

2. *Smutty Nose Island*, as to repair of breakwater, Portsmouth, New Hampshire. (See Appendix BB 18.)

BB 18.

SURVEY OF SMUTTY NOSE ISLAND, PORTSMOUTH, N. H.

UNITED STATES ENGINEER OFFICE,  
*Portland, Me., December 4, 1874.*

GENERAL: I have the honor to submit the following report on the survey of "Smutty Nose Island, as to repair of breakwater, Portsmouth, N. H."

This survey was called for by act of Congress, approved June 23, 1874, "making appropriations for the repair, preservation, and completion of certain public works on rivers and harbors, and for other purposes," and has been made under my direction by assistant engineer Mr. Sophus Haagenesen. His report and map of the same, also prepared under my supervision, are herewith submitted.

Smutty Nose Island is one of the group of islands known as "Isles of Shoals." Of these islands, Hog Island and Smutty Nose Island lies within the State of Maine; while Cedar Island and Star Island, and the others to the southward and westward, are said to lie in the State of New Hampshire, and compose the town of Gosport, which gives to this harbor its name of Gosport Harbor. This harbor lies in a southeasterly direction from Portsmouth Harbor, N. H., and is about six and one-fourth nautical miles distant from its entrance.

Gosport is one of the oldest settlements in the State of New Hampshire, and its harbor has always been much used as a refuge for coasting and fishing vessels, when caught by easterly storms in its vicinity; and now that several large hotels for summer resort have been established upon these islands, with steamers plying to and fro several times each day, an increased importance attaches to this harbor. Its importance is also greatly enhanced by its isolated position in mid-ocean, and in the easy access to it when most desired as a refuge; also, by the fact that, with the exception of the harbor of Portsmouth, there are no other harbors of refuge in an easterly storm between Wood Island, near the mouth of Saco River, Maine, and Gloucester Harbor, Massachusetts, a coast distance of more than sixty miles.

It allows the largest class of vessels to enter and anchor at all stages of the tide.

None of its entrances have less than 4 fathoms of water at low-tide, and there is a well protected anchorage-ground, of 32 acres area, within the 18-foot curve, or within a depth of water varying from 18 to 48 feet at low-water, (and 8.6 feet more at high-water.)

The importance of improving this harbor was appreciated a half century ago, when Congress made an appropriation for building two sea-walls connecting Smutty Nose Island with the two nearest islands. These sea-walls are shown on the accompanying map at *a* and *b*. That at *a* is still in good repair and fully answers the purpose for which it was intended; while that at *b* (connecting Smutty Nose Island with Cedar Island) has been demolished by the storms, so that the top of it is only awash at ordinary low-water. The ledge upon which this breakwater was built has an average depth of 12 feet at mean low-water, (or 20.6 feet at mean high-water,) and slopes off to deep water on the east and west sides. On the ocean side, however, there is an outcropping-ledge directly in front of it, which will serve a good purpose in diminishing the force of the waves. The upper part of this breakwater has been battered down by the waves, so that very little of it now remains above the plane of mean low-water. On its top it has a width from 40 to 45 feet, and at its base from 80 to 100 feet, forming a good solid foundation upon which to rebuild the breakwater. The distance from shore to shore of the two islands is 900 feet at extreme high-water and 500 feet at low-water.

It is proposed to rebuild this work to a height of 18 feet above mean low-water, so as to give it the height of the waves in a storm-tide, as shown by the surf-lines on the adjacent islands; and to build it, on the ocean side, of large blocks of split granite doweled together, the remaining portion to be built of rubble-stone, in riprap, as shown in the accompanying drawings.

The cost of rebuilding this wall will be \$85,000.

Additional information on this subject, more in detail, will be found in the accompanying report of my assistant engineer, to which attention is respectfully asked.

Very respectfully, your obedient servant,

GEO. THOM,

*Lieut. Col. of Engineers, Bvt. Brig. Gen. U. S. A.*

Brig. Gen. A. A. HUMPHREYS,  
*Chief of Engineers, U. S. A.*

REPORT OF SOPHUS HAAGENSEN, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,  
*Portland, Me., December 1, 1874.*

GENERAL: I have the honor to report upon the survey of Smutty Nose Island, near Portsmouth, N. H., as to repair of breakwater. This survey was made in pursuance of your instructions of July 22, 1874, and a map of the same is herewith respectfully submitted.

Smutty Nose Island is one of the group of islands known as the Isles of Shoals. Three of them, viz, Smutty Nose Island, Cedar Island, and Star Island, inclose between them the roadstead named Gosport Harbor, from the town of Gosport, N. H., which is composed of Star Island and some of the neighboring smaller islands.

The harbor is situated little less than a mile to the northeast of Isles of Shoals light. The nearest harbor on the coast is Portsmouth Harbor, the entrance of which bears north-northwest, and is distant six and one-fourth nautical miles. Boon Island light bears northeast, distant ten and three-fourths nautical miles. Newburyport light bears southwest three-quarters west, distant thirteen and one-half nautical miles.

Two sea-walls have been built to protect this harbor. With said two walls in good repair it is an excellent harbor of refuge, easy of access during northeast, easterly, and southeast gales, and is used by numerous vessels as such. It is said that 100 sails may frequently be counted here at a time seeking refuge in rough weather. It allows the largest class of vessels to enter and anchor up at all stages of the tide; none of its entrances have less than 4 fathoms of water at low-tide, and there is a well-protected anchorage-ground of 32 acres area within the 18-foot curve, or with a depth of water varying from 18 to 48 feet at low-water, (8.6 feet more at high-water.)

One of the two sea-walls, marked *a* on the accompanying map, is on the northwest side of Smutty Nose Island; it is built upon the low ridge of ledge which lies to the north of Haley's Cove; it serves mainly as a breakwater to exclude the heavy north-easterly sea from the harbor; at the same time it makes Haley's Cove a safe harbor for boats and light-draught vessels at high-tide. This wall is in good condition, and will need no repairs at present.

The other sea-wall, marked *b* on the map, connects Smutty Nose Island with Cedar Island, and forms the principal breakwater of Gosport Harbor, excluding the easterly seas from it. Without this breakwater vessels could not anchor up here in easterly storms. A special survey was made of this breakwater, the ledge upon which it rests, and the adjoining shores of Smutty Nose and Cedar Islands; which survey is plotted on the map to a scale of 1-1000. Two hundred and forty-seven soundings were taken on 9 lines radiating from a point A, on the easterly end of Smutty Nose Island. Their location on the range is fixed by intersecting sights from station B. The plane of reference to which the soundings are reduced is the low-water of August 6, a. m., which is probably 0.6 foot higher than the mean low-water level, according to tide-tables for Atlantic Coast. The mean rise and fall of tide is, according to United States Coast Survey observations, 8.6 feet.

A bench for re-establishment of the plane of reference of the survey has been established on Star Island; it is a brass bolt set in the ledge west of the steamboat-wharf. (See note on map.) The plane of reference is 15.20 feet below the top of this bolt.

The ledge upon which the breakwater is built has an average depth of 12 feet below mean low-water, sloping off to deep water on the east and west sides; still there is an overhanging ledge directly in front of the breakwater on the ocean side, which ledge rises from 20-foot soundings to a height of 6 feet below low-water, and is of great importance as a natural fender for the substructure of the breakwater.

The distance from shore to shore is, at extreme high seas, 900 feet; at low-water, 500 feet. The upper part of this breakwater, which was last repaired by the United States Government some fifty years ago, has been battered by the waves so that but very little of it remains above the plane of mean low-water; the remaining part has a width on its top, which is about 1 foot above low-water, of 40 to 45 feet, and its base is from 80 to 100 feet wide; it will afford a solid foundation upon which to build a wall, restoring the breakwater to a proper height, which is assumed to be 18 feet above mean low-water, or as a level with the top of the waves during a storm-tide. Observations on the height of the surf-line, which is very distinctly marked on all the islands, gives the reference of this line from 18 to 20 feet above the assumed plane of mean low-water, varying only very little in height in the different localities. It is proposed to build this wall on the east side, or toward the ocean, of large blocks of granite, split with surface, so as to allow them to be laid in courses, and doweled together; the rest would be built of riprap work, forming a slope of 1:1 toward the harbor. (See cross-section on the accompanying map.)

The structure it is proposed to build on a straight line from the surf-line of Cedar Island (following the old wall) to the low-water line of Smutty Nose Island, thence turning  $19\frac{1}{2}^{\circ}$  west from this direction toward the high ledge outside the high-water line of Smutty Nose Island; between this point and the surf-line of Smutty Nose Island no work will be necessary. The force of the sea is here broken by the rocky shore of the island, and the old breakwater remains undisturbed between this ledge and the shore-line.

The cost of repairing this wall in the above-described manner is estimated as follows:

10,220 tons of rubble-stone, (riprap,) deposited on the wall, at \$2 per ton....	\$20,440
3,785 cubic yards of large granite, laid in courses and doweled together, at \$15 per cubic yard .....	56,775
	<hr/>
	77,215
Contingencies .....	7,785
	<hr/>
Total .....	85,000

Attention is respectfully called to the ledge named Half-way Rock, (marked C on the accompanying map.) It shows above water at low-tide, but is covered the greatest part of the time. It lies directly in the track of vessels entering the harbor from the south, between Star Island and Lunging Island, and many fishing-vessels and coasters are said to have struck on this ledge. It is also dangerous for the steamers running between Portsmouth and Star Island, carrying hundreds of passengers, twice a day during the hot season, to and from the island, which is a favorite summer resort. A spindle or beacon ought to be placed on this dangerous rock.

Very respectfully, your obedient servant,

SOPHUS HAAGENSEN,  
*Assistant Engineer.*

Bvt. Brig. Gen. GEO. THOM,  
*Lieutenant-Colonel of Engineers.*

2. *Preliminary examination and survey of Isles of Shoals, Maine and New Hampshire, with a view to building a breakwater from Smutty Nose Island to Cedar Island.*—Report of preliminary examination was submitted by Major Roessler, June 14, 1899, and report on survey by his successor, Maj. W. L. Fisk, Corps of Engineers, December 21, 1899. Major Fisk presents a plan of improvement at an estimated cost of \$80,000. The reports were transmitted to Congress and printed in House Doc. No. 255, Fifty-sixth Congress, first session. (See also Appendix B 16.)

B 16.

EXAMINATION AND SURVEY OF ISLES OF SHOALS, MAINE AND NEW HAMPSHIRE.

[Printed in House Doc. No. 255, Fifty-sixth Congress, first session.]

OFFICE OF THE CHIEF OF ENGINEERS,  
UNITED STATES ARMY.

Washington, January 4, 1900.

SIR: The river and harbor act of March 3, 1899, provides for a preliminary examination and survey of Isles of Shoals (Gosport Harbor), New Hampshire and Maine, with a view to building a breakwater from Smutty Nose Island to Cedar Island, and I have the honor to submit the accompanying copy of report of June 14, 1899, by Maj. S. W. Roessler, Corps of Engineers, upon preliminary examination and copy of report of December 21, 1899, with map,<sup>1</sup> by Maj. W. L. Fisk, Corps of Engineers, upon survey of the locality.

Major Fisk considers the locality to be worthy of improvement by the United States and presents a plan for construction of a breakwater as contemplated, which is estimated to cost, including contingencies, \$80,000.

The views of the district officer are concurred in by the division engineer, Col. G. L. Gillespie, Corps of Engineers.

Very respectfully, your obedient servant,

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

Hon. ELIHU ROOT,  
Secretary of War.

PRELIMINARY EXAMINATION OF ISLES OF SHOALS, MAINE AND NEW HAMPSHIRE, WITH A VIEW TO BUILDING A BREAKWATER FROM SMUTTY NOSE ISLAND TO CEDAR ISLAND.

UNITED STATES ENGINEER OFFICE,  
Portland, Me., June 14, 1899.

GENERAL: I have the honor to forward herewith the report of First Lieut. Charles Keller, Corps of Engineers, United States Army,

<sup>1</sup>Not reprinted. Printed in House Doc. No. 255, Fifty-sixth Congress, first session.

# ISLES OF SHOALS.

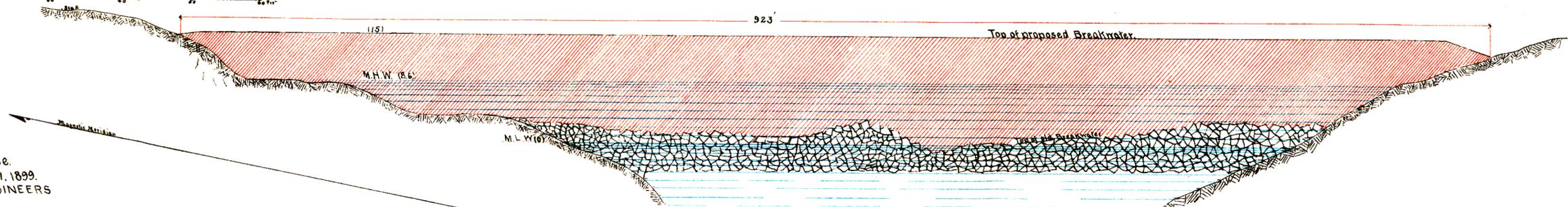
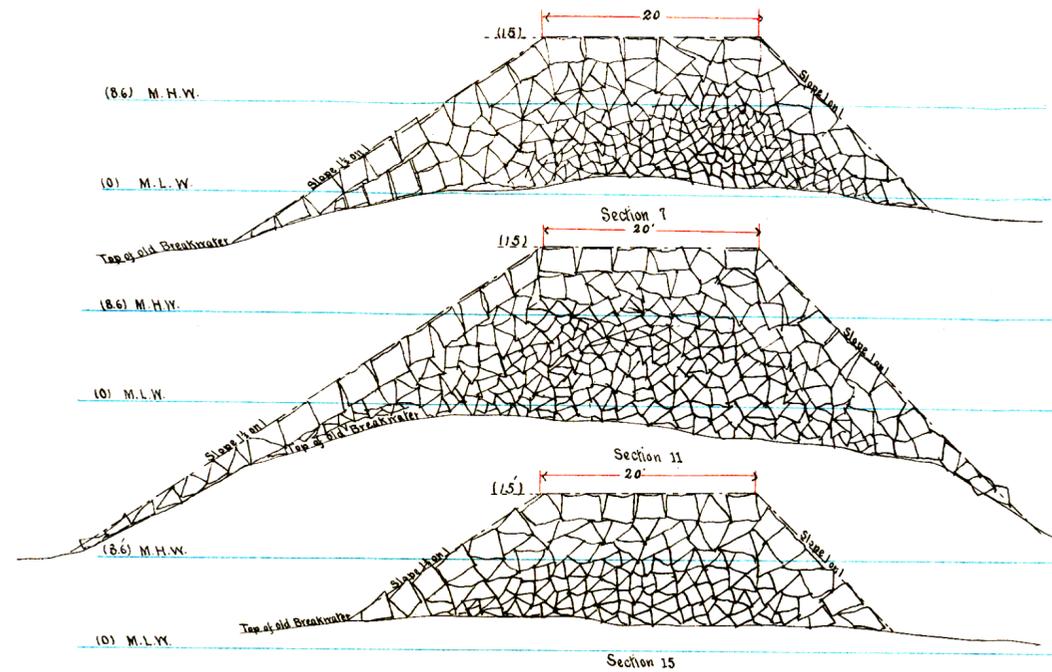
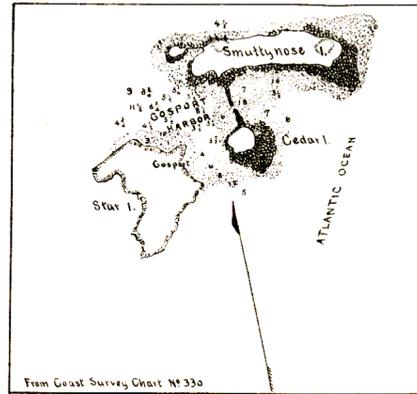
PLAN AND SECTIONS OF BREAKWATER  
BETWEEN SMUTTYNOSE AND CEDAR ISLANDS.

SURVEYED UNDER DIRECTION OF  
MAJOR, W. L. FISK, CORPS OF ENGINEERS.

Oct. 1899.

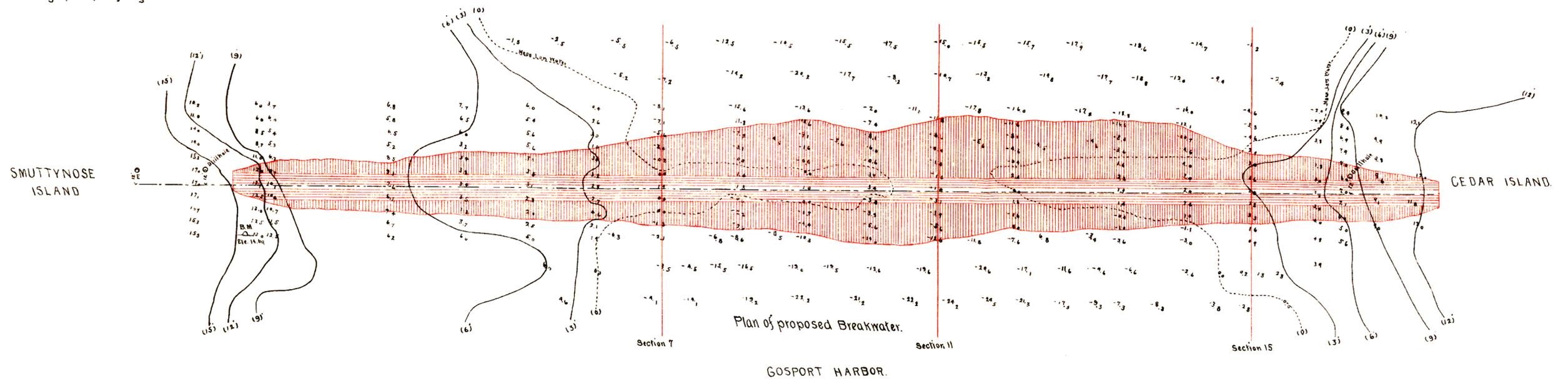
Scale of plan 1 in = 60 feet

Scale of sections 1 in = 12 feet



U.S. Engineer Office,  
Portsmouth, N. H. Dec. 21, 1899.  
Transmitted to the CHIEF OF ENGINEERS  
with report of this date.

*W. L. Fisk.*  
Major, Corps of Engineers.



of a preliminary examination of "Isles of Shoals, with a view to building a breakwater from Smutty Nose Island to Cedar Island," made in pursuance of the river and harbor act of March 3, 1899.

The principal island of this group is Star Island, on which is located the old village of Gosport. Gosport Harbor lies to the north of this island and is protected on its north and east by Smutty Nose Island, on the south and southeast by Star and Cedar islands, and on the east by what remains of a sea wall constructed by the United States in 1821 between Smutty Nose and Cedar islands. This wall has been beaten down by the seas to a level just above mean low water, and affords at the present time but little protection against the heavy seas of easterly storms.

To secure the shelter in Gosport Harbor which the old wall was intended to afford is the object sought by the construction of the proposed breakwater. Gosport Harbor as a harbor of refuge would probably not be considered as of great importance by the larger coastwise shipping trade, since the large harbor of refuge of Sandy Bay, only 20 miles to the south, and Portland Harbor, 52 miles, and Cape Porpoise Harbor, already authorized, 28 miles, to the north, would probably afford better shelter to the larger coastwise vessels during easterly storms. Its value, therefore, must be estimated, not by the demands of general commerce of the ocean, but by local fishing industry respecting which I have as yet no reliable statistics. The industry, however, is known to be large and important, especially in the number of vessels employed, and there appears to be a demand for a nearer haven of refuge in heavy weather for vessels frequenting this vicinity than the nearest harbors on the north and south afford, and especially Portsmouth Harbor, the entrance to which is difficult and dangerous in northeasterly gales.

With the data at my disposal, both in reference to the quantity of shipping to be benefited and the probable cost of the proposed breakwater, which can only be ascertained by an actual survey of the ground, I am unable to estimate satisfactorily the value of this work as one worthy to be done by the United States, and therefore respectfully recommend a survey, to cost not over \$150, for the purpose of determining accurately the probable cost of a breakwater. Meanwhile, further inquiries will be made as regards the quantity of shipping to be benefited by such a breakwater, and with this information and that furnished by the survey a better judgment can be formed as to the value of the work as one worthy to be undertaken by the General Government than is possible with the information now at hand.

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, June 16, 1899.*

Respectfully forwarded to the Chief of Engineers.

The act of March 3, 1821, appropriating \$2,500 for a survey of this locality, on account of light-houses, contained provision for a sea wall

between Smutty Nose Island and Cedar Island, Isles of Shoals, and the act of May 7, 1822, appropriated \$11,500 for said work (pp. 12, 13, Laws U. S., R. and H., 1790-1876).

The act of June 23, 1874, provided for a survey of "Smutty Nose Island as to repair of breakwater, Portsmouth, N. H." Report in accordance with the act, with estimate of \$85,000 for rebuilding the wall, was submitted by the local officer December 4, 1874 (A. R. C. E., 1875, Part II, p. 421).

No part of an appropriation by any subsequent act for the improvement of Portsmouth Harbor has been applied toward the rebuilding of the Smutty Nose breakwater.

In view of the statements of the local officer, contained in the above-cited report of 1874, regarding the value of Gosport Harbor as a harbor of refuge for coasting and fishing vessels, and in view of the statements contained in the within report of the local officer, June 14, 1899, I am of the opinion that the locality is worthy of improvement, and respectfully recommend that a survey be authorized, at a cost not exceeding \$150, to determine the probable cost of rebuilding the breakwater between Smutty Nose and Cedar islands, upon which the Government has already expended the sum of \$13,251.16. (Appropriations and Expenditures for Public Buildings and Rivers and Harbors, March 4, 1789-1882, p. 424.)

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

[Second indorsement.]

OFFICE CHIEF OF ENGINEERS,  
U. S. ARMY,  
*August 14, 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 Isles of Shoals, with a view to building a breakwater from Smutty Nose Island to Cedar Island.

It is recommended that a survey be made, after which a more reliable opinion can be formed as to the scope of improvement justified by the commercial interests involved.

A. MACKENZIE,  
*Acting Chief of Engineers.*

WAR DEPARTMENT,  
*August 24, 1899.*

Approved.

ELIHU ROOT,  
*Secretary of War.*

REPORT OF FIRST LIEUT. CHARLES KELLER, CORPS OF ENGINEERS.

GERRIST ISLAND, MAINE, *June 6, 1899.*

MAJOR: I have the honor to report as follows upon the preliminary examination at "Isles of Shoals, with a view to building a breakwater from Smutty Nose Island to Cedar Island."

The examination in question was made on May 23 and 24. The general situation

is shown upon chart No. 330, United States Coast and Geodetic Survey, part of which is reproduced for convenience of reference upon the tracing<sup>1</sup> herewith, which shows, also, in detail, the soundings in the immediate vicinity of the breakwater.

As seen, there now exists the breakwater constructed in 1821, but, as the plotted soundings show, the crest has been so much reduced in height by wave action that, being but little higher than mean low water, very little shelter is afforded by the present structure.

All available evidence goes to show that a breakwater at the site in question, if of suitable height, would, during easterly storms, afford valuable shelter to the numerous small fishing and coasting vessels which frequent the waters outside of the Isles of Shoals. No such shelter exists between Cape Porpoise and Cape Ann, except Newburyport and Portsmouth harbors, and these are too far distant to be of service to the class of vessels here referred to.

To be of service a breakwater in this exposed locality should be at least as high as extreme high water. The height of 15 feet above mean low water has been adopted in the preliminary estimate herewith. The site is exposed to the entire force of easterly storms, and while the core of the breakwater may be constructed of smaller sized rock, that on the slopes and top should be in masses of from 5 to 8 tons.

Assuming a top width of 20 feet and side slopes of 45 degrees, the existing breakwater can be converted into a suitable structure by the addition to it of about 22,000 tons of rock, this quantity of rock being required in order to raise the top to the reference +15.0 before referred to.

The axis, limiting lines of the top and foot of side slopes for the proposed enlargement, are shown upon the tracing herewith.

The locality is deemed worthy of improvement by the United States.

Preliminary estimate for breakwater at Isles of Shoals between Smutty Nose and Cedar islands:

22,000 tons of rock, at \$1.20 .....	\$26,400
Superintendence, etc., 10 per cent. ....	2,600
Total .....	29,000

Respectfully submitted,

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

CHARLES KELLER,  
*First Lieutenant, Corps of Engineers.*

SURVEY OF ISLES OF SHOALS, MAINE AND NEW HAMPSHIRE, WITH A  
VIEW TO BUILDING A BREAKWATER FROM SMUTTY NOSE ISLAND TO  
CEDAR ISLAND.

UNITED STATES ENGINEER OFFICE,  
*Portsmouth, N. H., December 21, 1899.*

GENERAL: In compliance with the requirements of the river and harbor act of March 3, 1899, I have the honor to submit the following report upon the survey of "Isles of Shoals, with a view to building a breakwater from Smutty Nose Island to Cedar Island."

At page 7 of the "Introduction" of a small book entitled *The Isles of Shoals, an Historical Sketch*, by John Scribner Jenness, from the Riverside Press, 1873, I find the following:

The harbor of the shoals, inclosed between Appledore, Halcys, Cedar, and Star islands, furnishes a tolerably secure refuge for small vessels "in distress of weather." With a view of improving this little port, Mr. Samuel Haley constructed, about the beginning of the present century, a sea wall between Smutty Nose (now named after him, Halcys Island) and the small rock on its north, called Malaga.

In 1821 the United States Government reconstructed and improved this wall, and also built another of considerable length from Smutty Nose to Cedar Island on the south. While this latter sea wall stood it furnished a great protection to the inclosed anchorage ground, but the contractor, Mr. Thomas Haven, of Portsmouth, was unable

<sup>1</sup> Not printed.

with the scanty appropriation at his command (\$2,500) to build it sufficiently solid to resist the tremendous attacks of the ocean under a northeast storm. A few years after the sea wall had been completed it was overthrown so thoroughly that hardly a vestige of it is now remaining, only a part of its course being discernible at low water. Lying, however, as the harbor does, under the lee of Appledore, Smutty Nose, and Malaga, it affords a tolerable shelter for the fishing craft and coasters who still take refuge there. It is to be hoped that the United States Government, in view of the great importance of this little harbor as a refuge from our frequent easterly storms, will ere long make an appropriation adequate to the permanent restoration of the Cedar Island sea wall.

The foregoing is the only record relating to the old breakwater I have been able to find, there being nothing regarding it in the office files and no mention of any appropriation for it in "River and harbor improvements, 1789-1883."

The present condition of this old breakwater is shown by the profile on the map of the survey herewith, from which it will be seen that its crest averages about  $1\frac{1}{2}$  feet above mean low water. The stone has been spread out by the sea, so that it will form an excellent foundation for new work, which, in order to give adequate protection, should be carried to an elevation of about 15 feet above mean low tide.

The easterly slope should be about  $1\frac{1}{2}$  horizontal to 1 vertical and formed of large stones, weighing from 5 to 10 tons each; the inside, on a slope of 1 to 1, can be of smaller sizes down to 500 or 1,000 pounds weight. The top width is assumed at 20 feet; extreme high water is about  $10\frac{1}{2}$  feet above mean low tide; the height assumed will, therefore, allow for some settlement and compacting of the stone and still keep the crest above high water, which is necessary in order to furnish the desired shelter.

The estimated cost of this work is—

25,000 tons stone in place, at \$1.10 .....	\$27,500
Engineering, superintendence, and contingencies .....	2,500
Total .....	30,000

This place is of considerable importance as a harbor of refuge for the numerous fishing boats and small vessels along this coast, and, in my judgment, the above comparatively small expenditure is well warranted by the interests involved.

Reliable statistics of the amount of shipping directly interested in this work can not be obtained, but would comprise all the great fleet of small vessels upon this coast.

Although this survey appears in the river and harbor act above mentioned, under the head "New Hampshire," the work lies wholly in Maine, the line between that State and New Hampshire passing between Cedar and Star islands.

Very respectfully, your obedient servant,

W. L. FISK,  
*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 26, 1899.*

Respectfully forwarded to the Chief of Engineers, concurring in the views of the district officers, with the understanding that the cross sec-

tions are only tentative, and subject to revision at the time the project for improvement is submitted.

The water at a distance of 1,000 feet east of the proposed break-water is about 50 feet deep, and thence deepens very rapidly seaward.

It is probable that the outer slope may judiciously be lengthened.

The capping stones at crest should certainly be arranged with greater care than shown, and with their shortest dimensions to the sea.

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

3. *Harbor at Isles of Shoals, Maine.*—A description of this harbor may be found in the Annual Report of the Chief of Engineers for 1900, Part II, page 1172, and is also published, together with a map of the harbor, as House Doc. No. 255, Fifty-sixth Congress, first session.

The principal island of the group known as "Isles of Shoals" is Star Island, on which is located the old village of Gosport. Gosport Harbor lies to the north of this island and is protected on its north and east by Smuttynose Island, and on the south and southeast by Star and Cedar islands, and on the east by what remains of a breakwater constructed by the United States in 1821-1823 between Smuttynose and Cedar islands, at a cost of \$13,251.61. This breakwater has been beaten down and spread out by the sea, so that its crest now averages only about 1½ feet above mean low water and is of little or no protection to the harbor.

The river and harbor act of June 13, 1902, appropriated \$30,000 for the completion of the improvement of this harbor in accordance with the report submitted in House Doc. No. 255, Fifty-sixth Congress, first session. The proposed improvement consists in the construction of a breakwater on the site of the old one to a height of about 15 feet above mean low water, at a cost of \$30,000.

The place is of considerable importance as a harbor of refuge for the numerous fishing boats and small vessels along the coast. The statistics of the amount of shipping directly interested can not be obtained, but would comprise all the great fleet of small vessels passing up and down the New England coast.

Amount appropriated by river and harbor act approved June 13, 1902...	\$30,000.00
July 1, 1902, balance unexpended .....	30,000.00

(See Appendix B 3.)

B 3.

IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, MAINE.

A description of this work may be found in Part I, page 79, of this report.

Nothing has been done toward this improvement since 1821-1823, when a breakwater was constructed between Smuttynose and Cedar islands. This breakwater has long since been beaten down by the sea nearly to the level of low water.

The river and harbor act of June 13, 1902, appropriated \$30,000 for the completion of the improvement of this harbor in accordance with report submitted in House Doc. No. 255, Fifty-sixth Congress, first session. The proposed improvement consists in constructing a breakwater to a height of about 15 feet above mean low tide, on the site of the old breakwater, which has been so beaten down and spread out by the sea that it affords no protection at high water. The project for the work has not yet been submitted.

\* \* \* \* \*

*Money statement.*

Amount appropriated by river and harbor act approved June 13, 1902..	\$30,000.00
July 1, 1902, balance unexpended .....	30,000.00

1902

APPROPRIATIONS.

Act of--		
March 3, 1821.....		\$2,500.00
May 7, 1822.....		11,500.00
Total.....		<u>14,000.00</u>
Carried to surplus fund in 1824.....		748.39
		<u>13,251.61</u>
June 13, 1902.....		30,000.00
		<u>43,251.61</u>

COMMERCIAL STATISTICS.

*Shipments and receipts.*

	Tons.
Coal.....	500
Merchandise.....	5,000
Fish.....	2,000
Lumber.....	210
Total.....	<u>7,710</u>

During the summer months there is a line of steamers making two trips daily between this port and Portsmouth, N. H.

It is reported that about 1,000 schooners and small steamers frequented the harbor during the past year.

3. *Harbor at Isles of Shoals, Maine.*—A description of this harbor may be found in the Annual Report of the Chief of Engineers for 1900, Part II, page 1172, and is also published, together with a map of the harbor, as House Doc. No. 255, Fifty-sixth Congress, first session.

The principal island of the group known as "Isles of Shoals" is Star Island, on which is located the old village of Gosport. Gosport Harbor lies to the north of this island and is protected on its north and east by Smuttynose Island, and on the south and southeast by Star and Cedar islands, and on the east by what remains of a breakwater constructed by the United States in 1821-1823 between Smuttynose and Cedar islands, at a cost of \$13,251.61. This breakwater has been beaten down and spread out by the sea, so that its crest now averages only about 1½ feet above mean low water and is of little or no protection to the harbor.

The river and harbor act of June 13, 1902, appropriated \$30,000 for the completion of the improvement of this harbor in accordance with the report submitted in House Doc. No. 255, Fifty-sixth Congress, first session. The proposed improvement consists in the construction of a breakwater on the site of the old one to a height of about 15 feet above mean low water, at a cost of \$30,000.

The total expenditures under the existing project to June 30, 1903, amount to \$41.55.

Work on the construction of the breakwater was begun in June, 1903.

The place is of considerable importance as a harbor of refuge for the numerous fishing boats and small vessels along the coast. The statistics of the amount of shipping directly interested can not be obtained, but would comprise all the great fleet of small vessels passing up and down the New England coast.

July 1, 1902, balance unexpended.....	\$30,000.00
June 30, 1903, amount expended during fiscal year.....	41.55
<hr/>	
July 1, 1903, balance unexpended.....	29,958.45
July 1, 1903, outstanding liabilities.....	1,221.56
<hr/>	
July 1, 1903, balance available.....	28,736.89
<hr/>	
July 1, 1903, amount covered by uncompleted contracts.....	25,578.43

(See Appendix B 2.)

**B 2.**

**IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, MAINE.**

A description of this work may be found on page 55, Annual Report of the Chief of Engineers for 1903.

The river and harbor act of June 13, 1902, appropriated \$30,000 for the completion of the improvement of this harbor in accordance with report submitted in House Document No. 255, Fifty-sixth Congress, first session. The proposed improvement consists in constructing a breakwater to a height of about 15 feet above mean low tide, on the site of the old breakwater, which has been so beaten down and spread out by the sea that it affords no protection at high water.

The construction of the breakwater was commenced June 10, 1903, and at the close of the fiscal year about 1,095 tons of stone had been placed in the breakwater, completing a section 82 feet in length beginning at Smuttynose Island.

*Money statement.*

July 1, 1902, balance unexpended.....	\$30,000.00
June 30, 1903, amount expended during fiscal year.....	41.55
<hr/>	
July 1, 1903, balance unexpended.....	29,958.45
July 1, 1903, outstanding liabilities.....	1,221.56
<hr/>	
July 1, 1903, balance available.....	28,736.89
<hr/>	
July 1, 1903, amount covered by uncompleted contracts.....	25,578.43

---

 APPROPRIATIONS.

Act of—		
March 3, 1821 .....		\$2,500.00
May 7, 1822 .....		11,500.00
Total .....		<u>14,000.00</u>
Carried to surplus fund in 1824 .....		748.39
		<u>13,251.61</u>
June 13, 1902 .....		30,000.00
		<u>43,251.61</u>

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## CONTRACT IN FORCE DURING FISCAL YEAR ENDING JUNE 30, 1903.

Contractor: The Massachusetts Contracting Company, Worcester, Mass.  
 Nature of work: Construction of breakwater.  
 Date of contract: March 23, 1903.  
 Date of approval: April 7, 1903.  
 Date of commencement: On or before May 1, 1903.  
 Date of completion: On or before November 1, 1903.  
 Price: \$1.07 per ton of 2,000 pounds for rubblestone deposited in breakwater.

---

## COMMERCIAL STATISTICS.

*Shipments and receipts.*

	Tons
Coal .....	500
Merchandise .....	105
Fish .....	200
Lumber .....	108
Total .....	<u>913</u>

During the summer months there is a line of steamers making two trips daily between this port and Portsmouth, N. H.

It is reported that about 2,500 schooners and small steamers frequented the harbor during the past year.

3. *Harbor at Isles of Shoals, Maine.*—[This work was in the charge of Capt. Harry Taylor, Corps of Engineers, to August 31, 1903.] The most protected anchorage at Isles of Shoals, known as Gosport Harbor, lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. At mean low water its anchorage of about 32 acres had a depth of 18 to 48 feet and none of its entrances less than 24 feet.

The original project of March 3, 1821, appears to have been to rebuild the small breakwater on the north side of Haleys Cove, projecting westerly from Smuttynose Island, and to build a breakwater extending from Smuttynose Island to Cedar Island, directly protecting Gosport Harbor from easterly storms.

The amount expended on the original project prior to operations under the existing project was \$13,251.61.

The existing project, adopted by the act of June 13, 1902, is to construct a breakwater on the base of the breakwater that was built under the project of 1821 between Smuttynose and Cedar islands, the upper part of which throughout its length had been demolished down to the level of  $1\frac{1}{2}$  feet above mean low water, at an estimated cost of \$30,000.

The amount expended on the work of the existing project to June 30, 1904, not including outstanding liabilities, is \$24,448.66, all for improvement, with which the breakwater between Smuttynose and Cedar islands has been completed to the height of 15 feet above mean low water, completing the project.

The mean range of tides is 8.6 feet.

The commerce benefited by the improvement is inconsiderable, but the harbor is of value as a harbor of refuge in the open sea 6 miles off the coast.

A report of a survey of the Smuttynose Island breakwater is published in the Annual Report, Chief of Engineers, for 1875, Part 2, page 421. A description of the harbor, with survey and estimate for the new breakwater, is in the Annual Report for 1900, page 1172.

July 1, 1903, balance unexpended .....	\$29,958.45
June 30, 1904, amount expended during fiscal year for works of improvement .....	24,407.11
July 1, 1904, balance unexpended .....	5,551.34
July 1, 1904, outstanding liabilities .....	3,752.94
July 1, 1904, balance available .....	1,798.40

(See Appendix B 2.)

## B 2.

## IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, MAINE.

[This work was in the charge of Maj. Harry Taylor, Corps of Engineers, to August 31, 1903.]

During the fiscal year the Massachusetts Contracting Company deposited 22,691 $\frac{1}{2}$  $\frac{4}{10}$  $\frac{4}{10}$  tons of rubble stone in the breakwater from Smuttynose to Cedar Islands, completing it in accordance with the project.

On June 30, 1904, the entire work authorized had been completed.

*Money statement.*

July 1, 1903, balance unexpended .....	\$29,958.45
June 30, 1904, amount expended during fiscal year, for works of improvement .....	24,407.11
July 1, 1904, balance unexpended .....	5,551.34
July 1, 1904, outstanding liabilities .....	3,752.94
July 1, 1904, balance available .....	1,798.40

## APPROPRIATIONS.

Act of—	
March 3, 1821 .....	\$2,500.00
May 7, 1822 .....	11,500.00
Total .....	14,000.00
Carried to surplus fund in 1824 .....	748.39
	13,251.61
June 13, 1902 .....	30,000.00
	43,251.61

## CONTRACT IN FORCE.

Contractor: The Massachusetts Contracting Company, Worcester, Mass.  
 Nature of work: Construction of breakwater.  
 Date of contract: March 23, 1903.  
 Date of approval: April 7, 1903.  
 Date of commencement: On or before May 1, 1903.  
 Date of completion: On or before November 1, 1903.  
 Price: \$1.07 per ton of 2,000 pounds for rubblestone deposited in breakwater.

## COMMERCIAL STATISTICS.

*Shipments and receipts.*

	Tons.
Coal .....	600
Merchandise .....	26
Fish .....	600
Lumber .....	27
Total .....	1,253

During the summer months there is a line of steamers making two trips daily between this port and Portsmouth, N. H.

It is reported that about 1,000 schooners and small steamers frequented the harbor during the past year.

20. *Harbor at Isles of Shoals, Maine.*—[This work was in the charge of Col. W. S. Stanton, Corps of Engineers, to March 31, 1905.] The most protected anchorage at Isles of Shoals, known as Gosport Harbor, lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. At mean low water its anchorage of about 32 acres had a depth of 18 to 48 feet and none of its entrances less than 24 feet.

The original project of March 3, 1821, appears to have been to rebuild the small breakwater on the north side of Haleys Cove, projecting westerly from Smuttynose Island to Cedar Island, directly protecting Gosport Harbor from easterly storms.

The amount expended on the original project prior to operations under the existing project was \$13,251.61.

The existing project, adopted by the act of June 13, 1902, is to construct a breakwater on the base of the breakwater that was built under the project of 1821 between Smuttynose and Cedar islands, the upper part of which throughout its length had been demolished down to the level of 1½ feet above mean low water, at an estimated cost of \$30,000.

The amount expended on the work of the existing project to June 30, 1905, is \$28,201.60, all for improvement, with which the breakwater between Smuttynose and Cedar islands has been completed to the height of 15 feet above mean low water, completing the project.

The mean range of tides is 8.6 feet.

The commerce benefited by the improvement is inconsiderable, but the harbor is of value as a harbor of refuge in the open sea 6 miles off the coast.

A report of a survey of the Smuttynose Island breakwater is published in the Annual Report, Chief of Engineers, for 1875, Part 2, page 421. A description of the harbor, with survey and estimate for the new breakwater, is in the Annual Report for 1900, page 1172.

July 1, 1904, balance unexpended.....	\$5, 551. 34
June 30, 1905, amount expended during fiscal year, for works of improvement .....	3, 752. 94
July 1, 1905, balance unexpended.....	1, 798. 40

(See Appendix A 20.)

#### A 20.

##### IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, MAINE.

[This work was in the charge of Col. W. S. Stanton, Corps of Engineers, to March 31, 1905.]

No work was done during the year. The expenditures were for liabilities incurred during the previous fiscal year. The project is completed.

##### *Money statement.*

July 1, 1904, balance unexpended.....	\$5, 551. 34
June 30, 1905, amount expended during fiscal year, for works of improvement .....	3, 752. 94
July 1, 1905, balance unexpended.....	1, 798. 40

1905

APPROPRIATIONS.

March 3, 1821	\$2,500.00
May 7, 1822	11,500.00
	<hr/>
	14,000.00
Carried to surplus fund in 1824	748.39
	<hr/>
	13,251.61
June 13, 1902	30,000.00
	<hr/>
Total	43,251.61

COMMERCIAL STATISTICS.

*Receipts and shipments, 1904.*

	Tons.
Coal	500
Lumber	15
Fish	1,000
	<hr/>
Total	1,515

Number of passengers in 1904, 5,000.

20. *Harbor at Isles of Shoals, Maine.*—The most protected anchorage at Isles of Shoals, known as Gosport Harbor, lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. At mean low water its anchorage of about 32 acres had a depth of 18 to 48 feet and none of its entrances less than 24 feet.

The original project of March 3, 1821, appears to have been to rebuild the small breakwater on the north side of Haleys Cove, projecting westerly from Smuttynose Island to Cedar Island, directly protecting Gosport Harbor from easterly storms.

The amount expended on the original project prior to operations under the existing project was \$13,251.61.

The existing project, adopted by the act of June 13, 1902, is to construct a breakwater on the base of the breakwater that was built under the project of 1821 between Smuttynose and Cedar islands, the upper part of which thruout its length had been demolished down to the level of  $1\frac{1}{2}$  feet above mean low water, at an estimated cost of \$30,000.

The amount expended on the work of the existing project to June 30, 1906, is \$28,201.60, all for improvement, with which the breakwater between Smuttynose and Cedar islands has been completed to the height of 15 feet above mean low water, completing the project.

The mean range of tides is 8.6 feet.

The commerce benefited by the improvement is inconsiderable, but the harbor is of value as a harbor of refuge in the open sea 6 miles off the coast.

A report of a survey of the Smuttynose Island breakwater is published in the Annual Report, Chief of Engineers, for 1875, Part 2, page 421. A description of the harbor, with survey and estimate for the new breakwater, is in the Annual Report for 1900, page 1172.

July 1, 1905, balance unexpended .....	\$1,798.40
July 1, 1906, balance unexpended .....	1,798.40

(See Appendix A 20.)

#### A 20.

##### IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, MAINE.

There were no expenditures and no work was done during the year. The project is completed.

APPROPRIATIONS.	
March 3, 1821 .....	\$2,500.00
May 7, 1822 .....	11,500.00
	<hr/>
Carried to surplus fund in 1824 .....	14,000.00
	748.39
	<hr/>
June 13, 1902 .....	13,251.61
	30,000.00
	<hr/>
Total .....	43,251.61

1906

COMMERCIAL STATISTICS.

*Receipts and shipments.*

	Tons.
Beef .....	10
Canned goods .....	5
Cement .....	4
Coal .....	500
Fish .....	50
Flour .....	25
General merchandise .....	50
Grain .....	5
Lumber .....	45
Potatoes .....	12
Molasses and sugar .....	20
Oil .....	10
Provisions .....	300
Wood .....	50
<b>Total</b> .....	<b>1,086</b>

*Arrivals and departures during calendar year ending December 31, 1905.*

Steamers, draft 10 feet, tonnage not known.....	1,000
Sailing vessels, average draft 10 feet, tonnage not known.....	4,000
Number of passengers carried during the year, 10,000.	

20. *Harbor at Isles of Shoals, Maine.*—The most protected anchorage at Isles of Shoals, known as Gosport Harbor, lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. At mean low water its anchorage of about 32 acres had a depth of 18 to 48 feet and none of its entrances less than 24 feet.

The original project of March 3, 1821, appears to have been to rebuild the small breakwater on the north side of Haleys Cove, projecting westerly from Smuttynose Island to Cedar Island, directly protecting Gosport Harbor from easterly storms.

The amount expended on the original project prior to operations under the existing project was \$13,251.61.

The existing project, adopted by the act of June 13, 1902, is to construct a breakwater on the base of the breakwater that was built under the project of 1821 between Smuttynose and Cedar islands, the upper part of which throughout its length had been demolished down to the level of 1½ feet above mean low water, at an estimated cost of \$30,000.

The amount expended on the work of the existing project to June 30, 1907, is \$28,201.60, all for improvement, with which the breakwater between Smuttynose and Cedar islands has been completed to the height of 15 feet above mean low water, completing the project.

The mean range of tides is 8.6 feet.

The commerce benefited by the improvement is inconsiderable, but the harbor is of value as a harbor of refuge in the open sea 6 miles off the coast.

A report of a survey of the Smuttynose Island breakwater is published in the Annual Report, Chief of Engineers, for 1875, Part 2, page 421. A description of the harbor, with survey and estimate for the new breakwater, is in the Annual Report for 1900, page 1172.

July 1, 1906, balance unexpended.....	\$1,798.40
July 1, 1907, balance unexpended.....	1,798.40

(See Appendix A 20.)

A 20.

IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, MAINE.

There were no expenditures and no work was done during the year.

*Money statement.*

July 1, 1906, balance unexpended.....	\$1,798.40
July 1, 1907, balance unexpended.....	1,798.40

APPROPRIATIONS.

March 3, 1821.....	\$2,500
May 7, 1822.....	11,500
June 13, 1902.....	30,000
Total.....	44,000

NOTE.—Amount carried to surplus fund, \$748.30.

COMMERCIAL STATISTICS.

*Receipts and shipments.*

	Tons.
Beef.....	15
Canned goods and provisions.....	44
Cement and lime.....	15
Coal.....	400

1907

	Tons.
Fish .....	500
General merchandise .....	25
Grain and flour .....	30
Ice .....	800
Lumber .....	19
Potatoes .....	20
Molasses and sugar .....	15
Total .....	1,883

*Arrivals and departures during calendar year ending December 31, 1906.*

Steam vessels, average draft 8 feet .....	100
Sailing vessels, average draft 8 feet .....	400

Number of passengers carried during the year, 10,000.

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13. *Harbor at Isles of Shoals, Maine.*—The most protected anchorage at Isles of Shoals, known as Gosport Harbor, lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. At mean low water its anchorage of about 32 acres had a depth of 18 to 48 feet and none of its entrances less than 24 feet.

The original project of March 3, 1821, appears to have been to rebuild the small breakwater on the north side of Huleys Cove, projecting westerly from Smuttynose Island to Cedar Island, directly protecting Gosport Harbor from easterly storms.

The amount expended on the original project prior to operations under the existing project was \$13,251.61.

The existing project, adopted by the act of June 13, 1902, is to construct a breakwater on the base of the breakwater that was built under the project of 1821 between Smuttynose and Cedar islands, the upper part of which throughout its length had been demolished down to the level of 1½ feet above mean low water, at an estimated cost of \$30,000.

The amount expended on the work of the existing project to June 30, 1908, is \$28,201.60, all for improvement, with which the breakwater between Smuttynose and Cedar islands has been completed to the height of 15 feet above mean low water, completing the project.

The mean range of tides is 8.6 feet.

The commerce benefited by the improvement is inconsiderable, but the harbor is of value as a harbor of refuge in the open sea 6 miles off the coast.

The tonnage for 1907 is given as 1,938 tons, of an estimated value of \$50,188.50.

A report of a survey of the Smuttynose Island breakwater is published in the Annual Report, Chief of Engineers, for 1875, Part 2, page 421. A description of the harbor, with survey and estimate for the new breakwater, is in the Annual Report for 1900, page 1172.

July 1, 1907, balance unexpended.....	\$1,798.40
July 1, 1908, balance unexpended.....	1,798.40

(See Appendix A 13.)

### A 13.

#### IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, MAINE.

There were no operations during the year, and no expenditures.

#### Money statement.

July 1, 1907, balance unexpended.....	\$1,798.40
July 1, 1908, balance unexpended.....	1,798.40

#### APPROPRIATIONS.

March 3, 1821.....	\$2,500
May 7, 1822.....	11,500
June 13, 1902.....	30,000
Total.....	44,000

NOTE.—Amount carried to surplus fund, \$748.39.

1908

COMMERCIAL STATISTICS.

*Receipts and shipments.*

	Tons.
Beef .....	15
Cement .....	15
Coal .....	300
Fish .....	300
Flour, hay, and straw .....	225
General merchandise .....	300
Ice .....	400
Lumber .....	53
Potatoes .....	30
Provisions .....	300
<b>Total</b> .....	<b>1,938</b>

*Arrivals and departures during calendar year ending December 31, 1907.*

Steamers, average draft 9 feet .....	500
Sailing vessels, average draft 9 feet .....	2,000
Number of passengers landing and departing, by water .....	10,000

1908

60TH CONGRESS, } HOUSE OF REPRESENTATIVES. } DOCUMENT  
2d Session. } } No. 1122.

ISLES OF SHOALS, MAINE AND NEW HAMPSHIRE.

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LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

WITH A LETTER FROM THE CHIEF OF ENGINEERS, REPORTS OF  
EXAMINATION AND SURVEY OF ISLES OF SHOALS, MAINE AND  
NEW HAMPSHIRE.

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DECEMBER 9, 1908.—Referred to the Committee on Rivers and Harbors and  
ordered to be printed, with illustration.

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WAR DEPARTMENT,  
*Washington, December 7, 1908.*

SIR: I have the honor to transmit herewith a letter from the  
Chief of Engineers, U. S. Army, dated 3d instant, together with  
copies of reports from Lieut. Col. Geo. A. Zinn, Corps of Engineers,  
dated September 6, 1907, and September 28, 1908, of a preliminary  
examination and survey, respectively, of Isles of Shoals, Maine and  
New Hampshire, made by him in compliance with the provisions of  
the river and harbor act of March 2, 1907.

Very respectfully,

LUKE E. WRIGHT,  
*Secretary of War.*

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

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WAR DEPARTMENT,  
OFFICE OF THE CHIEF OF ENGINEERS,  
*Washington, December 3, 1908.*

SIR: I have the honor to submit herewith for transmission to Con-  
gress reports of September 6, 1907, and September 28, 1908, with  
map, by Lieut. Col. Geo. A. Zinn, Corps of Engineers, on preliminary  
examination and survey, respectively, authorized by the river and  
harbor act approved March 2, 1907, of Isles of Shoals, Maine and  
New Hampshire, with a view to the construction of a breakwater.

1908

As early as 1821 Isles of Shoals claimed attention as a locality deserving of improvement, and about that time small stone walls were constructed which joined Cedar, Smuttynose, and Malaga islands and made a harbor of refuge of what is known as Gosport Harbor. In 1903-4 these walls were rebuilt as substantial breakwaters. Additional protection is desired and a plan is now presented which provides for building a breakwater between Cedar and Star islands at an estimated cost of \$40,000.

It is expected that the further improvement proposed will provide a safe haven for the fishing fleet under nearly all conditions and occasionally for larger vessels in distress, and I concur in the opinion of the district officer, the division engineer, and the Board of Engineers for Rivers and Harbors that the locality is worthy of further improvement to this extent.

Very respectfully,

W. L. MARSHALL,  
*Chief of Engineers, U. S. Army.*

The SECRETARY OF WAR.

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PRELIMINARY EXAMINATION OF ISLES OF SHOALS, MAINE AND NEW HAMPSHIRE, WITH A VIEW TO BREAKWATER CONSTRUCTION.

UNITED STATES ENGINEER OFFICE,  
*Portland, Me., September 6, 1907.*

SIR: In accordance with instructions contained in your letter of March 14, 1907, I have the honor to submit the following report upon a preliminary examination of the Isles of Shoals, with a view to the construction of a breakwater:

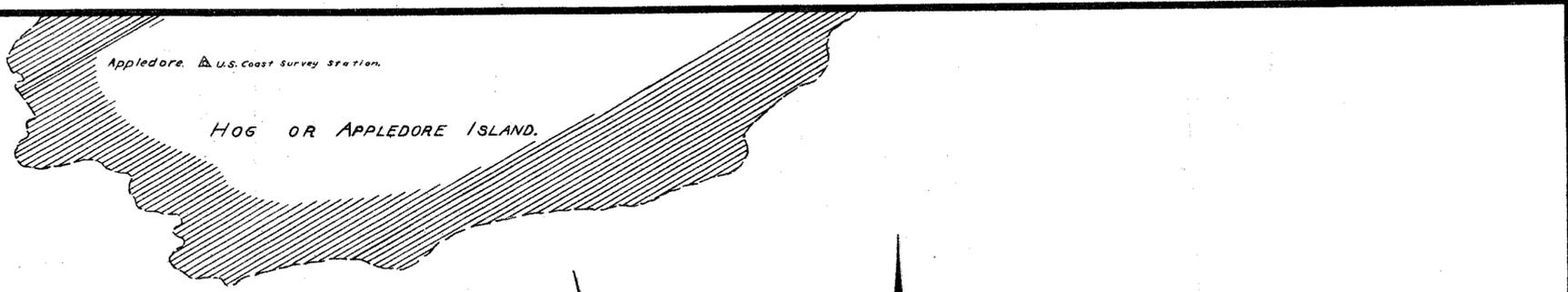
The Isles of Shoals lie about 6 miles southeast of the harbor of Portsmouth, N. H., and are described in the Annual Reports, Chief of Engineers, 1875, part 2, page 421, and 1900, page 1172. The examinations and surveys reported therein resulted in the construction of a breakwater in 1903-4 between Smuttynose and Cedar islands, from an appropriation in the river and harbor act of June 13, 1902. This breakwater is now in good condition and affords protection to Gosport Harbor during easterly storms.

The opening between Cedar and Star islands, however, permits the entrance into the harbor of seas from the south and southeast, and it is in this opening that the construction of a breakwater is desired. The northwestern entrance to the harbor faces the land 6 miles distant, and there appears to be no necessity for protecting the harbor in that direction.

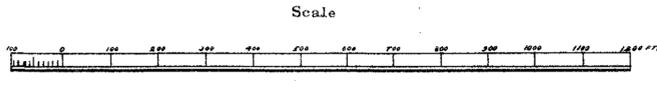
In its present condition, therefore, Gosport Harbor is not perfectly protected, whereas the construction of a breakwater between Cedar and Star islands would make it a safe harbor in practically all sorts of weather, and would therefore be of great benefit to all vessels making use of it.

In the report of the survey referred to above, by Maj. W. L. Fisk, Corps of Engineers, dated December 21, 1899, the following remarks occur:

This place is of considerable importance as a harbor of refuge for the numerous fishing boats and small vessels along this coast, and, in my judgment, the above comparatively small expenditure (\$30,000) is well warranted

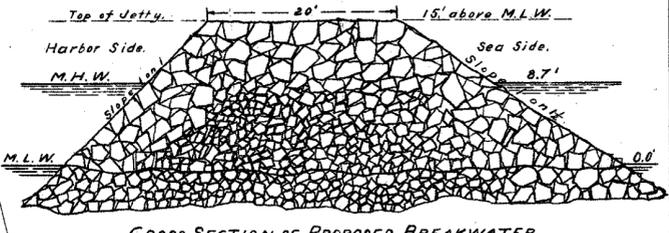
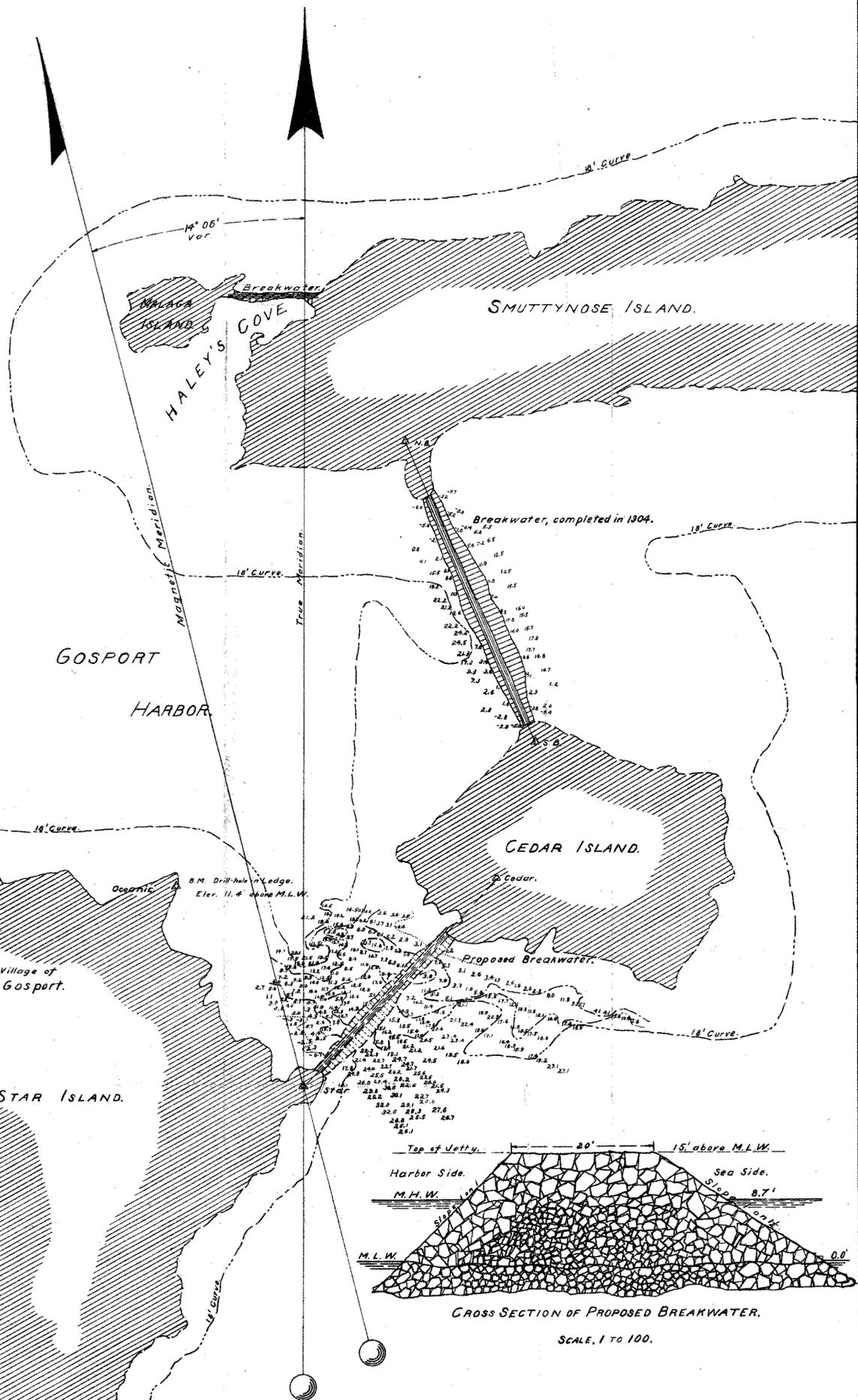


MAP OF ISLES OF SHOALS, ME. & N. H.  
 Made under the direction of  
 Lieut-Col. Geo. A. Zinn, Corps of Engineers, U.S. A.  
 With a view to the construction of a breakwater,  
 In accordance with Section 2 of the  
 River and Harbor Act of March 2, 1907.  
 Triangulation and soundings at site  
 of proposed breakwater  
 by E. M. Hunt, Junior Engineer,  
 July 24 - August 3, 1908.  
 Map and tracing made under the supervision of  
 F. S. Burrowes, Assistant Engineer,  
 by R. M. Page, Surveyman.  
 Outlines of Islands shown in broken lines were  
 enlarged from U.S.C. & G. Survey Chart No. 330.



NOTE.  
 Soundings are expressed in feet and tenths  
 and are referred to Mean Low Water as indicated  
 by the Bench Mark at Oceanic.

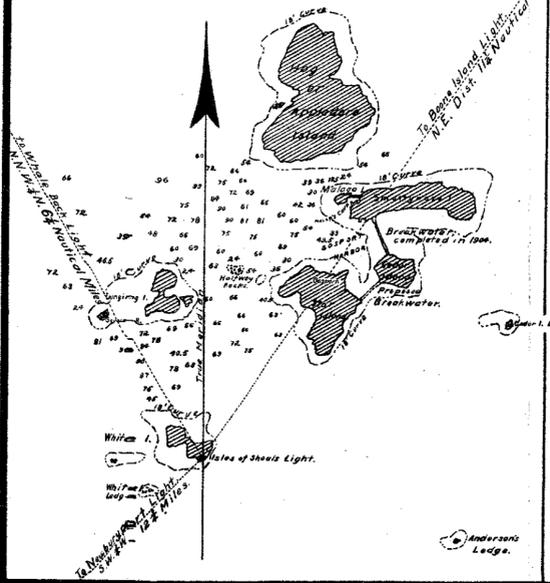
U.S. Engineer Office,  
 Portland, Me., Sept. 28, 1908.  
 Transmitted to the Chief of Engineers,  
 War Department, with report of this date.  
 Geo. A. Zinn,  
 Lieut-Col., Corps of Engineers.



CROSS SECTION OF PROPOSED BREAKWATER.  
 SCALE, 1 TO 100.

ISLES OF SHOALS.  
 Copied from  
 U.S.C. & G.S. Chart No. 330.  
 SCALE 1:30,000

NOTE.  
 Duck, Hog, Smuttynose, and  
 Cedar Islands belong to Maine,  
 the others to New Hampshire.



From Station.	To Station.	True Azimuth.	Dist. (Feet)	Station and Description.	Coordinates (Feet)	
					South	East
Appledore	True South	0° 00' 00"			000.00	000.00
"	Cupola Ocean Wave Ho.	107° 48' 52"		Appledore - U.S.C. & G. Survey Station		
"	" Wallis Sands L.S.S.	113° 15' 31"		Drill-hole in Ledge.		
"	Baptist Ch. Spire, Kittery	148° 03' 36"				
"	South Base	317° 42' 20"	3336.07			
"	Oceanic	336° 38' 40"	3129.04	Oceanic - B.M.-D.H. in Ledge.	2873.02	1239.63
Oceanic	North Base	207° 12' 58"	1401.21	North Base " " "	1626.92	1800.42
"	South Base	248° 02' 30"	1083.39	South Base " " "	2467.68	2244.98
"	Cedar	268° 36' 40"	835.17	Cedar " " "	2851.39	2134.54
"	Star	327° 25' 20"	669.45	Star " " "	3437.14	1600.09
Star	Cedar	222° 22' 30"	792.98			
Cedar	North Base	168° 16' 30"	1250.50			
North Base	South Base	326° 33' 30"	316.40	(Measured)		

by the interests involved. Reliable statistics of the amount of shipping directly interested in this work can not be obtained, but would comprise all the great fleet of small vessels upon this coast.

The light-house keeper of the Isles of Shoals light reports that probably 370 small vessels have used Gosport Harbor for refuge during the past year.

For the reasons just given I have formed the opinion that the locality is worthy of improvement by the General Government, providing the result of a survey, which is recommended below, shows the cost to be not incommensurate with the benefits to be derived.

In order to make an accurate estimate of the cost of this breakwater and to determine whether its construction would be justified, it is recommended that a survey of the locality be made at an estimated cost of \$150.

Very respectfully, your obedient servant,

GEO. A. ZINN,  
*Major, Corps of Engineers.*

The CHIEF OF ENGINEERS, U. S. Army.  
(Through the Division Engineer.)

[First indorsement.]

NORTHEAST DIVISION ENGINEER OFFICE,  
*New York, September 7, 1907.*

Respectfully forwarded to the Chief of Engineers, U. S. Army, concurring in the recommendation herein.

JOHN G. D. KNIGHT,  
*Colonel, Corps of Engineers,*  
*Division Engineer.*

[Third indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,  
*Washington, D. C., September 16, 1907.*

Respectfully returned to the Chief of Engineers, U. S. Army.

This group of islands is situated about 6 miles southeast of the harbor of Portsmouth, N. H., and forms an important rendezvous for fishing vessels. On Star Island, the most important one of the group, is situated the town of Gosport, and the object of the present examination is the construction of a breakwater to afford more complete protection to Gosport Harbor.

It appear that in 1821 the United States constructed a sea wall between Smuttynose Island and Cedar Island to protect the harbor from easterly storms. By 1899, when a preliminary examination of the locality was made, this sea wall had been beaten down to a level just above mean low water, and as a result of recommendations contained in the report on that examination and the survey which followed, an appropriation of \$30,000 was made by the act of June 13, 1902, for the construction of a breakwater at the same site. The district officer states that this breakwater is now in good condition and affords protection to Gosport Harbor during easterly storms, but seas from the south and southeast enter the harbor through the opening between Cedar and Star islands. At present, therefore, Gosport Harbor is not perfectly protected, but the construction of a breakwater between Cedar and Star islands would make it a safe harbor in practically all sorts of weather.

1908

While this harbor is not sought by the larger vessels, on account of the proximity of good harbors at Sandy Bay, Cape Porpoise Harbor, Portsmouth, and Portland, it is of great value to the numerous fishing boats and small vessels operating along the coast. The district officer believes that these interests are sufficient to justify the improvement, provided its cost as determined by a survey is not incommensurate with the benefits to be derived. The Board unites with the division engineer in concurring in this opinion, and recommends that a survey be authorized at an estimated cost of \$150.

For the Board:

D. W. LOCKWOOD,  
*Colonel, Corps of Engineers,  
Senior Member of the Board.*

[Fourth indorsement.]

WAR DEPARTMENT,  
OFFICE OF THE CHIEF OF ENGINEERS,  
*Washington, September 19, 1907.*

Respectfully submitted to the Secretary of War.

This is a report on preliminary examination, authorized by the river and harbor act of March 2, 1907, of Isles of Shoals, New Hampshire, with a view to the construction of a breakwater.

Inviting attention to the report of the Board of Engineers for Rivers and Harbors, in the preceding indorsement, I recommend that a survey of the locality, as proposed, be authorized.

A. MACKENZIE,  
*Brig. Gen., Chief of Engineers, U. S. Army.*

[Fifth indorsement.]

WAR DEPARTMENT,  
*September 20, 1907.*

Approved as recommended by the Chief of Engineers.

ROBERT SHAW OLIVER,  
*Acting Secretary of War.*

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SURVEY OF ISLES OF SHOALS, MAINE AND NEW HAMPSHIRE, WITH  
A VIEW TO BREAKWATER CONSTRUCTION.

UNITED STATES ENGINEER OFFICE,  
*Portland, Me., September 28, 1908.*

SIR: I have the honor to submit the following report on a survey at Isles of Shoals, New Hampshire, with a view to the construction of a breakwater, authorized by Department letter of September 23, 1907, in compliance with section 2 of the river and harbor act approved March 2, 1907.

The survey was made July 24 to August 3, 1908, and consisted of a triangulation connecting the lower part of the group of islands with the United States Coast and Geodetic Survey station, "Appledore" on Appledore (formerly Hog) Island, and the making of soundings at the site of the proposed breakwater. The outlines of the islands have for the most part been enlarged from the United States Coast

and Geodetic Survey chart. The map from the data thus obtained, plotted on a scale of 1:2000, is herewith submitted.

The preliminary report was submitted September 6, 1907, and shows that the proposed breakwater was to be built between Cedar Island and Star Island, thereby closing the southerly opening to Gosport Harbor, through which seas, caused by southerly gales, now enter freely and make it very rough in the harbor at such times. Gosport Harbor is inclosed by Appledore (Hog), Malaga, Smuttynose, Cedar, and Star islands, and by a breakwater between Smuttynose and Cedar islands; also by a small wall between Smuttynose and Malaga islands.

Should the proposed breakwater from Cedar to Star Island be built, it would make a harbor protected in all directions except toward the northwest, in which direction the mainland is only 6 miles distant. Gosport Harbor takes its name from the now almost deserted village of Gosport on Star Island, and the proposed breakwater would lie in two States, as Cedar Island is in Maine and Star Island in New Hampshire. The harbor is small in area, but probably large enough to afford sufficient area for the numerous fleet of small fishing boats that frequent the locality. It is also deep enough to afford a haven for large schooners, which at times, by reason of adverse winds, would be unable to make the harbor of Portsmouth.

Improvement of this harbor by the United States seems to have been begun about 1821, when small and insufficient walls were built joining Cedar, Smuttynose, and Malaga islands. Nothing further was done until, under an appropriation of June 13, 1902, these walls were rebuilt as substantial, rough-stone breakwaters, with top 20 feet wide, at an elevation of 15 feet above mean low water, sea slopes 1 on  $1\frac{1}{2}$ , and harbor slopes of 1 on 1. This work was completed in 1904.

A breakwater from Cedar to Star Island would be about 500 feet long and would require 34,000 tons of rough stone if built with the same cross section as that from Smuttynose to Cedar Island. At present the harbor is so exposed toward the south as to make it unsafe with a gale blowing from that direction, while the building of the breakwater would make it a snug harbor under nearly all conditions.

As before stated, practically the only benefit derived from the building of this breakwater would be to afford a refuge for the fleet of fishermen in this locality. It is difficult, if not impossible, to obtain the number of boats and the money value invested in this business. The keeper of the Isles of Shoals light has reported that probably 370 small vessels sought Gosport Harbor for refuge during a year. It might also, as before stated, occasionally afford a refuge for a large vessel in distress.

Under the last contract stone was delivered in the breakwater for \$1.07 per ton; and as the conditions have not since materially changed, it is probable that the same price could now be obtained, and it has therefore been used in the estimate.

## ESTIMATE.

34,000 tons of rough stone, at \$1.10 per ton.....	\$37,400
Contingencies, engineering and superintendence.....	2,600
Total.....	40,000

Considering that while the interests involved may be small individually they are large in the aggregate, and that the building of this breakwater may change this harbor from an insecure refuge under certain conditions to a safe haven under nearly all conditions, I am of the opinion that continuation of the improvement of Gosport Harbor to the extent of building a breakwater at an estimated cost of \$40,000 is justifiable.

Very respectfully, your obedient servant,

GEO. A. ZINN,  
*Lieut. Col., Corps of Engineers.*

The CHIEF OF ENGINEERS, U. S. Army.  
(Through the Division Engineer.)

[First indorsement.]

NORTHEAST DIVISION ENGINEER OFFICE,  
*New York, October 1, 1908.*

Respectfully forwarded to the Chief of Engineers, U. S. Army.

The Government having entered upon the construction of a small harbor of refuge for fishing vessels amid the Isles of Shoals, the breakwaters already built should be supplemented by the one now estimated for in order to complete this construction.

The value in dollars and cents of the commerce to be directly benefited may be small, but the industry to be fostered is large, and the men engaged in it should be protected in their hazardous occupation.

I am of the opinion that the Isles of Shoals is worthy of improvement by the General Government to the extent of constructing the breakwater as proposed by the district engineer.

JOHN G. D. KNIGHT,  
*Colonel, Corps of Engineers,  
Division Engineer.*

[Third indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,  
*Washington, D. C., October 5, 1908.*

Respectfully returned to the Chief of Engineers, U. S. Army.

It is estimated by the district officer that a suitable breakwater can be constructed between Cedar Island and Star Island at a cost of \$40,000. The object of this structure, as explained in the report on preliminary examination and in the within report, is to render more secure the harbor of refuge already undertaken by the United States at this locality.

The conditions justifying the further work now proposed are briefly summarized in the indorsement of the division engineer hereon, with which the Board is in full accord. It concurs in the opinion of the district officer and the division engineer that the locality is worthy of further improvement to the extent of constructing a breakwater as proposed within at an estimated cost of \$40,000.

For the Board:

W. C. LANGFITT,  
*Lieut. Col., Corps of Engineers,  
Senior Member Present.*

13. *Harbor at Isles of Shoals, Maine.*—The most protected anchorage at Isles of Shoals, known as Gosport Harbor, lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. At mean low water its anchorage of about 32 acres had a depth of 18 to 48 feet and none of its entrances less than 24 feet.

The original project of March 3, 1821, appears to have been to rebuild the small breakwater on the north side of Haleys Cove, projecting westerly from Smuttynose Island to Cedar Island, directly protecting Gosport Harbor from easterly storms.

The amount expended on the original project prior to operations under the existing project was \$13,251.61.

The existing project, adopted by the act of June 13, 1902, is to construct a breakwater on the base of the breakwater that was built under the project of 1821 between Smuttynose and Cedar islands, the upper part of which throughout its length had been demolished down to the level of 1½ feet above mean low water, at an estimated cost of \$30,000.

The amount expended on the work of the existing project to June 30, 1909, is \$28,201.60, all for improvement, with which the breakwater between Smuttynose and Cedar islands has been completed to the height of 15 feet above mean low water, completing the project.

The mean range of tides is 8.6 feet.

The commerce benefited by the improvement is inconsiderable, but the harbor is of value as a harbor of refuge in the open sea 6 miles off the coast.

The tonnage for 1908 is given as 2,208 tons, with an estimated value of about \$65,000.

A report of a survey of the Smuttynose Island breakwater is published in the Annual Report of the Chief of Engineers for 1875, Part 2, page 421. A description of the harbor, with survey and estimate for the new breakwater, is given in the Annual Report for 1900, page 1172.

July 1, 1908, balance unexpended.....	\$1,798.40
June 30, 1909, carried to the surplus fund.....	1,798.40

(See Appendix A 13.)

3. *Preliminary examination and survey of Isles of Shoals, Maine and New Hampshire, with a view to the construction of a breakwater.*—Reports dated September 6, 1907, and September 28, 1908, respectively, are printed in House Document No. 1122, Sixtieth Congress, second session. A plan for building a breakwater between Cedar and Star islands at an estimated cost of \$40,000 is presented.

A 13.

IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, MAINE.

There were no operations during the year, and no expenditures.

APPROPRIATIONS.

March 3, 1821.....	\$2,500
May 7, 1822.....	11,500
June 13, 1902.....	30,000
Total.....	44,000

NOTE.—Amount carried to surplus fund, \$748.39.

## COMMERCIAL STATISTICS.

*Receipts and shipments.*

	Tons.
Canned goods.....	5
Cement.....	25
Coal.....	500
Fish.....	515
Flour.....	100
General merchandise.....	25
Ice.....	500
Lumber.....	38
Provisions.....	300
Salt.....	200
Total.....	2,208

*Arrivals and departures during calendar year ending December 31, 1908.*

Steam vessels, average draft 8 feet.....	250
Sailing vessels, average draft 8 feet.....	800
Number of passengers landing and departing by water.....	9,000

19. *Harbor at Isles of Shoals, Maine and New Hampshire.*—The most protected anchorage at Isles of Shoals, known as Gosport Harbor, lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. At mean low water its anchorage of about 32 acres had a depth of 18 to 48 feet and none of its entrances less than 24 feet.

The original project of March 3, 1821, appears to have been to rebuild the small breakwater on the north side of Haleys Cove, projecting westerly from Smuttynose Island, and to build a breakwater or wall extending from Smuttynose Island to Cedar Island, directly protecting Gosport Harbor from easterly storms. The amount expended was \$13,251.61.

The next project was adopted by the river and harbor act of June 13, 1902, and provided for the construction of a breakwater on the base of the breakwater built under the project of 1821, between Smuttynose and Cedar islands, the upper part of which had been demolished to the level of 1½ feet above mean low tide. The estimate of cost was \$30,000, and with the expenditure of \$28,201.60 the breakwater was completed. The top was 15 feet above mean low tide.

The river and harbor act of June 25, 1910, adopted a new project in accordance with plan printed in House Document No. 1122, Sixtieth Congress, second session, which provides for construction of a breakwater from Cedar Island to Star Island, giving protection from the south and southeast. The estimated cost is \$40,000, all of which is provided by the act of 1910.

No work has been done under the new project and there have been no expenditures.

The mean range in tide is 8.7 feet.

The commerce pertaining to the locality is inconsiderable, amounting to but about 2,200 short tons annually, but the harbor is of value as a refuge in the open sea 6 miles off the coast.

A report of a survey of the Smuttynose Island breakwater is published in the Annual Report of the Chief of Engineers for 1875, Part 2, page 421. A description of the harbor, with survey and estimate for the new breakwater, is given in the Annual Report for 1900, page 1172. See also House Document No. 1122, Sixtieth Congress, second session.

There has been no deterioration at this place.

Amount appropriated by river and harbor act approved June 25, 1910.....	\$40,000.00
July 1, 1910, balance unexpended.....	40,000.00

(See Appendix A 19.)

1910

A 19.

IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, MAINE AND NEW HAMPSHIRE.

There were no operations during the year, and no expenditures.

APPROPRIATIONS.

March 3, 1821 .....	\$2, 500
May 7, 1822 .....	11, 500
June 13, 1902 .....	30, 000
June 25, 1910 .....	40, 000
	<hr/>
	84, 000

NOTE.—Amount carried to surplus fund, \$2,546.70.

COMMERCIAL STATISTICS.

It has been impracticable to obtain definite commercial statistics. Parties in interest state that the receipts and shipments are practically the same as last year, about 2,200 short tons.

It is reported that there are from 15 to 25 large fishing vessels in the harbor every night. The value of the improvement is as a refuge for vessels.

NOTE.

There were no operations during the year.  
The project has been completed.

The mean range of tides is 8'6"

Total amount expended to July 31, 1908, \$42,201.60

Amt. expended on present project to July 31, 1908, \$28,201.60

Amount available for maintenance \$1,798.40

Commercial Statistics

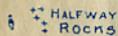
Receipts and shipments ----- 1,938 tons

Arrivals and departures during fiscal  
year ending Dec. 31, 1908,

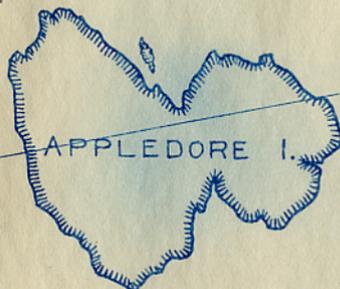
Steamers ----- 500

Sailing vessels ----- 2000

Number of passengers arriving and  
departing by water ----- 1,000



GOSPORT  
HARBOR



N. H. July 1874  
N. H. Me.  
July 1899 & 1908



MAP SHOWING  
PORTION OF ISLES OF SHOALS.

SCALE OF FEET.



LEGEND.

Completed Breakwaters shown in red.

CEDAR I. LEDGE

MINGO RD

U.S. Engineer Office,  
Portland, Me., Nov. 11, 1908.

20. *Harbor at Isles of Shoals, Me. and N. H.*—The most protected anchorage at Isles of Shoals, known as Gosport Harbor, lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. At mean low water its anchorage of about 32 acres had a depth of 18 to 48 feet and none of its entrances less than 24 feet.

The original project of March 3, 1821, appears to have been to rebuild the small breakwater on the north side of Haleys Cove, projecting westerly from Smuttynose Island, and to build a breakwater or wall extending from Smuttynose Island to Cedar Island, directly protecting Gosport Harbor from easterly storms. The amount expended was \$13,251.61.

The next project was adopted by the river and harbor act of June 13, 1902, and provided for the construction of a breakwater on the base of the breakwater built under the project of 1821, between Smuttynose and Cedar Islands, the upper part of which had been demolished to the level of 1½ feet above mean low tide. The estimate of cost was \$30,000, and with the expenditure of \$28,201.60 the breakwater was completed. The top was 15 feet above mean low tide.

The river and harbor act of June 25, 1910, adopted a new project in accordance with plan printed in House Document No. 1122, Sixtieth Congress, second session, which provides for construction of a breakwater from Cedar Island to Star Island, giving protection from the south and southeast. The estimated cost is \$40,000, all of which is provided by the act of 1910.

The expenditures under the new project, all of which were during the fiscal year ending June 30, 1911, have been \$580.93. Proposals for constructing the breakwater were advertised for, but the only bid received was rejected as too high, and the work will be readvertised.

The mean range in tide is 8.7 feet.

The commerce is inconsiderable, amounting to but 2,060 short tons for the calendar year 1910, but the harbor is of value as a refuge in the open sea 6 miles off the coast.

For reports on examinations and surveys see Annual Reports of the Chief of Engineers for 1875, part 2, page 421 (H. Doc. No. 75, pt. 2, 43d Cong., 2d sess.); 1900, page 1172 (H. Doc. No. 255, 56th Cong., 1st sess.); and House Document No. 1122, Sixtieth Congress, second session.

July 1, 1910, balance unexpended.....	\$40,000.00
June 30, 1911, amount expended during fiscal year, for works of improvement.....	580.93
July 1, 1911, balance unexpended.....	39,419.07

(See Appendix A 20.)

## A 20

## IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, ME. AND N. H.

There were no operations during the year. Proposals for constructing the proposed breakwater were invited, but the only bid received was rejected as too high. The work will be readvertised.

## APPROPRIATIONS.

Mar. 3, 1821.....	\$2,500
May 7, 1822.....	11,500
June 13, 1902.....	30,000
June 25, 1910.....	40,000
	84,000

NOTE.—Amount carried to surplus fund, \$2,546.79.

## COMMERCIAL STATISTICS.

*Receipts and shipments.*

	Short tons.
Beef.....	10
Bricks, clay, and cement.....	130
Coal.....	400
Fish.....	200
Flour.....	30
Ice.....	600
Lime.....	15
Lumber.....	225
Provisions.....	200
Sand.....	250
<b>Total.....</b>	<b>2,060</b>

*Arrivals and departures during calendar year ending Dec. 31, 1910.*

Coastwise, draft and tonnage unknown.....	250
Number of passengers arriving and departing by water.....	6,000

21. *Harbor at Isles of Shoals, Me., and N. H.*—Isles of Shoals lie in the open sea about 6 miles southeast of Portsmouth Harbor, N. H.

The most protected anchorage at Isles of Shoals, known as Gosport Harbor, lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. At mean low water its anchorage of about 32 acres had a depth of 18 to 48 feet and none of its entrances less than 24 feet.

The original project of March 3, 1821, appears to have been to rebuild the small breakwater on the north side of Haleys Cove, projecting westerly from Smuttynose Island, and to build a breakwater or wall extending from Smuttynose Island to Cedar Island, directly protecting Gosport Harbor from easterly storms. The amount expended was \$13,251.61.

The next project was adopted by the river and harbor act of June 13, 1902, and provided for the construction of a breakwater on the base of the breakwater built under the project of 1821, between Smuttynose and Cedar Islands, the upper part of which had been demolished to the level of 1½ feet above mean low tide. The estimate of cost was \$30,000, and with the expenditure of \$28,201.60 the breakwater was completed. The top was 15 feet above mean low tide.

The river and harbor act of June 25, 1910, adopted a new project in accordance with plan printed in House Document No. 1122, Sixtieth Congress, second session, which provides for construction of a breakwater from Cedar Island to Star Island, giving protection from the south and southeast. The estimated cost is \$40,000, all of which is provided by the act of 1910.

*References to examination or 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.
Breakwater <sup>1</sup> .....	House.....	75 (Pt. 2)	Forty-third...	Second....	1875	421
Do. <sup>2</sup> .....	do.....	255	Fifty-sixth...	First.....	1900	1172
Do. <sup>2</sup> .....	do.....	1122	Sixtieth.....	Second....		

<sup>1</sup>No maps.

<sup>2</sup>Contains maps.

The existing project has not been modified since its adoption. A contract for construction of the breakwater has been made, and actual work began in May, 1912. At the close of the year about 23 per cent of the stone had been deposited.

The total expenditures under the existing project amount to \$2,302.07, all for new work.

The mean tidal range is 8.7 feet.

The commerce is inconsiderable, amounting to but 3,230 short tons for the calendar year 1911, but the harbor is of value as a refuge in the open sea 6 miles off the coast.

July 1, 1911, balance unexpended.....	\$39,419.07
June 30, 1912, amount expended during fiscal year, for works of improvement.....	1,721.14
July 1, 1912, balance unexpended.....	37,697.93
July 1, 1912, outstanding liabilities.....	5,301.06
July 1, 1912, balance available.....	32,396.87
July 1, 1912, amount covered by uncompleted contracts.....	21,753.47
(See Appendix A 21.)	

## A 21.

## IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, ME., AND N. H.

A contract for constructing the rough stone breakwater contemplated by the existing project was entered into and work was commenced in May, 1912. At the close of the fiscal year 7,791 tons of stone had been put in place, or about 23 per cent of the entire estimated quantity. The contract price is 83 cents per ton.

## APPROPRIATIONS.

Mar. 3, 1821.....	\$2, 500
May 7, 1822.....	11, 500
June 13, 1902.....	30, 000
June 25, 1910.....	40, 000
	84, 000

NOTE.—Amount carried to surplus fund, \$2,546.79.

## CONTRACT IN FORCE.

## FOR BREAKWATER CONSTRUCTION.

Contractor: Pigeon Hill Granite Co.  
 Date of contract: April 26, 1912.  
 Date of approval: May 1, 1912.  
 Date fixed for commencement: June 6, 1912.  
 Date fixed for completion: September 7, 1913.  
 Amount of contract: 34,000 short tons of stone.  
 Unit price: 83 cents per short ton in place.  
 Completed at end of June, 1912: About 23 per cent.

## COMMERCIAL STATISTICS.

*Receipts and shipments.*

	Short tons.		Short tons.
Beef.....	25	General merchandise.....	800
Canned goods.....	5	Ice.....	500
Coal, anthracite.....	200	Provisions.....	700
Coal, bituminous.....	300		
Fish.....	700	Total.....	3, 230

*Arrivals and departures during calendar year ending Dec. 31, 1911*

Steamers: Coastwise, average draft 10 feet.....	250
Sailing vessels: Coastwise, average draft 10 feet.....	500
Number of passengers arriving and departing by water.....	5, 000

19. *Harbor at Isles of Shoals, Me. and N. H.*—Isles of Shoals lie in the open sea about 6 miles southeast of Portsmouth Harbor, N. H.

The most protected anchorage at Isles of Shoals, known as Gosport Harbor, lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. At mean low water its anchorage of about 32 acres had a depth of 18 to 48 feet and none of its entrances less than 24 feet. The mean tidal range is 8.7 feet.

The original project of March 3, 1821, appears to have been to rebuild the small breakwater on the north side of Haleys Cove, projecting westerly from Smuttynose Island, and to build a breakwater or wall extending from Smuttynose Island to Cedar Island, directly protecting Gosport Harbor from easterly storms. The amount expended was \$13,251.61.

The next project was adopted by the river and harbor act of June 13, 1902, and provided for the construction of a breakwater on the base of the breakwater built under the project of 1821, between Smuttynose and Cedar Islands, the upper part of which had been demolished to the level of 1½ feet above mean low tide. The estimate of cost was \$30,000, and with the expenditure of \$28,201.60 the breakwater was completed. The top was 15 feet above mean low tide.

The river and harbor act of June 25, 1910, adopted a new project in accordance with plan printed in House Document No. 1122, Sixtieth Congress, second session, which provides for construction of a breakwater from Cedar Island to Star Island, giving protection from the

south and southeast. The estimated cost is \$40,000, all of which was provided by the act of 1910.

*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.
Breakwater <sup>1</sup> .....	House.	{ 75 (Pt. 2)	Forty-third.....	Second....	1875	421
Do <sup>2</sup> .....	do	255	Fifty-sixth.....	First.....	1900	1172
Do. <sup>2,3</sup> .....	do	1122	Sixtieth.....	Second....		

<sup>1</sup> No maps.

<sup>2</sup> Contains maps.

<sup>3</sup> Basis at project adopted by Congress.

The existing project has not been modified since its adoption.

The breakwater construction, which was in progress at the close of the fiscal year 1912, was continued throughout 1913, and the work is now practically completed. The total expenditures under the existing project amount to \$33,183.82, all for new work.

The local commerce is inconsiderable. For the calendar year 1912 it is given as 16,650 short tons, nearly all of which was stone. The harbor is of value as a refuge in the open sea 6 miles off the coast.

July 1, 1912, balance unexpended.....	\$37,697.93
June 30, 1913, amount expended during fiscal year, for works of improvement.....	30,881.75
July 1, 1913, balance unexpended.....	6,816.18
July 1, 1913, outstanding liabilities.....	3,323.35
July 1, 1913, balance available.....	3,492.83
July 1, 1913, amount covered by uncompleted contracts.....	1,005.13

## A 19.

## IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, ME. AND N. H.

Work of constructing the breakwater, under contract, was in progress throughout the fiscal year 1913. The stone placed during the year amounted to 30,998 short tons, making in all 38,789 tons placed under this contract.

The work is nearly completed and will be finished early in July, 1913. The contract price is 83 cents per ton.

## APPROPRIATIONS.

Mar. 3, 1821.....	\$2, 500
May 7, 1822.....	11, 500
June 13, 1902.....	30, 000
June 25, 1910.....	40, 000
	84, 000

NOTE.—Amount carried to surplus fund, \$2,546.79.

## CONTRACT IN FORCE.

## FOR BREAKWATER CONSTRUCTION.

Contractor: Pigeon Hill Granite Co.  
 Date of contract: April 26, 1912.  
 Date of approval: May 1, 1912.  
 Date fixed for commencement: June 6, 1912.  
 Date fixed for completion: September 7, 1913.  
 Amount of contract: 40,000 short tons of stone.  
 Unit price: 83 cents per short ton in place.  
 Completed at end of June, 1912: About 97 per cent.

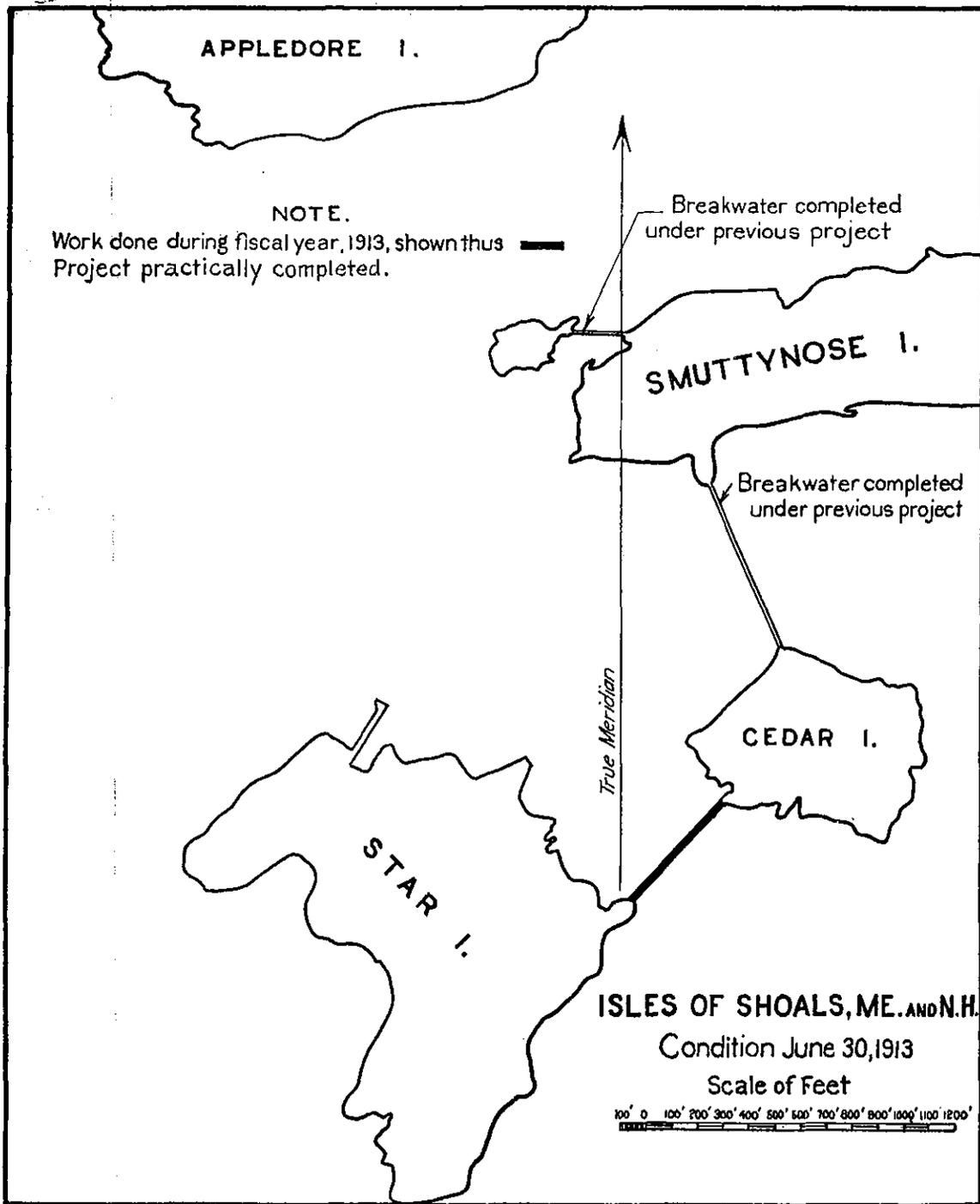
## COMMERCIAL STATISTICS.

*Receipts and shipments.*

	Short tons.
Coal, anthracite.....	200
Coal, bituminous.....	200
Fish and lobsters.....	800
Ice.....	200
Provisions.....	250
Sand and stone.....	15, 000
Total.....	16, 650

*Arrivals and departures during calendar year ending Dec. 31, 1912.*

Steamers: Coastwise, average draft 9 feet, tonnage unknown.....	200
Sailing: Coastwise, average draft 9 feet, tonnage unknown.....	500
Number of passengers landing and departing by water.....	5, 000



18. *Harbor at Isles of Shoals, Me. and N. H.*—Isles of Shoals lie in the open sea about 6 miles southeast of Portsmouth Harbor, N. H.

The most protected anchorage at Isles of Shoals, known as Gosport Harbor, lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. At mean low water its anchorage of about 32 acres had a depth of 18 to 48 feet and none of its entrances less than 24 feet. The mean tidal range is 8.7 feet.

The original project of March 3, 1821, appears to have been to rebuild the small breakwater on the north side of Haleys Cove, projecting westerly from Smuttynose Island, and to build a breakwater or wall extending from Smuttynose Island to Cedar Island, directly protecting Gosport Harbor from easterly storms. The amount expended was \$13,251.61.

The next project was adopted by the river and harbor act of June 13, 1902, and provided for the construction of a breakwater on the base of the breakwater built under the project of 1821, between Smuttynose and Cedar Islands, the upper part of which had been demolished to the level of 1½ feet above mean low tide. The estimate of cost was \$30,000, and with the expenditure of \$28,201.60 the breakwater was completed. The top was 15 feet above mean low tide.

The river and harbor act of June 25, 1910, adopted a new project in accordance with plan printed in House Document No. 1122, Sixtieth Congress, second session, which provides for construction of a breakwater from Cedar Island to Star Island, giving protection from the south and southeast. The estimated cost is \$40,000, all of which was provided by the act of 1910.

*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.
Breakwater <sup>1</sup> .....	House...	75 (pt. 2)	Forty-third...	Second....	1875	421
Do. <sup>2</sup> .....	do.....	255	Fifty-sixth....	First.....	1900	1172
Do. <sup>2</sup> .....	do.....	1122	Sixtieth.....	Second....		
Do. <sup>1</sup> .....					1913	1530

<sup>1</sup>No maps.

<sup>2</sup>Contains maps.

<sup>3</sup>Basils of project adopted by Congress.

The existing project has not been modified since its adoption.

The breakwater construction, which was in progress at the close of the fiscal year 1913, was completed July 11, 1913. This completed the project, except for possibly some work which may prove necessary if any sea adjustment has occurred. The work was accomplished by a single contract.

The total amount expended on the existing project up to the close of the fiscal year ending June 30, 1914, is \$39,238.32, all for new work. The total amount expended on all projects is \$80,691.53.

The local commerce is inconsiderable. For the calendar year 1913 it is given as 16,650 short tons, nearly all of which was sand and stone. The harbor is of value as a refuge in the open sea 6 miles off the coast.

July 1, 1913, balance unexpended.....	\$6,816. 18
June 30, 1914, amount expended during fiscal year for works of improvement .....	6,054. 50
July 1, 1914, balance unexpended.....	761. 68
Amount allotted from appropriation made by the river and harbor act approved Oct. 2, 1914.....	5,000. 00
Amount available for fiscal year ending June 30, 1915.....	5,761. 68

(See Appendix A 18.)

## A 18.

## IMPROVEMENT OF HARBOR AT ISLES OF SHOALS, ME. AND N. H.

Operations consisted in placing 588 tons of stone in the breakwater, which was completed July 11, 1913. The work was done under contract. The price was 83 cents per short ton of stone in place. An examination will be made at an early date to investigate reports of damage by storms.

## APPROPRIATIONS.

Mar. 3, 1821.....	\$2, 500
May 7, 1822.....	11, 500
June 13, 1902.....	30, 000
June 25, 1910.....	40, 000
Oct 2, 1914.....	5, 000
	89, 000

NOTE.—Amount carried to surplus fund, \$2,546. 79.

## CONTRACT IN FORCE.

## FOR BREAKWATER CONSTRUCTION.

Contractor: Pigeon Hill Granite Co.  
 Date of contract: April 23, 1912.  
 Date of approval: May 1, 1912.  
 Date fixed for commencement: June 6, 1912.  
 Date fixed for completion: September 7, 1913.  
 Amount of contract: 40,000 short tons of stone.  
 Unit price: 83 cents per short ton in place.  
 Completed.

## COMMERCIAL STATISTICS.

*Receipts and shipments.*

	Short tons.
Coal, anthracite.....	200
Coal, bituminous.....	200
Fish and lobsters.....	800
Ice.....	200
Provisions.....	250
Sand and stone.....	15, 000
Total.....	16, 650

*Arrivals and departures during calendar year ending Dec. 31, 1913.*

Steamers, coastwise, average draft 9 feet, tonnage unknown.....	200
Sailing vessels, coastwise, average draft 9 feet, tonnage unknown.....	500
Number of passengers arriving and departing by water.....	5, 000

## 16. HARBOR AT ISLES OF SHOALS, ME. AND N. H.

*Location.*—In the open sea about 6 miles southeast of Portsmouth Harbor, N. H. The harbor lies between Star Island on the south and southwest, Cedar Island on the southeast, and Smuttynose Island on the north and northeast. (See U. S. Coast and Geodetic Survey chart No. 6.)

*Original condition.*—The harbor, which is a refuge or protected anchorage about 32 acres in area, had a depth of 18 to 48 feet at mean low tide and entrance depths of not less than 24 feet. Two shallower openings to the east and southeast gave exposures from which the harbor failed to give the full protection from easterly storms needed by small vessels.

*Previous projects.*—The first work of improvement by the Government was ordered by the act of March 3, 1821. Subsequent modifications and additions were authorized by the act of May 7, 1822, and the river and harbor act of July 13, 1902. Expenditures amounted to \$41,453.21. For scope of previous projects see Appendix, page 1739.

*Present project.*—The construction of a rough-stone breakwater extending from Cedar Island to Star Island, with a view to giving further protection to the anchorage from the south and southeast. The estimated cost was \$40,000. The mean range in tides is 8.7 feet. This project (see H. Doc. No. 1122, 60th Cong., 2d sess.) was adopted by the river and harbor act of June 25, 1910, which provided the entire estimated cost. An allotment of \$5,000 for maintenance was made from the appropriation "Maintenance and improvement of existing river and harbor works," act of October 2, 1914.

*Operations and results prior to the fiscal year.*—The breakwater from Cedar Island to Star Island, covered by the present project, had been completed in July, 1913, but storm damage occurred the following winter and an allotment of \$5,000 has been made for repair. Expenditures on the present project amounted to \$39,238.32, all for original work. As a whole the work by the Government has included the construction of a small breakwater from Smuttynose Island westwardly to Malaga Island, on the north side of the harbor; a breakwater extending southeastwardly from Smuttynose Island to Cedar Island, protecting the harbor on the east; and the third and recent breakwater extending southwestwardly from Cedar Island to Star Island, affording protection from the southeast and south.

*Operations and results during the fiscal year.*—There was no work during the year beyond inspection and office work in arranging for repair, for which the expenditures amounted to \$47.92, charged as maintenance.

*Condition at the end of fiscal year.*—The project is completed except for repair of the breakwater, which affords much needed protection from the south and southeast. The expenditures under existing adopted project have been \$39,238.32 for new work and \$47.92 for maintenance, a total of \$39,286.24.

*Local cooperation.*—None.

*Effect of improvement.*—The local commerce is inconsiderable. The value of the improvement consists in the refuge it affords for small coastwise vessels.

*Proposed operations.*—No estimate for 1917. Funds for repair are in hand, with which it is proposed to place about 3,500 tons of stone in the breakwater between Cedar Island and Star Island.

*Commercial statistics.*—The following is a comparative statement of the commerce of the harbor during the past three years:

## Comparative statement.

Calendar year.	Short tons.	Estimated value.
1912.....	16,650	
1913.....	16,650	
1914.....	8,776	\$389,250

The bulk is fish, about 1,000 tons of coal, and the remainder general supplies.

## Financial summary.

Amount expended on all projects to June 30, 1915:	
New work.....	\$80,691.53
Maintenance.....	47.92
Total.....	80,739.45

Amount expended during fiscal year ending June 30.	1913	1914	1915
New work.....	\$30,881.75	\$6,054.50	
Maintenance.....			\$47.92

## APPROPRIATIONS.

[For last five fiscal years only.]

Oct. 2, 1914.....	\$5,000.00
July 1, 1914, balance unexpended.....	761.63
Amount allotted from river and harbor act approved Oct. 2, 1914.....	5,000.00
	5,761.63
June 30, 1915, amount expended during fiscal year for maintenance of improvement.....	47.92
July 1, 1915, balance unexpended.....	5,713.76

16. HARBOR AT ISLES OF SHOALS, ME. AND N. H.

There was no work other than inspection and office work in arranging for repair of the storm damage which occurred during the winter of 1913-14. This work was commenced June 29, 1915. On account of the exposed situation, favorable weather conditions are essential to the progress of the work. Expenditures amounted to \$47.92.

APPROPRIATIONS.

Appropriated to Dec. 31, 1902. (See p. 343, II. Doc. No. 421, 57th Cong., 2d sess.)	\$44,000.00
June 25, 1910	40,000.00
Oct. 2, 1914 (allotted Oct. 7, 1914)	5,000.00
<b>Total</b>	<b>89,000.00</b>
Returned to surplus fund	2,546.79
	<b>86,453.21</b>

COMMERCIAL STATISTICS.

*Receipts and shipments.*

	Short tons.
Beef	200
Canned goods	100
Cement and lime	150
Coal, anthracite	500
Coal, bituminous	500
Fish	5,000
General merchandise	500
Grain and flour	250
Hay and straw	50
Ice	500
Lumber and cooperage	32
Molasses and sugar	50
Potatoes	100
Provisions	750
Wood	94
<b>Total</b>	<b>8,776</b>

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

Steamers, coastwise, draft about 10 feet, tonnage unknown	1,000
Sailing vessels, coastwise, draft about 10 feet, tonnage unknown	2,000
Number of passengers landing and departing by water	6,000

## 11. HARBOR AT ISLES OF SHOALS, ME. AND N. H.

*Location and description.*—A group of islands in the open sea about 6 miles southeast of Portsmouth Harbor, N. H. Three of them—Smuttynose, Cedar, and Star Islands—are so situated that with the shoals connecting them, they afford a small harbor of fair depth, open only to the west and northwest, known as Gosport Harbor. (See U. S. Coast and Geodetic Survey chart No. 6.)

*Original condition.*—The harbor, which is a refuge or protected anchorage about 32 acres in area, had a depth of from 18 to 48 feet at mean low tide and entrance depths of not less than 24 feet. The shoals connecting the islands failed to give the full protection from easterly storms needed by small vessels. The mean tidal range is 8.7 feet.

*Previous projects.*—The first work of improvement by the Government was ordered by the act of March 3, 1821. Subsequent modifications and additions were authorized by the act of May 7, 1822, and the river and harbor act of July 13, 1902. Expenditures amounted to \$41,453.21. For scope of previous projects see page 1739 of Annual Report for 1915.

*Existing project.*—The existing project was adopted by the river and harbor act of June 25, 1910. The plan of improvement (H. Doc. No. 1122, 60th Cong., 2d sess., with map) provides for the construction of a rough stone breakwater extending from Cedar Island to Star Island, about 650 feet, with a view to giving further protection to the anchorage from the south and southeast. The estimated cost was \$40,000. The mean tidal range is 8.7 feet. An allotment of \$5,000 for maintenance was made from appropriation "Maintenance and improvement of existing river and harbor works," act of October 2, 1914. For latest published map see Annual Report for 1913, page 1530.

The general plan or project for improvement as a result of the above and previous authorizations includes the construction of a small breakwater from Smuttynose Island westwardly to Malaga Island, on the north side of the harbor; a breakwater extending southeastwardly from Smuttynose Island to Cedar Island, protecting the harbor on the east; and a third breakwater extending southwestwardly from Cedar Island to Star Island, affording protection from the southeast and south. All the breakwaters are of rough stone.

*Operations and results during the fiscal year.*—During July and August, 1915, the breakwater, which had been damaged by storms during the winter of 1913-14, was repaired by the deposit of 3,572 tons of stone, purchased in open market. Expenditures amounted to \$5,713.76, all for maintenance.

*Condition at the end of fiscal year.*—Government operations at this locality have consisted in the construction of a small breakwater from Smuttynose Island westwardly to Malaga Island, on the north side of the harbor; a breakwater extending southeastwardly from Smuttynose Island to Cedar Island, protecting the harbor on the east; and the third and recently built breakwater extending southwestwardly from Cedar Island to Star Island, affording protection from the southeast and south. Expenditures under the existing project, which is completed, have been \$39,238.32 for new work and \$5,761.68 for maintenance, a total of \$45,000.

*Local cooperation.*—None.

*Effect of improvement.*—The local commerce is inconsiderable. The value of the improvement consists in the refuge afforded small coastwise vessels.

*Proposed operations.*—No additional work is proposed. The project is completed and no further reports will be submitted.

*Recommended modifications of project.*—None.

*Commercial statistics.*—The bulk is fish, about 1,000 tons coal, and the remainder general supplies. The tonnage for 1915 is given by the Coast Guard. Other sources represent the tonnage for 1915 as about the same as for 1914.

*Comparative statement.*

[Local only.]

Calendar year.	Shot tons.	Estimated value.
1913.....	16,650	
1914.....	8,776	\$389,250
1915.....	2,225	56,175

*Financial summary.*

Amount expended on all projects to June 30, 1916:	
New work.....	\$80,691.53
Maintenance.....	5,761.68
<b>Total.....</b>	<b>86,453.21</b>

Amount expended during fiscal year ending June 30.	1914	1915	1916
New work.....	\$6,054.50		
Maintenance.....		\$47.92	\$5,713.76

APPROPRIATIONS.

[For last five fiscal years only.]

Oct. 2, 1914.....	\$5,000.00
July 1, 1915, balance unexpended.....	5,713.76
June 30, 1916, amount expended during fiscal year for maintenance of improvement.....	5,713.76

11. HARBOR AT ISLES OF SHOALS, ME., AND N. H.

The only operations consisted in repair of the breakwater, which had been damaged by storms during the winter of 1913-14. The

work was done during July and August of 1915, and in accomplishing it 3,572 tons of stone were placed in the breakwater. The stone was purchased in open market, and cost, placed in the work, \$1.10 per ton for 2,147 tons deposited from lighter, and \$1.90 per ton for 1,425 tons which had to be handled by a derrick placed on shore.

## APPROPRIATIONS.

Previous projects (p. 470, H. Doc. 1491, 63d Cong., 3d sess.)	\$44,000.00
Present project:	
June 25, 1910	\$40,000.00
Oct. 2, 1914 (allotted Oct. 7, 1914)	5,000.00
	45,000.00
Total	89,000.00
Returned to surplus fund	2,546.79
Net total	86,453.21

## COMMERCIAL STATISTICS.

*Receipts and shipments.*

	Short tons.
Coal, anthracite	300
Coal, bituminous	350
Fish	1,000
Grain and flour	75
Ice	400
Provisions	100
Total	2,225

*Arrivals and departures during calendar year ending Dec. 31, 1915.*

Steamers, average draft 8 feet	500
Sailing vessels, average draft 8 feet	3,000
Number of passengers arriving and departing by water	6,753

## 8. HARBOR AT ISLES OF SHOALS, ME. AND N. H.

*Location and description.*—A group of islands in the open sea about 6 miles southeast of Portsmouth Harbor, N. H. Three of them—Smuttynose, Cedar, and Star Islands—are so situated that, with the shoals connecting them, they afford a small harbor of fair depth, open only to the west and northwest, known as Gosport Harbor. (See U. S. Coast and Geodetic Survey Chart No. 330.)

*Original condition.*—The harbor, which is a refuge or protected anchorage about 32 acres in area, had a depth of from 18 to 48 feet at mean low tide and entrance depths of not less than 24 feet. The shoals connecting the islands failed to give the full protection from easterly storms needed by small vessels. The mean tidal range is 8.7 feet.

*Previous projects.*—The first work of improvement by the Government was ordered by the act of March 3, 1821. Subsequent modifications and additions were authorized by the act of May 7, 1822, and the river and harbor act of July 13, 1902. Expenditures amounted to \$41,453.21, which was the cost of new work. For scope of previous projects see page 1739 of Annual Report for 1915.

*Existing project.*—This provides for the construction of three rough stone breakwaters, as follows: One from Smuttynose Island westwardly to Malaga Island on the north side of the harbor, having a length of 240 feet; one extending southeastwardly from Smuttynose Island to Cedar Island, protecting the harbor on the east, having a length of 700 feet; and a third extending southwestwardly from Cedar Island to Star Island, affording protection from the south east and south, having a length of 530 feet. The mean tidal range is 8.7 feet. The estimated cost of new work was \$40,000.

The existing project was adopted by the river and harbor act approved June 25, 1910 (H. Doc. No. 1122, 60th Cong., 2d sess.). The latest published map is printed in the Annual Report for 1913, page 1530.

*Recommended modifications of project.*—None.

*Local cooperation.*—None.

*Terminal facilities.*—There is one wharf near the hotel on Star Island which is used to accommodate a passenger steamer plying

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between Portsmouth, N. H., and the island during three months of the summer.

*Effect of improvement.*—The local commerce is inconsiderable. The value of the improvement consists in the refuge afforded small coastwise vessels.

*Operations and results during the fiscal year.*—An inspection of the breakwaters made on September 9, 1927, disclosed that considerable failure at the southwest end of the breakwater between Cedar and Star Islands had taken place. No cost or expenditures were incurred during the year.

*Condition at end of fiscal year.*—The existing project was completed in 1913 at a saving of \$761 under the estimated cost. The southwest end of the breakwater extending from Cedar Island to Star Island shows storm damage. A tongue of the ocean about 50 feet wide reaches across the site of the original structure. The other two breakwaters appear to be in serviceable condition. The costs under the existing project have been \$39,238.32 for new work and \$5,761.68 for maintenance, a total cost and expenditure of \$45,000.

*Proposed operations.*—Funds unexpended on June 30, 1928, amounted to \$15,500. It is proposed to apply these funds to repair the breakwater between Cedar and Star Islands as follows:

Furnishing and placing 2,000 tons of riprap.....	\$14,000
Engineering and contingencies.....	1,500
Total for maintenance.....	15,500

It is believed that the above funds will place the breakwater in a suitable state of repair, and, therefore, no additional funds can be profitably expended during the fiscal year ending June 30, 1930.

*Commercial statistics.*—The place is used entirely as a pleasure resort. There is no commerce other than bringing supplies to the hotel and what little fishing business is transacted.

*Cost and financial summary*

Cost of new work to June 30, 1928.....	\$30,691.53
Cost of maintenance to June 30, 1928.....	5,761.68
Total cost of permanent work to June 30, 1928.....	36,453.21
Net total expenditures.....	36,453.21
Unexpended balance June 30, 1928.....	15,500.00
Total amount appropriated to June 30, 1928.....	101,953.21

Fiscal year ending June 30	1924	1925	1926	1927	1928
Cost of new work.....					
Cost of maintenance.....					
Total expended.....					
Allotted.....					\$15,500.00

Amount allotted from War Department appropriation act approved Feb. 23, 1927.....	\$15,500.00
Balance unexpended June 30, 1928.....	15,500.00

## 9. HARBOR AT ISLES OF SHOALS (GOSPORT) ME. AND N. H.

*Location and description.*—A group of islands in the open sea about 6 miles southeast of Portsmouth Harbor, N. H. Three of them—Smuttynose, Cedar, and Star Islands—are so situated that, with the shoals connecting them, they afford a small harbor of fair depth, open only to the west and northwest, known as Gosport Harbor. (See U. S. Coast and Geodetic Survey Chart No. 330.)

*Original condition.*—The harbor, which is a refuge or protected anchorage about 32 acres in area, had a depth of from 18 to 48 feet at mean low tide and entrance depths of not less than 24 feet. The shoals connecting the islands failed to give the full protection from easterly storms needed by small vessels. The mean tidal range is 8.7 feet.

*Previous projects.*—The first work of improvement by the Government was ordered by the act of March 3, 1821. Subsequent modifications and additions were authorized by the act of May 7, 1822, and the river and harbor act of July 13, 1902. Expenditures amounted to \$41,453.21, which was the cost of new work. For scope of previous projects see page 1739 of Annual Report for 1915.

*Existing project.*—This provides for the construction of three rough stone breakwaters, as follows: One from Smuttynose Island westwardly to Malaga Island on the north side of the harbor, having a length of 240 feet; one extending southeastwardly from Smuttynose Island to Cedar Island, protecting the harbor on the east, having a length of 700 feet; and a third extending southwestwardly from Cedar Island to Star Island, affording protection from the southeast and south, having a length of 530 feet. The mean tidal range is 8.7 feet. The estimated cost of new work was \$40,000.

The existing project was adopted by the river and harbor act approved June 25, 1910 (H. Doc. No. 1122, 60th Cong., 2d sess.). The latest published map is printed in the Annual Report for 1913, page 1530.

*Recommended modifications of project.*—None.

*Local cooperation.*—None.

*Terminal facilities.*—There is one wharf near the hotel on Star Island which is used to accommodate a passenger steamer plying between Portsmouth, N. H., and the island during three months of the summer.

*Effect of improvement.*—The local commerce is inconsiderable. The value of the improvement consists in the refuge afforded small coastwise vessels.

*Operations and results during the fiscal year.*—None. An inspection of the breakwaters made in May, 1929, disclosed that considerable failure at the middle and southwest end of the breakwater between Cedar and Star Islands had taken place. There was no expenditure.

*Condition at end of fiscal year.*—The existing project was completed in 1913 at a saving of \$761 under the estimated cost. The breakwater between Cedar and Star Islands is in need of repairs due to storm damage midway of the breakwater and at the southwesterly end. The other two breakwaters appear to be in serviceable condition. The costs under the existing project have been \$39,238.32 for new work and \$5,761.68 for maintenance, a total cost and expenditure of \$45,000.

*Proposed operations.*—It is proposed to apply the funds unexpended June 30, 1929, \$21,000, to repair of the breakwater between Cedar and Star Islands. It is expected to commence the work during August and complete it in about three working months, exhausting the funds.

It is believed that the completion of the above work will place the breakwater in a suitable state of repair, and, therefore, no additional funds can be profitably expended during the fiscal year ending June 30, 1931.

*Commercial statistics.*—The place is used entirely as a pleasure resort. There is no commerce other than bringing supplies to the hotel and what little fishing business is transacted.

*Cost and financial summary*

Cost of new work to June 30, 1929.....	\$80,691.53
Cost of maintenance to June 30, 1929.....	5,761.68
Total cost of permanent work to June 30, 1929.....	86,453.21
Net total expenditures.....	86,453.21
Unexpended balance June 30, 1929.....	21,000.00
Total amount appropriated to June 30, 1929.....	107,453.21

Fiscal year ending June 30	1925	1926	1927	1928	1929
Cost of new work.....					
Cost of maintenance.....					
Total expended.....					
Allotted.....				\$15,500.00	\$6,500.00

Balance unexpended July 1, 1928.....	\$15,500.00
Amount allotted from War Department appropriation act approved Feb. 28, 1929.....	5,500.00
Balance unexpended June 30, 1929.....	21,000.00

REPORT OF CAPT. W. H. SWIFT, CORPS TOPOGRAPHICAL ENGINEERS,  
ON THE HARBOUR OF CAPE PORPOISE, MAINE, OCTOBER 2, 1845.

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Extract from a letter received from the Hon. Joshua Herrick  
late member of Congress from the district in which the  
harbour of Cape Porpoise lies.

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Agreeably to your suggestion I have made an examination  
and partial survey of the harbour at Cape Porpoise, Maine..

The course of the main or ship channel from the ocean into  
said harbour is N. 33° W. between Goat island (on which there is  
a light house) on the right and Folly island on the left. The  
general course of the channel from thence to the head of the  
harbour or towns wharf is N. 15° W. two hundred and fifty rods.  
The channel between said islands is ninety yards in width and  
six fathoms deep at low water.. After passing the islands it  
increases to one hundred yards in width, and in running two  
hundred and fifty yards it shoals to three fathoms, and holds  
its width and that depth four hundred yards. It then narrows  
to fifty six yards and shoals to sixteen feet in running two  
hundred yards to the old pier. It then shoals to ten feet in  
running two hundred & twenty five yards, and from thence nar-  
rows and shoals gradually to the head of the harbour. On the

westerly side of said channel from the old pier down the water is sufficiently deep for small vessels and in some places for large coasters to anchor. But this harbour being so near the track of the eastern coasters that too many rush in before a storm for its capacity. The first object of a pier is for moorage of vessels when there is too many to anchor with safety, which is often. There is frequently forty or fifty and sometimes sixty or seventy vessels in the harbour at a time, and I have known one hundred and once one hundred & ten, and there is always much damage done at such times. But if there were a pier to which they could be moored, or a large portion of them, all this trouble and danger would be avoided, and as soon as the wind and weather becomes favourable, they could cast off and run out.

Another object we have in view is to close up the passage between Milk island - which is in the rear or easterly of the old pier - and Savin bush island, or what some call the westerly point of Goat island through which there is a heavy sea from an East or N. Easterly storm. And also it would tend to carry off a bar that makes out from Savin bush island, on which vessels sometimes strike in coming up the harbour.

The distance from the northerly end of the old pier to Savin bush, or the westerly part of Goat island, is 852 feet, which is the whole length of the proposed pier if the whole

passage is closed.

The pier should be built three feet above high water mark, and probably in from two to three feet at low water.

There is an unclaimed island lying half a mile to the eastward of the old pier, with an abundance of granite laying near the shore where the water is deep enough for any lighters that are used in this quarter. But should the lighters draw more than five feet of water they would be obliged to take the ships channel, which would make the distance nearly one mile.

Blocks of granite 6 to 8 feet long and 12 to 18 inches square, and larger if required, can be split and placed within reach of a lighters purchase at two dollars per cubic yard. And they could be transported and laid into the work for ninety cents per cubic yard. The backing and filling can be furnished and placed for one dollar & seventy five cents per cubic yard - a part of the backing, however, would be so much exposed to the E. & N.E. winds and the action of the sea, that it would be necessary to have stones as large as those in the front yet but a small part of the work would need clamps, dowels or dogs.

Washington, October 2d, 1845

Col. J. J. Abert

Chief Top'l Engineer.

Sir::

I have the honor to state that in obedience to your instructions of the 6th ulto. to proceed to Cape Porpoise harbour, Maine, and there to examine the site of the pier proposed to be built at that place for the protection of vessels engaged in the coasting-trade, I have performed the duty assigned to me and have now to report the result of my examination.

No appropriation for a survey of this harbor having been made by Congress to carry out the Resolution of the House of Representatives of the 7th June 1844 directing the Secretary of War "to procure and report to this house "at the next session of Congress a survey of the harbor "of Cape Porpoise in the State of Maine." I was instructed by you to call upon the Hon. Mr. Herrick late the member of the House of Representatives for that district for such information in reference to the proposed improvement as he might have it in his power to impart.

By the accompanying extract from a communication of Mr. Henrick and by the aid of the sketch furnished by Mr. Henrick the object to be secured will be readily understood. The personal examination which I made of the site of the proposed pier and of the neighbouring stone-quarries will enable me to present a plan and an estimate of the probable cost of constructing the work which it was the object of the resolution to bring to the notice of Congress.

The harbor of Cape Porpoise lies in the eastern part of the township of Kennebunkport, and about 3 miles east of Kennebunk river, about midway between Portsmouth and Portland, the only harbor, in fact, between these two points and consequently much resorted to by vessels engaged in the coasting trade between Boston and all the ports east of Kennebunk, embracing nearly the whole coast of Maine the provinces of New Brunswick, Nova Scotia &c. &c.

This harbour is formed by a cluster of small islands, and the principal entrance lies between Goat island on the east, on which there is a light house, and Folly island on the west; the width of the channel between these two islands is about 90 yards and about 6 fathoms in depth at low water. After passing the islands the channel increases to about 100 yards in width, and at the distance of 1/8th of a mile the depth diminishes to 3 fathoms, which width and depth

continue without any sensible variation for the distance of about 1/4 of a mile, thence it diminishes to 50 or 60 yards in width and to 16 feet in depth, thence it is gradually reduced both in width and depth to the head of the bay or harbour at Towne's wharf, a total distance from the islands at the entrance of about 4/5th of a mile.

From the preceding description it will be seen that the capacity of the harbor is not great. It has ample depth of water for the class of vessels which is most in use in navigating this part of the coast, vessels of from 60 to 200 tons and drawing, say 7 to 12 feet, but it does not possess sufficient width. It is so much resorted to as a harbor of refuge in storms that it is not unusual for 60 or 80 vessels, and sometimes 100 to seek shelter in it at the same time, and it is at such times that the difficulties which are sought to be remedied are experienced. The channel way being narrow the vessels are obliged to anchor so near each other that the swell of the sea produces constant dangers from collision with each other, a result which is perfectly evident.

To obviate this difficulty it is proposed by the inhabitants and others whose interests are connected with the coasting trade, to build a substantial stone pier on the east side of the channel of sufficient extent to enable the vessels to

N a 2 n

L a n d

A. B. Huff's  
Wharf and  
Store

C. Huff's wharves  
and Fish-houses

J. P. Stone's Wharf  
and Fish-house

J. Stone's wharf  
and Fish-house

NEGRO  
ISLAND

50 Yards  
width

BUSS ISLAND  
900 Feet at  
low water

Main Channel  
10 Feet

VAUGHN'S ISLAND

Mills Island

GREEN ISLAND

2 Feet at low water  
and soft bottom

Main Channel  
37 Feet width

Uncompleted Pier  
833 R. LMS  
3 ft

Sandy Is.

100 Yards  
width

Bare at  
half tide

Shore at low  
water

Channel

Main Channel  
6 Feet width

Light house  
CANNON ISLAND

TOLLY ISLAND

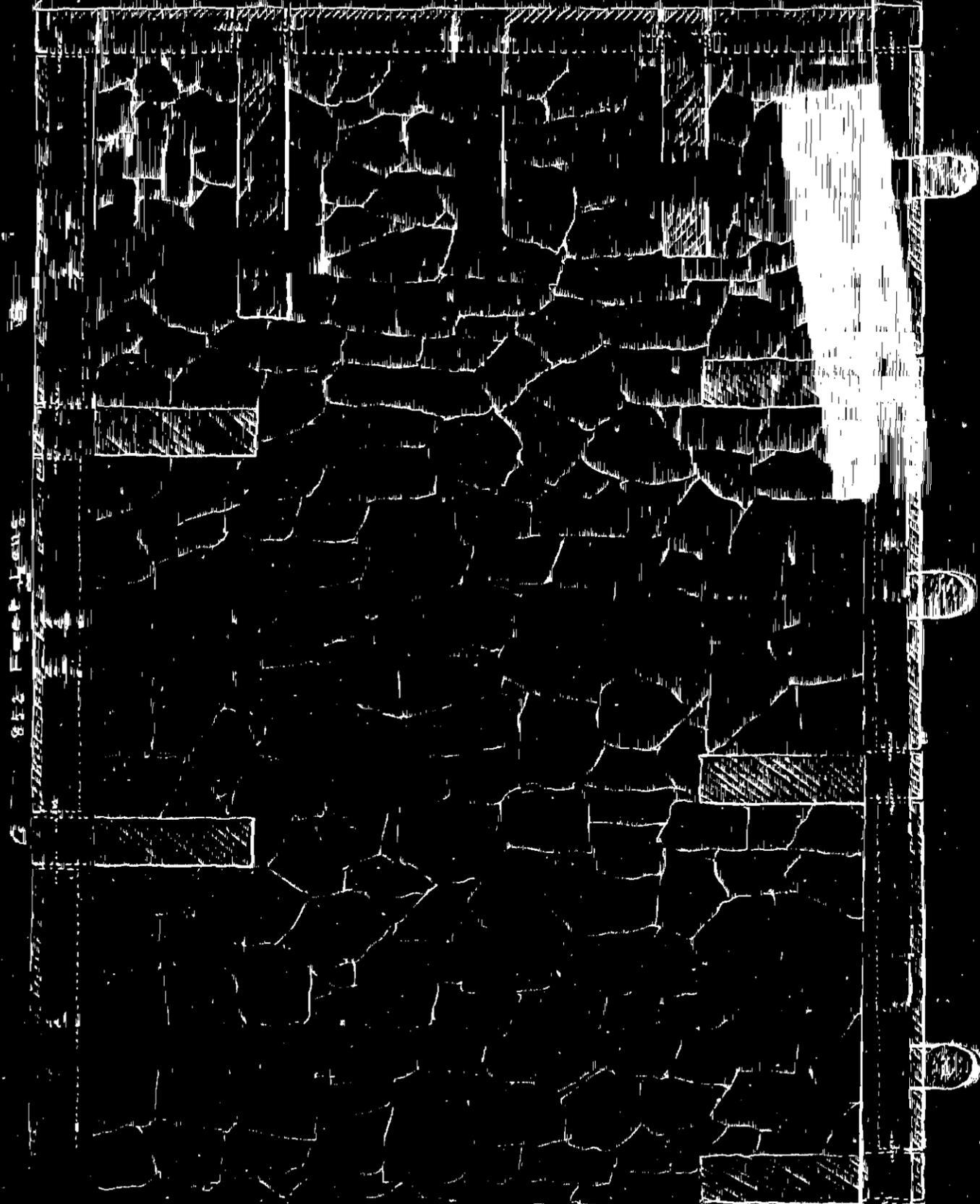
Main Entrance  
from the Ocean

Copy of a Sketch of  
the Harbor  
made  
by Wm  
John Therrick



20 Feet wide

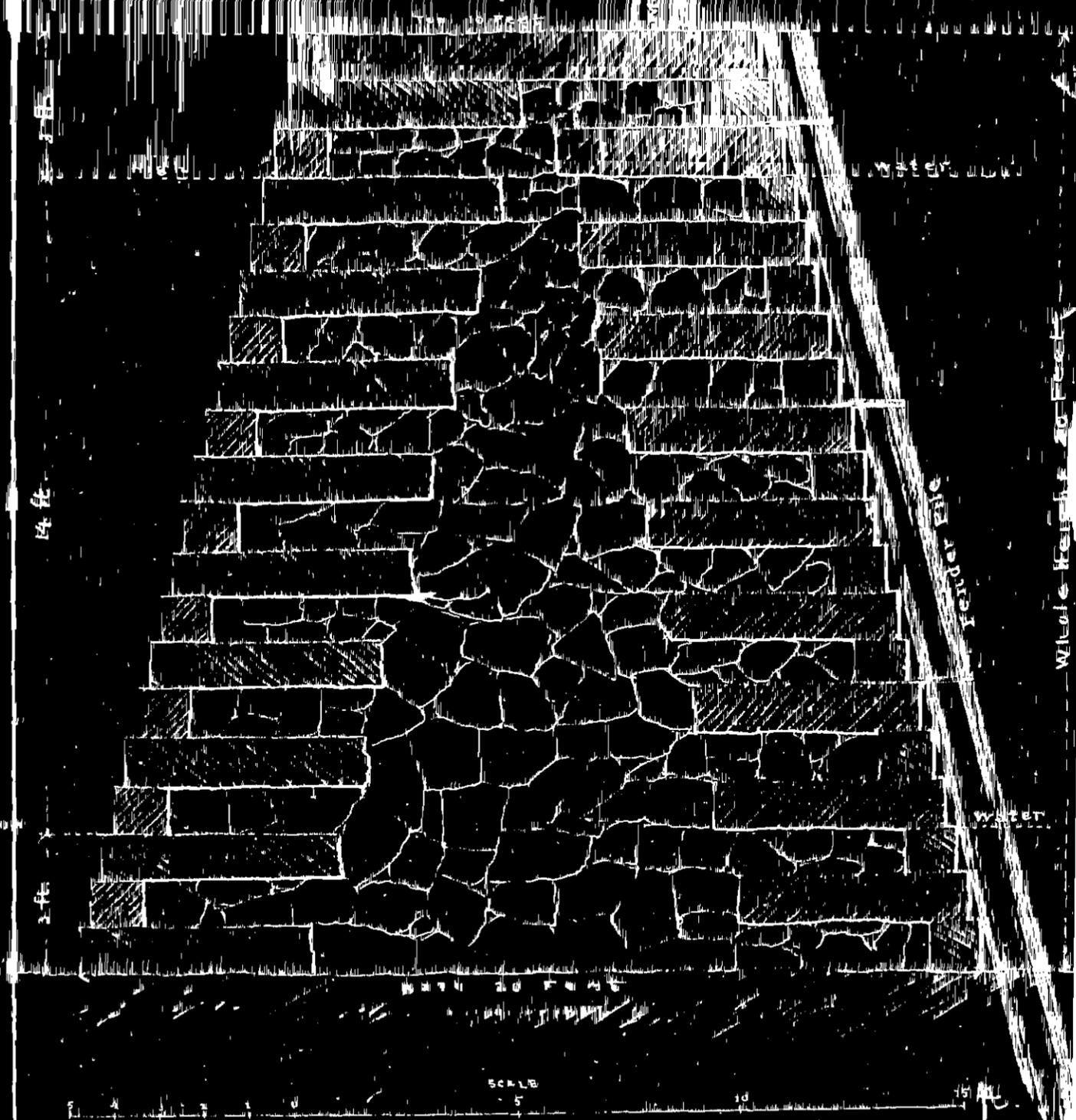
PLAN of A STONE PIER SUBSIDY FOR CAPE PORPOISE HARBOR, MAINE.



81 1/2 Feet Long

PLAN of first and second Courses — 20 Courses in all.

TRANSVERSE SECTION



17 Feet

14 ft

1 ft

SCALE

0 5 10 15 ft

Oct 2, 1915.

M. M. Smith  
Capt. W. M. ...

be secured to the same as they would be at a wharf, lying in tiers, if necessary, and fastened to each other.

It is proposed also to make this pier subserve another object of some importance, to wit: to close by its means the passage between two islands lying on the east side of the channel, the effect of which would be to shut out the swell produced by a gale from the East or N.E. and thus afford a good 'lee' under which the vessels could either 'ride' in safety, or, if moored to the pier, they would lie quietly.

The accompanying sketch will indicate the position selected for the proposed pier, to wit: from the western point of Goat island or Savin bush island to the extremity of an old pier, extending from Milk island and formerly used for mooring vessels to. The exact length between the points named is 852 feet and the depth at low water is from two to three feet. The ordinary rise of the tide in the harbour is 9 feet, spring tides rise 12 feet and, when increased by winds from the S.E., they rise to 14 feet; this will enable me to specify a minimum height for the proposed pier, say 20 feet.

From the immediate neighborhood, say at a distance of one mile from the proposed pier, excellent stone can be procured from a small island in abundance. This stone is laminated and can be split into pieces of 6, 8 & 10 feet in

length and from 12 to 15 and 18 inches square with great facility, and by means of a timber railway of 100 or 200 feet in length they could be placed upon the deck of a stone boat and transferred at once to the site of the pier. The boats being provided with a crane and being flat bottomed the stone could be taken from the deck and placed in the pier with one 'handling', this for the face stone; for the filling, rubble stone can be had in any quantity from island, being within half a mile of the pier.

Plan of the proposed Pier.

If the entire space between the western point of Goat island (or Savin bush island as it is designated by some) and the old pier heretofore referred to, be closed, the length of the proposed pier will be 852 feet, the depth, at low water, will be from two to three feet, and as it is considered desirable to have the pier elevated at least three feet above high water mark, assuming the rise at spring tides to be 14 feet, we should have for the height of the work 20 feet, and this should be considered a minimum, for although in ordinary tides - say 9 or 10 feet - it would leave 7 or 8 feet of pier above the surface of the water, yet it is to be borne in mind that a spring tide combined with heavy winds from the S.E. will sometimes cause a rise of more than 14 feet, and it is desirable that not less than

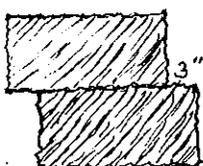
three feet of the pier should ever be exposed.

To ensure the desired stability in the work, the base of the pier should be at least equal to its height, say 20 feet, and that the mass of stone may not be unnecessarily large, the top of the pier should be half the base, say 10 feet, and this would afford a batten or slope of  $1/4$  at each face, say 3 inches to the foot.

An excellent stone of a suitable quality for the work is to be found in the immediate vicinity of the site of the proposed pier, it is considered better to form the entire structure of stone rather than to combine wood and stone together. The work can be constructed as cheaply of stone entirely as it can be of the two materials combined if timber be used of a superior quality and workmanship of the best kind be introduced, and this, both in respect to materials and carpenter work should be the case. Another reason why timber should be excluded is that the structure may be secured against the ravages of the worm.

To lay the face stone with a regular slope or batten would require much additional labour in the preparation of the material, each face stone would necessarily require to be 'dressed' with a stone axe to a uniform slope, that is to say, after the splitting should be effected, a second operation of the kind referred to would be requisite. To avoid this second

process, it will only be necessary to have the several courses of stone cut equal, but each course only of uniform width throughout. Suppose the courses to be one foot thick the batten, in that case, is to be effected by throwing each course back, commencing with the second, 3 inches, thus:



in order that the rough edges of the stone may not 'chafe' the sides of vessels lying at the pier, it will be necessary to place 'fender piles' along the face, at about 20 feet from each other, with the foot in the mud, extending to the top of the stone work and secured to the face by iron straps laid between the courses and encircling the piles.

The plan proposed for laying up the stone work would be this: the headers and stretchers which compose the face work should be split out in pieces of not less than 5 feet in length for the headers and not less than 8 feet for the stretchers. The stretchers should be long that there may be no more joints than necessary, and the headers should penetrate the mass of rubble stone, which is to form the interior of the work, at least 4 feet; 5 or even 6 would be better, but it may be difficult to procure so many long stone as would be required for both, headers and stretchers. The stone should be

'got out' not less than 12 inches thick and from that to 18 inches, but each course should have stone of uniform thickness; 18 inches would be better than 12, but probably it would be more difficult to get them.

If the bottom upon which the pier is to be built is not level or nearly level the inequalities should be filled under the first course with flat stone in footing upon which the first or outer course of split stone is to be laid, alternately header and stretcher. The first course being laid, and the stone at the angles being secured together by cramps, 2 feet long of 1-1/4 inch iron, penetrating the stone 4 inches, and the space between the holes being channeled in order that the top of the cramp may be flush with the top of the stone, the entire interior between the face stone thus laid should be filled with rubble stone of all sizes, tolerably well packed together; that portion in contact with the backs of the face stone, both headers and stretchers, should be laid with care, in order that they may be of the same height as the face stone for the reception of the second course, and also that they should be of a suitable shape to bed properly. This done the second course should be laid, receding from the first course 3 inches in the manner heretofore explained and so laid also that the headers of the second course shall rest upon the middle of the stretchers of the first course, and thus 'break joints", as it is

called; the interior space to be filled with rubble as before stated, the angles secured by cramps and so on to the 12th course inclusive. The remaining eight courses should be laid with extra care, and cramps should be introduced not only at the angles but at every joint between header and stretcher. The work would be stronger and better if cramps were used at every joint not only in the upper courses but in the lower courses also, and were it not for the cost these cramps should be of copper. With the desire of avoiding all expense that may not be essential, iron for cramps is recommended, and the weight of the eight upper or superior courses is relied upon to keep in place the lower courses without resorting to cramps for all the courses. In the last or upper course - the headers should be 10 feet long and run across the pier entirely, and be secured to the next lower course by dowels and to the contiguous stretchers by cramps like the others.

Estimate of the cost of the proposed Pier.

1,917 cub.yrds.split granit,not less than 12 inches square, @ \$3 per yrd.laid-----	\$ 5,751.00
7,414 cub.yrds.rubble stone for filling @ \$1.75 laid-----	12,974.50
27,648 lbs. 1-1/4 inch round iron for cramps @ 8¢ laid-----	2,211.84
424 lbs. 1-1/4 inch for dowels @ 8¢ laid-----	33.92
Drilling 6912 holes for cramps @ 4¢ each-----	276.48
" 424 " " dowels @ 4¢ " -----	16.96
Flat stone for footing, say -----	300.00
40 fender piles, 25 ft. long with iron straps @ \$5 each-----	200.00
20 round stone mooring posts @ \$10 each-----	200.00
	<u>\$21,964.70</u>
Superintendence and contingencies, 10 pC.-----	2,196.47
Total-----	<u>\$24,161.17</u>

I have the honor to be.

Sir, Yr. obt. svt.

W. H. Swift,

Capt. Top. Engrs.

4. *Preliminary examination of Cape Porpoise Harbor, Maine.*—Lieutenant-Colonel Hains submitted report of examination October 26, 1894. It is his opinion, concurred in by this office, that the locality is worthy of improvement. It is estimated that the necessary survey will cost \$600. The report was transmitted to Congress and printed in House Ex. Doc. No. 22, Fifty-third Congress, third session. (See also Appendix A 22.)

## A 22.

## PRELIMINARY EXAMINATION OF CAPE PORPOISE HARBOR, MAINE.

[Printed in House Ex. Doc. No. 22, Fifty-third Congress, third session.]

OFFICE OF THE CHIEF OF ENGINEERS,  
UNITED STATES ARMY,  
Washington, D. C., December 1, 1894.

SIR: I have the honor to submit the accompanying copy of report, dated October 26, 1894, by Lieut. Col. P. C. Hains, Corps of Engineers, giving results of preliminary examination of harbor of Cape Porpoise, Me., required by river and harbor act of August 17, 1894.

It is the opinion of Colonel Hains that Cape Porpoise Harbor is worthy of improvement, and in this opinion I concur.

It is estimated that the necessary survey will cost \$600.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,  
Brig. Gen., Chief of Engineers.

Hon. D. S. LAMONT,  
Secretary of War.

## REPORT OF LIEUT. COL. PETER C. HAINS, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,  
Portland, Me., October 26, 1894.

GENERAL: In compliance with requirements of Department letter of August 20, 1894, I have made a preliminary examination of harbor of Cape Porpoise, Me., and have the honor to submit the following report:

Cape Porpoise Harbor is located about halfway between the cities of Portland and Portsmouth. As a business place it is not of great importance, but as a harbor of refuge for small vessels in bad weather it is of great importance. It is inadequate for this purpose, however, because of the limited area of the anchorage, which is only about 300 feet wide and less than three times as long, shoaling up toward the inner end. On each side of this narrow strip of water are large areas of flats that are bare, or nearly so, at low tide, with steep banks at the edge of the channel. The tide rises and falls on an average about 9.5 feet.

Vessels anchoring on the flats at high tide ground when the tide falls. The consequence is that the deep water is in great demand. In order to accommodate as many vessels as possible, chains have been stretched across the channel, and to the middle of them moorings are attached. A vessel coming into the harbor must make fast to one of these moorings or go on the flats. The harbor is in consequence overcrowded, and frequently several vessels are compelled to make fast to a single mooring. This causes accidents, and the lack of room makes it difficult for them to get under way. If a vessel anchors on the flats at high tides he can only get off at high tide. If the tide is not up when she comes in she must anchor in the channel.

This harbor, bad as it is for lack of room, is resorted to by great numbers of fishermen and others. As many as eighty sail, it is said, have been seen to anchor in the harbor in bad weather; most of them had to anchor on the flats and ground when the tide went out.

There can be no doubt but that a harbor of refuge here would be of great benefit to the immense number of small coasters that pass close

to Cape Porpoise in their trips north and south. Many of these vessels must, in the present condition of things, run for Portland or Portsmouth on the approach of a storm, and it is stated that in doing so quite a number are lost.

The harbor is easy of access, well protected from the prevailing storm winds, and only needs enlargement to make it available. There is a light-house on Goat Island, at the entrance. The depth of water is 9 feet on the bar at low tide, but the depth inside is greater.

It is not practicable to give a fair estimate of the amount of commerce to be benefited by such an improvement. There are now and have been for many years quite a number of small vessels engaged in fishing that hail from this port. Many of the Gloucester fishermen, it is reported, call at Cape Porpoise for bait. But the harbor is needed as a refuge for all coasters who are caught outside on the approach of bad weather, and the great number of vessels engaged in the coasting trade, most of which are small and unfit to stand out to sea, would find a harbor here of incalculable value.

In view of the above, I am of the opinion that Cape Porpoise Harbor is worthy of improvement. To prepare a project for such improvement will necessitate a survey, which it is estimated will cost about \$600.

Very respectfully, your obedient servant,

PETER C. HAINS,  
*Lieut. Col., Corps of Engineers.*

Brig. Gen. THOMAS L. CASEY,  
*Chief of Engineers, U. S. A.*

1899

55TH CONGRESS, } HOUSE OF REPRESENTATIVES. { DOCUMENT  
3d Session. } { No. 160.

IMPROVING CAPE PORPOISE HARBOR, MAINE.

LETTER

FROM

THE SECRETARY OF WAR

TRANSMITTING

A LETTER FROM THE CHIEF OF ENGINEERS, TOGETHER WITH  
COPIES OF REPORTS ON PROBABLE COST OF IMPROVING THE  
HARBOR AT CAPE PORPOISE, MAINE.

JANUARY 19, 1899.—Referred to the Committee on Rivers and Harbors and ordered  
to be printed.

WAR DEPARTMENT,  
Washington, January 16, 1899.

SIR: In response to House concurrent resolution No. 50, Fifty-fifth Congress, third session, passed by the House of Representatives December 20, and concurred in by the Senate December 21, 1898, directing the Secretary of War "to submit an estimate of the probable cost of improving the harbor of Cape Porpoise, Maine, in accordance with the recommendations contained in the report of Col. P. C. Hains, dated October 26, 1894, now on file at the War Department," I have the honor to transmit herewith a letter on the subject from the Chief of Engineers, United States Army, dated January 14, 1899, together with copies of reports from Maj. S. W. Roessler and Col. G. L. Gillespie, Corps of Engineers, United States Army, dated respectively January 9 and 11, 1899.

Very respectfully,

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

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,  
UNITED STATES ARMY,  
Washington, D. C., January 14, 1899.

SIR: I have the honor to return herewith concurrent resolution of Congress passed by the House December 20, 1898, and concurred in by the Senate December 21, 1898, directing the Secretary of War to submit an estimate of the probable cost of improving the harbor of Cape Porpoise, Maine, and in reply to the reference of the resolution to this



office, to submit the accompanying report of January 9, 1899, with map, by Maj. S. W. Roessler, Corps of Engineers.

Major Roessler is of the opinion that the harbor is one worthy of improvement by the General Government, both as a harbor of refuge and as a harbor of commerce, and he submits a plan for improvement to secure a depth of 15 feet to accommodate large schooners of deep draft.

The plan presented contemplates (1) the removal of the ledge of rock at the bar to a depth of 16 feet at low tide over a channel width of 200 feet; (2) the dredging of a channel about 3,000 feet long between the bar and the wharf, to be 15 feet deep at mean low water and of sufficient width (600 feet) to permit free navigation and easy turning of vessels within the harbor and to provide anchorage room for small vessels seeking its shelter in stormy weather, requiring the removal of 620,000 cubic yards of material by dredging and the excavation of 1,100 cubic yards of rock, estimated to cost, including contingencies, \$125,000.

The division engineer, Col. G. L. Gillespie, Corps of Engineers, in forwarding this report confirms the opinion, previously expressed in official reports, that the desired improvement was a worthy one (see House Ex. Doc. No. 22, Fifty-third Congress, third session), but states that he is unwilling to submit, with his approval, any estimate of cost based upon a survey not made under the direction of the district officer.

Very respectfully, your obedient servant,

JOHN M. WILSON,

*Brig. Gen., Chief of Engineers, U. S. Army.*

HON. R. A. ALGER,

*Secretary of War.*

#### IMPROVEMENT OF CAPE PORPOISE HARBOR, MAINE.

##### UNITED STATES ENGINEER OFFICE,

*Portland, Me., January 9, 1899.*

GENERAL: By indorsement of the Chief of Engineers, dated October 24, 1898, instructions were sent me "that facts bearing upon the desired improvement at Cape Porpoise be collected in connection with other work, if the same be practicable, so that such information as can be secured may be available if called for by Congress."

Soon after receiving these instructions I received a communication upon the same subject from Mr. Fred J. Allen, a lawyer of Sanford, Me., and afterwards had an interview with him and others in my office. At their request, I permitted Lieutenant Howell to accompany one of their number on a visit to Cape Porpoise Harbor, and as a result of that visit Lieutenant Howell obtained the information embodied in his report\* of November 18, 1898, of which a copy was forwarded with my letter\* of December 17, 1898.

The information so collected was of great importance as showing what the commercial value of this harbor will be when the electric road, now under construction, to connect Cape Porpoise with the manufacturing town of Sanford, Me., is completed, but included no soundings or information as to the character of the material to be excavated in deepening the harbor, upon which an estimate of cost might be based. To supply the data needed for this purpose, interested parties have had a survey of the locality made under competent direction. The results of the survey have just been placed in my hands, and with the information so obtained I am able to submit a plan of improvement, with

\* Not printed.

estimate of cost, as required by House concurrent resolution No. 50, December 20, 1898, Fifty-fifth Congress, of which notice is contained in letter of January 5, 1899, from the Chief of Engineers:

DECEMBER 20, 1898.

*Resolved by the House of Representatives (the Senate concurring),* That the Secretary of War be directed to submit an estimate of the probable cost of improving the harbor of Cape Porpoise, Maine, in accordance with the recommendations contained in the report of Col. P. C. Hains, dated October twenty-sixth, eighteen hundred and ninety-four, now on file at the War Department.

DECEMBER 21, 1898.

*Resolved,* That the Senate agree to the foregoing concurrent resolution of the House of Representatives.

At the time of Colonel Hains's report there was but little, if any, commerce worth while considering in connection with any improvement contemplated at that point. His recommendations had reference, therefore, chiefly, if not exclusively, to the question of improving the harbor as a harbor of refuge, and a plan of improvement based strictly upon his recommendations would appear to exclude consideration of the value of the harbor as a harbor of commerce. The resolution, however, is not construed to convey this meaning, but rather to call for a plan of improvement that will provide a harbor of refuge and at the same time afford the necessary facilities for its use as a harbor of commerce, having due regard to the prospective commerce of the port when the improvement is executed.

The value of the harbor as a harbor of refuge is clearly shown in Colonel Hains's report of October 26, 1894, and its value as a harbor of commerce is shown by Lieutenant Howell's report of November 18, 1898.

#### IMPORTANCE AS A HARBOR OF REFUGE.

I quote from Colonel Hains's report, as follows:

Cape Porpoise Harbor is located about halfway between the cities of Portland and Portsmouth. As a business place it is not of great importance, but as a harbor of refuge for small vessels in bad weather it is of great importance. It is inadequate for this purpose, however, because of the limited area of the anchorage, which is only about 300 feet wide and less than three times as long, shoaling up toward the inner end. On each side of this narrow strip of water are large areas of flats that are bare, or nearly so, at low tide, with steep banks at the edge of the channel. The tide rises and falls on an average about 9.5 feet.

Vessels anchoring on the flats at high tide ground when the tide falls. The consequence is that the deep water is in great demand. In order to accommodate as many vessels as possible, chains have been stretched across the channel, and to the middle of them moorings are attached. A vessel coming into the harbor must make fast to one of these moorings or go on the flats. The harbor is in consequence overcrowded, and frequently several vessels are compelled to make fast to a single mooring. This causes accidents, and the lack of room makes it difficult for them to get underway. If a vessel anchors on the flats at high tide she can only get off at high tide. If the tide is not up when she comes in she must anchor in the channel.

This harbor, bad as it is for lack of room, is resorted to by great numbers of fishermen and others. As many as eighty sail, it is said, have been seen to anchor in the harbor in bad weather. Most of them had to anchor on the flats and ground when the tide went out.

There can be no doubt but that a harbor of refuge here would be of great benefit to the immense number of small coasters that pass close to Cape Porpoise in their trips north and south. Many of these vessels must, in the present condition of things, run for Portland or Portsmouth on the approach of a storm, and it is stated that in doing so quite a number are lost.

The harbor is easy of access, well protected from the prevailing storm winds, and only needs enlargement to make it available. There is a light-house on Goat Island, at the entrance. The depth of water is 9 feet on the bar at low tide, but the depth inside is greater.

It is not practicable to give a fair estimate of the amount of commerce to be benefited by such an improvement. There are now and have been for many years quite a number of small vessels engaged in fishing that hail from this port. Many of the Gloucester fishermen, it is reported, call at Cape Porpoise for bait. But the harbor is needed as a refuge for all coasters who are caught outside on the approach of bad weather, and the great number of vessels engaged in the coasting trade, most of which are small and unfit to stand out to sea, would find a harbor here of incalculable value.

In view of the above, I am of the opinion that Cape Porpoise Harbor is worthy of improvement. To prepare a project for such improvement will necessitate a survey, which it is estimated will cost about \$600.

The importance of the locality as a harbor of refuge has not diminished since the date of Colonel Hains's report.

#### IMPORTANCE AS A HARBOR OF COMMERCE.

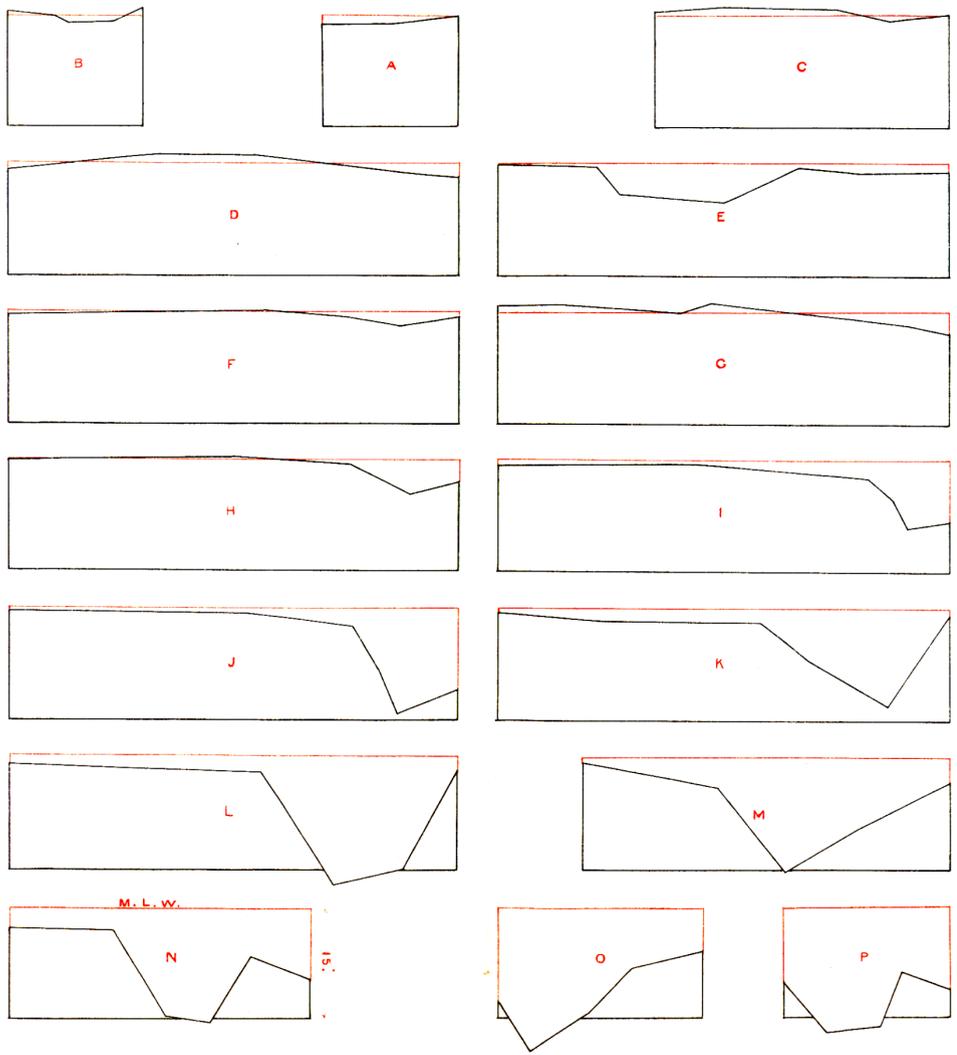
I quote from Lieutenant Howell's report of November 18, 1898, as follows:

Since the time of this last report [Colonel Hains's] which stated, "As a business place it is not of great importance," an electric railroad has been projected and is about to be constructed between the manufacturing town of Sanford, Me., and Cape Porpoise, 22 miles long. At Sanford there are two mills, employing about 1,600 operatives—the Sanford Mills, manufacturers of plush, blankets, etc., and the Goodall Worsted Company, manufacturers of woolen goods. These mills receive about 19,000 tons of freight yearly, 10,000 of which is coal, and send out about 3,000 tons. At present the coal is brought in schooners to Portland and carried by the Portland and Rochester Railroad to Springvale, and thence 3 miles over an electric road to Sanford. The other freight comes from Boston via the Boston and Maine Railroad. Should the harbor at Cape Porpoise be enlarged to allow schooners to enter and discharge, the proposed electric line intends to haul freight and thus supply the mills of Sanford and the other places along the line. Another industry which would profit by the enlargement of the harbor is the fishing. About 300 persons are engaged in the fishing trade at Cape Porpoise, and it is estimated that the yearly catch is 2,000 barrels of lobsters and 300,000 pounds of fresh fish. This goes to the Boston market by trucking to Kennebunk Port, 3 miles, and thence by the Boston and Maine Railroad. By bringing this freight in schooners to Cape Porpoise and carrying it on the electric line it is estimated that 75 cents per ton can be saved on the Boston freight and 50 cents per ton on the coal from Portland. The amount of coal brought in annually is 20,000 tons; hence the saving would be \$10,000. The remaining freight, incoming and outgoing, for the Sanford Mills, the towns of Sanford, Springvale, and Kennebunk, and the fish catch at Cape Porpoise, all of which would pass in and out of the harbor at Cape Porpoise, is about 25,000 tons; the saving in freight rates, at 75 cents per ton, is \$18,750. The total is \$28,750. The line of the road lies through valuable timber land, which would thus be opened to the market.

In view of the combined testimony of Colonel Hains and Lieutenant Howell, I am of the opinion that the harbor is one worthy of improvement by the General Government, both as a harbor of refuge and as a harbor of commerce.

#### PROJECT FOR IMPROVEMENT.

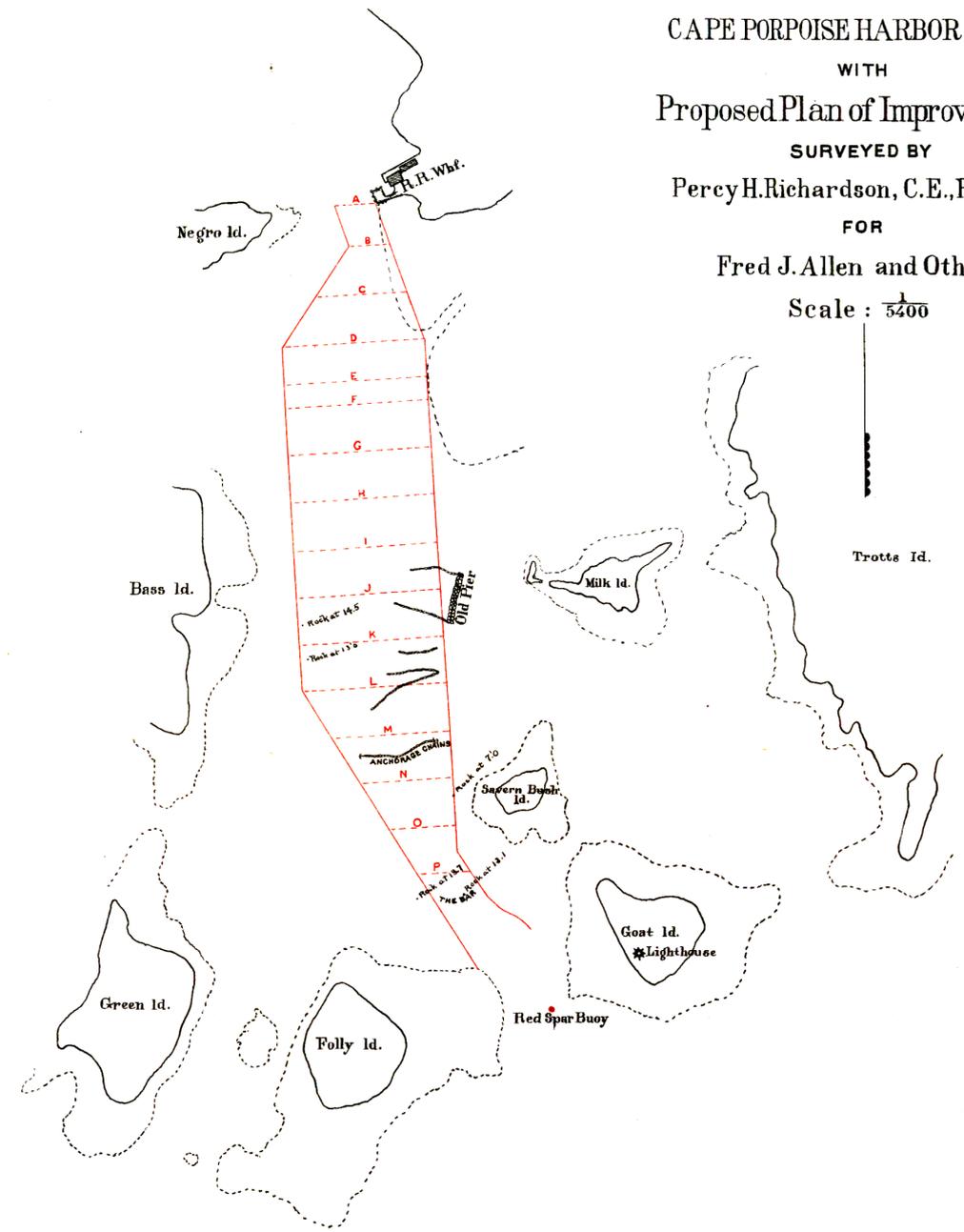
The project and estimate of cost are based on the survey by private parties just completed. The survey was made under the immediate charge of Mr. Percy H. Richardson, a civil engineer in good standing and active practice in this city, who was at one time, some years since, employed as inspector of dredging under this office, and who has had experience in hydrographic work. Associated with him was another and more recent employee of this office as inspector of dredging, whose special duty was to make borings and take special note of the character of the material included within the area to be dredged, and especially to note location and extent of any ledges of rock that might be encountered. The results are embodied in the report herewith of Mr. Richardson and the accompanying tracing.



CAPE PORPOISE HARBOR SECTIONS  
 SCALES: HORIZONTAL 1/8000 VERTICAL 1/800

ANDREW S. GRAMAK PHOTO LITHO WASHINGTON D.C.

N  
 Map of Survey  
 OF  
 CAPE PORPOISE HARBOR, MAINE.  
 WITH  
 Proposed Plan of Improvements  
 SURVEYED BY  
 Percy H. Richardson, C.E., Portland  
 FOR  
 Fred J. Allen and Others  
 Scale: 5/3200



Red Can Buoy  
 ATLANTIC OCEAN

The field operations comprised soundings and borings as the main work, and shore lines as far as the party had time to put them in. The soundings were taken along cross sections about 200 feet apart, and afford a reasonably accurate delineation of the bottom where dredging will have to be done. There were in all over eighty borings, located mostly within the area to be dredged, and a few outside this area. The material was found to be a mixture of sand and mud, not hard, and probably easy to dredge. A layer of stiff, blue clay was found to exist near the shore lines of the islands and ledges, which Mr. Richardson thinks may extend under a portion of the harbor, but not to any large extent. Rock ledge was found at three points—at the bar at the entrance, on ledge abreast of Savern Island, and on ledge abreast of Bass Island.

The entrance to the harbor lies between Folley Island on the west and Goat and Savern islands on the east. Between Folley and Goat islands the width is approximately 250 feet between ledges, and the depth ample as far as the soundings have been taken. On a line between Folley Island and Savern Island the channel is crossed by a ledge of rock having a least depth of 13.1 feet at low tide for a channel width of 200 feet. The width of the ledge between the 16-foot contours in the harbor and sea slopes is estimated by Mr. Richardson at 50 feet. At the time of the survey the ledge was covered by sand to a depth of 3 feet, giving about 10 feet of water at low tide. This is known as "The Bar." Inside this bar the channel widens to about 225 feet and deepens to 13 feet, and its direction is slightly changed to the northward and then runs straight about 2,700 feet to the wharf of the Sanford and Cape Porpoise Railroad Company. During the last 2,000 feet the channel narrows and shoals till it practically becomes but a mere ditch with broad mud banks on each side.

The depth of water desired is 15 feet, in order to accommodate large schooners of deep draft.

The plan of improvement recommended contemplates (1) the removal of the ledge of rock at the bar to a depth of 16 feet at low tide, over a channel width of 200 feet; (2) the dredging of a channel about 3,000 feet long between the bar and the wharf, to be 15 feet deep at mean low water and of sufficient width to permit free navigation and easy turning of vessels within the harbor, and to provide anchorage room for small vessels seeking its shelter in stormy weather. This width has been placed at 600 feet, as probably the greatest expansion the channel is susceptible of without danger of encountering a rock pier on the one side and rocky ledges on the other.

The red lines on the chart of Mr. Richardson are the bounding lines of the area to be dredged or excavated. I concurred in the location and direction of these lines, substantially as drawn, before they were placed upon the map. These lines indicate the limits of the dredging, which will be carried straight down to the 15-foot level or rock—where any may be encountered above this level—leaving a vertical bank which will eventually work down to a slope, giving something less than 600 feet width at the 15-foot contour, but greater widths above low tide. Excepting the ledge of rock at the bar, borings show the existence of rock at two places on which depths less than 15 feet were found. One is abreast of Savern Bush Island, with a depth of 7 feet at low tide, the other abreast of Bass Island, with depths at two borings of 13 and 14.5 feet, respectively. These borings were close to the edges of the proposed dredging and will probably be covered by the side slope of the channel. Blasting is to be avoided at these places, and this can probably be done by slightly reducing the channel widths in the vicinity.

The material to be removed by dredging, as estimated by Mr. Richardson and checked in this office, is 620,000 cubic yards. The estimated cost is placed by Mr. Richardson at 14 cents per cubic yard. Mr. Nelson, the assistant, recently inspector of dredging in Rockland Harbor, thought the cost might safely be estimated between 14 and 16 cents per cubic yard. A portion of the area to be dredged will be exposed to swells from the ocean, and all the material will have to be conveyed out to sea. Delays may result from time to time from both causes, increasing the cost of the work. The higher figure (16 cents) is therefore taken in estimating the probable cost of dredging, and \$12 per cubic yard for rock excavation.

*Estimated cost.*

Dredging 620,000 cubic yards of deposit, at 16 cents.....	\$99, 200
Excavating 1,100 cubic yards of rock, at \$12.....	13, 200
Add for engineer expenses and contingencies .....	12, 600
Total .....	125, 000

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, January 11, 1899.*

Respectfully forwarded to the Chief of Engineers.

Cape Porpoise is situated in the State of Maine, midway between the deep harbors of Portsmouth, N. H., and Portland, Me., being about 25 miles distant from each. This office, under date of December 19, 1898, by first indorsement, confirmed the opinion of the district officer, previously expressed in official reports, that the desired improvement was a worthy one, and recommended that an appropriation of \$600 be made for a survey of the locality to determine the nature of the work to be done and its estimated cost. I still adhere to this opinion, but am unwilling to submit, with my approval, any estimate of cost based upon a survey not made under the direction of the district officer.

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

LETTER OF MR. PERCY H. RICHARDSON, C. E.

PORTLAND, ME., *January 7, 1899.*

DEAR SIR: In accordance with instructions, I have completed the survey of Cape Porpoise Harbor, and beg leave to submit the following report: With this, and forming part of the report, are inclosed two plans. One is a plan of the Cape Porpoise Harbor, showing the proposed harbor of refuge and the existing surroundings. This harbor will be entered through a 200-foot channel, which widens to 600 feet when about 500 feet north of Savern Bush Island, and maintains that width for 1,460 feet; then it narrows up to a width of 150 feet in 400, and maintains this width to the Sanford and Cape Porpoise Railway Company's wharf. This harbor will have a depth of 15 feet at mean low water.

The other plan shows the cross sections of the proposed harbor, and they are cross referenced on the two plans by letters. These cross sections show the mean low-water line as the level top line of each section. The top heavy lines indicate the present surface of mud, and the lower level lines show the proposed bottom of the 15-foot channel. The vertical height of the cross sections is exaggerated ten times.

By reference to these plans it will be seen that there exists to-day within the harbor an anchorage ground where float at all seasons of the year the schooners of the fishing fleet which hails from Cape Porpoise. From 400 feet northwesterly of Savern Bush Island and for a distance of 1,000 feet northerly are anchorage chains. Six of these are located as per plan, and on them are the moorings for six two-masters. On a short mooring these schooners have shifted with the tide in safety for years. They float in from 7 to 16 feet of water at low tide in a natural channel. Above the anchorage chains shown are a number of smaller ones for the smaller schooners, but these are not shown on plan.

On both sides of this channel are flats partially covered at mean low water, but practically bare from the northerly end of Savern Bush Island to the mainland on the low run of tides. As a matter of fact, you can walk from Goat Island Lighthouse to the mainland in knee rubber boots at almost any run of low water, and actually dry-shod during the low run of tides.

Soundings in these flats show a mixture of sand and mud through which the sounding rod could be churned with ease, and even at times pushed through 16 feet of it by the direct dead weight of two men. With exceptions hereafter noted, this applies to the inclosed area recommended as a harbor of refuge.

The surrounding islands are ledgy, and the ledge is, as a rule, a wash for many feet from the shore, as indicated by dotted lines on the plan. Then close to the rocks is found a mixture of sand and mud, beneath which came a stiff blue clay. This clay was found nearly always close to the shores, but it quite likely extends under a portion of the harbor recommended; but, in my judgment, no clay in quantity will be found.

Rock was found within limits at but three places. On the westerly side of the channel, from J to L, there are indications that the Bass Island ledges have not quite dipped below the 15-foot mark desired, and that there are points of it that will need to be blown off. Nothing but a detailed survey will estimate this correctly, but from data at hand there may be 800 cubic yards. The westerly ledges of Savern Bush Island are also high, and there may be about 500 cubic yards there. At the entrance of the harbor there is a bar—marked The Bar on the plan—which apparently runs from Savern Bush Island to Folly Island. Less than 2 feet of ledge there is covered by about 3 feet of sand, which probably shifts with the tide. This bar is narrow—about 50 feet from 16-foot water to 16-foot water—and removed to a depth which would be safe in heavy swells would take about 1,100 cubic yards. This would give a total of 2,400 cubic yards of rock, and would cost about \$12 a cubic yard to remove.

In round numbers there are 620,000 cubic yards of mud to remove, and it would cost in the neighborhood of 14 cents a cubic yard to remove.

The appropriation necessary to complete the harbor follows in detail:

620,000 cubic yards mud and sand, at 14 cents.....	\$86, 800
2,400 cubic yards rock, at \$12.....	28, 800
Engineering and incidentals.....	4, 400
Total.....	120, 000

Respectfully submitted.

PERCY H. RICHARDSON, *C. E.*

FRED J. ALLEN, *Esq.*,  
Sanford, *Me.*

16. *Cape Porpoise Harbor, Maine.*—This is a new work. The harbor at Cape Porpoise, Maine, is situated about midway between Portland, Me., and Portsmouth, N. H. Originally the harbor had a depth of about 13 feet at mean low tide, but for a small area only, and the entrance was obstructed by a bar, on which there was only about 10 feet of water at mean low tide. The anchorage was too small to accommodate the small vessels seeking that place for refuge, without regard to the commerce of the place.

By act of March 3, 1899, Congress adopted a project for securing a channel of entrance 200 feet wide and 16 feet deep at mean low tide, and a channel and anchorage within the harbor about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide, at an estimated cost of \$125,000, and at the same time placed the work under the continuous-contract system. The item in the act is as follows:

Improving harbor at Cape Porpoise, Maine, in accordance with the report printed in House Document Number One hundred and sixty, Fifty-fifth Congress, third session, seventy thousand dollars: *Provided*, That a contract or contracts may be entered into by the Secretary of War for such materials and work as may be necessary to complete the project recommended in said report, to be paid for as appropriations may from time to time be made by law, not to exceed in the aggregate fifty-five thousand dollars, exclusive of the amount herein appropriated.

There have been no expenditures during the fiscal year ending June 30, 1899, and no work has been done excepting a survey to collect data for the preparation of a detailed project and specifications.

The amount (estimated) required for completion of existing project is based upon the original estimate contained in the project adopted by Congress March 3, 1899, printed as Appendix A 21 of this report. The original estimate was \$125,000, and the act of 1899, making an appropriation of \$70,000, leaves \$55,000 yet to be appropriated, which amount it is estimated can be profitably expended during the fiscal year ending June 30, 1901. Although contracts have not yet been made, it is believed that should satisfactory bids be received in time to permit operations to be commenced during the present season, or early next season, with a vigorous prosecution of the work it should be approaching completion by the close of the fiscal year 1901.

There is only about 10 feet at mean low tide at the entrance to the harbor.

Complete statements of commerce have not been obtained, but it is reported that the coal and fish in 1898 aggregated 20,350 tons.

Amount appropriated by river and harbor act approved March 3, 1899...	\$70,000.00
July 1, 1899, balance unexpended.....	70,000.00
July 1, 1899, outstanding liabilities.....	425.00
July 1, 1899, balance available.....	69,575.00

(Amount (estimated) required for completion of existing project.....	\$55,000.00
(Amount that can be profitably expended in fiscal year ending June 30, 1901. . . . .	55,000.00
(Submitted in compliance with requirements of sections 2 of river and harbor acts of 1866 and 1867 and of sundry civil act of June 4, 1897.	

(See Appendix A 16.)

A 16.

IMPROVEMENT OF HARBOR AT CAPE PORPOISE, MAINE.

The harbor at Cape Porpoise, Maine, is situated about midway between Portland, Me, and Portsmouth, N. H.

Originally the harbor had a depth of about 13 feet at mean low tide, but for a small area only, and the entrance was obstructed by a bar on which there was only about 10 feet of water at mean low tide. The anchorage was too small to accommodate the small vessels seeking that place for refuge, without regard to the commerce of the place.

By act of March 3, 1899, Congress adopted a project for securing a channel of entrance 200 feet wide and 16 feet deep at mean low tide, and a channel and anchorage within the harbor about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide, at an estimated cost of \$125,000, and at the same time placed the work under the continuous contract system.

There have been no expenditures during the fiscal year ending June 30, 1899, and no work has been done excepting a survey to collect data for the preparation of a detailed project and specifications.

The amount (estimated) required for completion of existing project is based upon the original estimate contained in the project adopted by Congress March 3, 1899. The original estimate was \$125,000, and the act of 1899, making an appropriation of \$70,000, leaves \$55,000 yet to be appropriated, which amount it is estimated can be profitably expended during the fiscal year ending June 30, 1901. Although contracts have not yet been made, it is believed that should satisfactory bids be received, in time to permit operations to be commenced during the present season, or early next season, with a vigorous prosecution of the work it should be approaching completion by the close of the fiscal year 1901.

There is a light-house on Goat Island, at the entrance to the harbor.

*Money statement.*

Amount appropriated by river and harbor act approved March 3, 1899...	\$70,000.00
July 1, 1899, balance unexpended.....	70,000.00
July 1, 1899, outstanding liabilities.....	425.00
July 1, 1899, balance available.....	69,575.00
(Amount (estimated) required for completion of existing project.....	55,000.00
(Amount that can be profitably expended in fiscal year ending June 30, 1901.	55,000.00
(Submitted in compliance with requirements of sections 2 of river and harbor acts of 1866 and 1867 and of sundry civil act of June 4, 1897.	

APPROPRIATION.

March 3, 1899 .....	\$70,000
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COMMERCIAL STATISTICS.

It has been impracticable to obtain detailed commercial statistics, but in 1898 the following items were reported:

Coal.....	Tons. 20,000
Fish.....	350

2. *Cape Porpoise Harbor, Maine.*—[This work was in the charge of Maj. S. W. Roessler, Corps of Engineers, until September 30, 1899.] This is a new work. The harbor at Cape Porpoise is situated about midway between Portland, Me., and Portsmouth, N. H. Originally the harbor had a depth of about 13 feet at mean low tide, but for a small area only, and the entrance was obstructed by a bar on which there was only about 10 feet of water at mean low tide. The anchorage was too small to accommodate the small vessels seeking that place for refuge, without regard to the commerce of the place.

By act of March 3, 1899, Congress adopted a project for securing a channel of entrance 200 feet wide and 16 feet deep at mean low tide and a channel and anchorage within the harbor about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide, at an estimated cost of \$125,000. By this act the improvement was placed under the continuous-contract system and \$70,000 appropriated toward the work. The project is described in the Annual Report of the Chief of Engineers for 1899, page 1050.

There were no expenditures up to June 30, 1899.

Contract for the entire work at 9.2 cents per cubic yard has been entered into and operations thereunder were commenced early in June, 1900. The contract price is so much below the original estimate that it is thought the total amount required for the entire work will be reduced to \$80,000, all of which has been appropriated.

On June 30, 1900, about one-half the length of the entrance channel had been completed to full projected width and depth, and about 10,000 square feet of the anchorage basin had been dredged to the required depth, except over a small area where ledge was found.

There is only about 10 feet at mean low water over the part of the entrance to the harbor that has not been dredged.

It has been impracticable to obtain detailed commercial statistics since 1898, when an aggregate of 20,350 tons of coal and fish was reported.

July 1, 1899, balance unexpended .....	\$70,000.00
Amount appropriated by sundry civil act approved June 6, 1900.....	10,000.00
	80,000.00
June 30, 1900, amount expended during fiscal year .....	505.46
July 1, 1900, balance unexpended .....	79,494.54
July 1, 1900, outstanding liabilities .....	\$4,421.03
July 1, 1900, amount covered by uncompleted contracts.....	61,743.22
	66,164.25
July 1, 1900, balance available.....	13,330.29

(See Appendix B 2.)

## B 2.

## IMPROVEMENT OF HARBOR AT CAPE PORPOISE, MAINE.

[This work was in the charge of Maj. S. W. Roessler, Corps of Engineers, until September 30, 1899.]

The harbor at Cape Porpoise is situated about midway between Portland, Me., and Portsmouth, N. H.

Originally the harbor had a depth of about 13 feet at mean low tide, but for a small area only, and the entrance was obstructed by a bar on which there was only about 10 feet of water at mean low tide. The anchorage was too small to accommodate the small vessels seeking that place for refuge, without regard to the commerce of the place.

By act of March 3, 1899, Congress adopted a project for securing a channel of entrance 200 feet wide and 16 feet deep at mean low tide and a channel and anchorage within the harbor about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide, at an estimated cost of \$125,000, and at the same time placed the work under the continuous-contract system.

There were no expenditures up to June 30, 1899. In October, 1899, contract was entered into with George F. Taylor for doing the entire work, estimated at 717,000 cubic yards, at 9.2 cents per cubic yard. Work under the contract was commenced early in June, 1900, and at the close of that month 45,878 cubic yards of material had been excavated. Dredging began at the entrance to the harbor, and on June 30, 1900, about one-half the length of the entrance had been completed to full projected width and depth and about 10,000 square feet of the anchorage basin had been dredged to the required depth, except over a small area at the entrance, where ledge was found.

Owing to the low price at which the contract for this work was let, it is expected that the total cost of the improvement will be reduced about \$45,000 below the original estimate of \$125,000. Seventy thousand dollars was appropriated by the act of March 3, 1899, and the additional sum of \$10,000 needed to complete the improvement was appropriated by the sundry civil act of June 6, 1900.

The harbor in its present condition has been much used as a harbor of refuge by small vessels in bad weather, and it is expected that within a few months it will be available for vessels up to 15-foot draft.

This work is located in the collection district of Kennebunk, Me., of which Kennebunk is the port of entry. The nearest light-house is on Goat Island, at the entrance to the harbor.

*Money statement.*

July 1, 1899, balance unexpended .....	\$70,000.00
Amount appropriated by sundry civil act approved June 6, 1900.....	10,000.00
	80,000.00
June 30, 1900, amount expended during fiscal year .....	505.46
	79,494.54
July 1, 1900, balance unexpended .....	
July 1, 1900, outstanding liabilities .....	\$4,421.03
July 1, 1900, amount covered by uncompleted contracts.....	61,743.22
	66,164.25
July 1, 1900, balance available.....	13,330.29

APPROPRIATIONS.

March 3, 1899.....	\$70,000
June 6, 1900.....	10,000
Total.....	<u>80,000</u>

*Abstract of proposals for dredging harbor at Cape Porpoise, Maine, opened September 18, 1899.*

No.	Name and address of bidder.	Estimated quantity, 717,000 cubic yards.		Commence—	Complete—
		Per cubic yard for dredging, scow measurement.	Amount.		
		<i>Cents.</i>			
a1	George F. Taylor, New York, N. Y.....	9 $\frac{3}{4}$	\$65,964	May 15, 1900	Nov. 15, 1900
2	Simon J. Donovan, Winthrop, Mass.....	14	100,380	Apr. 1, 1900	Dec. 1, 1900
3	Alonzo E. Smith, New York, N. Y.....	13 $\frac{8}{9}$	99,663	Oct. 15, 1899	Do.
4	Augustus R. Wright, Portland, Me.....	13 $\frac{1}{2}$	96,795	Apr. 1, 1900	Dec. 31, 1901

a Proposal accepted.

*Contract in force during fiscal year ending June 30, 1900.*

Contractor.	Entered into.	Price per cubic yard for dredging, scow measurement.	Approved.	Commence—	Complete—
George F. Taylor, New York, N. Y.	Oct. 24, 1899	<i>Cents.</i> 9 $\frac{3}{4}$	Nov. 11, 1899	May 15, 1900	Nov. 15, 1900

COMMERCIAL STATISTICS.

The harbor up to the present time has been used principally as a harbor of refuge for fishermen, but an electric road 22 miles long has been built from Cape Porpoise to the manufacturing town of Sanford, Me., and an official of the road has informed me that when the dredging is completed it is expected that a line of steamers will be put on between Cape Porpoise and Boston, and perhaps Portland. He further stated that it is proposed to bring all the coal used in Sanford and all raw material for the mills into this port.

It has been impracticable to obtain any commercial statistics since 1898, when the following items were reported:

	Tons.
Coal.....	20,000
Fish.....	350

2. *Cape Porpoise Harbor, Maine.*—The harbor at Cape Porpoise is situated about midway between Portland, Me., and Portsmouth, N. H. Originally the harbor had a depth of about 13 feet at mean low tide, but for a small area only, and the entrance was obstructed by a bar on which there was only about 10 feet of water at mean low tide. The anchorage was too small to accommodate the small vessels seeking that place for refuge, without regard to the commerce of the place.

By act of March 3, 1899, Congress adopted a project for securing a channel of entrance 200 feet wide and 16 feet deep at mean low tide and a channel and anchorage within the harbor about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide, at an estimated cost of \$125,000. By this act the improvement was placed under the continuous-contract system and \$70,000 appropriated toward the work. The project is described in the Annual Report of the Chief of Engineers for 1899, page 1050.

The total expenditures on this work to June 30, 1900, were \$505.46.

Contract for the entire work at 9.2 cents per cubic yard was entered into and operations thereunder were commenced early in June, 1900, and completed in December of the same year. The harbor is now dredged to full projected dimensions, except a small area in the northern part of the harbor, where a quantity of ledge was found. The contract for the removal of this ledge, estimated to contain about 370 cubic yards, has already been let, and the harbor will probably be completed as projected by September 30, 1901. The maximum draft that can be carried in the harbor outside of the ledge mentioned is 15 feet at mean low water.

It has been impracticable to obtain detailed commercial statistics since 1898, when an aggregate of 20,350 tons of coal and fish was reported.

July 1, 1900, balance unexpended .....	\$79,494.54
June 30, 1901, amount expended during fiscal year .....	66,654.00
	12,840.54
July 1, 1901, balance unexpended .....	12,840.54
July 1, 1901, amount covered by uncompleted contracts .....	4,218.00

(See Appendix B 2.)

## B 2.

### IMPROVEMENT OF HARBOR AT CAPE PORPOISE, MAINE.

The approved project and the report of progress of the work to June 30, 1900, may be found in the Annual Report of the Chief of Engineers for 1901, Part I, page 135.

The expenditures during the fiscal year were \$66,654.00.

In October, 1899, contract was entered into with George F. Taylor for doing the entire work, estimated at 717,000 cubic yards, at 9.2 cents per cubic yard. Work under the contract was commenced early in June, 1900, and completed December 28, 1900.

The harbor is now dredged to full projected dimensions except a small area in the northern part of the harbor, where a small quantity of ledge was found. The total number of cubic yards excavated was 683,133, or 33,817 yards less than the original estimate.

Owing to the low price at which the contract for the dredging was let, and the fact that the actual quantity of material dredged was less than originally estimated, the total cost of the improvement will be reduced about \$50,000 below the original estimate of \$125,000.

The work of removing the ledge mentioned above, containing about 370 cubic yards, has been let to John J. Fitzpatrick, of Plattsburg, N. Y., whose contract requires that the work be completed on or before September 30, 1901. With the removal of the ledge the improvement of this harbor will be completed as projected.

The harbor in its original condition was much used as a harbor of refuge by small vessels in bad weather and is now available for vessels up to 15 feet draft.

This work is located in the collection district of Kennebunk, Me., of which Kennebunk is the port of entry. The nearest light-house is on Goat Island, at the entrance to the harbor.

*Money statement.*

July 1, 1900, balance unexpended .....	\$79,494.54
June 30, 1901, amount expended during fiscal year .....	66,654.00
<hr/>	
July 1, 1901, balance unexpended .....	12,840.54
<hr/>	
July 1, 1901, amount covered by uncompleted contracts .....	4,218.00

APPROPRIATIONS.

Act of—		
March 3, 1899 .....	\$70,000	
June 6, 1900 .....	10,000	
<hr/>		
Total .....	80,000	

*Contracts in force during fiscal year ending June 30, 1901.*

Contractor.	Price per cubic yard for dredging, scow measurement.	Total price for removing ledge. (Estimated quantity, 370.6 cubic yards.)	Entered into.	Approved.	Commence.	Complete.
Dredging: George F. Taylor, New York, N. Y.	\$0.002	.....	1899. Oct. 24	1899. Nov. 11	1900. May 15	1900. Nov. 15
Ledge removal: John J. Fitzpatrick, Plattsburg, N. Y.	.....	\$4,218	1901. Apr. 15	1901. Apr. 27	1901. July 1	1901. Sept. 30

COMMERCIAL STATISTICS.

The harbor up to the present time has been used principally as a harbor of refuge for fishermen, but an electric road 22 miles long has been built from Cape Porpoise to the manufacturing town of Sanford, Me., and an official of the road has stated that it is expected a line of steamers will be put on between Cape Porpoise and Boston, and perhaps Portland. He further stated that it is proposed to bring all the coal (about 20,000 tons per year) used in Sanford and all raw material for the mills into this port. It is reported that eight large fishing schooners make this harbor their home port.

2. *Cape Porpoise Harbor, Maine.*—The harbor at Cape Porpoise is situated about midway between Portland, Me., and Portsmouth, N. H. Originally the harbor had a depth of about 13 feet at mean low tide, but for a small area only, and the entrance was obstructed by a bar on which there was only about 10 feet of water at mean low tide. The anchorage was too small to accommodate the small vessels seeking that place for refuge, without regard to the commerce of the place.

By act of March 3, 1899, Congress adopted a project for securing a channel of entrance 200 feet wide and 16 feet deep at mean low tide and a channel and anchorage within the harbor about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide, at an estimated cost of \$125,000. By this act the improvement was placed under the continuous-contract system and \$70,000 appropriated toward the work. The project is described in the Annual Report of the Chief of Engineers for 1899, page 1050.

The total expenditures on this work to June 30, 1902, were \$72,500.

Contract for the dredging of this harbor was entered into and operations thereunder were commenced early in June, 1900, and completed in December of the same year. In the execution of the dredging a small area of ledge was uncovered in the northern part of the harbor, estimated to contain 370 cubic yards, on which there was about 8 feet depth at mean low water. This ledge was removed during the past fiscal year and the harbor is now completed in accordance with the general project.

The maximum draft that can be carried in the harbor is 15 feet at mean low water. The mean range of tides is about 8.8 feet.

It has been impracticable to obtain detailed commercial statistics, but the receipt of about 20,000 tons of coal annually has been reported for the last few years. The harbor is also used as a home port for a number of fishing vessels.

July 1, 1901, balance unexpended .....	\$12,840.54
June 30, 1902, amount expended during fiscal year .....	5,340.54

July 1, 1902, balance unexpended .....	7,500.00
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(See Appendix B 2.)

## B 2.

### IMPROVEMENT OF HARBOR AT CAPE PORPOISE, MAINE.

The approved project and the report of progress of the work to June 30, 1902, may be found in Part I, page 79, of this report.

At the beginning of the fiscal year the dredging of the harbor had been completed, the only work remaining to be done to complete the project being the removal of about 370 cubic yards of ledge which had been uncovered by the dredging. This ledge was removed during the past fiscal year under contract with John J. Fitzpatrick, which completed the improvement of this harbor as projected.

The harbor in its original condition was much used as a harbor of refuge for small vessels in bad weather, and is now available for vessels up to 15 feet draft.

\* \* \* \* \*

#### *Money statement.*

July 1, 1901, balance unexpended .....	\$12,840.54
June 30, 1902, amount expended during fiscal year .....	5,340.54
July 1, 1902, balance unexpended .....	7,500.00

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 APPROPRIATIONS.

Act of—		
March 3, 1899.....		\$70,000
June 6, 1900.....		10,000
		<hr/>
Total.....		80,000

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*Contract in force during fiscal year ending June 30, 1902.*

Contractor: John J. Fitzpatrick, Plattsburg, N. Y.  
 Total price for removing ledge (estimated quantity, 370.6 cubic yards): \$4,218.  
 Date of contract: April 15, 1901.  
 Date of approval: April 27, 1901.  
 Date of commencement: July 1, 1901.  
 Date of completion: September 30, 1901.

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 COMMERCIAL STATISTICS.

The harbor up to the present time has been used principally as a harbor of refuge for fishermen, but an electric road 22 miles long has been built from Cape Porpoise to the manufacturing town of Sanford, Me., and an official of the road has stated that it is expected a line of steamers will be put on between Cape Porpoise and Boston, and perhaps Portland; and further, that it is proposed to bring all the coal used in Sanford and all raw material for the mills into this port. It is reported that eight large fishing vessels make this harbor their home port. About 21,000 tons of coal was brought into the harbor during the past year, partly by sailing vessels and partly by barges, with an average draft of 18 feet.

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1. *Preliminary examination and survey of Cape Porpoise Harbor, Maine, with a view to the removal of obstructions at the entrance.*— Reports dated June 3 and October 10, 1905, respectively, are printed in House Document No. 191, Fifty-ninth Congress, first session. A project for the excavation of ledge rock so as to give a straight entrance channel 200 feet wide and 18 feet deep at mean low water, at an estimated cost of \$46,000, is submitted.

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59TH CONGRESS, } HOUSE OF REPRESENTATIVES. { DOCUMENT  
1st Session. } { No. 191.

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CAPE PORPOISE HARBOR, MAINE.

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LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

WITH A LETTER FROM THE CHIEF OF ENGINEERS, REPORTS OF  
EXAMINATION AND SURVEY OF ENTRANCE TO CAPE PORPOISE  
HARBOR, MAINE.

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DECEMBER 14, 1905.—Referred to the Committee on Rivers and Harbors and  
ordered to be printed, with map.

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WAR DEPARTMENT,  
*Washington, December 13, 1905.*

SIR: I have the honor to transmit herewith a letter from the Chief of Engineers, United States Army, dated December 7, 1905, together with copies of reports from Lieut. Col. W. M. Black, Corps of Engineers, dated June 3 and October 10, 1905, with map, of a preliminary examination and survey, respectively, of Cape Porpoise Harbor, Maine, made by him in compliance with the provisions of the river and harbor act of March 3, 1905.

Very respectfully,

WM. H. TAFT,  
*Secretary of War.*

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

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WAR DEPARTMENT,  
OFFICE OF THE CHIEF OF ENGINEERS,  
*Washington, December 7, 1905.*

SIR: I have the honor to submit herewith, for transmission to the Congress, reports of June 3, 1905, and October 10, 1905, with map, by Lieut. Col. W. M. Black, Corps of Engineers, upon preliminary examination and survey, respectively, of Cape Porpoise Harbor, Maine, with a view to the removal of obstructions at the entrance, authorized by the river and harbor act of March 3, 1905.

The improvement contemplated consists in the excavation of ledge rock so as to give a straight entrance channel 200 feet wide and 18

feet deep at mean low water. The estimated cost of the work is \$46,000. It is believed that the work, if done, will be permanent, and that no expense for maintenance will be involved. The harbor has been improved in accordance with a project which was finished in 1902. The balance remaining of the amounts appropriated and authorized for that project would more than suffice to complete the new work now proposed, but can not be used for that purpose without further action by Congress, since the improvement of the outer entrance was not part of the old plan.

In the opinion of the local officer, of the division engineer, and of the Board of Engineers for Rivers and Harbors, whose duty it is under the law to review all reports of this character, Cape Porpoise Harbor is worthy of improvement to the extent outlined above, and in this opinion I concur.

Very respectfully,

A. MACKENZIE,

*Brig. Gen., Chief of Engineers, U. S. Army.*

Hon. WM. H. TAFT,  
*Secretary of War.*

PRELIMINARY EXAMINATION OF THE ENTRANCE TO CAPE PORPOISE HARBOR,  
MAINE.

UNITED STATES ENGINEER OFFICE,  
*Portland, Me., June 3, 1905.*

GENERAL: I have the honor to submit the following report on a preliminary examination of Cape Porpoise Harbor, with a view to the removal of obstructions at the entrance, made April 28, 1905, in compliance with the requirements of the river and harbor act approved March 3, 1905:

A description of the harbor is printed on page 79 of the Annual Report of the Chief of Engineers for 1902. In the act of March 3, 1899, Congress adopted a project for securing a channel of entrance 200 feet wide and 16 feet deep at mean low tide, and a channel and anchorage within the harbor about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide, at an estimated cost of \$125,000, as described in the Annual Report of the Chief of Engineers for 1899, page 1050 et seq. The work contemplated was completed September 30, 1901, at a total cost of \$72,500.

The importance of the harbor is set forth on page 1051, Report of Chief of Engineers for 1899. It is used as a home harbor for a fishing fleet of 14 vessels. During the past year 169 yachts and 115 schooners, by count, took advantage of it as a harbor of refuge. It is also the terminus of the Atlantic Shore Line Railway, which owns and operates the former Sanford and Cape Porpoise Railway. The latter line runs from Cape Porpoise Harbor via Kennebunkport and Kennebunk to Sanford. At Kennebunkport it connects with a line from Kennebunkport to Biddeford. The total mileage of track is 37.5. The power is electric, and the system is equipped for freight and passenger traffic. During the partial operations of the past year 8,000 tons of coal were carried to inland points from Cape Porpoise Harbor, and the company claims that this coal traffic will be greatly increased during the coming year, supplying the factories at Sanford

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and Biddeford, the railroad now having increased facilities for handling freight.

While the existing entrance is straight, it is narrow and difficult to make for sailing vessels and, in the night time, by steamers. Two ledges of rock, covered at low water, which jut out one from either side make any miscalculation of position disastrous. It is desired by those using the harbor that the points of these ledges be removed, making a greater width of entrance. The improvement made will be permanent.

After a personal examination of the locality, a consideration of the extensive improvement already made within this harbor by the General Government, of the commerce benefited, and the probable small cost of rendering more available for use the work already done, it is my opinion that the locality is worthy of improvement. The cost of the survey necessary to prepare a project for the work required and an estimate of its cost is \$200.

Very respectfully, your obedient servant,

W. M. BLACK,  
*Major, Corps of Engineers.*

Brig. Gen. A. MACKENZIE,  
*Chief of Engineers, U. S. A.*  
(Through the Division Engineer.)

[First indorsement.]

NORTHEAST DIVISION ENGINEER OFFICE,  
*New York, June 8, 1905.*

Respectfully forwarded to the Chief of Engineers, U. S. Army.  
I concur in the views of Major Black and recommend that the sum asked for a survey be allotted.

CHAS. R. SUTER,  
*Colonel, Corps of Engineers,*  
*Division Engineer.*

[Third indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,  
*Washington, D. C., June 19, 1905.*

Respectfully returned to the Chief of Engineers, U. S. Army.

The within report on a preliminary examination of "Cape Porpoise Harbor, with a view to the removal of obstructions at the entrance," has \* \* \* received consideration by the Board of Engineers for Rivers and Harbors. The previous history of improvements made at this harbor, as recorded in the Reports of the Chief of Engineers, has also been reviewed.

In 1894 a report favorable to improvement of the harbor, based principally on its usefulness as a harbor of refuge for fishing and other vessels, was made by Colonel Hains. In 1898 a report by Lieutenant Howell indicated that since the report of 1894 some commerce had developed and that a considerable increase was expected. In 1899 Major Roessler reported that in his opinion the harbor was worthy of improvement by the General Government both as a harbor of refuge and as a harbor of commerce.

A project of improvement was adopted by the act of March 3, 1899, for securing a channel of entrance 200 feet wide and 16 feet

deep at mean low water, and a channel and anchorage within the harbor about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low water, at an estimated cost of \$125,000. This work was completed, at a total cost of \$72,500, in 1901, since which time it appears that the usefulness of the harbor has increased.

The improvement desired is the removal of two ledges of rock which jut out from the sides of the entrance channel, making access to the harbor difficult and attended with a degree of danger.

The district officer states that the probable cost of the proposed improvement will be small. He expresses the opinion, concurred in by the division engineer, that the harbor is worthy of further improvement and recommends a survey, estimated to cost \$200.

Believing that the interests of commerce will be better served if the projecting ledges are removed as contemplated, and that the improvement is one worthy of being undertaken by the United States if its cost is reasonable, the Board concurs with the district officer and the division engineer in recommending that a survey be authorized.

For the Board:

D. W. LOCKWOOD,  
*Lieut. Col., Corps of Engineers,*  
*Senior Member of the Board.*

[Fourth indorsement.]

WAR DEPARTMENT,  
OFFICE OF THE CHIEF OF ENGINEERS,  
*Washington, June 23, 1905.*

Respectfully submitted to the Secretary of War.

This is a report on preliminary examination of Cape Porpoise Harbor, Maine, authorized by the river and harbor act of March 3, 1905.

Inviting attention to the report of the Board of Engineers for Rivers and Harbors in the preceding indorsement, I recommend that a survey of the locality, as proposed, be authorized.

A. MACKENZIE,  
*Brig. Gen., Chief of Engineers, U. S. Army.*

[Fifth indorsement.]

WAR DEPARTMENT,  
*June 24, 1905.*

Approved as recommended by the Chief of Engineers.

ROBERT SHAW OLIVER,  
*Assistant Secretary of War.*

SURVEY OF THE ENTRANCE TO CAPE PORPOISE HARBOR, MAINE.

UNITED STATES ENGINEER OFFICE,  
*Portland, Me., October 10, 1905.*

GENERAL: I have the honor to submit the following report on the survey of the entrance to Cape Porpoise Harbor, Maine, authorized by Department letter dated June 29, 1905, in compliance with section 9 of the river and harbor act of March 3, 1905.

The survey was made in September, 1905. The accompanying map,



ATLANTIC OCEAN

FOLLY ISLAND

CAPE PORPOISE HARBOR

ENTRANCE TO  
CAPE PORPOISE HARBOR, ME.

SURVEY MADE SEPTEMBER, 1905.  
UNDER THE DIRECTION OF LIEUT. COL. W.M. BLACK,  
BY H.W. HOBBS, OVENSENER.

SCALE 1:800

U.S. Engineer Office,  
Portland, Me., Sept. 25, 1905.

*W. M. Black*  
Lieut. Col., Corps of Engineers, U.S. Army.

Transmitted to the Chief of Engineers, War Department,  
with report dated October 10<sup>th</sup> 1905.

**NOTE.**

The soundings are given in feet and tenths of feet, and refer to the plane of mean low water.  
Observations were referred to bench mark established in 1839, located on base line between Bickford's and Milk Islands. This bench mark is indicated by a drill hole and the letters, B.M., cut in the Westerly face of a boulder, 65 feet South of triangulation point on Bickford's Island.  
The elevation of this drill hole above mean low water is 7 feet.  
All triangulation points are marked with drill holes in the rock, and all except point 'A' were established during the survey of 1839.

Mean rise and fall of tide .8.8 feet.  
The high water line is represented thus: \_\_\_\_\_  
The mean low water line is represented thus: \_\_\_\_\_  
" 4 Foot contour " " " \_\_\_\_\_  
" 8 " " " " " \_\_\_\_\_  
" 12 " " " " " \_\_\_\_\_  
" 16 " " " " " \_\_\_\_\_  
" Limit of improvements in 1901

**TRIANGULATION.**

	LH	SB	B	A	Light House	Milk Is.
Bearing						
Distance						
LH		124° 45' 00" E	251.8	171° 15' 00" E	123.0	103° 15' 00" E
SB	135° 15' 00" E	50.1		121° 15' 00" E	133.0	
B	108° 15' 00" E	106.5	124° 45' 00" E	105.2	127° 15' 00" E	133.0
A	108° 15' 00" E	106.5	124° 45' 00" E	105.2	127° 15' 00" E	133.0

Bearings are referred to the Magnetic Meridian

plotted from the data then obtained, shows that the improvement made in 1900-1902, under the provision of the act of March 3, 1899, has been well maintained, but that the entrance to the harbor outside of the limits of the earlier project is rendered narrow and crooked by two rock ledges, one on either side, which restrict the width of a straight entrance channel between the mean low water 16-foot rock contour to only 75 feet. The ledges shelve down very gradually, and their exact locations are not readily seen, especially toward high water, so that sailing boats beating into the harbor are very liable to touch at one side or the other.

The removal of these ledges so as to make a straight entrance channel of the same width as the entrance to the dredged area within (200 feet) is the improvement desired.

In order to make this exposed rock channel safe and of an available depth equal to that within the harbor, 16 feet at mean low water, the protruding rock should be removed to a depth of at least 18 feet at mean low water. The estimated volume of rock to be removed to make this entrance channel straight, 200 feet wide (as shown by the heavy broken lines on the accompanying map), and 18 feet deep at mean low water is 5,226 cubic yards, measured in place.

The estimated cost of this improvement is:

5,226 cubic yards, place measurement, at \$8 .....	\$41, 808
Engineering expenses and contingences .....	4, 192
Total .....	46, 000

\* \* \* The expenditure for the harbor improvement authorized by the act of 1899 was \$125,000. The amount actually expended on the \* \* \* harbor was \$77,805.27.

It is thus evident that the removal of the ledges will give the entrance channel 200 feet width, \* \* \* and that the estimated cost of the additional work is somewhat less than the balance remaining of the expenditure formerly authorized.

The commerce of the harbor is described in my report on the preliminary examination dated June 3, 1905. It is my opinion that the importance of the harbor commercially and as a place of refuge justifies an improvement to the extent outlined above. Such an improvement will be permanent and is expected to involve no expense for maintenance.

Very respectfully, your obedient servant,

W. M. BLACK,  
*Lieut. Col., Corps of Engineers.*

Brig. Gen. A. MACKENZIE,  
*Chief of Engineers, U. S. A.*  
(Through the Division Engineer.)

[First indorsement.]

NORTHEAST DIVISION ENGINEER OFFICE,  
*New York, October 12, 1905.*

Respectfully forwarded to the Chief of Engineers, U. S. Army, concurring in the views and recommendations of the district officer.

CHAS. R. SUTER,  
*Colonel, Corps of Engineers,*  
*Division Engineer.*

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[Third indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS.

*Washington, D. C., October 23, 1905.*

Respectfully returned to the Chief of Engineers, U. S. Army.

The within report of survey by the district officer, submitting a project and estimate of cost for the removal of two rock ledges obstructing the entrance to Cape Porpoise Harbor, Maine, has been reviewed by the Board of Engineers for Rivers and Harbors.

In its indorsement of June 19, 1905, on the district officer's report of a preliminary examination of this locality the Board expressed the opinion that "the improvement is one worthy of being undertaken by the United States if its cost is reasonable." The estimated cost of removing the two rock ledges to a depth of 18 feet at mean low water to provide the approved channel dimensions of 200 feet width and 16 feet depth is \$46,000, which, added to the amount actually expended on the inner harbor, does not exceed that originally authorized by the act of March 3, 1899, for the improvement of this harbor.

The Board is of the opinion that the cost of the work proposed within is reasonable when compared with the benefits which it will afford commerce and navigation, and it therefore agrees with the district officer, and with the concurring views of the division engineer as expressed hereon, that it is advisable for the United States to undertake the further improvement of "Cape Porpoise Harbor, with a view to the removal of the obstructions at the entrance."

For the Board:

C. McD. TOWNSEND,  
*Major, Corps of Engineers,*  
*Senior Member Present.*

17. *Cape Porpoise Harbor, Maine.*—Originally the harbor had a depth of about 13 feet at mean low tide, but for a small area only, and the entrance was obstructed by a bar on which there was only about 10 feet of water at mean low tide. The anchorage was too small to accommodate the craft seeking the harbor for refuge only, aside from the local commerce.

Under a project adopted March 3, 1899, a channel of entrance 200 feet wide and 16 feet deep at mean low tide and an anchorage area about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide were secured by the close of the fiscal year 1902, under an outlay of \$72,501.15.

The present project, adopted by the act of March 2, 1907, aims to deepen and straighten the outer entrance channel, which is narrow and crooked, so as to give a width of 200 feet and a depth of 18 feet at mean low tide. The estimated cost is \$46,000, and the full amount was appropriated by the act of 1907.

The amount expended on the project of 1907 to the close of the year is \$74.20.

The mean range of tides is about 8.8 feet.

No commercial statistics have been obtained.

For reports on examinations and surveys see Annual Reports of the Chief of Engineers for 1895, page 583; for 1899, page 1050, and House Document No. 191, Fifty-ninth Congress, first session.

July 1, 1906, balance unexpended.....	\$7,498.85
Amount appropriated by river and harbor act approved March 2, 1907.....	46,000.00
June 30, 1907, amount expended during fiscal year, for works of improvement.....	74.20
July 1, 1907, balance unexpended.....	45,925.80
July 1, 1907, outstanding liabilities.....	1.70
July 1, 1907, balance available.....	45,924.10

(See Appendix A 17.)

<sup>a</sup> Balance of appropriation of June 6, 1900, not considered applicable under existing project.

#### A 17.

##### IMPROVEMENT OF CAPE PORPOISE HARBOR, MAINE.

There was no work during the year. No commercial statistics were obtained.

##### *Money statement.*

July 1, 1906, balance unexpended.....	<sup>a</sup> \$7,498.85
Amount appropriated by river and harbor act approved March 2, 1907.....	46,000.00
June 30, 1907, amount expended during fiscal year, for works of improvement.....	53,498.85
July 1, 1907, balance unexpended.....	74.20
July 1, 1907, balance unexpended.....	53,424.65
July 1, 1907, outstanding liabilities.....	1.70
July 1, 1907, balance available.....	53,422.95

<sup>a</sup> Balance of appropriation of June 6, 1900, not considered applicable under existing project.

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APPROPRIATIONS.

March 3, 1899	-----	\$70,000
June 6, 1900	-----	10,000
March 2, 1907	-----	46,000
Total	-----	126,000

12. *Cape Porpoise Harbor, Maine.*—Originally the harbor had a depth of about 13 feet at mean low tide, but for a small area only, and the entrance was obstructed by a bar on which there was only about 10 feet of water at mean low tide. The anchorage was too small to accommodate the craft seeking the harbor for refuge only, aside from the local commerce.

Under a project adopted March 3, 1899, a channel of entrance 200 feet wide and 16 feet deep at mean low tide and an anchorage area about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide were secured by the close of the fiscal year 1902, under an outlay of \$72,501.15.

The present project, adopted by the act of March 2, 1907, aims to deepen and straighten the outer entrance channel, which is narrow and crooked, so as to give a width of 200 feet and a depth of 18 feet at mean low tide. The estimated cost is \$46,000, and the full amount was appropriated by the act of 1907.

The amount expended on the project of 1907 to the close of the fiscal year is \$1,563.43. The work, which consists in excavating about 4,200 cubic yards of rock, has been placed under contract, and about 80 per cent of the area has been drilled and blasted, but none of the loosened material has yet been taken up.

The mean range of tide is about 8.8 feet.

The commerce for 1907 is given as 50,491 tons, the chief items being bricks, clay, and coal. The value is placed at \$157,369.

While the improvement may incidentally have an effect on freight rates, the principal benefit consists in straightening and making easier a crooked entrance, difficult and dangerous in fog and storm.

For reports on examinations and surveys see Annual Reports of the Chief of Engineers for 1895, page 583; for 1899, page 1050, and House Document No. 191, Fifty-ninth Congress, first session.

July 1, 1907, balance unexpended.....	\$45,925.80
June 30, 1908, amount expended during fiscal year for works of improvement.....	1,489.23
July 1, 1908, balance unexpended.....	44,436.57
July 1, 1908, outstanding liabilities.....	75.00
July 1, 1908, balance available.....	<u>44,361.57</u>
July 1, 1908, amount covered by uncompleted contracts.....	40,569.60

(See Appendix A 12.)

\*There is a balance of appropriation of June 6, 1900, amounting to \$7,498.85 not considered applicable under existing project.

## A 12.

## IMPROVEMENT OF CAPE PORPOISE HARBOR, MAINE.

A contract was made in September, 1907, for doing all the work covered by the project, which contemplates the excavation of about 4,200 cubic yards of submerged ledge to widen and straighten the entrance. At the close of the year about 80 per cent of the area had been drilled and blasted, but as none of the loosened material had yet been taken up it can not yet be said what real progress has been made.

*Money statement.*

July 1, 1907, balance unexpended.....	\$45,925.80
June 30, 1908, amount expended during fiscal year for works of improvement.....	1,489.23
July 1, 1908, balance unexpended.....	44,436.57
July 1, 1908, outstanding liabilities.....	75.00
July 1, 1908, balance available.....	44,361.57
July 1, 1908, amount covered by uncompleted contracts.....	40,569.80

## APPROPRIATIONS.

March 3, 1899.....	\$70,000
June 6, 1900.....	10,000
March 2, 1907.....	46,000
Total.....	126,000

## CONTRACT IN FORCE.

Eastern Dredging Company.  
For excavating about 4,200 cubic yards submerged ledge.  
Price, \$9.60 per cubic yard, measured in place.  
Dated September 24, 1907; approved October 10, 1907; to be commenced by November 3, 1907, and completed by October 28, 1908.

## COMMERCIAL STATISTICS.

*Receipts and shipments.*

	Tons.
Bricks and clay.....	33,750
Coal.....	12,375
Fish.....	88
Grain, flour, hay, and straw.....	279
General merchandise.....	67
Ice.....	2,500
Lime and cement.....	80
Lumber.....	150
Oil.....	40
Salt.....	12
Wood.....	1,250
Total.....	50,491

*Arrivals and departures during calendar year ending December 31, 1907.*

Sailing vessels, draft from 7 to 14 feet.....	492
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<sup>a</sup> Balance of appropriation of June 6, 1900, amounting to \$7,498.85, not considered applicable under existing project.

12. *Cape Porpoise Harbor, Maine.*—Originally the harbor had a depth of about 13 feet at mean low tide, but for a small area only, and the entrance was obstructed by a bar on which there was only about 10 feet of water at mean low tide. The anchorage was too small to accommodate the craft seeking the harbor for refuge only, aside from the local commerce.

Under a project adopted March 3, 1899, a channel of entrance 200 feet wide and 16 feet deep at mean low tide and an anchorage area about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide were secured by the close of the fiscal year 1902, under an outlay of \$72,501.15.

A new project was adopted by the act of March 2, 1907, to deepen and straighten the outer entrance channel, which was narrow and crooked, so as to give a depth of 18 feet at mean low tide for a width of 200 feet. The estimated cost was \$46,000, and that amount was appropriated by the act of 1907. The amount expended on the existing project to the close of the fiscal year 1909 is \$43,692.80. The work consisted entirely of ledge excavation. At the close of the last fiscal year about 80 per cent of the area had been drilled and blasted. On the 4th of December, 1908, the work was completed, giving a straight outer entrance channel about 190 feet wide and 18 feet deep at mean low tide. The total excavation amounted to 3,999 cubic yards, measured in place. It was done under contract.

The mean range of tide is 8.8 feet.

No commercial statistics have been obtained, but the commerce amounts to about 50,000 tons, chiefly bricks, clay, and coal.

While the improvement may incidentally have an effect on freight rates, the principal benefit consists in straightening and making easier a crooked entrance, difficult and dangerous in fog and storm.

For reports on examinations and surveys see Annual Reports of the Chief of Engineers for 1895, page 583; for 1899, page 1050, and House Document No. 191, Fifty-ninth Congress, first session.

July 1, 1908, balance unexpended.....	\$44,436.57
June 30, 1909, amount expended during fiscal year for works of improvement.....	42,129.37
July 1, 1909, balance unexpended.....	2,307.20
July 1, 1909, outstanding liabilities.....	102.13
July 1, 1909, balance available.....	\$2,205.07

(See Appendix A 12.)

<sup>a</sup> Balance of appropriation of June 6, 1900, amounting to \$7,498.85, not considered applicable under existing project.

#### A 12.

#### IMPROVEMENT OF HARBOR AT CAPE PORPOISE, MAINE.

The excavation of submerged ledge to widen and straighten the outer entrance channel was continued, under contract, until December 4, 1908, when the work was completed. At the beginning of the year about 80 per cent of the area had been drilled and blasted. During the year the blasting was finished and the loosened material removed. The total quantity of excavation was 3,999 cubic yards, measured in place, and the price was \$9.60 per cubic yard. A straight entrance channel about 190 feet wide and 18 feet deep at mean low tide has been secured.

Expenditures during the fiscal year 1909 amounted to \$42,129.37.

## APPROPRIATIONS.

March 3, 1899.....	\$70,000
June 6, 1900.....	10,000
March 2, 1907.....	46,000
Total.....	<u>126,000</u>

## CONTRACT IN FORCE.

Eastern Dredging Company.  
 For excavating about 4,200 cubic yards submerged ledge.  
 Price \$9.60 per cubic yard, measured in place.  
 Approved October 10, 1907; to be commenced by November 3, 1907, and completed  
 by October 28, 1908 (waived).  
 Contract completed.

## COMMERCIAL STATISTICS.

No statistics were obtained.

18. *Cape Porpoise Harbor, Maine.*—Originally the harbor had a depth of about 13 feet at mean low tide, but for a small area only, and the entrance was obstructed by a bar on which there was only about 10 feet of water at mean low tide. The anchorage was too small to accommodate the craft seeking the harbor for refuge only, aside from the local commerce.

Under a project adopted March 3, 1899, a channel of entrance 200 feet wide and 16 feet deep at mean low tide and an anchorage area about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide was secured by the close of the fiscal year 1902, under an outlay of \$72,501.15.

A new project was adopted by the act of March 2, 1907, to deepen and straighten the outer entrance channel, which was narrow and crooked, so as to give a depth of 18 feet at mean low tide for a width of 200 feet. The estimated cost was \$46,000, and that amount was appropriated by the act of 1907. The amount expended on the existing project to the close of the fiscal year 1910 is \$45,799.84.

Expenditures during the past year were chiefly for office expenses. The project has been completed, giving a straight outer entrance channel about 190 feet wide and 18 feet deep at mean low tide. The mean range in tide is 8.8 feet.

The commerce for 1909 is given as 20,000 short tons, chiefly coal, valued at \$88,000.

While the improvement may incidentally have an effect on freight rates, the principal benefit consists in straightening and making easier a crooked entrance, difficult and dangerous in fog and storm.

For reports on examinations and surveys see Annual Reports of the Chief of Engineers for 1895, page 583; for 1899, page 1050, and House Document No. 191, Fifty-ninth Congress, first session.

No deterioration is reported.

July 1, 1909, balance unexpended.....	\$2,307.20
June 30, 1910, amount expended during fiscal year, for works of improvement.....	2,107.04
July 1, 1910, balance unexpended.....	200.16
July 1, 1910, outstanding liabilities.....	95.84
July 1, 1910, balance available.....	\$104.32

(See Appendix A 18.)

<sup>a</sup> Balance of appropriation of June 6, 1900, amounting to \$7,498.85, not considered applicable under existing project.

1910

A 18.

IMPROVEMENT OF HARBOR AT CAPE PORPOISE, MAINE.

There were no operations beyond office work. The project is completed.

APPROPRIATIONS.

March 3, 1899	-----	\$70,000
June 6, 1900	-----	10,000
March 2, 1907	-----	46,000
Total	-----	126,000

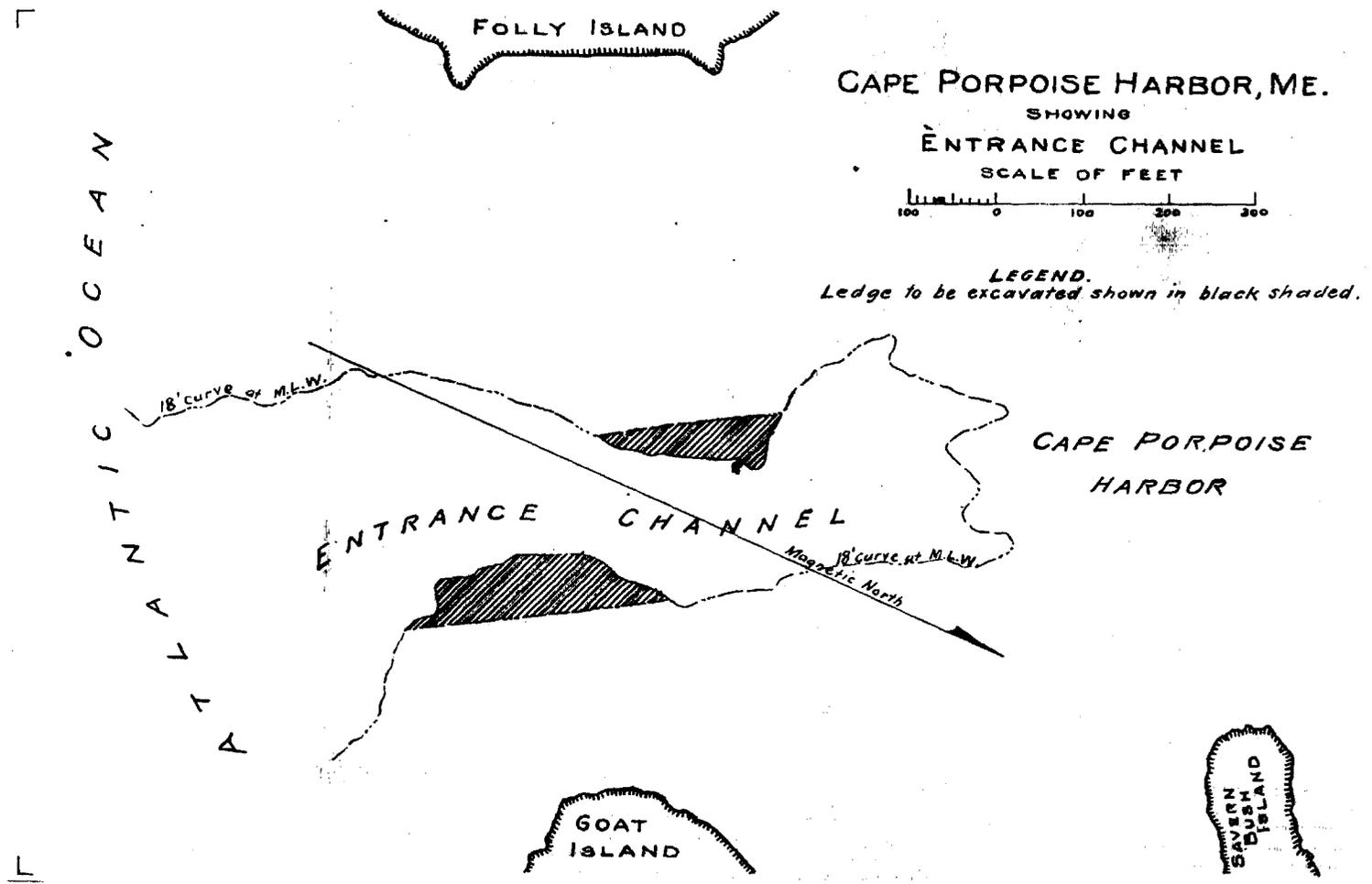
COMMERCIAL STATISTICS.

*Receipts and shipments.*

		Short tons.
Coal	-----	20,000
Lumber	-----	600
Total	-----	20,600

**NOTE.**  
 About 80% of the area has been drilled and blasted,  
 but no material has been taken up.  
 The depth to be obtained is 18 ft. at M.L. Water.  
 The mean range of tides is 8'8"  
 Total amount expended to July 31, 1908 = \$74,141.08  
 Amt. expended on present project to July 31, 1908 = \$1,639.93

**Commercial Statistics.**  
 Receipts and shipments ..... 50,491 tons.  
 Arrivals and departures during fiscal  
 year ending Dec. 31, 1907.  
 Sailing vessels ..... 492



CAPE PORPOISE HARBOR, ME.  
 SHOWING  
 ENTRANCE CHANNEL  
 SCALE OF FEET

**LEGEND.**  
 Ledge to be excavated shown in black shaded.

18. *Cape Porpoise Harbor, Me.*—Originally the harbor had a depth of about 13 feet at mean low tide, but for a small area only, and the entrance was obstructed by a bar on which there was only about 10 feet of water at mean low tide. The anchorage was too small to accommodate the craft seeking the harbor for refuge only, aside from the local commerce.

Under a project adopted March 3, 1899, a channel of entrance 200 feet wide and 16 feet deep at mean low-tide and an anchorage area about 3,000 feet long, 600 feet wide, and 15 feet deep at mean low tide was secured by the close of the fiscal year 1902, under an outlay of \$72,501.15.

A new project was adopted by the act of March 2, 1907 (see H. Doc. No. 191, 59th Cong., 1st sess.), to deepen and straighten the outer entrance channel, which was narrow and crooked, so as to give a depth of 18 feet at mean low tide for a width of 200 feet. The estimated cost was \$46,000, and that amount was appropriated by the act of 1907. The amount expended on the existing project to the close of the fiscal year 1911 is \$46,000.

Expenditures during the past year were for office expenses. The project has been completed, giving a straight outer entrance channel about 190 feet wide and 18 feet deep at mean low tide. The mean range in tide is 8.8 feet.

The commerce for calendar year 1910 is given as 11,030 short tons, coal and fish.

While the improvement may incidentally have an effect on freight rates, the principal benefit consists in straightening and making easier a crooked entrance, difficult and dangerous in fog and storm.

For reports on examinations and surveys see Annual Reports of the Chief of Engineers for 1895, page 583 (H. Doc. No. 22, 53d Cong., 3d sess.); 1899, page 1050 (H. Doc. No. 160, 55th Cong., 3d sess.); and House Document No. 191, Fifty-ninth Congress, first session.

July 1, 1910, balance unexpended.....	\$200.16
June 30, 1911, amount expended during fiscal year, for works of improvement.....	200.16

(See Appendix A 18.)

#### A 18.

##### IMPROVEMENT OF HARBOR AT CAPE PORPOISE, ME.

There were no operations beyond office work. The project is completed.

##### APPROPRIATIONS.

Mar. 3, 1899.....	\$70,000
June 6, 1900.....	10,000
Mar. 2, 1907.....	46,000
Total.....	126,000

##### COMMERCIAL STATISTICS.

##### *Receipts and shipments.*

	Short tons.
Coal.....	7,330
Fish.....	3,700
Total.....	11,030

##### *Arrivals and departures during calendar year ending Dec. 31, 1910.*

Steamers, average draft 14 feet, tonnage unknown.....	30
Sailing vessels, average draft 14 feet, tonnage unknown.....	1,050