

2506

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DEPARTMENT OF COMMERCE  
U.S. COAST AND GEODETIC SURVEY  
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

~~Topographic~~  
Hydrographic } Sheet No. 2506

State *Wash - Oregon*

LOCALITY

*Columbia River*

1900

CHIEF OF PARTY

*Morse*

2506

## Descriptive Report.

To accompany Hydrographic Sheet entitled:

U. S. Coast and Geodetic Survey,  
Henry S. Pritchett, Superintendent.

Hydrography  
Columbia River

Agassiz Point to Woods Bar

By the Party in Charge of Fremont Moore, Assistant

Surveyed Oct. 12 to Nov. 22, 1900.

Scale  $\frac{1}{1000}$

Descriptive Report to accompany  
Hydrographic sheet entitled:

U.S. Coast and Geodetic Survey  
Henry S. Pritchett, Superintendent,  
Hydrography  
Columbia River

Ryans Point to Woods Bar  
By the Party in charge of Fremont Morse, Assistant  
Surveyed Oct. 12 to Nov. 22, 1900.  
Scale ~~1:10000~~

This sheet embraces a stretch of some  
six and a half miles, from Ryans Point,  
which is about a mile above the town of  
Vancouver, to Woods Bar. The work joins  
on a hydrographic survey made under  
the direction of Capt. Wm. W. Hart, Corps of  
Engineers, U.S.A., in Sept. and Oct. 1899.

In 1891 the topography of the river  
was executed by Assistant Cleveland Rick-  
well. The annual floods which occur  
during June and July have since that  
time cut away the banks in some  
places, so that it was considered

best to retrace the shore line. Accordingly topographic signals were erected along the river, such old triangulation points as could be recovered were found and new signals were set up, and from these the topographic signals were determined by the use of the plane-table, and a plane table survey was made of the shore line. Such of the topographic points as were conveniently located were afterwards used for the hydrography and the topographic sheet is the original record of the positions of these signals.

As the result of this survey it was found that the greatest changes have occurred along the South bank of the river opposite Ryan's Point. To quote from the Descriptive Report of the topographic sheet: "Here a sand bank has been deposited outside of the old river bank, nearly half a mile wide at its widest point, and young trees have grown over the greater part of it. One of Assistant Rockwell's triangulation

"points 'Jungle' was located near the outer  
 "edge of this bank, but now its site is  
 "over a hundred metres out in the river  
 "in about seven feet of water. For a distance  
 "of more than a mile" in this locality  
 "the bank has been washed away for  
 "a width of from one hundred to two hun-  
 "dred and fifty metres."

"By a reference to Assistant Rockwell's  
 "topographic sheet it will be noticed that  
 "at the time of his survey a row of piles  
 "extended obliquely out from the shore  
 "and down the river about a quarter of  
 "a mile above the new formed bank.  
 "These piles were evidently driven for the  
 "purpose of protecting the bank, but in some  
 "places they were washed out and the  
 "river has since been eating into the  
 "bank unopposed."

"The remaining parts of the shore line  
 "do not show such marked changes, though  
 "erosion is going on slowly along most of  
 "the Oregon and Government Island banks.  
 "The amount of wash varies from ten  
 "to about 50 metres"

"On the Washington side the banks are of harder material, clay and in some places rock and conglomerate, and the changes are practically unappreciable"

Size of the River: At the widest place shown on the sheet, in the bend above Ryan's Point, the river lacks only about a hundred metres of being a mile wide, but the average width above this point is between half and three quarters of a mile. Opposite Ryan's Point is the greatest depth found on the sheet,  $51\frac{1}{2}$  feet.

The River Channel: Going up the river the main channel passes close to Ryan's Point. It then swings towards the North bank. Opposite Fletcher's Tide gauge it turns and strikes towards the other shore at Spit C. Off this point it again turns towards the North shore, and opposite Jet C has its greatest depth about mid-river. Here it again turns towards the South bank of the main river, or the North shore of Government Island. From the lower end of Gov-

erment Island it hugs the shore of the island closely up to Range 0. Here is located Woods Bar.

Woods Bar: For the ordinary traffic of the river, carried in by stern-wheel steamers drawing from 3 to  $3\frac{1}{2}$  feet of water, this bar is no obstacle to the safe navigation of the river at any season. But it happens that at a point some  $2\frac{1}{2}$  miles above the bar there is an extensive quarry from which rock is taken for the construction of the jetty at Grays Harbor, on the outside coast of Washington. The stone is loaded on sea-going barges constructed the same as an ordinary schooner except that the deck space is mostly taken up with latches for convenient loading. The barges have masts and rigging, but these are taken out while they are used in carrying stone for the winter months, when stormy weather interferes with the jetty work. They are sometimes rigged again and used in the lumber trade along the coast.

These barges draw about 14 feet when loaded to their full capacity, and during the summer, when the river is high, have no difficulty in crossing the bar. But during the Autumn months, when the river is low, they are loaded down to 10½ feet only, and then sometimes strike and bump across or else stick and have to be partly unloaded before they can be floated over.

The Quarry Company has put up pangs across on Government Island, and placed two buoys to mark the channel across the bar. Up to Woods Bar the main channel carries at no point less than 13 feet of water. Over the bar the least depth found at the crossing was 8¾ feet. All across the river, at the Bar, the depth average about the same, but on the south side of the river the bar is of soft sand, while there is a hard gravelly bottom near the other shore. If a barge touches the sand she can generally be pulled through, but to touch on the gravel is to stick.



fast. But if the passage is made on the north side it is only to run into a cul-de-sac, for although there is a channel on that side of the river that carries over 12 feet of water for a distance of about a mile below the bar, it then shallows, and has no greater depth of water than there is on the bar, and in addition has a gravelly and rocky bottom in places.

Shoals: Beginning at the lower end of the sheet there is an extensive shoal in middle ground. There is less than six feet of water for over a mile up and down the river, and the low water bar surrounds an area about 700 metres long by from 50 to 150 metres wide. This part of the shoal rises to a maximum height of 4 feet above the plane of reference.

On the Oregon side of the river, opposite Blank C, is a second sand spit. This extends out from the shore in the form of a hook with its point up the river. It is about three quarters of

of a mile long by one fifth of a mile wide. Across the river and off the point to the Eastward of Edge is a third bank. This is small in area, being but a little over a hundred meters long, but it differs from those already mentioned in being composed of cobbles.

Passing up the river the next shoal begins near the north shore and opposite Lemmon Island. It runs diagonally out into and up the river to a point a little more than half way across. The depth of water in it varies from 3 1/2 to 6 feet.

Above the upper end of this shoal are four detached lumps with six feet or less of water, and then begins another extensive middle ground, which extends up to Woods Bar. The 6-ft. curve around this shoal encloses an area about a mile and a quarter long by a quarter of a mile wide, and over the greater part of it there is less than three feet of water. In few spots it dries at the low stage of the river.

Government Island Slough: The passage

South of Government Island is shallower and not used by steamers. Three quarters of a mile above the upper end of Lemmon Island there is only 2 feet of water in the channel.

**Plane of Reference:** This is the low water stage of the river as established by the U.S. Engineers at Vancouver. It is lower than the ordinary Autumn stage of the river. During the stay of our party from Sept. 15 to Dec. 10, the river was lowest on Oct. 16th and 17th, when it stood  $1.6^{\frac{1}{4}}$  above the plane. Later on, in the winter, when the river freezes up near its headwaters the water sometimes drops 3 or 4 feet below this plane.

**Traffic on the River:** Two lines of steamers, carrying passengers and freight, ply regularly in this part of the river. One, "The Regulator Line", has two boats, "The Regular" and "The Dallas City" running between Portland and The Dalles. The round trip takes two days, the boats going up one day

and back the next. They make stops at all parts of landings and are generally well loaded.

The other line is that of The Washougal-La Camas Transportation Co, which runs the steamer "Lone" between Portland and Washougal, making a round trip daily, except Sundays.

Beside these regular boats there are other freight steamers that carry wheat and produce to Portland from up the river during the season.

A statistical report is appended.

Respectfully submitted,

Fremont Morse,

Assistant.

Statistics of Field Work executed by *The Party of Fremont Mason, in Hyd. Plat., Columbia River, Regan Pt., & Woods Bar*

Date of beginning field work..... *Oct 12 1901*  
Date of closing field work..... *Nov 22 "*

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.....

**GRAVITY DETERMINATIONS:**

Number of pendulum stations occupied.....

**MAGNETIC WORK:**

Stations occupied for observations of the magnetic declination, number of.....

Stations occupied for observations of the magnetic dip, number of.....

Stations occupied for observations of the magnetic intensity, number of.....

**TOPOGRAPHY:**

Area surveyed in square statute miles.....

Length of general coast-line in statute miles.....

Length of shore-line of rivers in statute miles.....

Length of shore-line of creeks in statute miles.....

Length of shore-line of ponds in statute miles.....

Length of roads in statute miles.....

Topographic sheets finished, number of.....

Topographic sheets, scales of.....

Topographic sheets, limits and localities of:

**HYDROGRAPHY:**

Area sounded in square geographical miles.....

Number of miles (geographical) run while sounding.....

Number of angles measured.....

Number of soundings.....

Number of tidal stations established.....

Number of specimens of bottom preserved.....

Current stations, number of.....

Hydrographic sheets finished, number of.....

Hydrographic sheets, scales of.....

Hydrographic sheets, limits and localities of:

*Columbia River, Ryan Point to Nevada Bar*


4.4
115
2078
6542
3
<u>1</u>
10000