

nel in its most desirable location and to increase the depth to 8 feet at mean low tide. The project also provided that the north jetty should be constructed first, at least in part. The estimated cost of the work was \$700,000, with no provision for maintenance.

Preliminary work was commenced in 1891 and active jetty construction in 1893. To June 30, 1901, the north jetty, including the tramway approach, had been completed for a distance of 4,090 feet, at a total cost of \$151,700.83 for original work and \$10,611.27 for maintenance, surveys, etc. This work resulted in somewhat checking the tendency of the bar channel to shift its position as far north as often occurred before the improvement was commenced. No work was done on the south jetty.

The river and harbor act of June 13, 1902, directed that a reexamination and survey be made of the river at its mouth and of the shoals near Florence, with a view to the adoption of a project to provide for its commerce at a less cost than the existing project. The Board of Engineers for Rivers and Harbors, to which the report was referred, reported March 26, 1903, that in its opinion it was not desirable to continue the improvement of the Siuslaw River with the view of obtaining a depth of 8 feet. Upon recommendation of the Chief of Engineers the Secretary of War suspended operations pending receipt of further instructions from Congress. Nothing was done during the fiscal year 1904. The river and harbor act of March 3, 1905, provided that the unexpended balance of appropriations should be returned to the Treasury, except that an amount might be retained sufficient for maintenance for two years. In accordance with this act construction work was discontinued and the serviceable plant distributed among other works. The stipulated period of maintenance (two years) having elapsed the balance remaining unexpended, \$24,838, was returned to the Treasury in 1908 and the work abandoned.

6. TILLAMOOK BAY AND BAR, OREG.

The original project for the improvement of Tillamook Bay and Bar was adopted by the river and harbor act of August 11, 1888, which provided for a survey of the entrance and for the improvement of Dry Stocking Bar and Hoquarten Slough by building dikes, at an estimated cost of \$5,200 and \$150 annually for maintenance.

Operations were commenced in 1890, and during the year 1,148.5 feet of sheet pile dikes and 448.5 feet of pile and brush revetment work were built at Dry Stocking Bar, but the unprecedented freshets of the following winter and spring swept them away, so no results can be claimed for the work done. During that year a survey of the bar and entrance was made, and Hoquarten Slough was cleared of snags as far as Tillamook City. A survey of the entrance to Tillamook Bay was made in July, 1891, and the report thereon (see H. Doc. No. 35, 52d Cong., 1st sess.) formed the basis for a new special project. The total amount expended on the foregoing work is \$5,700, of which \$964.45 was applied to maintenance.

The second project, adopted by the river and harbor act of July 13, 1892, provided for connecting the north and middle channels nearly opposite Bay City, on the north shore of Tillamook Bay, putting in dikes at Junction and Dry Stocking Bars, and contemplated a

least depth of 9 feet at mean high tide from Hobsonville to Tillamook on Hoquarten Slough, at an estimated cost of \$100,000. No provision was made for maintenance at this time, but in 1903 it was estimated that \$10,000 would be required biennially to maintain the work. At this time it was also estimated that \$6,000 would be required to make certain changes in and additions to the plant.

Preliminary operations were commenced in 1892 and actual construction in 1893. In 1895 the project was somewhat modified by providing for different works which were believed essential to accomplish the desired end. The estimated cost remained as originally stated. The expenditures to June 30, 1897, \$52,221.86, resulted in cutting a navigable channel through the sand and mud flats separating Bay City Channel from Garibaldi Channel, and in the following work designed to increase the flow and depth of water in Garibaldi Channel and Hoquarten Slough so as to aid vessels to reach Tillamook City: The removal of snags and overhanging trees in Hoquarten Slough as far up as Tillamook City; the construction of a dike across the head of Middle Channel; a dike across lower mouth of Kilchis River; a dike across the head of Old South Channel; a dike across the lower mouth of Wilson River; a dike at Dry Stocking Bar; a dike across the head of South Fork of Trask River; a dike across the North Fork of Trask River; and excavating a channel from the North Fork of Trask River to Hoquarten Slough, by means of which the waters of both forks of Trask River are emptied into Hoquarten Slough above Dry Stocking Bar. The foregoing work was done under contract. In 1899 operations consisted of keeping dikes free from drift and in preparing for active operations as soon as funds were made available. In 1900 a snag scow, constructed under contract at a total cost of \$2,720.90, including equipment, was placed in commission and operated by hired labor. During the year it removed snags from the Hoquarten Slough Channel between Tillamook and Bay City, and dredged a 10-foot channel through Dry Stocking Bar and through a shoal in the channel opposite the old mouth of Wilson River, and at the close of the year was engaged in widening the channel opposite Bay City.

Several spur dikes were also constructed under contract, the brush mattresses and rubblestone filling therefor also being supplied under contract. Miscellaneous repairs to dikes were also made. It was estimated that the various dikes and improved channels could be made practically permanent at a cost of \$27,000. The operations during 1901 were in continuation of those in progress at the close of the previous fiscal year, and consisted of dredging shoals and constructing deflecting dikes in and along the selected channel leading from Hobsonville to Tillamook City. A channel having the least depth of 9 feet at mean high tide from Hobsonville to Tillamook, as called for by the project was obtained, and the project completed in 1901. This work was discontinued August 18, 1913, as the maintenance of this channel by local interests was made a condition of the present project.

The total amount expended under this project to the end of the fiscal year 1915 was \$143,007.39, distributed as follows: \$72,473.37 for original work and \$70,534.02 for maintenance, of which \$476.95 was expended during 1915 in caring for Government plant.