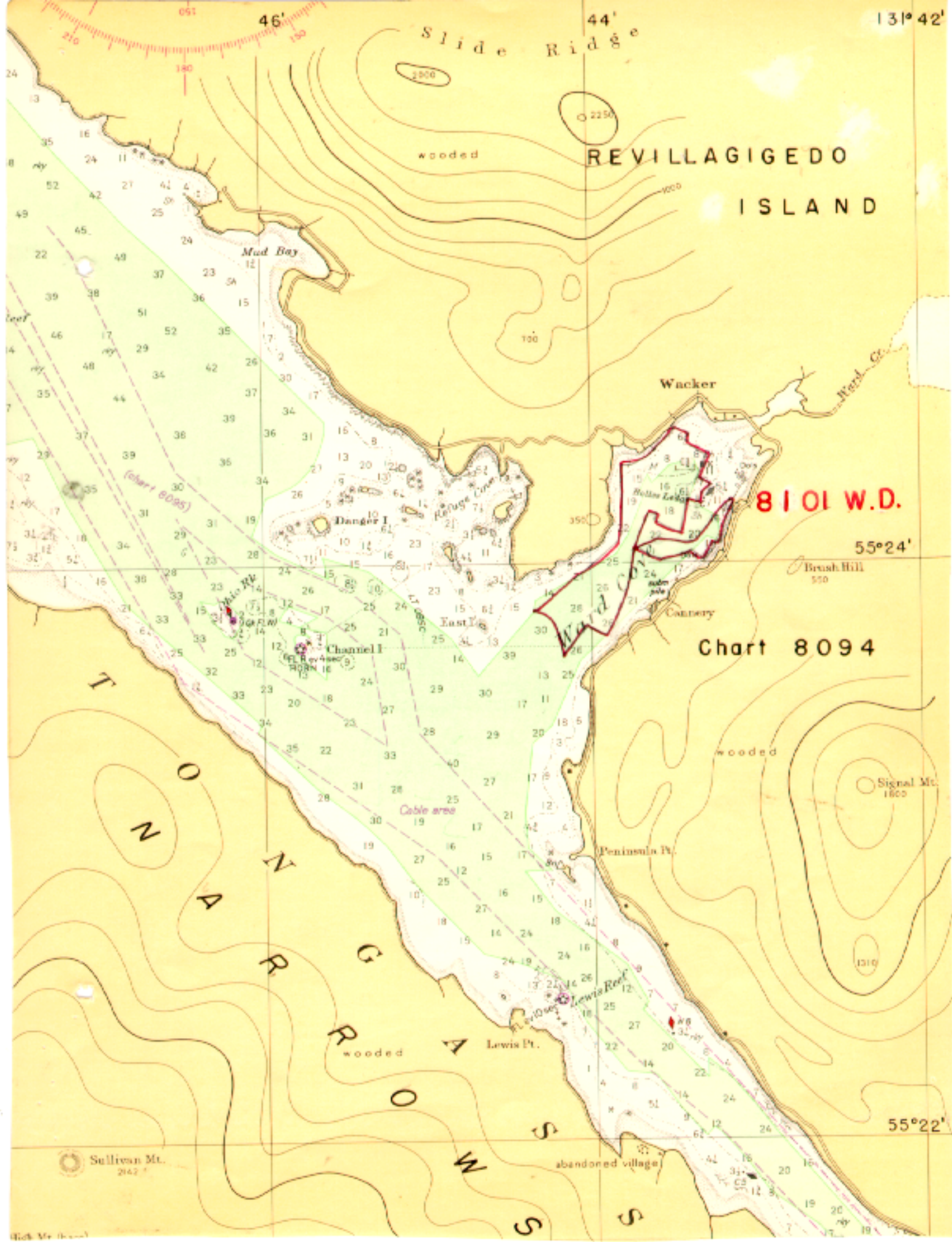
43' 45"

43' 30"

43' 15"

43' 00"





Slide Ridge

# REVILLAGIGEDO ISLAND

8101 W.D.

Chart 8094

Sullivan Mt.  
2142'

55° 22'

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8101WD

FIELD NO. HO-0153

Southeast Alaska, Revillagigedo Island, Ward Cove

Project No. Spec. Instr. 22-sro, S-1-HO, dated 23 March 1953

Surveyed - April, 1953

Scale 1:5,000

Soundings:

Control:

Lead line  
808 Fathometer

Sextant fixes on  
shore signals

Chief of Party - F. R. Gossett

Surveyed by - F. R. Gossett and E. F. Hicks, Jr.

Protracted by - R. C. Munson and E. F. Hicks, Jr.

Soundings plotted by - R. C. Munson and E. F. Hicks, Jr.

Verified and inked by - I. M. Zeskind

Reviewed by - I. M. Zeskind 12-14-55

Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline originates with planetable survey T-7092A (1953).

The source of the control is given in the Descriptive Report.

2. Junctions with Wire-Drag Surveys

An adequate junction was effected with H-3688WD (1914). The A and D diagrams of H-3688WD and H-8101WD have been combined and the greatest effective depths of the combined wire-drag surveys in the common area are shown on the A and D diagram of the present wire-drag survey.

3. Comparison with Hydrographic Surveys

A. H-1512a (1881), 1:4183	H-1621b (1882), 1:5,000
H-1512c (1881), 1:200,000	H-3220 (1910), 1:10,000
<u>H-1621a (1882), 1:20,000</u>	

The above surveys have been superseded by H-7369 (1951) within the common area and are not considered in this review.

- B. H-7869 (1951), 1:5,000  
H-8101 (1953), Supplemental Development, 1:5,000

Effective depths of the present wire-drag survey do not conflict with depths on H-7869 or with supplemental development of the present survey which is attached to the Descriptive Report. Depths on the present survey should supplement depths on H-7869.

4. Comparison with Chart 8094 (latest print date 9-1-52)  
Chartlet of Ward Cove (HON to M 32, 8-7-54)

A. Hydrography

There are no conflicts between the charted hydrography and the effective depths of the present wire-drag survey. Soundings obtained on the present survey should supplement charted depths.

B. Aids to Navigation

Black Can Buoy No. 1 is the only aid to navigation which falls within the area of the present survey. Its survey position is in substantial agreement with the charted position and adequately marks the feature intended. The can buoy was replaced by a spar buoy subsequent to the present survey as reported in H.O.N. to M. 21, 1955.

5. Condition of Survey

(a) The Descriptive Report and sounding records are complete and comprehensive.

(b) The survey was accurately and neatly smooth-plotted.


6. Project Instructions

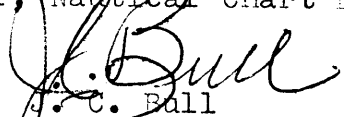
The survey covers the area specified in the Project Instructions.


7. Additional Field Work Recommended

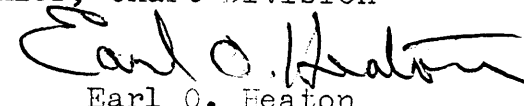
No additional field work is recommended.

Examined and Approved:

  
H. R. Edmonston  
Chief, Nautical Chart Branch

  
J. C. Ball  
Chief, Hydrography Branch

  
E. R. McCarthy  
Chief, Chart Division

  
Earl O. Heaton  
Chief, Division of Coastal Surveys

# NAUTICAL CHARTS BRANCH

SURVEY NO. H-8101 Wire Drag

## Record of Application to Charts

[illegible]

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.**