

2103 2104 2105
2106

Diag. Cht. No. 6002-1

Form 504	
U. S. COAST AND GEODETIC SURVEY	
DEPARTMENT OF COMMERCE	
DESCRIPTIVE REPORT	
Type of Survey	<i>Hydrographic</i>
Field No.	<i>2103</i>
Office No.	<i>2106</i>
LOCALITY	
State	<i>Washington</i>
General locality	<i>Willapa</i>
Locality	<i>Bay</i>
194	
CHIEF OF PARTY	
<i>J. M. Helm U.S.N.</i>	
LIBRARY & ARCHIVES	
DATE	

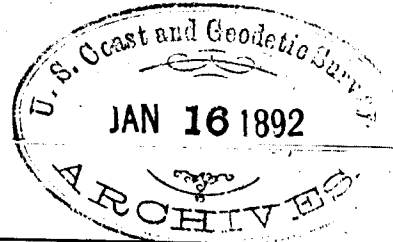
B-1670-1 (3)++

2103 2104 2105
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83
S.H.A.
2103
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2105
2106

2103 2104 2105



State of Washington
(3)

U. S. COAST AND GEODETIC SURVEY.

T. C. Mendenhall, Superintendent.

State: *Washington.*

DESCRIPTIVE REPORTS.

*Hydrographic Sheets Nos. 2103,
2104, 2105 & 2106.*

LOCALITY:

Willapa Bay.

1891.

CHIEF OF PARTY:

Lieut. J. M. Helm, U.S.N.

2104

83
SHA
2104
1891

Diag. Cht. No. 5002-1

Department of Commerce and Labor

COAST AND GEODETIC SURVEY

J C Mendenhall

Superintendent.

State: *Washn*

DESCRIPTIVE REPORT.

Hydro Sheet No. *2104*

LOCALITY:

Willapa Bay

See SHA 2103

~~1891~~
~~190~~

CHIEF OF PARTY:

J M Helm

2104

2105

83
SHA
2105
1891

Diag. Cht. No. 6302-1

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

J C Mendenhall
Superintendent.

State: *Washn*

DESCRIPTIVE REPORT.

Hyd^e Sheet No. *2105*

LOCALITY:

Willapa Bay
See S.H.S. 2103

1891
~~190~~

CHIEF OF PARTY:

J M Helm

2105

2106

83
SHA
2106
1891

Diag. - ht. No. 6002-1

Department of Commerce and Labor

COAST AND GEODETIC SURVEY

J C Mendenhall

Superintendent.

State: *Washn*

DESCRIPTIVE REPORT.

Hyd^c Sheet No. *2106*

LOCALITY:

Willapa Bay

See S.H.A. 2103

~~1891~~
~~190~~

CHIEF OF PARTY:

J M MacLean

2106

Descriptive Report.

Section XI.

Hydrographic Sheets Nos. 4, 4^a, 5, 5^a.

Willapa Bay, Wash.

Coast Survey Steamer Gedney.

Lieut. J. M. Allen, U.S.N., Comd'g.

1891.

The sheets are as follows:-

Sheet No. 4, 1891. Willapa Bay, Wash. Scale 1-20,000

Sheet No. 4^a, 1891. Willapa Bay Bar. Scale 1-20,000

Sheet No. 5, 1891. Willapa River, Wash. Scale 1-10,000

Sheet No. 5^a, 1891. Mouth of Willapa River to South Bend,
Scale 1-10,000. This sheet is in a great
measure last season's work recomputed and re-plotted.

A tracing on vellum accompanies Sheet No. 5, showing the
status of the hydrographic signals and of certain topograph-
ical features.

A 1-10,000 projection of a portion of the Nasel River is also
submitted showing the triangulation as far as prosecuted when
work in this locality was stopped by order to proceed to
Gray's Harbor. Statistics are appended to this report on
Form 11, Statistics of Field Work.

Attention is called to several points on the various
sheets as follows:-

Sheet No. 4. A wharf has been built at Joke Point
since last season and a small village, called Jokelund,
has been commenced here. The shore line around end
of Leasbette Point and on Suag and Fir Islands was
run in this season by the plane table. These changes
are not recent, but could not be investigated last

year for lack of time. An extra system of soundings was run in the Palux River Channel near the mouth of the river to determine if any shoaler water than shown last season could be found. North Highlands, on chart of Part of Willapa Bay, No. 6180, does not exist; Diamond City, on north end of Long Island, has also been entirely abandoned. Work on the Astor River was interrupted when triangulation had been partially done by orders to proceed to Gray's Harbor.

Sheet 4^a. Since the buoys were located on this sheet the P.S. main buoy in the North Channel has been moved near the middle of the channel. (Notice to Mariners No. 147, of Nov. 1891.)

Sheet 5^a. Shore line done by this party is shown in blue.

- 2 -

The length of the Willapa River to the present head of navigation, Willapa City, is $10\frac{2}{3}$ miles. If it had suags re-sound above this place it would be navigable for small boats $1\frac{1}{2}$ miles further, to the bridge opposite Willapa City.

Above the limit of this survey the river is used only for logging purposes. (For remaining points under 2 see last season's report.)

7

In regard to the various subjects embraced under sections Nos. 3 and 4 see last season's report.

5.

A steam dredger was at work pumping out the flats in the Willapa River at South Bend when the Gedney was last there.

For information under sections Nos. 6 to 12 inclusive see report of 1890.

13.

Mhouses, in addition to those enumerated in last season's report, are located at Tokelund, on Toke Point, and at Willapa City.

The depth alongside Willapa City wharf reduced to plane of lower low water is from 8 to 9 ft.

See last year's report in regard to sections 14, 15 and 16.

17.

There is a post-office at Rivinside, on the Willapa River, and one at Kasul Landing, at head of navigation for small boats on the Kasul River, in addition to those mentioned last season.

11/12/92

For No. 18 see last season's report.

19.

South Bend has grown into a good sized town. At the Pacific City has a few houses and a saw mill is being built.

Willapa City is a small town at the head of navigation on the Willapa River, it is the outlet for the agricultural district of the Willapa Valley. There are three or four small houses at Tokeland. The banks of the Willapa River are partially settled.

20 same as last season's report.

Very respectfully,

J. M. Nelson

St. U.S.N. Asst. Surg. Geny,

Wash.

Statistics of Field Work executed by *Lieut. Jm. H. Lee, U.S.N.*

Date of beginning field work *Apr. 16, 1891 (on Coast of Ore. from)*
Date of closing field work *Sept. 24, 1891 (July 5 to 22 during this period)*

RECONNAISSANCE:

Area of, in square statute miles
Lines of intervisibility determined as per sketch submitted
Number of points selected for scheme

BASE LINES:

Primary, length of
Secondary, length of
Beach measurements, length of
Number of days employed in measurements of base
Number of days employed in re-measurements

TRIANGULATION:

Area of, in square statute miles
Signal poles erected, number of
Observing tripods and scaffolds built, number of
Observing tripods and scaffolds built, heights of
Days occupied in opening and verifying lines of sight, number of
Stations occupied for horizontal measures, number of
Stations occupied for vertical measures, number of
Geographical positions determined, number of
Elevations determined trigonometrically, number of

GEODESIC LEVELING:

Elevations determined by spirit-leveling of precision, number of
Lines of geodesic leveling, length of

LATITUDE, LONGITUDE, AND AZIMUTH WORK:

Latitude stations occupied, number of
Pairs of stars observed for latitude, number of
Average number of observations on a pair
Longitude stations, telegraphic, number of
Longitude stations, telegraphic, number of nights on which signals were exchanged
Longitude stations, chronometric, etc., number of
Azimuth stations, number of
Number of nights of observations for azimuth
Number of stars observed for azimuth

Statistics, Sheets Nos. 4, 4^a, 5 and 5^a Willapa Bay, Wash. 1891.

	Apr.	May.	June	July	Aug.	Sept.	Total
No. days on working grounds	15	31	30	13	31	24	144
No. days by work (sounding)	3	18	15	3	12	8	59
No. days topographical work	0	5	2	0	9	13	29
No. days entirely prevented by bad weather	2	1	2		2	4	11
" " partially " " " "	5			1		7	13
No. days engaged in building signals triangulating, going for coal &c.,	8	7	9	10	1	3	38
Sundays	2	5	4	4	5	3	23
No. signals erected							347
No. signals occupied	10	27	14	0	60	41	152

Sheet No. 4

Vessel	Number of:					
	Sdg. Books	Angle Books	Tide Books	Fair Journals	Fair Angle Bks	Fair Tide Bks
Launch	5			4		
1st m. boat	9			7		
2nd m. boat	6			5		
Total	20	4	6*	16	4	6*

* part of 1 book belongs to Sheet 4^a

Tide Stations Sheet 4 { North Cove Sealand Sunshine
Bay Centre Baker's Slough

Sheet No. 11a.

Vessel	Number of:					
	Sdg. Bks	Angle Bks	Tide Bks	Fair Journals	Fair angle books	Fair tide books
Gedney	4			4		
Launch	2*			1*		
Total	6	0	1	5	0	1*

* part belongs to Sheet 4, this book counted there also.

* part of another of Sheet 4

Tide Station Sheet 4^a, North CoveSheets 5 and 5^a

Vessel	Number of					
	Sdg. Bks	Angle Bks	Tide Bks	Fair Journals	Fair angle books	Fair tide books
1st w. boat	3	5	3	2	3	3

Tide Stations Sheets 5 & 5^a, South Fore Willapa River, Willapa City

For old work replotted on Sheet 5a, Sea Haven

Note: Sheet 5^a is largely work of 1890 replotted.

No. Officers in party 6 until June 16th, 1891

5 " Sept 1st, 1891

4 " end of season

No men in party 32 until June 20, 1891

28 " end of season

Records.

Pay Geo. Joyus,
P.N. Christiansen, M.
A.E. Brismann, Q.M.

Leadman

E. Meyer, M. at A.
H. Dietrich, Q.M.
Thos. P. Helyard, B.M.
Wth. Dahlquist, Q.M.

Side Observers

E. Meyer, M. at A.
H. Dietrich, Q.M.
W. Dahlquist, Q.M.
A. Olous, C.M.
A. Flood, Sea.
J. Romme, Sea.
P.N. Christiansen, M.
Jno. Kriston, 1st c F.
S. Sorenson, "
Jno. Kristiansen, "
E. Bailey, Sea.
H. Jensen, Sea.
M.A. Larson, Sea.
O. Carlson, Sea.
A.E. Brismann, Q.M.

Day letters of Ships and boats on all sheets:-

Yedney, Large letters, red.
Steam Launch, Small letters, blue.
1st whaliboat, Small letters, green.
2nd whaliboat, Small letters, red.
Shore line work on sheets 4, 4^a and 5^a in blue.
" " " " " 5 in black.

Sheet No. 4.

Mullapa Bay, Wash.

Scale 1-20,000

Began Apr. 20, 1891.

Area 58 sq. mi.

Lt. J. M. Allen, U.S.A.

Ended Sept. 24, 1891.

In charge of Party

Date	Vessel	Littu	Book	Number of			Observer
				Miles	Sdgs.	Angles	
Apr. 29	Launch	a	1	1.60	129	24	Lt. J. M. Allen,
May 11	"	b	1	15.00	565	122	1 Ens. J. H. Gibbons
" 12	"	c	1	31.10	1159	280	2 Ens. A. L. Key
" 13	"	d	2	19.70	764	182	2 Ens. A. M. May
" 18	"	e	2	16.54	812	156	1 Ens. J. M. Poyer
" 19	"	f	203	14.40	636	116	Pay Geo. Joyner
" 20	"	g	3	11.83	644	108	
" 21	"	h	3	10.90	502	94	
" 25	"	i	3	11.30	530	94	
" 27	"	k	4	9.80	469	90	
" 28	"	l	4	5.00	206	52	
" 29	"	m	4	5.30	276	62	
June 4	"	n	4	.75	87	53	
" 8	"	o	4	14.60	728	148	
" 11	"	p	5	1.50	63	18	
" 12	"	q	5	3.00	119	28	
" 20	"	r	5	3.25	89	24	
" 24	"	s	5	6.10	426	96	
" 25	"	t	5	3.91	200	66	
Totals		19		185.58	8404	1813	

Sheet No. 4.

Willapa Bay, Wash.

Scale 1-20000

Began Apr. 20, 1891.

Area 58 sq. mi.

Lt. J. M. Hilde, U.S.N.,

Ended Sept. 24, 1891.

In charge of Party

Date	Vessel	Letter	Book	Number of			Observations
				Miles	Soundings	Angles	
Apr. 25	let w. boat	a w	1	8.50	438	104	Eus. A. M. Mayer
" 28	" "	b	1	7.00	358	100	Eus. J. M. Poyer
May 11	" "	c	2	8.50	411	102	
" 12	" "	d	2	11.75	831	130	
" 13	" "	e	2	5.70	445	78	
" 14	" "	f w	2+3	6.50	500	86	
" 15	" "	g	3	5.50	381	74	
" 16	" "	h	3	3.75	259	50	
" 18	" "	i	3	8.75	719	122	
" 19	" "	k	3+4	7.70	725	116	
" 20	" "	l so	4	5.25	479	108	
" 22	" "	m	4	3.90	330	60	
" 23	" "	n	4	6.10	496	90	
" 28	" "	o	4	5.60	376	76	
" 29	" "	p	5	5.50	385	90	
" 30	" "	q 35	5	1.20	94	18	
June 1	" "	r	5	3.25	224	84	
" 2	" "	s 37	5	3.60	303	70	
Carried over				108.05	7754	1558	

Sheet No. 4.

Willapa Bay, Wash.

Scale 1-20,000

Began Apr. 20, 1891.

Area 58 sq. mi.

Lt. J. M. Allen, U.S.N.,

Ended Sept. 24, 1891.

In charge of Party

Date	Vessel	Letter	Book	Number of			Observations
				Miles	Soundings	Angles	
Brought over	1st tr. boat			108.05	7754	1558	Ens. A. N. Mayer
June 3	"	t ³⁸	5	3.75	555	96	Ens. J. M. Poyer
" 4	"	u	5	.40	66	34	
" 5	"	v ⁴⁰	6	1.10	87	16	
" 6	"	w	6	3.00	252	44	
" 11	"	x	6	7.40	466	90	
" 12	"	y	6	7.20	482	114	
" 20	"	z	1	11.10	985	166	
" 22	"	a' ⁴⁵	6 & 7	12.25	849	148	
" 23	"	b'	7	6.40	487	84	
" 24	"	c'	7	5.50	544	98	
" 25	"	d'	8	10.10	675	156	
" 26	"	e'	7	10.20	755	150	
Sept. 24	"	f' ⁵⁰	9	6.60	654	122	
Totals				193.05	14611	2876	

Sheet No. 4.

Begun Apr. 20, 1891

St. Jm. Helen, U.S.N.

Ended Sept. 24, 1891

Area 58 sq. mi.

In charge of Party.

Willapa Bay, Wash.

Scale 1-20000

Date	Vessel	Letter	Book	Number of			Observations
				Miles	Soundings	Angles	
Apr. 25	2nd r. boat	a ⁵¹	1	5.50	519	104	St. Jm. Helen
" 28	" "	b	1	6.00	470	108	Ens. J.H. Gibbons
" 29	" "	c	1	2.00	170	28	Ens. A.L. Key
May 11	" "	d	2	1.80	81	20	Pay Lt. W.M. Joyous
" 14	" "	e ⁵⁵	2	2.80	268	54	
" 15	" "	f	2	7.10	641	86	
" 16	" "	g	2	4.00	316	52	
" 18	" "	h	2	4.50	340	56	
" 23	" "	i	2	4.30	332	78	
" 26	" "	k ⁶⁰	3	2.00	282	72	
" 28	" "	l	3	2.80	266	60	
" 29	" "	m	3	2.75	219	54	
" 30	" "	n	3	2.60	194	50	
June 1	" "	o	3	3.60	289	102	
" 2	" "	p ⁶⁵	3	.50	82	14	
" 5	" "	q	3	1.40	144	20	
" 6	" "	r	3+4	4.70	375	48	
" 11	" "	s	4	6.70	473	88	
Carried over		68		65.05	5461	1094	

Shut No. 4.

Willapa Bay, Wash.

Scale 1-20000

Began Apr. 20, 1891.

Area 58 sq. mi.

Lt. J. M. Hildes, U.S.N.

Ended Sept 24, 1891.

In chg. of Party.

Date	Vessel	Letter	Book	Number of			Observer
				Miles	Soundings	Angles	
Brought over	2nd whboat			65.05	5461	1094	Lt. J. M. Hildes
June 12	" "	t 64	4	8.80	730	106	Eus. J. H. Gibbons
" 20	" "	u 70	4	8.00	742	92	Eus. A. M. Weyer
" 22	" "	v	1	10.35	773	114	Eus. J. M. Poyer
" 23	" "	w	5	6.00	462	68	Pay. Lt. W. M. Joyous
" 24	" "	x	5	3.75	311	48	
" 25	" "	y	6	8.12	577	80	
Sept. 23	" "	z 75	6	1.75	127	19	
Totals				111.82	9183	1621	

Recapitulation Shut No. 4.

Vessel	Days	Miles	Sdgs.	Angles.
Team Launch	19	185.58	8404	1813
1st whaliboat	31	193.05	14611	2876
2nd whaliboat	25	111.82	9183	1621
Totals	75	490.45	32198	6310

Sheet No. 4^a

Willapa Bay, Wash.

Scale 1-20000

Began July 29, 1891

Area 17 sq. mi.

St. J. M. Helms, U.S.N.

Ended Aug. 11, 1891

In charge of Party.

Date	Vessel	Letter	Book	Number of			Observer
				Miles	Soundings	Angles	
July 29	Gedney	A.	1	6.25	450	60	Lt. J. M. Helms,
" 30	"	B.	1	27.00	1536	243	Ens. J. M. Gibbons
" 31	"	C.	2	2.90	162	22	Ens. A. N. Mayan
Aug. 1	"	D.	2	24.00	1287	329	Ens. J. M. Poyer
" 3	"	E.	2+3	17.45	928	284	Pay. Lt. Joyner
" 4	"	F.	3	22.00	747	338	
" 5	"	G.	3+4	31.50	1515	428	
Totals				131.10	6625	1704	

Date	Vessel	Letter	Book	Number of			Observer
				Miles	Soundings	Angles	
Aug. 7	Steam Launch	U	5	1.25	62	20	Ens. A. N. Mayan
" 8	"	V	5	1.40	59	14	Ens. J. M. Poyer
" 11	"	W	5+6	16.80	724	164	
Totals				19.45	845	198	

Recapitulation Sheet 4^a

Vessel	Days	Miles.	Soundings	Angles
Gedney	7	131.10	6625	1704
Steam Launch	3	19.45	845	198
Totals		150.55	7470	1902

Shuts Nos. 5 and 5^a.

Willapa Rivin, Wash.

Scale 1-10,000.

Began August 12, 1891.

Area 1 1/4 sq. mi.

Lt. J. M. Helms, U.S.N.,

Ended Sept. 14, 1891.

In charge of Party.

Date	Vessel	Letter	Book	Number of			Observer
				Miles	Soundings	Angles	
Aug. 21	1st m. boat	a	1	3.63	350	80	Lt. J. M. Helms
" 22	" "	b	1	.95	116	44	Ens. A. M. Mayer
" 24	" "	c	1	3.90	408	116	Ens. J. M. Poynt
" 25	" "	d	1	4.10	460	128	
" 26	" "	e	1+2	6.45	647	118	
Sept. 2	" "	f	2	4.60	309	138	
" 3	" "	g	2	1.50	198	90	
" 4	" "	h	2	1.25	71	36	
" 11	" "	i	2	1.50	387	132	
" 12	" "	k	2+3	2.70	360	108	
" 14	" "	l	3	6.00	739	310	
Totals			3	36.58	4045	1300	

Total Recapitulation - Willapa Bay Shuts - 1891.

Shut	Miles	Soundings	Angles
No. 4	490.45	32198	6310
No. 4 ^a	150.55	7470	1902
Nos. 5, 5 ^a	36.58	4045	1300
Total	677.58	43713	9512

