

6520
6521

6520
6521

Form 504
Rev. April 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. H-6520 & H-6521
Hydrographic } Field Nos. 17 & 18

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

OCT 7 1940

Acc. No. _____

State Washington

LOCALITY

Willapa Bay

Willapa River & Willapa R. Entrance

193.9

CHIEF OF PARTY

W. M. Scaife

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

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.

Field No. 17

H6520

REGISTER NO. H-6520

State Washington

General locality Willapa Bay

Locality Willapa River Entrance

Scale 1:10,000 Date of survey November, 19 39

Vessel Washington--Oregon Shore Party

Chief of Party W. M. Scaife

Surveyed by Ira T. Sanders

Protracted by G. W. Branning

Soundings penciled by G. W. Branning

Soundings in ~~XXXXXX~~ feet

Plane of reference M. L. L. W.

Subdivision of wire dragged areas by

Inked by J. W. Vorasek

Verified by J. W. Vorasek

Instructions dated March 11, 19 39

Remarks:

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

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.

Field No. 18

H6521

REGISTER NO. H-6521

State Washington

General locality Willapa Bay

Locality Willapa River

Scale 1:10,000 Date of survey November, 1939

Vessel Washington--Oregon Shore Party

Chief of Party W. M. Scaife

Surveyed by Ira T. Sanders

Protracted by R. M. Sylar

Soundings penciled by R. M. Sylar

Soundings in ~~fathoms~~ feet

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by

Inked by J. W. Vonasek

Verified by J. W. Vonasek

Instructions dated March 11, 1939

Remarks:

DESCRIPTIVE REPORT

to accompany

Hydrographic Sheets Nos. H-6520 and H-6521

(Field Nos. 17 & 18)

Willapa River and Willapa River Entrance

Willapa Bay, Washington

Washington--Oregon Shore Party

W. M. Scaife, Chief of Party

1939

Project HT-232

Scale 1:10,000

INSTRUCTIONS

This survey was executed under authority of the Director's Instructions for Project HT-232 dated March 11, 1939.

LIMITS

These two sheets cover Willapa Bay and Willapa River east of a north and south line through Hawks Point.

GENERAL DESCRIPTION

North River flats, a large triangular area of mud and sand, lies between the North River Channel and the Willapa River dredged channel. South from the Willapa River dredged channel to the beach are sand and mud flats, mostly bare at half tide. Extensive oyster beds are located on these flats as far east as meridian $123^{\circ} 53'$. These beds are staked with light tufted poles and bushes.

North River flats bare at approximately half tide. There are very few oysters on these flats.

METHODS

The U. S. Engineer soundings in the dredged channel from North River Light to the end of their project were transferred to the boat sheets. A junction with their work (both sides of the dredged channel) as far up the river as Johnson Light, was made. From Johnson Light up the river to the U. S. Engineer project limit, sounding was done only where their work had failed to develop the full river width.

A skiff with outboard motor was used for the lines in the North and South Forks of the river, running lines parallel with the channels, at estimated distances off signals. In the upper reaches of the North Fork and the South Fork, single lines of soundings were run midway between the banks.

DISCREPANCIES

All discrepancies in angles and sextant fixes found while smooth plotting were corrected in the sounding volumes.

Crossings are very satisfactory.

The junctions between H-6520 and H-6521 and between H-6520 (1139) and H-6519⁽¹¹³⁹⁾ are good.

DANGERS

No submerged dangers were discovered. The danger of grounding can be avoided by following the marked channels. Above the mouth of Wilson Creek sharp lookout should be kept to avoid snags and dead-heads.

CHANNELS

North River Channel winds northward across the North River flats 3.75 miles to the north edge of the flats. This channel is marked by a series of day beacons, maintained by the Port of Willapa Harbor. It is reported that log raft tow boats ascend to Eatons Ranch on high tides, about 3 miles above the last beacon (Beacon No. 30 or signal JIL). The channel south from Beacon No. 30 has a controlling depth of 6 feet at M.L.L.W.

In the Willapa River dredged channel the U. S. Engineers maintain a project depth of 24 feet by 200 feet wide. For details see Coast Pilot Notes, a copy of which is attached to this report. *C.P. Notes not filed with this report. JHE*

Two feet can be carried up the north fork at high tide to the bridge at Willapa, and two feet up the south fork for a distance of 2.5 miles. This depends upon soundings shown by a single line along middle of river.

ANCHORAGES

There are no anchorages. Vessels making the Port of Willapa Harbor proceed directly to the port wharf for quarantine and customs inspection.

COMPARISON WITH PREVIOUS SURVEYS

Previous surveys by this Bureau in this vicinity, Nos. H-2045 and H-2105, were done in 1890-91.

Many changes have occurred during the period since, principally due to the commercial development of the area. No effort was made to compare this and the older surveys in detail.

GEOGRAPHIC NAMES

See Topographic Descriptive Reports for Sheets T-6731a & b, and T-6732. (1939)

Descriptive Report written by:

Ira T. Sanders,
Jr. H. & G. Engr.

Approved and Forwarded:

A. M. Sobieralski
A. M. Sobieralski,
Officer in Charge,
Seattle Processing Office.

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. **H6520**

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

Number of positions on sheet	.569
Number of positions checked	...56
Number of positions revised4
Number of soundings recorded	3294
Number of soundings revised	..355
Number of soundings erroneously spaced14
Number of signals erroneously plotted or transferred0

Date: **12/16/40**

Verification by **Joseph W. Vonasek**

Time: **46¹/₂**

Review by **G.H. Everett**

Time: **52 hrs**

HYDROGRAPHIC SURVEY NO. H5520

Smooth Sheet One

Boat Sheet Two

Records; Sounding 3 Vols., Wire Drag Vols., Bomb Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals Yes

Landmarks for Charts (Form 567) Yes

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) None

Special Chart for Lighthouse Service ----- April 10, 1940
(Circular Nov.30, 1933)

Hydrography: Total Days 6 ; Last Date Nov. 20, 1939

Remarks _____

Remarks

Decisions

	Remarks	Decisions
1		467239
2		"
3		467238
4		467238
5		466239
6		466238 U.S.G.B
7		467238 "
8		467238
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GEOGRAPHIC NAMES
 Survey No. **H6520**

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>Hawk Point</u>									1
<u>North River</u>									2
<u>Range Point</u>									3
<u>Smith Creek</u>									4
<u>Stony Point</u>									5
<u>Willapa Bay</u>									6
<u>Willapa River</u>									7
<u>Johnson Slough.</u>									8
									9
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									27

by L. Heck on 1/6/46

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. **H6521**

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

Number of positions on sheet	.259.
Number of positions checked	..12.
Number of positions revised	...1..
Number of soundings recorded	.1459
Number of soundings revised	.85.
Number of soundings erroneously spaced	..0..
Number of signals erroneously plotted or transferred	..0..

Date: **12/6/40**

Verification by **J.W. Vonasek**

Time: **27 hrs.**

Review by **G.H. Everett**

Time: **16 hrs**

HYDROGRAPHIC SURVEY NO. H6521

Smooth Sheet One

Boat Sheet Two

Records; Sounding 2 Vols., Wire Drag Vols., Bomb Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals Yes

Landmarks for Charts (Form 567) Yes

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) Yes

Special Chart for Lighthouse Service -----
(Circular Nov.30, 1933)

Hydrography: Total Days 4; Last Date Nov. 29, 1939

Remarks _____

Remarks

Decisions

1		466 237
2		466 238
3		466 237
4		"
5		"
6		466 238
7		466 237
8		466 236 U.S.G.B
9	For title	466 238 U.S.G.B
10		467 238 "
11		466 236
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GEOGRAPHIC NAMES
 Survey No. **H6521**

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>Ellis Slough</u>									1
<u>Mailboat Slough</u>									2
<u>North Fork</u>									3
<u>Raymond</u>									4
<u>Skidmore Slough</u>									5
<u>South Bend</u>									6
<u>South Fork</u>									7
<u>Willapa</u>									8
<u>Willapa Bay</u>									9
<u>Willapa River</u>									10
<u>Wilson Creek</u>									11
									12
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									27

Names underlined and approved
 by L. Heck on 1/6/41

STATISTICS

H6520

Sheet H-6520:

<u>Day</u>	<u>Date</u>	<u>Vol.</u>	<u>Positions</u>	<u>Soundings</u>	<u>Statute Miles</u>
<u>LAUNCH NO. 1.</u>					
a	11/16/39	3	114	628	17.7
b	11/17/39	3	101	513	12.8
<u>CARLOTTA</u>					
a	11/16/39	1	136	871	22.0
b	11/17/39	1	59	337	7.0
c	11/18/39	1 & 2	138	854	22.4
d	11/20/39	2	21	91	3.5
Totals:			569	3294	85.4

Area in square statute miles - - - - 3.0

H6521

Sheet H-6521:

<u>Day</u>	<u>Date</u>	<u>Vol.</u>	<u>Positions</u>	<u>Soundings</u>	<u>Statute Miles</u>
<u>CARLOTTA</u>					
a	11/17/39	1	64	347	8.0
<u>SKIFF</u>					
a	11/16/39	2	64	292	7.2
b	11/17/39	2	99	559	10.0
c	11/29/39	2	32	261	3.0
Totals:			259	1459	28.2

Area in square statute miles - - - - 2.0

LIST OF SIGNALS - SHEET H-6520

TRIANGULATIONS STATIONS:

HAWKS 2 1939	BRUCE 2 1939	STEWART (USE) 1939	COOP 1939
STONY PT. 1939	HERON 1939	RANGE 1939	MUDDY 1939
	SANDY 2 (USE) 1939	JOHNSON LIGHT 1939	

<u>Hydro. Name</u>	<u>Triangulation Name</u>
Ran	Willapa River Front Range 1939
Apa	" " Rear " 1939
Rus	Willapa Bay #2 Light 1939
Rit	North River Light 1939
To	North River Beacon #2 1939
Fore	" " " #4 1939
Six	" " " #6 1939
Ate	" " " #8 1939
Ten	" " " #10 1939
Ab	" " " #12 1939
Cot	" " " #14 1939
Kit	Willapa River Dolphin #0 1939
Mal	" " " #1 1939
Nag	" " " #2 1939
On	" " " #3 1939
Quiz	" " " #4 1939
Rot	" " " #5 1939
Sag	" " " #6 1939
Lug	Willapa Bay Beacon #1 1939
Pil	" " " #4 1939
Ton	" " " #6 1939
Wil	" " " #8 1939
Yam	" " " #10 1939
Hun	Cupola 1939

TOPOGRAPHIC SIGNALS:

Lun T6731a	Ike T6731a	Sue T6731a	Poi T6728b	Barn T6731c	Slo T6731b	Pen T6731a
Abe "	Hot "	End "	Bug T6731a	Blu "	Toot "	Lu "
Joe "	Gus "	Lat T6730b	Gas "	Wega "	Do "	Up "
Leo "	Fit "	Wu "	Root "	Zed T6731b	Out T6731c	Vin "
Bil "	Egg "	Far T6728b	Chin "	Bad "	Mid "	Poe "
Mik "	Din "	Ny "	Tank "	Tar "	In "	Nut "
Jil "	Bet "	Big "	We "	Stake "	Wag "	Log "
	Pat "	Park "	Us "	X "		

LIST OF SIGNALS - SHEET H-6521

From Topographic Sheet T-6731b:

TRIANGULATION STATIONS:

RANGE 1939 - COOP 1939 - PONY 1939 - POTTER 1939 - ZINE 1939 - STACK 1939
 OPERA 2 (USE) 1939 - KNOB 2 (USE) 1939 - CUTOFF "D" (USE) 1939 - VANE 1939
 Willapa River Rear Range Light (Aps) 1939 - JOHNSON LIGHT 1939
 Mailboat Slough Rear Range Bn. 1939 - Mailboat Slough Front Range Bn. 1939
 Mailboat Slough Light 1939 - Windmill Tower opposite South Bend 1939
 Stack, black, Long Island Oyster Co., South Bend, 1939
 Apex, tower, South Bend Fire Station, 1939
 Finial, Dome, Pacific County Court House, South Bend, 1939
 Tank, small, Standard Oil Co., 1/4 mile E. South Bend, 1939
 Stack, black, American Shingle Co., South Bend (Ark), 1939
 Tank, large, Standard Oil Co., 3/4 mile E. South Bend, 1939
 Stack, black, Raymond Lumber Mill, South Bend, 1939

TOPOGRAPHIC SIGNALS:

Zed	Back	Dock	Gus	Boom	Tot	Lap	"X"	Pan	Tel
Ag	End	Work	Dusk	Tom	Red	Car	In	Man	Flag
Oow	Nor	Cor	Tray	Boy	Wow	Pole	Rat	Gun	Gate
Dun	Sud	Lip	Fly	Cal	Out	Box	Ump	Yes	Nig
Cab	Blu	Tex	Ant	Sap	Arm	Bad	Stu	Nat	Put
Bag	Egg	Oil	Bee	Not	Dot	Tar	Log	Let	
Say	Spot	Gas	Fus	Ton	Mal	Stake	Post		

From Topographic Sheet T-6732:

TRIANGULATION STATION:

VANE 1939

TOPOGRAPHIC SIGNALS:

It	Wat	Mud	Us	Zip	Milk	Seot	Wilson	Te	Led
Her	Mid	Bit	Sap	Blu	Ellis	Wop*	Grey	Ask	Pip
His	And	Bowie	Mug	Bo	Al	Lime	Doc	Don	Line
My	Ban	Boat	Gul	She	Sue	Lye	Gab	Sal	Hook
Gut	Moo	We	Luk	Lun	Boom	Bow	Row	Hoe	Lot
Roy	Lam	Miss	{23+67}	Kl	Ted	Rap	Lut	Sas	No
Pe	Pup*	Leg	{(USE)}	Pay	Bea	Ruby	Yok	Asp	Lone
Low	Tim	Cap	Vera	Urn	Damp	Opal	Jak	Bee	Mon
Dol	Gin	Hat	Draw	Tee	Hig	Tao	Dil	Duke	Hail
Rick	Dul	Sy	Ear	"w"	Rag	End	Tree	Ton	Ret
Dug	Wop*	Rd	Ate	"E"	Max	Few	Sun	Pup*	Sack
Tale	Fin *	Bes	Til	Mix	Cop	Corn*	Pen	Fag	Vet
Ice	West	Hon	Fan	Slim	Dose	Tie	Pro	Sig	Sil
Snow	Sir	Cup	Wil	Get	May	Rye	Nag	Fed	Keg
Pig	Yrk	Corn*	Drum	Day	June	Pike	Plug	Chow	Ox
Hog	Try	Hid	Yip	Fin *	Ave	Plum	Job	Ho	Wag
Jim	Pile	Win	Ali	Say	Sis	Ida	Mit	Ge	Pill
			Ken						

* Duplicated names.

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
 DESCRIPTIVE REPORT
 PHOTOSTAT OF

No. H **H6520**
~~No. H~~ **H6521**

{ received Oct. 8, 1940
 registered Oct. 12, 1940
 verified
 reviewed
 approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
25	✓	HBC	Pages 2-4
26			
30			
40			
62			
63			
82			
83			
88			
90			

RETURN TO

82	T. B. Reed
----	------------

✓ TBOR

RAC
HMC

TIDE NOTE FOR HYDROGRAPHIC SHEET

November 27, 1940

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. H. R. Edmonston

Plane of reference approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 6520

Locality Willapa Bay Entrance, Washington

Chief of Party: W. M. Scaife in 1939

Plane of reference is mean lower low water reading

3.2 ft. on tide staff at Toke Point.

13.7 ft. below B. M. 4

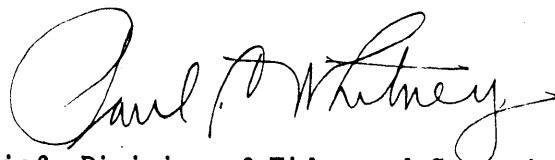
1.8 ft. on tide staff at Mailboat Slough

10.9 ft. below B. M. 1

Height of mean high water above plane of reference is 8.1 feet at Tope Pt.;
8.8 feet at Mailboat Slough.

Condition of records satisfactory except as noted below: Tide reducers
not entered to nearest half foot in accordance with regulations for
depths of 10 fathoms or less.

(Blue-pencil corrections of reducers made in Division of Tides and
Currents.)



Chief, Division of Tides and Currents.

LAC
ARC

TIDE NOTE FOR HYDROGRAPHIC SHEET

November 27, 1940

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. H. R. Edmonston

Plane of reference approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 6521

Locality Willapa River, Willapa Bay, Washington

Chief of Party: W. M. Scaife in 1939
Plane of reference is mean lower low water reading
1.8 ft. on tide staff at Mailboat Slough
10.9 ft. below B. M. 1
3.7 ft. on tide staff at Raymond
10.9 ft. below B. M. 1
0.7 ft. on tide staff at Willapa City
22.3 ft. below B. M. 1

Height of mean high water above plane of reference is 8.8 feet at
Mailboat Slough; 9.2 feet at Raymond; 9.6 feet at Willapa City.

Condition of records satisfactory except as noted below: Tide reducers
not entered to nearest half foot in accordance with regulations for
depths of 10 fathoms or less.
(Blue-pencil corrections of reducers made in Division of Tides and
Currents.)

Chief, Division of Tides and Currents.

VERIFIER'S REPORT OF HYDROGRAPHIC SURVEY NO. H - 6520

Verified and Inked by *J. W. Vonasek*

Date *Dec. 16, 1940*

1. The descriptive report was consulted and appropriate action taken. ✓
2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude. ✓
3. All references to survey sheets mentioned in the descriptive report include the registry number and year. ✓
4. Geographic names of hydrographic features are in slanting lettering and of topographic features in vertical lettering. ✓
5. All items effecting 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. ✓
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. ✓
17. The notation "JOINS H " was added for all contemporary adjoining or overlapping sheets now registered. ✓
18. The depth curves have been drawn to include the significant depths. ✓
19. All triangulation stations and transfer of topographic and hydrographic signals were checked by the field party. ✓
20. Heights of rocks were checked against range of tide. ✓
21. Rocks transferred from topographic survey have a dotted curve where shown thereon. ✓
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 (see letter of October 20, 1934). ✓
25. Degree and minutes values and symbols have been checked. ✓
26. Source of shoreline and signals (When not given in report).
Topographic sheets T-6731 a & b, ~~T-6732 (1934)~~
T 6730b
T 6728b
27. Depth curves were satisfactory except as follows:

28. Sounding line crossings were satisfactory ~~except as follows:~~
29. Junctions with contemporary surveys were satisfactory ~~except as follows:~~

30. Condition of sounding records was satisfactory except as follows:

The tide reducers were not entered to the nearest half foot; see tide note.

31. The protracting was satisfactory ~~except as follows:~~

32. The field plotting of soundings was satisfactory ~~except as follows:~~

33. Notes to reviewer:

Joseph H. Couach

VERIFIER'S REPORT OF HYDROGRAPHIC SURVEY NO. H 6521

Verified and Inked by *J. W. Vonasek*

Date *Dec. 6, 1940*

1. The descriptive report was consulted and appropriate action taken. ✓
2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude. ✓
3. All references to survey sheets mentioned in the descriptive report include the registry number and year. ✓
4. Geographic names of hydrographic features are in slanting lettering and of topographic features in vertical lettering. ✓
5. All items effecting 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. ✓
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. ✓
17. The notation "JOINS H " was added for all contemporary adjoining or overlapping sheets now registered. ✓
18. The depth curves have been drawn to include the significant depths. ✓
19. All triangulation stations and transfer of topographic and hydrographic signals were checked by the field party. ✓
20. Heights of rocks were checked against range of tide. ✓
21. Rocks transferred from topographic survey have a dotted curve where shown thereon. ✓
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 (see letter of October 20, 1934). ✓
25. Degree and minutes values and symbols have been checked. ✓
26. Source of shoreline and signals (When not given in report).
T-6731 b. (1939)
T-6732 (1939)
27. Depth curves were satisfactory ~~except as follows:~~

28. Sounding line crossings were satisfactory ~~except as follows:~~

29. Junctions with contemporary surveys were satisfactory ~~except as follows:~~

30. Condition of sounding records was satisfactory except as follows:

*Tide reducers not entered to nearest half foot.
See tide note, from division of Tides & Currents.*

31. The protracting was satisfactory ~~except as follows:~~

32. The field plotting of soundings was satisfactory ~~except as follows:~~

33. Notes to reviewer:

Joseph H. Vossick

DIVISION OF CHARTS

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6520 FIELD NO. 17

Washington; Willapa Bay; Willapa River Entrance

Surveyed November, 1939

Scale 1:10,000

Instructions dated March 11, 1939

Soundings:

Hand lead

Control:

Three-point fixes on shore signals

Chief of Party - W. M. Scaife.

Surveyed by - I. T. Sanders.

Protracted by - G. W. Branning.

Soundings plotted by - G. W. Branning.

Verified and inked by - J. W. Vonasek.

Reviewed by - G. H. Everett.

Inspected by - H. R. Edmonston.

1. Shoreline and Signals.

Shoreline and signals originate with T-6731a, b (1939), T-6730b and T-6728b (1939). Hydrographic signal DOL is a dolphin located by sextant fix on H-6519 and transferred to this survey.

2. Sounding Line Crossings.

Satisfactory.

3. Depth Curves.

Satisfactory.

4. Junctions with Contemporary Surveys.

H-6519 (1939) makes a satisfactory junction at the western limit except at latitude $46^{\circ}42'$, longitude $123^{\circ}54.9'$ where three soundings on H-6519 are 3' deeper than those on H-6520. The deeper soundings were rejected.

Satisfactory junctions have been made with H-6521 (1939) and with the U. S. Engineers' Blueprints of 1937 (Nos. 30838-45) which cover the Willapa River dredged channel.

5. Comparison with Prior Surveys.

H-335 (1852), 1:20,000; H-2045 (1890), 1:20,000;
H-2106 (1890), 1:10,000; H-3297a (1911), 1:20,000; H-4215
(1922), 1:20,000.

H-335 is a preliminary survey of Willapa Bay. The plane of

reference is uncertain and the control appears too weak for a definite comparison.

The surveys of 1890 (H-2045, H-2106) include all the area surveyed by the present project with good development of the channels and shoals. A detailed comparison shows that in general the two main channels have changed very little in position since 1890. For the most part the L.W.L. of the present survey, where obtained, agrees very well with that of the 1890 survey. The most noticeable change is in the North River Channel at latitude $46^{\circ}44.2'$ where the deep part of the channel has moved about 100 meters to the west.

A zero sounding on H-2045 at latitude $46^{\circ}42.35'$, longitude $123^{\circ}54.68'$ falls in a depth of 6 feet of that survey and where the present survey shows 10 feet. The zero sounding was evidently a snag and is considered to have been removed or shifted in position by natural causes since this part of the channel is undergoing change.

The mouth of Willapa River near longitude $123^{\circ}50.5'$ shows that shoaling of the channel has taken place since 1890.

H-3297a overlaps the present survey for about a mile above the junction of the North River and Willapa River Channels. Since the Willapa River Channel has since been dredged, no comparison is noted except that the L.W.L. of the older survey, when obtained by soundings, agrees very well with that of the present. The few soundings taken in the North River Channel on the older survey are not sufficient for a good comparison. The present survey in its closer development obtained soundings 2 to 4 feet deeper in the common area.

H-4215 overlaps about the same area as H-3297a. A single line of soundings was run $1\frac{1}{2}$ miles up North River Channel. The older survey obtained soundings 2 to 3 feet deeper (charted) on that line. The present survey, however, appears to have missed the deepest part of the channel at this particular location (near lat. $46^{\circ}43.1'$). Since the channel shoals to a controlling depth of 6 feet 400 meters north, the deeper soundings of the older survey have no important charting value.

The present survey supersedes the common area of the older surveys except for the slough at latitude $46^{\circ}43.8'$, longitude $123^{\circ}54.2'$ (charted from H-2045). The Low Water Line at the mouth of this slough is in fair agreement with the present survey.

6. Comparison with Chart 6185 (New Print of May 9, 1940).

a. Hydrography.

The general hydrographic information on the chart has been discussed in the preceding paragraph.

The narrow shoal of 1 to 5 feet depth (charted) with center at latitude $46^{\circ}41.9'$, longitude $123^{\circ}54'$ is from U.S.E. Blueprint No. 19741 (1924) and is a spoil area formed by dredging operations. The ridge is about 50 meters wide. The sounding lines of the present survey run almost parallel to the ridge with one cross line near the eastern end. Development is not sufficient to accept the least depths of the present survey although it does show that some leveling of the ridge has taken place. Since no attempt was made to obtain the least depth on the spoil bank, the original least depth soundings from the blueprint should be retained.

The charted dolphins on the north side of the Willapa River Channel are from U.S.E. Blueprints of 1937. The present survey agrees well with the blueprints in distances between dolphins but shows a slight difference in locations as charted. There are also two dolphins (charted) from blueprints (Nos. 30843, 30844) each of which are called a pile on the recent survey. These are signal 'ROT' and the pile 70 meters southwest of signal 'SAG' near latitude $46^{\circ}42.5'$, longitude $123^{\circ}51.7'$.

The present survey, because of its more accurate control supersedes the blueprints in the locations of all piles and dolphins. Charted piles and dolphins which do not appear on the present survey may be considered no longer in existence.

The marsh line at the mouth of Willapa River should be charted as shown on T-6731 which is to be revised in the office from photographs by U. S. Army.

b. Controlling Depths.

In the dredged channel approach to Willapa River the cross channel sounding lines of this survey conform in depth to the charted note "24 feet March 1939".

c. Aids to Navigation.

All fixed aids in the North River Channel differ in position between the chart and the present survey. Their locations in the present survey are to be accepted.

Floating aids and fixed aids in the Willapa River Channel are substantially in agreement with the charted positions. Red spar buoy 32 at the mouth of Willapa River was not located on this survey.

The outer limit of the Willapa River Upper Range was located by two sextant positions.

7. Condition of Survey.

Satisfactory.

8. Compliance with Instructions for the Project.

Satisfactory.

9. Additional Field Work Recommended.

None.

10. Superseded Surveys.

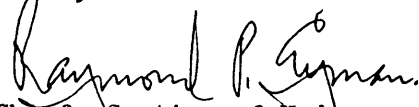
H-335 (1852) in part
H-2045 (1890) in part
H-2106 (1890) in part

H-3297a (1911) in part
H-4215 (1922) in part

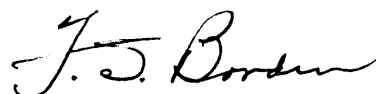
Examined and approved:



T. B. Reed
Chief, Section of Field Records.



Chief, Section of Hydrography.



Chief, Division of Charts.



Chief, Division of Coastal Surveys.

Applied to new compilation of chart 6185.
Apr. 14, 1941 J. H. S.

DIVISION OF CHARTS

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6521 FIELD NO. 18

Washington; Willapa Bay; Willapa River

Surveyed November, 1939

Scale 1:10,000

Instructions dated March 11, 1939

Soundings:

Hand lead

Control:

Three-point fixes on shore signals

Chief of Party - W. M. Scaife.

Surveyed by - I. T. Sanders.

Protracted by - R. M. Saylor.

Soundings plotted by - R. M. Saylor.

Verified and inked by - J. W. Vonasek.

Reviewed by - G. H. Everett.

Inspected by - H. R. Edmonston.

1. Shoreline and Signals.

Shoreline and signals are from T-6731b and T-6732, plane table surveys of 1939.

2. Sounding Line Crossings.

No cross lines were run because of the narrowness of the river.

3. Depth Curves.

Satisfactory.

4. Junctions with Contemporary Surveys.

A satisfactory junction has been made with H-6520 (1939) at the western limit.

The U. S. Engineer Annual Report of 1939 states that the controlling depths were ascertained in March 1939. The date of the latest U. S. Engineers' Blueprints in the office is 1937. This would indicate that there are later surveys which have not been received in this office.

The overlapping junction of the present survey shows depths 2 to 4 feet deeper than that of the 1937 U. S. Engineers (Bp. Nos. 30838-43) in the vicinity of latitude $46^{\circ}41.5'$, longitude $123^{\circ}49.3'$ and also at South Bend near longitude $123^{\circ}48.1'$.

5. Comparison with Prior Surveys.

H-335 (1852), 1:20,000; H-2106 (1890), 1:10,000;
H-2105 (1891), 1:10,000.

H-335 is a preliminary survey with a single line of soundings carried up the Willapa River to South Bend. Dredging operations have since changed the condition of the channel.

H-2106 and H-2105 cover the area of this survey. Apparent changes outside of the dredged channel may be due to the dredging operations. Below Mailboat Slough the 12 foot curve is now farther out while the 18 foot curve agrees well with that of the 1890 survey. Mailboat Slough has been filled in.

In North and South Forks above the limit of dredging the mid-channel line of soundings of the present survey indicates some shoaling since 1891.

The present survey satisfactorily covers the area outside of the limits of the U. S. Engineers' surveys and supersedes the older surveys.

6. Comparison with Chart 6185 (New Print of May 9, 1940)

a. Hydrography.

The charted 1/2 foot soundings at latitude $46^{\circ}40.05'$, longitude $123^{\circ}47.7'$ and at latitude $46^{\circ}40.14'$, longitude $123^{\circ}47.59'$ are from U.S.E. Blueprints Nos. 19736 (1924) and 14616 (1911-12) respectively. These soundings were not investigated on the present survey. One of the soundings (lat. $46^{\circ}40.05'$, long. $123^{\circ}47.7'$) is sufficiently verified on the 1937 blueprint (No. 30840) to warrant its retention while the other is not covered by subsequent blueprints. The soundings represent lumps or a narrow ridge in a spoil area.

Other charted hydrographic information is discussed in the preceding paragraphs.

b. Aids to Navigation.

Floating aids were not located on this survey. The fixed aids are in substantial agreement with the chart with the exception of Mailboat Slough rear range beacon. The charted position of this beacon is about 25 meters NNW of the location on the present survey. The charted position appears to be from U.S.E. Blueprint No. 30842. This survey supersedes the blueprint in the location of the beacons.

7. Condition of the Survey.

Satisfactory.

8. Compliance with Instructions for the Project.

A satisfactory junction was not made with U.S.E. Survey of 1937 south of the cut in latitude $46^{\circ}40.7'$, longitude $123^{\circ}46.3'$. This is probably due to the fact that the field party had use of surveys later than those now in the office which do not show soundings in this area.

9. Additional Field Work Recommended.

None.


10. Superseded Surveys.

H-335 (1852) in part
H-2106 (1890) in part
H-2105 (1891) in part

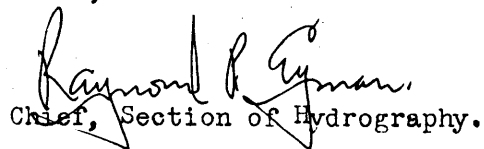
Examined and approved:



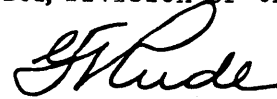
T. B. Reed
Chief, Section of Field Records.



Chief, Division of Charts.



Chief, Section of Hydrography.



Chief, Division of Coastal Surveys.

Applied to new compilation chart 6185
Apr. 9, 1941 J. H. S.