

1. *Preliminary examination of Boothbay Harbor, Maine.*—Lieutenant-Colonel Damrell submitted report of examination April 22, 1897. The improvement desired is the widening of the 15-foot area in the upper harbor, so as to bring that depth within reach of the wharves; and it is the opinion of the local officer, which is concurred in by the Chief of Engineers, that this harbor is worthy of improvement by the General Government, provided it be shown by a survey, estimated to cost \$500, that such improvement can be effected at a reasonable cost. The report was transmitted to Congress and printed in House Doc. No. 46, Fifty fifth Congress, first session. (See also Appendix A 25.)

A 25.

PRELIMINARY EXAMINATION OF BOOTHBAY HARBOR, MAINE.

[Printed in House Doc. No. 46, Fifty-fifth Congress, first session.]

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., April 30, 1897.

SIR: I have the honor to submit the accompanying copy of report, dated April 22, 1897, by Lieut. Col. A. N. Damrell, Corps of Engineers, upon the results of a preliminary examination of Boothbay Harbor, Maine, provided for by the terms of the river and harbor act of June 3, 1896.

Colonel Damrell states that the improvement desired is the widening of the 15-foot area in the upper harbor so as to bring that depth within reach of the wharves, and it is his opinion, which is concurred in by me, that Boothbay Harbor is worthy of improvement by the General Government, provided it be shown by a survey, estimated to cost \$500, that such improvement can be effected at a reasonable cost.

Very respectfully, your obedient servant,

JOHN M. WILSON,
Brig. Gen., Chief of Engineers, U. S. Army.

Hon. R. A. ALGER,
Secretary of War.

REPORT OF LIEUT. COL. A. N. DAMRELL, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,
Portland, Me., April 22, 1897.

GENERAL: In accordance with instructions contained in circular letter of June 16, 1896, from the office of the Chief of Engineers, I have the honor of submitting the following report upon the preliminary examination of Boothbay Harbor, provided for by the river and harbor act of June 3, 1896.

Boothbay Harbor is about 10 miles east of the Kennebec River. It is formed by the mainland on the north and east, a number of islands on the south, and Southport Island on the west. It is thoroughly protected, well lighted and buoyed, with not less than 30 feet of water over a large area up to McFarlands Island. Above this is what may be called the upper harbor, where vessels are loaded and unloaded, with a width at the lower end of about 2,000 feet and at the upper end of about 600 feet, with a length north and south of about 2,000 feet. It has a very contracted area, with a depth of from 30 feet at the lower end, shoaling up to about 15 feet at mean low water near the upper end. The rise of mean high water is 8.5 feet.

The improvement desired is to widen the 15-foot area so as to bring that depth within reach of the wharves. The wharves can not be carried out to the proper depth without destroying the harbor.

The conditions appear to be favorable for the improvement.

First a wharf line should be established around the harbor and the area included dredged out to the depth of 15 feet. The cost should not, in my opinion, exceed \$40,000.

1897

The amount of freight landed at and shipped from the harbor by steamers and sailing vessels drawing from 8 to 18 feet and from 200 to 600 tons each was estimated for the last fiscal year at 94,000 tons. The number of American and foreign vessels seeking refuge in the harbor during the same time was estimated at 1,144.

In consideration of the above, I am of the opinion that the harbor is worthy of improvement, provided a survey shows the improvement can be effected for the price stated.

The survey could be made for about \$500.

Very respectfully, your obedient servant,

A. N. DAMRELL,

Lieut. Col., Corps of Engineers.

Brig. Gen. JOHN M. WILSON,

Chief of Engineers, U. S. A.

BOOTHBAY HARBOR, MAINE.

SURVEY MADE
IN ACCORDANCE WITH REQUIREMENTS OF RIVER AND HARBOR ACT OF MARCH 3, 1899,
UNDER DIRECTION OF
MAJOR S.W. ROESSLER, CORPS OF ENGINEERS, U.S. ARMY,
BY F.S. BURROWES, ASSISTANT ENGINEER
NOVEMBER 8-14, 1899.

SCALE, 1:2500

U.S. Engineer Office,
Portland, Me. Dec. 20, 1899.
Forwarded to the Chief of Engineers, U.S. Army,
with report of this date.

S. W. Roessler
Major Corps of Engineers, U.S. Army.



NOTE.
Soundings are expressed in feet and tenths and are referred to the plane of mean low tide.
The mean range of tides is.....3.4 ft.
The 6 ft. curve is shown thus: ~~~~~
The 12 ft. curve is shown thus: ~~~~~
The 8, 10 & 14 ft. curves are shown thus: ~~~~~
The 16 ft. curve is shown thus: ~~~~~
Locations of rests with iron rod, shown thus: (X)

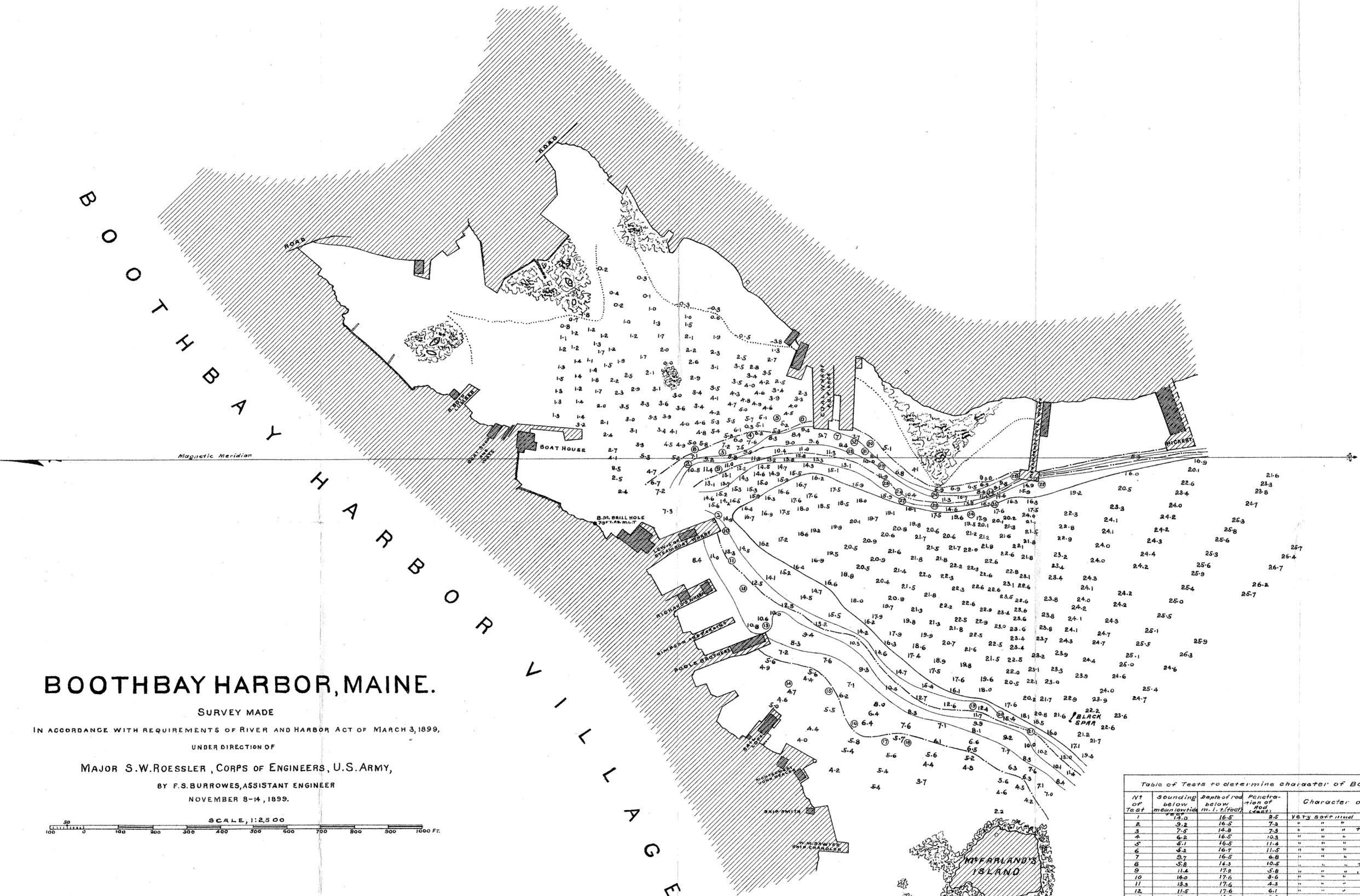


Table of Tests to determine character of Bottom

No. of Test	Soundings below mean low tide	Depth of rod below 100 fathoms	Penetration of rod (feet)	Character of Material
1	15.0	16.5	2.5	Very soft mud
2	9.2	16.5	7.3	" " "
3	7.5	14.8	7.3	" " " to rocks
4	6.2	16.5	10.3	" " "
5	6.7	16.5	11.4	" " "
6	3.2	16.7	11.5	" " "
7	9.7	16.5	6.8	" " "
8	3.8	16.3	10.8	" " " to hard
9	11.4	17.2	5.8	" " " last 3" hard
10	14.0	17.6	3.6	" " "
11	13.3	17.6	4.3	" " "
12	11.5	17.6	6.1	" " "
13	10.6	16.5	6.3	" " "
14	4.7	15.1	10.4	" " " to hard gravel
15	5.6	17.1	11.5	" " "
16	6.4	17.6	11.3	" " "
17	5.8	16.4	10.6	" " " 1 1/2 ft. gravel
18	5.7	16.0	10.3	" " " 1 1/2 ft. gravel
19	12.4	15.0	2.6	" " " to gravel
20	15.0	16.5	1.5	" " " to gravel
21	11.0	11.0	0.0	Bare ledge
22	14.0	16.3	2.3	Very soft mud
23	10.0	16.0	6.0	" " " then 2 1/2 ft. gravel
24	10.0	12.1	2.1	Gravel on ledge
25	14.0	16.4	2.4	Soft mud to 2 ft. gravel
26	12.0	18.4	1.4	Gravel on ledge
27	14.0	16.7	1.7	" " "
28	13.0	17.5	4.5	Soft mud
29	10.0	16.2	6.2	" " " then 2 ft. gravel
30	10.0	12.5	2.5	Gravel to rocks
31	9.1	16.0	6.9	Soft, then 2 ft. hard to rocks
32	8.5	12.3	3.8	Soft to rocks
33	10.0	16.7	6.7	" " "
34	10.0	12.1	2.1	" " "
35	15.7	16.5	0.8	" " "
36	16.5	18.0	1.5	" " "

5. *Examination and survey of Boothbay Harbor, Maine.*—Major Roesler submitted reports dated August 18 and December 20, 1899, respectively. From the facts developed during the survey, the local officer concludes that the locality is so well favored by natural advantages that no artificial works of improvement in the interests of navigation are required at the present time, and his views are concurred in by the division engineer. The reports were transmitted to Congress and printed in House Doc. No. 277, Fifty-sixth Congress, first session. (See also Appendix A 19.)

A 19.

EXAMINATION AND SURVEY OF BOOTHBAY HARBOR, MAINE.

[Printed in House Doc. No. 277, Fifty-sixth Congress, first session.]

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, January 8, 1900.

SIR: I have the honor to submit herewith copy of report of preliminary examination, dated August 18, 1899, and copy of report of December 20, 1899, with map,¹ giving the results of survey of Boothbay Harbor, Maine, made by Maj. S. W. Roesler, Corps of Engineers, to comply with the terms of the river and harbor act approved March 3, 1899.

At the time the preliminary examination was made it was believed that this locality was worthy of improvement on account of the commercial interests involved, but from the facts developed during the survey the local officer draws the conclusion that Boothbay Harbor is so well favored by natural advantages as to require no artificial works of improvement at the present time in the interests of navigation, and therefore no project is submitted. The views of Major Roesler are concurred in by Col. G. L. Gillespie, Corps of Engineers, the Division Engineer.

Very respectfully, your obedient servant,

JOHN M. WILSON,
Brig. Gen. Chief of Engineers,
U. S. Army

Hon. ELIHU ROOR,
Secretary of War.

PRELIMINARY EXAMINATION OF BOOTHBAY HARBOR, MAINE.

UNITED STATES ENGINEER OFFICE,
Portland, Me., August 18, 1899.

GENERAL: Complying with letter of March 10, 1899, from the Chief of Engineers, I have the honor to submit the following report of a preliminary examination of Boothbay Harbor, Maine, authorized by the river and harbor act of March 3, 1899.

A similar examination was made by Lieut. Col. A. N. Damrell, Corps of Engineers, in 1897, and his report thereon was published as House Doc. No. 46, Fifty-fifth Congress, first session.²

¹ Not reprinted. Printed in House Doc. No. 277, Fifty-sixth Congress, first session.

² Reprinted in Annual Report of Chief of Engineers for 1897, page 802.

Colonel Damrell deemed the locality worthy of improvement and recommended a survey, but the latter was not made because the language of the act stipulated that after the formal report of an examination no additional report for the same fiscal year should be made unless ordered by a concurrent resolution of Congress.

A full description of the locality is contained in the above document and in the accompanying report of Mr. A. C. Both, Assistant Engineer, and need not be repeated here.

I concur with Colonel Damrell in the opinion that the place is worthy of improvement by the General Government, and recommend a survey be made to ascertain the probable cost. Such a survey will cost about \$600.

Very respectfully, your obedient servant,

S. W. ROESSLER,
Major, Corps of Engineers.

Brig. Gen. JOHN M. WILSON,
Chief of Engineers, U. S. A.

(Through the Division Engineer.)

[First indorsement.]

NORTHEAST DIVISION ENGINEER OFFICE,
New York, August 21, 1899.

Respectfully forwarded to the Chief of Engineers, concurring in the views of the district officer respecting this locality and recommending that a survey be made at an estimated cost of \$600.

G. L. GILLESPIE,
*Colonel, Corps of Engineers,
Division Engineer.*

[Second indorsement.]

OFFICE CHIEF OF ENGINEERS,
U. S. ARMY,
August 23, 1899.

Respectfully submitted to the Secretary of War.

In accordance with the provisions of the river and harbor act of March 3, 1899, a preliminary examination has been made of Boothbay Harbor, Maine.

The locality is reported to be worthy of improvement, and I recommend that a survey be made and the cost of improvement be estimated.

JOHN M. WILSON,
*Brig. Gen., Chief of Engineers,
U. S. Army.*

WAR DEPARTMENT,
August 24, 1899.

Approved.

ELIHU ROOT,
Secretary of War.

REPORT OF MR. A. C. BOTH, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
Portland, Me., August 8, 1899.

MAJOR: In compliance with instructions contained in your letter of July 15, 1899, to make a preliminary examination of Boothbay Harbor, provided for in the river

and harbor act of March 3, 1899, I proceeded to that place on July 20, 1899, and have the honor to submit the following report:

The town of Boothbay Harbor is located about 12 miles south of Wiscasset, in the county of Lincoln, Me., and about 2 miles north-northeast from Burnt Island Light-House. Boothbay Harbor belongs to the customs district of Wiscasset, the port of entry, and has a deputy collector of customs.

The population of the town is about 2,000. Boothbay Harbor is the center of trade for North and East Boothbay, Southport, Edgecomb, and Bristol. It has the following manufacturing establishments:

(1) Cumberland Bone and Phosphate Company receive 7,000 tons and ship 6,000 tons annually.

(2) Poole's Sardine Factory, capacity $3\frac{1}{2}$ tons of packed sardines daily during packing season.

(3) Maddock's Sardine Factory, capacity 20 tons of packed sardines daily during packing season.

(4) Pickard's Sardine Factory, capacity 15 tons of packed sardines daily during packing season.

(5) Greenlaw's Sardine Factory, capacity $2\frac{1}{2}$ tons of packed sardines daily during packing season.

(6) Pierce's Sardine Factory, capacity 5 tons of packed sardines daily during packing season.

(7) Barter & Sweet's Sardine Factory, capacity $2\frac{1}{2}$ tons of packed sardines daily during packing season.

(8) Poole's Cold Storage, for fish and bait, capacity about 3,500 barrels, or 440 tons.

(9) Nickerson, wholesale salt and fish, sailmakers and seines; doing a business of about \$240,000 per annum. This concern imports about 2,250 tons of salt per year, handles about 750 tons of salt codfish, about 500 tons of alewives, and up to 500 tons of herring.

This concern and several others were located on the east side of the harbor, isolated from the town, at considerable inconvenience, for the reason that the depth of water at the wharves in Boothbay Harbor is not sufficient for their requirements.

The quantity of merchandise and general supplies which is brought here by the different lines of steamers is estimated by the deputy collector of the port as 225 tons per week, or 11,700 tons per annum. From the same source I learn that about 40,000 tons of ice are shipped annually.

There are also two marine railways adapted for vessels up to 500 tons.

Boothbay Harbor is well protected from all sides and has abundant depth of water for the largest vessels. The approach from the sea is short, wide, and safe, and is well marked by Burnt Island and Ram Island lights, and is much used as a harbor of refuge.

It is stated that from 15,000 to 18,000 vessels pass Burnt Island Light annually.

The anchorage covers an area of about 1 mile by one-half mile, excluding the upper harbor in front of the wharves of the town.

Boothbay Harbor is about 12 miles from the nearest railroad station, and depends mostly upon water communication, which is as follows.

(1) To Boston, Mass., triweekly, steamer *Lincoln*, 966 tons; draws $11\frac{1}{2}$ feet.

(2) To Portland and Rockland, Me., triweekly, steamers *Merriconeag* and *Enterprise*, 165 tons each.

(3) To Augusta, Me., daily, steamer *Islander*, about 125 tons.

(4) To Bath, Me., daily, steamers *Nahouada*, *Damarin*, *Island Bell*, and *Wimurna*, all about 100 tons, drawing from 8 to $8\frac{1}{2}$ feet.

(5) To Gardiner, Me., steamer *Gardiner*.

(6) To Monhegan Island, steamer *Wauenoc*.

Besides all these steamers, four tugboats are constantly employed in the harbor.

The Boston steamer *Lincoln* and the steamers plying between Bath and Boothbay Harbor land at Lewis wharf, with 14 feet at low water at its end. This wharf was recently extended 100 feet, by authority of the Secretary of War. At this wharf a coal business is carried on, handling about 1,100 tons of coal annually.

The steamer *Islander* lands at Simpson & Perkin's wharf, which has only 5 feet at mean low water. The steamers *Enterprise* and *Merriconeag* land at K. H. Richard & Co.'s wharf, where there is about 10 feet of water at low water. On the east side of the harbor, opposite the above-named wharves, is one wharf belonging to P. G. Pierce, who carries on a coal business, handling about 1,000 tons annually. This wharf has 9 feet of water at low water, and small vessels only can be employed in freighting coal.

At the Poole wharf (on the west side), where the cold-storage building is located, there is only 6 feet at low water, not a sufficient depth for fishermen to come alongside, and all the bait and other supplies have to be taken on board by small boats.

Southeasterly of Poole's wharf, the last wharf of any importance on the west side of the harbor, the bottom gradually rises to within 4 feet below mean low water as far as a small island, which can be considered the limit of Boothbay upper harbor.

In order to give more anchorage room for the many vessels which anchor in the upper harbor, and there relieve the channel of approach to the wharves from the crowded condition mostly prevailing, the people desire to have the shoal ground in front of their wharves sufficiently deepened to accommodate the vessels frequenting this place. The area desired to be deepened is about 1,200 feet long and 400 feet wide.

The quantities necessary to be removed to give 16 feet of water over the area considered necessary for anchorage and unobstructed approach to the wharves, from a rough estimate based on the depth shown on the United States Coast Survey chart, No. 315a, will not exceed 200,000 cubic yards (scow measurement) of easily dredged material, at 15 cents per cubic yard, or \$30,000.

The shipping in tonnage per year sums up as follows:

Goods received, 23,050 tons; goods shipped, 53,950 tons, or a total tonnage of 77,000 tons.

In consideration of the present and steadily increasing commerce carried on at Boothbay Harbor and the urgent need of more room and deeper water in the upper harbor, I respectfully recommend that this improvement be undertaken by the General Government. I would also recommend that a harbor line be established previously to any contemplated work.

A survey of the harbor would cost about \$600.

Very respectfully, your obedient servant,

A. C. BOTTE,
Assistant Engineer.

Maj. S. W. ROESSLER,
Corps of Engineers, U. S. A.

SURVEY OF BOOTHBAY HARBOR, MAINE.

UNITED STATES ENGINEER OFFICE,
Portland, Me., December 20, 1899.

GENERAL: I have the honor to submit the following report of a survey of Boothbay Harbor, Maine, made under the provisions of the river and harbor act of March 3, 1899, with a view to its improvement in the interest of navigation.

Boothbay Harbor lies at the head of a deep indentation in the coast line 11 miles northeast of the mouth of the Kennebec River. The entrance between headlands is exposed to heavy seas only from the south, and from these the harbor proper is well protected by outlying islands. The tidal currents are not great, and the locality is easily accessible in all gales that would set up a heavy sea and drive vessels into harbor. For these reasons it is much resorted to as a harbor of refuge by coastwise vessels, and at almost any time in uncertain weather a large fleet of sailing vessels may be found anchored in the shelter of this harbor. It is the principal harbor of refuge between Portland and Penobscot Bay, and it is also quite a busy port commercially. Locally the harbor may be divided into two parts—the outer harbor, which is used exclusively as a harbor of refuge, and the inner harbor, upon which all the wharves are located.

The preliminary examination of this harbor, submitted under date of August 18, 1899, showed that only the upper or inner harbor in front of the wharves needed attention, and the survey was therefore limited to that locality. The results of this survey are shown on the accompanying tracing.

It was claimed at the time the preliminary examination was made that steamboats landing at the wharves on the westerly side of the harbor sometimes grounded at extreme low-water stages. Upon further

inquiry while the survey was being made it developed that this report applied practically to only one boat, not now in the trade, drawing 12 feet, which touched here during the summer and sometimes grounded alongside the wharf, but inside the line up to which the Government might, under any circumstances, be expected to dredge. The map shows that outside the line of the ends of the main wharves there is water enough at almost any stage of the tide for the class of steamboats touching here. No complaint has been received that the depths are not sufficient for sailing vessels doing business at this point. As the results of the survey show that there is more water outside the line of the ends of the wharves than there is alongside the wharves there is no necessity for dredging in the interest of vessels going to the wharves. In the area used as an anchorage the depths are ample.

From the above facts the conclusion is drawn that the harbor is an important one, but so well favored by natural advantages as to require no artificial works of improvement at the present time in the interest of navigation. No project is therefore submitted.

Very respectfully, your obedient servant,

S. W. ROESSLER,
Major, Corps of Engineers.

Brig. Gen. JOHN M. WILSON,
Chief of Engineers, U. S. A.

(Through the Division Engineer.)

[First indorsement.]

NORTHEAST DIVISION ENGINEER OFFICE,
New York, December 21, 1899.

Respectfully forwarded to the Chief of Engineers, concurring in the views of the district officer.

G. L. GILLESPIE,
Colonel, Corps of Engineers,
Division Engineer.

BOOTHBAY HARBOR, ME.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

WITH A LETTER FROM THE ACTING CHIEF OF ENGINEERS, REPORTS
 ON EXAMINATION AND SURVEY OF BOOTHBAY HARBOR, ME.

JULY 1, 1911.—Referred to the Committee on Rivers and Harbors and ordered to
 be printed, with illustration.

WAR DEPARTMENT,
 Washington, June 30, 1911.

SIR: I have the honor to transmit herewith a letter from the Acting
 Chief of Engineers, United States Army, dated 29th instant, together
 with copies of reports from Lieut. Col. W. E. Craighill, Corps of
 Engineers, dated November 22, 1910, and January 10, 1911, with
 map, on preliminary examination and survey, respectively, made by
 him in compliance with the provisions of the river and harbor act
 of June 25, 1910, of Boothbay Harbor, Me.

Very respectfully,

H. L. STIMSON, *Secretary of War.*

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

WAR DEPARTMENT,
 OFFICE OF THE CHIEF OF ENGINEERS,
 Washington, June 29, 1911.

SIR: I have the honor to submit herewith, for transmission to
 Congress, reports dated November 22, 1910, and January 10, 1911,
 with map, by Lieut. Col. W. E. Craighill, Corps of Engineers, on pre-
 liminary examination and survey, respectively, called for by the
 river and harbor act of June 25, 1910, of Boothbay Harbor, Me.

This locality has been twice examined, and in 1899 was surveyed,
 but no work of improvement has ever been undertaken by the United
 States. Since the survey it appears that there has been a consid-

erable commercial development. Besides a passenger business of 103,000 in 1909, the annual water-borne commerce is reported as 115,322 tons, valued at \$3,613,227, which is inconvenienced by lack of depth in the upper part of the harbor and in front of important wharves.

The district officer presents a plan for relief by dredging along the wharves on the westerly side, at the upper end, and along the upper wharves on the easterly side of the harbor to a depth of 12 feet at mean low water, as indicated on the accompanying map, at an estimated cost of \$18,000. It is expected that the depths will remain reasonably permanent and that for many years there will probably be no charge for maintenance.

I concur with the district officer, the division engineer, and the Board of Engineers for Rivers and Harbors that Boothbay Harbor is worthy of improvement as proposed by the United States at the present time, and that the full amount of the estimate of \$18,000 should be made available in a single initial appropriation.

Very respectfully,

EDW. BURR,
Acting Chief of Engineers.

The SECRETARY OF WAR.

PRELIMINARY EXAMINATION OF BOOTHBAY HARBOR, ME.

UNITED STATES ENGINEER OFFICE,
Portland, Me., November 22, 1910.

SIR: In compliance with instructions contained in department letter dated August 4, 1910, I have the honor to make the following report upon the preliminary examination of Boothbay Harbor, Me., directed by the river and harbor act of June 25, 1910.

A previous examination of this harbor was made by Lieut. Col. A. N. Damrell, Corps of Engineers, in 1897 (H. Doc. No. 46, 55th Cong., 1st sess.), and an examination and survey by Maj. S. W. Roessler, Corps of Engineers, in 1899 (H. Doc. No. 277, 56th Cong., 1st sess.). A description of the harbor is to be found on page 5 of Maj. Roessler's survey report as the conditions then were, which are substantially the same as now, except that a footbridge now crosses the harbor above the "steamboat wharf." It has a drawbridge, but there is no business of any consequence above it and no present demand for improvement above it. A steam railroad is projected from Boothbay Harbor to Newcastle, a distance of 11 miles, and the survey made, but funds for construction have not yet been subscribed. Reference is invited to the map accompanying Maj. Roessler's survey, which may be accepted as accurate at this date, as harbors such as this one on the Maine coast undergo but little change in a period of 11 years. (See also United States Coast and Geodetic Survey charts Nos. 314 and 315a.)

The mean range of tide is 8.8 feet.

No work has ever been done in this locality by the General Government.

As there is no railroad communication with Boothbay Harbor nearer than Wiscasset, a distance of about 12 miles, the village and

those who come to its vicinity in the summer time have to depend almost entirely upon water transportation for passengers and entirely for freight. Connections are with Bath, Portland, and Boston. The several lines of steamboats which come into the harbor make their landings at the upper wharves on the west side of the harbor. Coal is delivered at wharves on both sides of the upper end of the harbor. For the purpose of accommodating these classes of business and for lumber, it is desirable to dredge out the upper harbor so as to provide a moderate turning basin of 12 feet in depth at mean low water. The coal comes to the port in schooners. The tendency is to handle this class of commodity in larger vessels, and is so marked, that for economical reasons, smaller vessels are driven out of the trade. The further need of the harbor is to dredge out the shoal area on the western side so as to give access to the docks on this side of the harbor, as well as to provide an anchorage for smaller craft, such as fishermen and yachts, who now are forced to anchor in the fairway, in considerable numbers at times, thus obstructing the passage of the regular lines of steamers to and from their wharves. A depth of 12 feet will be what is required at this point also. The outer harbor is used for the ice business, for anchorage, and as a harbor of refuge. There is ample depth for all present needs.

The bottom of the harbor, as indicated by the borings of Maj. Roessler's survey and by the evidence of experienced parties, is generally soft mud, so that vessels carrying coal or other freight requiring some time to discharge can go in on high tide and rest on the mud safely when the tide is low.

The chief business of the port, aside from the passenger service and supplies for the neighborhood and visitors, is lumber, fish and bait, sardine packing, and exportation of ice. The vessels carrying ice do not use the part of the harbor for which improvement is wanted, the ice houses being near the mouth of Mill Creek. (See United States Coast and Geodetic Survey chart No. 314.) Boothbay Harbor, being perfectly sheltered and deep, except in front of the wharves, is one of the best harbors of refuge on the Maine coast, and is much used at times by the coastwise trade, fishermen, and yachtsmen in the season. While they usually anchor in the outer harbor, their presence adds necessarily to the business and importance of the place, and increased facilities for anchoring them in the inner harbor would be a convenience to them in enabling them to go to the village more easily for supplies. About 10 years ago 14,300 vessels were found by actual count to enter the harbor in one year.

During the year 1909, 103,000 passengers were carried in the regular lines to Portland, Bath, Rockland, Gardiner, Bar Harbor, and Bristol. At Bath, connection is made with the Maine Central Railroad and by steamer for Augusta and Boston. At Portland, connection is made with the principal railroad routes and by steamer to Boston and New York. The largest passenger steamer using the harbor during the year 1909 was 128 feet long and 14 feet draft. Passenger steamers to Bath have an inside route by way of Sheepscot and Sasanoa Rivers.

The village of Boothbay has a permanent population of about 2,500. The coast line is exceedingly irregular, with many islands, bays, and coves, so that communication with various points is carried on almost entirely by water. The islands and points of land in the

vicinity have grown in popularity as summer resorts to such an extent that it is now estimated that the summer population, of which Boothbay Harbor is the center, runs as high as 25,000 persons. The passenger line of steamers to Bath keeps five boats busy during the summer and two in winter. The same line during the summer also runs two boats to Portland, and one in winter. Some freight is shipped via Bath, but the greater part of it is by steamer to and from Portland, there being a freight vessel by another line which makes three round trips per week to Boothbay Harbor and adjacent points.

There are seven sardine factories, with an aggregate capital of about \$200,000, employing about 400 people in the factories, besides affording a market for the catch of a great number of fishermen. There is also one cold-storage plant, one planing mill, three boat-building shops, and one fish smoking and curing establishment. The output of the sardine factories has been stated to be about 350,000 cases annually, worth on the average \$3 per case. It is said that the labor cost in packing sardines is about \$1 per case. The sardines are shipped via steamer to Bath and Portland. Besides the above industries there are an extensive ice-storage plant and the supply houses and stores ordinarily found in a place of this description. The great number of summer visitors and the multitude of cottages which have been built for their accommodation on the adjacent shores are in no small degree responsible for the prosperity of the locality.

On the west, or village side, the first wharf below the bridge is that of the Eastern Steamship Co. There is about 13 feet at mean low tide in front of this wharf, but it is stated that the upper side of the wharf can not be used by larger boats because of shoal water in the harbor in front. There is also a coal pocket on this wharf, with a capacity of about 1,000 tons. Both wharf and pocket are open for general business on equal terms, except during the busy part of the summer season. The largest boat of this line draws about 14 feet.

The second wharf is used by the Kennebec Steamboat Line and the Wiscasset boat. The business at this wharf is principally passenger, the freight transactions being estimated at about 300 tons per annum.

The third wharf is known as Richard's Wharf. It is used by a steamer making three trips per week to Portland. This boat has been estimated to handle about 30,000 tons of miscellaneous freight, exclusive of sardines, per annum. Its draft is about 10 feet. The business is increasing rapidly and it is stated that a larger boat is contemplated. This is the heaviest freight line in Boothbay Harbor and the need for more water in front of the wharf is seriously felt.

The fourth wharf is used by a steamer which runs to Monhegan. It is open for public business on equal terms. About 750 tons of miscellaneous cargo are landed at this place annually. The business conducted at this wharf does not require greater depth than already exists.

The fifth wharf is occupied by a cold-storage plant and a factory for manufacturing seines. About 400 tons of fish are landed here annually, placed in storage, and sold out again as fish bait and food. The sales for bait include shore as well as bank fishermen. The latter vessels draw on an average about 15 feet and can not get into the wharf at low tide, so that the supplies have to be boated to and from the vessel, or the latter have to wait for tide. It is impracticable to

compute the annual loss or saving, but much business is lost because of lack of depth. This concern pays about \$100 per year for trucking to and from other places which could be saved if there were greater depth in front.

The sixth wharf is open for public use. About 200 tons of lumber, sand, and hay are landed annually, but operations are much hampered for lack of depth.

The seventh wharf is occupied by the yacht club and by a boat builder and is a very busy place in the summer season.

The eighth wharf is used for boat storage and repairs.

The ninth wharf is used for coal, about 2,500 tons being handled annually, 60 per cent anthracite and 40 per cent bituminous. There is storage for about 2,000 tons of coal. The dealer occupying this wharf now guarantees only 12 feet, or about 3 feet at mean low tide, but he thinks that 25 cents per ton could be saved on an average by the use of larger vessels if he had greater depth ($12 + 8.8 = 20.8$). Aside from this, he complains that he loses much business because steamers desiring to coal up can not get in to his wharf.

The tenth wharf is used by a ship chandler and fish dealer, whose business also extends to handling junk and repairing vessels. He receives annually about 125 tons of junk by vessel and ships the same amount. He is much inconvenienced by lack of depth.

The eleventh wharf, at Sawyers Island, is occupied by a fish curer, who handles about 40 tons of oil annually, about 1,000 tons of fish, and about 44 tons of salt. His business is restricted because of lack of depth. Vessels which would trade with him go to other ports where there is greater depth, but he can not estimate the money value of this.

The twelfth wharf is occupied by a sawmill and marine railway. No demand is expressed for greater depth.

Farther down the harbor, on the westerly side of the main harbor or anchorage ground, there is an ice wharf, where about 33,000 tons of ice are shipped annually. It is understood, however, that there is sufficient depth here and that nothing further is desired.

Besides this there are about 8,000 tons of ice annually loaded on vessels from the wharves along the village front which has not been included in the above statements.

On the easterly side of the harbor the first wharf below the bridge is occupied by a lumber dealer, where about 3,500,000 feet are received annually. This lumber is brought in by lighters drawing about 4 feet, but if there were greater depth it is claimed that larger vessels could and would be used, and also that the lumber would be brought from points where lower prices could be secured. This dealer estimates that if 12 feet depth could be carried in front of his wharf he could save \$2 per thousand feet on 3,500,000 feet b. m., or \$7,000 per annum. Considerable lumber is shipped from this wharf, but the shipments are made in small craft, and for that purpose the present depth is sufficient.

The second wharf on the easterly side is occupied by coal dealers, who handle about 6,720 tons per annum, about 4,000 tons of which are bituminous and the remainder anthracite. This concern estimates that a saving of 30 cents per ton could be effected if larger vessels could be used. There is storage here for about 3,000 tons. The same concern handles about 1,200 cords of wood, on which they

estimate they could save 50 cents per cord if they had greater depth. The depth in front of this wharf is now about 9 feet at mean low tide.

The third wharf is occupied by a sardine factory, now in course of erection.

The fourth wharf is occupied by a boat shop.

The fifth wharf is occupied by a sardine factory.

The sixth wharf is occupied by a fish smoking and pickling establishment.

The seventh wharf is occupied by a dealer in salt fish.

The eighth, ninth, and tenth wharves are occupied by sardine factories, and the eleventh by a lobster dealer.

Wharves 5 to 11, on the easterly side, already have sufficient water, and nothing more is desired there. These establishments take in about 1,000 tons of bituminous coal annually.

A careful canvass, wharf by wharf, was made of the harbor to ascertain the annual amount of business by water, with the following result:

Boothbay Harbor statistics.

[The tons referred to in this report are "short" tons, or tons of 2,000 pounds.]

	Tons.
Coal.....	11,720
Cordwood.....	3,000
Fish.....	1,800
Ice.....	41,018
Junk.....	250
Lobsters.....	1,000
Lumber.....	5,250
Miscellaneous freight.....	42,450
Oil.....	40
Sardines.....	8,750
Salt.....	44
	115,322

The passenger business for 1909 is reported as 103,000.

The value of the above commodities is estimated as follows:

Coal:	
7,000 tons, at \$3.50	
4,720 tons, at \$5.50	\$50,460
Wood, 1,200 cords, at \$6.....	7,200
Fish, 1,800 tons, at \$30.....	54,000
Ice, 41,018 tons, at \$1.50.....	61,527
Junk, 250 tons, at \$10.....	2,500
Lobsters, 1,000 tons, at \$200.....	200,000
Lumber, 3,500 M, at \$18.....	63,000
Miscellaneous, 42,450 tons, at \$50.....	2,122,500
Oil, 40 tons, at \$40.....	1,600
Sardines, 350,000 cases, at \$3.....	1,050,000
Salt, 44 tons, at \$10.....	440
	3,613,227

The demand is for a depth of 12 feet at mean low tide along the wharves on the westerly side of the harbor as far southerly as McFarlands Island up to a point near the footbridge and in front of the upper wharves on the easterly side of the harbor. In cases where it has been possible to estimate the annual saving it has been done and the data given above. In numerous other cases it has been impracticable to reduce the value of greater depth to dollars and cents.

The harbor is much frequented by fishermen and other vessels seeking supplies. Many craft going in for shelter take the opportunity to replenish, and business generally finds itself seriously handicapped because of lack of depth along the wharf front. While vessels seeking refuge only have ample depth for accommodation in the outer harbor, those desiring to do business in the town run into the inner harbor. Greater depth would not only give better approach to the wharves, but would materially increase the anchorage area or capacity of the inner harbor.

The statement was made universally by all those who complain of lack of depth that, should the Government dredge to 12 feet, the wharf owners would make a corresponding improvement in the depths in their docks.

There are no questions of either land reclamation or water-power development in any sense in connection with this locality.

There are no wharves owned by the municipality, nor does the town own any space or wharf front upon which wharves could be constructed. There are, however, sufficient private wharves which are open to the public on equal terms, and are, in my opinion, sufficient to provide for all business that may be offered. There is in addition an abundance of room upon which more wharves could be built should the necessity for them arise. The facilities for handling freight are or can be made sufficient to meet all demands.

On account of the increased importance of this harbor since Maj. Roessler's report in 1899, and in order to give facilities equal to those of neighboring harbors on this coast, I regard the place as worthy of improvement by the General Government to the extent of dredging out a turning basin at the head of the harbor and the shoal water at the lower end, on the northwestern side, above McFarlands Island, both to a depth of 12 feet.

No further complete survey is necessary, but in order to secure additional data and for the preparation of an estimate the sum of \$250 will be required.

Very respectfully,

W. E. CRAIGHILL,
Lieut. Col., Corps of Engineers.

THE CHIEF OF ENGINEERS, U. S. ARMY.
(Through the Division Engineer).

[First indorsement.]

NORTHEAST DIVISION ENGINEER OFFICE,
New York, November 28, 1910.

Respectfully forwarded to the Chief of Engineers, United States Army, concurring in the opinion of the district engineer officer, that Boothbay Harbor is worthy of improvement by the General Government to the extent stated within and, in his recommendation, that an allotment of \$250 be made for the preparation of an estimate of cost.

W. M. BLACK,
Colonel, Corps of Engineers,
Division Engineer.

[Third indorsement.]

THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
Washington, December 5, 1910.

Respectfully returned to the Chief of Engineers, United States Army.

Under authority of the act of March 3, 1899, a preliminary examination and survey were made of this harbor, since which time it appears that there has been a considerable commercial development and that the water-borne commerce at the present time amounts to about 115,000 tons, having a value in excess of \$3,600,000. This harbor has fair natural advantages; but commerce and navigation are somewhat inconvenienced by lack of depth in the upper part of the harbor and in front of some of the important wharves.

The improvement desired is an increase in depth to 12 feet at mean low water on the western side of the harbor where the natural depth is less than this and the construction of a turning basin. The district officer and the division engineer are of opinion that to this extent the harbor is worthy of improvement. It appears that a large part of the commerce of the port would be benefited by such an improvement, and if this can be effected at moderate cost it is believed it will be advisable for the General Government to undertake the work. To determine the question of advisability, an estimate of cost will be required, and the board concurs with the district officer and the division engineer in recommending that this be authorized.

For the board:

WM. T. ROSSELL,
Colonel, Corps of Engineers,
Senior Member of the Board.

[Fourth indorsement.]

WAR DEPARTMENT,
 OFFICE OF THE CHIEF OF ENGINEERS,
Washington, December 12, 1910.

Respectfully submitted to the Secretary of War.

This is a report on preliminary examination of Boothbay Harbor, Me., authorized by the river and harbor act of June 25, 1910.

Inviting attention to the report of the Board of Engineers for Rivers and Harbors in the preceding indorsement, I recommend that the preparation of an estimate of cost for the improvement of the locality, as proposed, be authorized.

W. H. BIXBY,
Chief of Engineers, United States Army.

[Fifth indorsement.]

WAR DEPARTMENT,
December 14, 1910.

Approved as recommended by the Chief of Engineers.

ROBERT SHAW OLIVER,
Assistant Secretary of War.

SURVEY OF BOOTHBAY HARBOR, ME.

UNITED STATES ENGINEER OFFICE,
Portland, Me., January 10, 1911.

SIR: I have the honor to submit the following report upon the survey of Boothbay Harbor, Me., made in compliance with requirements of department letter dated December 16, 1910.

In the preparation of the plan and estimate for improvement of this locality the only field work necessary was to make a few borings to determine the character of the bottom and to make some corrections or additions to the topography, the remainder of the data being covered by a survey made by Maj. S. W. Roessler, Corps of Engineers, in 1899. A map traced from the original survey, with the necessary corrections and additions, is forwarded herewith.

The project for improvement submitted contemplates dredging to a depth of 12 feet at mean low tide along the wharves on the southwesterly side of the harbor from the 12-foot contour in to a line drawn approximately across the ends of the longer wharves, with an area at the upper end of the harbor and extending along the upper wharves on the northeasterly side of the harbor to the same depth, all as indicated upon the accompanying map.

The borings indicate that no rock excavation will be necessary, and it is not believed that the needs of the harbor will justify any extensive work of that character. Rock exists along the shores and the limit lines of excavation are laid down with the idea that minor modifications should be made in them in order to avoid ledge should it be found during the progress of the work, in quantities too great to justify its removal. The lines of improvement shown on the map are practically as indicated in my report on the preliminary examination, dated November 22, 1910.

My estimate of the cost of the proposed improvement is as follows:

69,800 cubic yards dredging, at 22 cents.....	\$15, 356
Engineering and contingencies.....	2, 644
	18, 000

No additional facts or information have come to my knowledge which lead me to change the opinion expressed in the report on the preliminary examination, that the place is worthy of improvement by the General Government. I think that the commercial importance and the needs of the harbor will justify the expenditure of the above-mentioned sum in carrying out the improvement of Boothbay Harbor.

On account of the small extent of the work and of the relatively large expense of moving dredging plant, the initial appropriation should, in the interests of economy, cover the entire amount required for completion. Any other course will probably make the cost more than estimated.

It is expected that the depths will remain reasonably permanent and that for many years there will probably be no cost for maintenance.

Very respectfully,

W. E. CRAIGHILL,
Lieut. Col., Corps of Engineers.

THE CHIEF OF ENGINEERS, U. S. A.
 (Through the Division Engineer).

1911

10

BOOTHBAY HARBOR, ME.

[First indorsement.]

NORTHEAST DIVISION ENGINEER OFFICE,
New York, January 19, 1911.

Respectfully forwarded to the Chief of Engineers, United States Army, concurring in the opinion of the district engineer officer that the improvement of Boothbay Harbor is worthy of being undertaken by the United States, to the extent indicated within.

W. M. BLACK,
*Colonel, Corps of Engineers,
Division Engineer.*

[Third indorsement.]

THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
Washington, January 31, 1911.

Respectfully returned to the Chief of Engineers, United States Army.

In the within report the district officer presents a plan for the improvement of Boothbay Harbor which contemplates dredging to a depth of 12 feet at mean low water along the wharves on the westerly side of the harbor, with an area of the same depth at the upper end, and extending along the upper wharves on the easterly side of the harbor, all at an estimated cost of \$18,000. It is expected that the depths will remain reasonably permanent, and that for many years there will probably be no cost for maintenance.

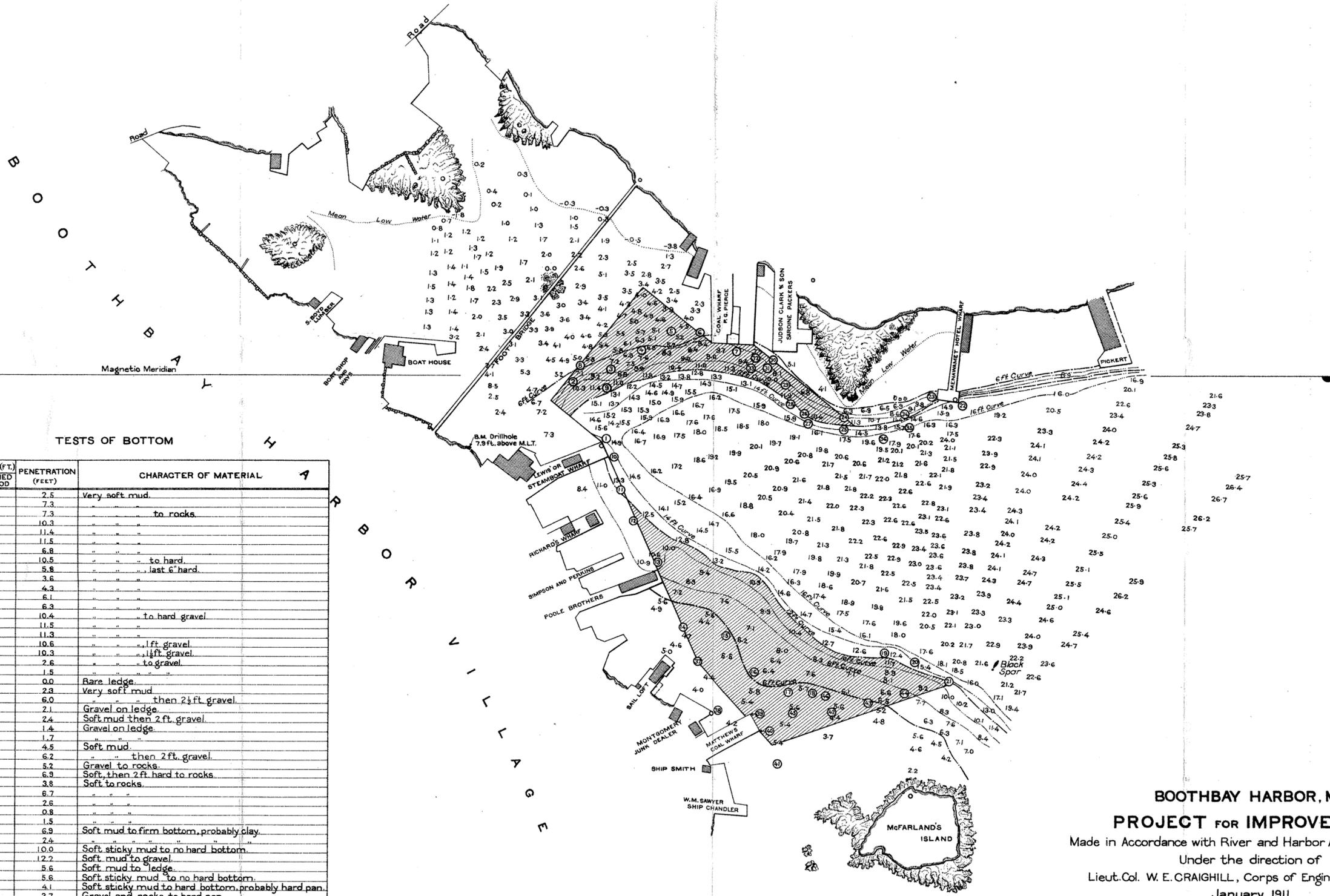
Reverting to the report on preliminary examination and the information therein contained as to the commerce of Boothbay Harbor and the benefits to be expected from the proposed betterment of navigation facilities, the board concurs with the district officer and division engineer in the opinion that it is advisable for the General Government to undertake the improvement outlined within at an estimated cost of \$18,000, the full amount of which should be provided in one appropriation.

In his report on the preliminary examination, the district officer describes in detail the wharves and terminal facilities available at this harbor. While no public wharves exist, there are a number of wharves of private ownership, which are open to all on equal terms. In compliance with law, the board reports that there are no questions of water power or other subjects so related to the project proposed that they may be advantageously coordinated therewith in the interests of commerce and navigation.

For the board:

WM. T. ROSSELL,
*Colonel, Corps of Engineers,
Senior Member of the Board.*

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TESTS OF BOTTOM

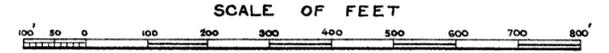
No. OF TEST	DEPTH BELOW M.L.T. (FT.) TO BOTTOM	DEPTH REACHED BY ROD	PENETRATION (FEET)	CHARACTER OF MATERIAL
1	14.0	16.5	2.5	Very soft mud.
2	9.2	16.5	7.3	"
3	7.5	14.8	7.3	" to rocks.
4	6.2	16.5	10.3	"
5	5.1	16.5	11.4	"
6	5.2	16.7	11.5	"
7	9.7	16.5	6.8	"
8	5.8	16.3	10.5	" to hard.
9	11.4	17.2	5.8	" last 6" hard.
10	14.0	17.6	3.6	"
11	13.3	17.6	4.3	"
12	11.5	17.6	6.1	"
13	10.6	16.9	6.3	"
14	4.7	15.1	10.4	" to hard gravel.
15	5.6	17.1	11.5	"
16	6.4	17.6	11.3	"
17	5.8	16.4	10.6	" 1ft gravel.
18	5.7	16.0	10.3	" 1ft gravel.
19	12.4	16.0	2.6	" to gravel.
20	15.0	16.5	1.5	"
21	11.0	11.0	0.0	Bare ledge.
22	14.0	16.3	2.3	Very soft mud.
23	10.0	16.0	6.0	" then 2 1/2 ft gravel.
24	10.0	12.1	2.1	Gravel on ledge.
25	14.0	16.4	2.4	Soft mud then 2 ft gravel.
26	1.20	13.4	1.4	Gravel on ledge.
27	14.0	15.7	1.7	"
28	13.0	17.5	4.5	Soft mud.
29	10.0	16.2	6.2	" then 2 ft gravel.
30	7.7	17.3	9.6	Gravel to rocks.
31	3.1	16.0	6.3	Soft then 2 ft hard to rocks.
32	3.5	12.3	3.8	Soft to rocks.
33	10.0	16.7	6.7	"
34	10.5	13.1	2.6	"
35	15.7	16.5	0.8	"
36	16.5	18.0	1.5	"
37	6.6	13.5	6.9	Soft mud to firm bottom, probably clay.
38	8.2	10.6	2.4	"
39	5.4	15.4	10.0	Soft sticky mud to no hard bottom.
40	5.5	17.7	12.2	Soft mud to gravel.
41	6.3	11.9	5.6	Soft mud to ledge.
42	6.8	12.2	5.6	Soft sticky mud to no hard bottom.
43	5.9	10.0	4.1	Soft sticky mud to hard bottom, probably hard pan.
44	7.7	11.4	3.7	Gravel and rocks to hard pan.
45	6.7	15.5	8.8	Sticky mud with gravel to firm bottom; no ledge.
46	6.7	19.1	12.4	Soft mud to no hard bottom.

NOTE.

This plan is based on survey made in Nov., 1899, by F.S. Burrowes, Asst. Engineer. Borings 37 to 46 were made, and Matthews Wharf and the Foot bridge were approximately located Dec. 23-24, 1910, by E.M. Hunt, Jun. Eng'r. Clarks Wharf located from plan filed with request for permit.
 Soundings are expressed in feet and are referred to the plane of Mean Low Water as indicated by the bench mark.
 Mean range of tide, as stated by the U.S.C. & G.S., is 88 feet.
 Tests of the bottom were made with a pointed iron rod. Locations of tests indicated by circles enclosing the numbers of the tests.

PROPOSED IMPROVEMENT.
 It is proposed to dredge the areas shaded thus // to the depth of 12 feet at Mean Low Water.

BOOTHBAY HARBOR, ME.
PROJECT FOR IMPROVEMENT
 Made in Accordance with River and Harbor Act of June 25, 1910
 Under the direction of
 Lieut. Col. W. E. CRAIGHILL, Corps of Engineers, U.S. Army
 January 1911.



U.S. Engineer Office,
 Portland, Me., Jan. 10, 1911.
 To accompany report of this date to the
 Chief of Engineers, War Department.
W. E. Craighill
 Lieut. Col., Corps of Engineers, U.S. Army.

1911

EXAMINATION AND SURVEY MADE IN COMPLIANCE WITH RIVER AND HAR-
BOR ACT APPROVED JUNE 25, 1910.

Reports dated November 22, 1910, and January 10, 1911, on preliminary examination and survey, respectively, of *Boothbay Harbor, Me.*, required by the river and harbor act approved June 25, 1910, were duly submitted by the district officer. They were reviewed by the Board of Engineers for Rivers and Harbors, pursuant to law, and were transmitted to Congress and printed in House Document No. 82, Sixty-second Congress, first session. A plan for improvement, at an estimated cost of \$18,000 is presented.

15. *Boothbay Harbor, Me.*—Boothbay Harbor is about 14.5 miles southeast of Bath, Me., by water. The outer harbor is deep and commodious. The inner harbor, which is the locality proposed to be improved, has an area of about 73 acres. The depth at mean low tide is from 14 to 25 feet, except along the wharves and at the upper end, where it is only from 4 to 7 feet. The existing project, adopted by the river and harbor act of July 25, 1912, is in accordance with plan printed in House Document No. 82, Sixty-second Congress, first session, and provides for dredging to a depth of 12 feet at mean low tide along the wharves and at the upper end, at an estimated cost of \$18,000, which sum has been provided by the above-named act. This is the first work authorized for this locality.

References to examination of survey reports and maps or plans not in project documents.

Section covered	Congressional documents			Annual reports of Chief of Engineers		
	House or Senate	No.	Congress	Session	Year	Page
Inner harbor	House	46	Fifty-fifth	First	1897	802
do	do	277	Fifty-sixth	do	1900	1117
do	do	82	Sixty-second	do		

¹ No maps.

² Contain maps.

The mean tidal range is 8.8 feet.

In 1910 the annual commerce of the harbor was reported as amounting to 115,322 short tons, the principal items being ice, coal, sardines, lumber, and miscellaneous freight. The estimated value of the commodities was \$3,613,277. The number of passengers was 103,000. The deepening proposed will greatly benefit this traffic by improving access to the wharves.

Amount appropriated by river and harbor act approved July 25, 1912— \$18,000
Amount available for fiscal year ending June 30, 1913— 18,000

(See Appendix A 15.)

A 15.

IMPROVEMENT OF BOOTHBAY HARBOR, ME.

No work has been done under the existing project. The river and harbor act of July 25, 1912, provided the entire estimated cost.

APPROPRIATION.

July 25, 1912— \$18,000

COMMERCIAL STATISTICS.

In 1910 the annual commerce of the harbor was reported as amounting to 115,322 short tons, the principal items being ice, coal, sardines, lumber, and miscellaneous freight. The estimated value of the commodities was \$3,613,277. The number of passengers was 103,000. The deepening proposed will greatly benefit this traffic by improving access to the wharves.

14. *Boothbay Harbor, Me.*—Boothbay Harbor is about 14.5 miles southeast of Bath, Me., by water. The outer harbor is commodious, with depths of 30 feet and greater. The inner harbor, which is the locality under improvement, has an area of about 73 acres. The depth at mean low tide is from 14 to 25 feet, except along the wharves and at the upper end, where, before improvement, it was only from 4 to 7 feet. The mean tidal range is 8.8 feet.

The existing project, adopted by the river and harbor act of July 25, 1912, is in accordance with plan printed in House Document No. 82, Sixty-second Congress, first session, and provides for dredging to a depth of 12 feet at mean low tide along the wharves and at the upper end, at an estimated cost of \$18,000, which was provided by the above-named act. This is the first work authorized for this locality. The project has not been modified.

References to examination or survey reports and maps or plans (including project documents).

Section covered.	Congressional documents.			Annual Reports of Chief of Engineers.		
	House or Senate	No.	Congress.	Session.	Year.	Page.
Inner harbor ¹	House...	46	Fifty-fifth.....	First.....	1897	802
Do. ²	do.....	277	Fifty-sixth.....	do.....	1900	1117
Do. ^{2,3}	do.....	82	Sixty-second.....	do.....		

¹ No maps.

² Contain maps.

³ Basis of project adopted by Congress.

Operations during the fiscal year included all the dredging covered by the project. The full project depth was secured except for a limited area close in front of the wharf line, where ledge projects about 4 feet above grade. The removal of the ledge is being planned for. The total expenditures on the existing project up to the close of the fiscal year ending June 30, 1913, amount to \$12,238.59, all for new work. With the removal of a small quantity of ledge the project will be completed.

Commercial statistics for calendar year 1912 are incomplete. One steamboat line carried about 25,000 passengers and about 13,000 short tons of miscellaneous freight. The improvement is expected to affect freight rates on lumber and coal and to benefit other traffic by improving access to the wharves.

July 1, 1912, balance unexpended.....	\$18,000.00
June 30, 1913, amount expended during fiscal year, for works of improvement.....	12,238.59
July 1, 1913, balance unexpended.....	5,761.41

A 14.

IMPROVEMENT OF BOOTHBAY HARBOR, ME.

Operations during the fiscal year 1913 included all the dredging covered by the project, under a contract made in November, 1912. The material removed amounted to 50,080 cubic yards, with 3 cubic yards of bowlders. The contract price for dredging was 21.3 cents per cubic yard, and for bowlders \$10 per cubic yard. The projected depth was secured except for a limited area close in front of the wharf line, where ledge projects about 4 feet above grade.

It is proposed to remove the ledge during the coming fiscal year with funds now available.

APPROPRIATION.

July 25, 1912 ----- \$18,000

CONTRACT IN FORCE.

Eastern Dredging Co., for dredging.

Prices: 21.3 cents per cubic yard for dredging, \$10 per cubic yard for removing bowlders exceeding 2 cubic yards each in volume.

Approved November 22, 1912; to be commenced by April 29, 1913, and completed by September 29, 1913.

Completed.

COMMERCIAL STATISTICS.

Commercial statistics for the calendar year 1912 are incomplete. One steamboat line carried about 25,000 passengers and about 13,000 short tons of miscellaneous freight. The improvement is expected to affect freight rates on lumber and coal and to benefit other traffic by improving access to the wharves.

13. *Boothbay Harbor, Me.*—Boothbay Harbor is about 14.5 miles southeast of Bath, Me., by water. The outer harbor is commodious, with depths of 30 feet and greater. The inner harbor, which is the locality under improvement, has an area of about 73 acres. The depth at mean low tide is from 14 to 25 feet, except along the wharves and at the upper end, where, before improvement, it was only from 4 to 7 feet. The mean tidal range is 8.8 feet.

The existing project, adopted by the river and harbor act of July 25, 1912, is in accordance with plan printed in House Document No. 82, Sixty-second Congress, first session, and provides for dredging to a depth of 12 feet at mean low tide along the wharves and at the upper end, at an estimated cost of \$18,000, which was provided by the above-named act. This is the first work authorized for this locality. The project has not been modified. The improvement is expected to be fairly permanent.

References to examination or survey reports and maps or plans (including project documents).

Section covered.	Congressional documents.				Annual Reports of Chief of Engineers.	
	House or Senate.	No.	Congress.	Session.	Year.	Page.
Inner harbor ¹	House.....	46	Fifty-fifth.....	First.....	1897	802
Do. ²	do.....	277	Fifty-sixth.....	do.....	1900	1117
Do. ³	do.....	82	Sixty-second.....	do.....		

¹No maps.

²Contains maps.

³Basis of project adopted by Congress.

The ledge which was uncovered by the previous dredging operations and which projected above grade was drilled and blasted in September, and in December, 1913, the loosened material was taken up, thereby completing the project for improvement and giving the depth of 12 feet at mean low tide in the inner harbor. The work was done with plant hired by the day.

The total expenditures under the existing project up to the close of the fiscal year ending June 30, 1914, have been \$17,002.82, all for new work. This sum represents all that has been expended for improvement at this locality.

The commerce for the calendar year 1913 amounted to 108,098 short tons, the principal items being ice, fish, and coal. The estimated value of the commodities is placed at \$1,588,770.

One steamboat line carried about 59,000 passengers. The improvement is said to have been of great benefit in enabling loaded vessels to reach the wharves.

July 1, 1913, balance unexpended.....	\$5,761.41
June 30, 1914, amount expended during fiscal year, for works of improvement.....	4,764.23
July 1, 1914, balance unexpended.....	997.18
July 1, 1914, outstanding liabilities.....	256.60
July 1, 1914, balance available.....	740.58

(See Appendix A 13.)

A 13.

IMPROVEMENT OF BOOTHBAY HARBOR, ME.

Operations during the year were confined to the removal of a small ledge in front of the wharf line uncovered by the dredging operations of the previous year. The ledge, which contained 53 cubic yards, measured in place, above a plane 12.5 feet below the level of mean low tide, was drilled and blasted in September, 1913, and the broken material was taken up the following December. The work was done by hired plant. The project is completed.

APPROPRIATIONS.

July 25, 1912..... \$18,000

COMMERCIAL STATISTICS.

Receipts and shipments.

	Short tons.
Apples	16
Beef	50
Bricks	225
Cattle and horses.....	37
Canned goods.....	1,500
Cement.....	100
Coal, anthracite.....	8,000
Coal, bituminous.....	5,000
Cotton and cotton goods.....	500
Fertilizer.....	1,000
Fish.....	16,000
General merchandise.....	5,000
Grain and flour.....	20
Hay and straw.....	500
Ice.....	55,000
Iron, steel, and machinery.....	25
Lumber and cooperage.....	1,250
Molasses and sugar.....	50
Oil.....	2,500
Potatoes.....	75
Provisions.....	5,000
Salt.....	3,000
Sand and stone.....	1,000
Wood.....	2,250
Total.....	108,098

11. BOOTHBAY HARBOR, ME.

Location.—About 14.5 miles southeast of Bath, Me., by water. The outer harbor is commodious, with depths of 30 feet and greater. The inner harbor, which has been under improvement, is about 2,100 feet long and from 900 to 1,200 feet wide. Besides being a summer resort the harbor is popular with fishermen and small coasting craft because of its ease of access and good shelter. (See U. S. Coast and Geodetic Survey chart No. 6.)

Original condition.—The depth at mean low tide was from 11 to 25 feet, except along the wharves and at the upper end, where it was only from 4 to 7 feet. Loaded vessels could go to or from the wharves at high tide only.

Previous projects.—None.

Present project.—To secure a depth of 12 feet at mean low tide along the wharves and at the upper end. The mean range in tides is 8.8 feet. The estimated cost was \$18,000. This project (see H. Doc. No. 82, 62d Cong., 1st sess.) was adopted by the river and harbor act of July 25, 1912.

Operations and results prior to the fiscal year.—The project was completed in December, 1913, the work having consisted in dredging and in the removal of a small ledge. The project depth was secured. Expenditures amounted to \$17,002.82, all for original work.

Operations and results during the fiscal year.—Office work only. Expenditures were \$997.18, all for new work.

Condition at the end of fiscal year.—The project was completed in 1913. The total cost is \$18,000, all for new work.

Local cooperation.—None.

Effect of improvement.—The increased depth along the wharf front is reported to have proved of much benefit. Loaded vessels can more readily reach the wharves.

Proposed operations.—No estimate for 1917. No further reports will be submitted.

Commercial statistics.—The chief items are ice, coal, oil, and fish.

Comparative statement.

Calendar year.	Short tons.	Estimated value.
1912.....	(Incomplete)	
1913.....	108,098	\$1,588,770
1914.....	53,417	1,142,000

Financial summary.

Amount expended on all projects to June 30, 1915:

New work..... \$18,000.00

Maintenance.....

Amount expended during fiscal year ending June 30.	1913	1914	1915
New work.....	\$12,238.59	\$4,764.23	\$997.18
Maintenance.....			

APPROPRIATIONS.

[For last five fiscal years only.]

July 25, 1912..... \$18,000.00

July 1, 1914, balance unexpended..... 997.18

June 30, 1915, amount expended during fiscal year, for works of improvement..... 997.18

11. BOOTHBAY HARBOR, ME.

There was no work. Expenditures were for office expenses. The project is completed.

APPROPRIATION.

July 25, 1912..... \$18,000

COMMERCIAL STATISTICS.

Receipts and shipments.

	Short tons.
Apples.....	25
Beef.....	60
Bricks and clay.....	215
Cattle.....	42
Canned goods.....	1,425
Cement and lime.....	270
Coal, anthracite.....	4,000
Coal, bituminous.....	5,010
Fertilizer.....	50
Fish.....	3,300
General merchandise.....	6,200
Grain and flour.....	1,575
Hay and straw.....	260
Ice.....	15,200
Iron, steel, and machinery.....	200
Lumber and cooperage.....	3,140
Molasses and sugar.....	65
Oil.....	5,070
Paper and rags.....	10
Potatoes.....	75
Provisions.....	4,000
Salt.....	255
Sand and stone.....	1,000
Wood.....	2,000
Total.....	53,447

Arrivals and departures during calendar year ending Dec. 31, 1914.

Steamers, average draft 12 feet.....	4,050
Sailing vessels, average draft 12 feet.....	5,400
Number of passengers landing and departing by water.....	200,000