

# **BLUE HILL HARBOR MAINE**

## **SURVEY REPORT**



**DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
WALTHAM, MASS.**

**APRIL 1972**

## SYLLABUS

The Division Engineer has studied the requests of local interests for navigation improvements for recreational boating in Blue Hill Harbor, Maine. He finds that prospective benefits to recreational boating would be sufficient to warrant improvement of Blue Hill Harbor. The plan of improvement would provide a major access channel 100 feet wide, 6 feet deep at mean low water extending from the 6-foot depth contour in the inner harbor to within 150 feet of the existing town wharf at the head of the harbor with widening adjacent to the town wharf to form a turning basin 300 feet wide by 300 feet long at a 6-foot depth. The estimated cost of construction is \$344,000. The benefit-cost ratio is 1.7.

He further finds that the benefits to be realized are 50 percent general and 50 percent local. In view of this, he considers that as a requirement of local cooperation, local interests should contribute in cash 50 percent of the first cost of construction currently estimated at \$172,000. Local interests have indicated that they are unable to participate in the cost of the proposed improvement at this time, due to financial commitments to a sewage treatment program and other priority needs for the town of Blue Hill.

Therefore, the Division Engineer recommends no improvement of Blue Hill Harbor be made at this time.

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DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
424 TRAPELO ROAD  
WALTHAM, MASSACHUSETTS 02154

IN REPLY REFER TO:

NEDED-R

SUBJECT: Survey Report on Blue Hill Harbor, Maine

HQDA (DAEN-CWP-D)  
WASH DC 20314

AUTHORITY

1. This report is submitted partly in compliance with Section 304 of the River and Harbor Act approved 27 October 1965, which reads as follows:

"Sec. 304: The Secretary of the Army is hereby authorized and directed to cause surveys to be made at the following locations and subject to all applicable provisions of Section 110 of the River and Harbor Act of 1950 ..... Blue Hill Harbor, Maine."

2. The report is also submitted in response to continuing authority contained under Section 107 of the River and Harbor Act of 1960, as amended. This authority was reverted to when it was determined shortly after the initial authority was obtained, that the improvements actually desired by local interests would fit the then Federal financial limitation of \$500,000 under Section 107. Request for the study to be continued under Section 107 was made by the Board of Selectmen, town of Blue Hill, by letter dated 21 February 1967. In response to the request a reconnaissance report favorable to conducting a detailed project report, was submitted to the Chief of Engineers on 23 December 1969. A detailed project report was prepared in draft form. The report recommended an improvement project, however, it was learned that the town of Blue Hill is not in a position to participate financially in the proposed improvement at this time. Therefore, it was decided to respond to the original Congressional authority and the continuing authority of Section 107, under this one report.

PURPOSE AND EXTENT OF STUDY

3. This detailed study was made to determine the engineering feasibility and economic justification for providing Federal navigation improvements at Blue Hill Harbor. A public hearing was held in Blue Hill on 12 July 1968 to obtain information concerning the improvements desired and to provide everyone in the locality an opportunity to present his views on the subject.

4. A hydrographic survey consisting of soundings and random probes made in 1951 as part of a previous report was used, supplemented by a hydrographic and topographic survey made in May 1970. The surveys provided information concerning the character and quantities of material to be dredged. Data needed for the study, in addition to that presented at the public hearing, was obtained from field investigations and from information submitted by local interests. All Federal, State and local agencies known to be interested or affected by improvement of the harbor were consulted. Meetings were held with local officials to discuss considered improvements and the attendant requirements of local cooperation.

#### DESCRIPTION

5. Blue Hill Harbor is located on the northwest side of Blue Hill Bay, 160 miles by highway northeast of Portland, Maine and 34 miles west of Bar Harbor. The harbor which is extensive in area, is divided into three parts known locally as the outer, middle and inner harbors. The outer harbor, situated southeast of Parker and Sculpin Points, has an area of approximately 350 acres, with depths ranging from 24 to 48 feet. The outer harbor is exposed to easterly and southerly winds. The middle harbor has an area of 80 acres with depths from 6 to 30 feet. The outer and middle harbors are connected by a deep natural channel between Parker and Sculpin Points. This channel has a width of about 150 feet and a controlling depth of 20 feet. The middle harbor is well protected in all directions. It connects with the inner harbor through a natural channel passing between Parker and Peters Points. The channel has a minimum width of 150 feet and a controlling depth of about 19 feet. The inner harbor contains 30 acres in the easterly portion. In its western half there is an area of about 27 acres in which shallow depths prevail, ranging from 6 feet at a point 2,200 feet southeast of the town wharf to +3.5 feet at the head of the harbor. The mean low water line is about 500 feet seaward of the town wharf.

6. The mean range of the tide is 10.3 feet and the spring range 11.7 feet. The locality is shown on National Ocean Survey Charts numbered 1202 and 307, and on the maps accompanying this report.

#### TRIBUTARY AREA

7. The town of Blue Hill is one of Maine's oldest summer resorts with a permanent population of 1,270 in 1960 and 1,292 in 1970. The town's economy is dependent on the summer tourist business. The summer residents, mostly from other states, own large estates along the shoreline of Blue Hill occupying about 80 to 90 percent of the 15 miles of waterfront. The town has no important industrial or manufacturing concerns. Granite quarrying and lumber operations were important enterprises from 1840 to 1920. The town has no railroad connections. It is served by

Maine State highways number 15 and 172 which connect to U.S. Route 1 about 15 miles north of the village center.

#### BRIDGES AFFECTING NAVIGATION

8. No bridges span the navigable waterway between the outer harbor entrance and the head of navigation at Blue Hill village.

#### PRIOR REPORTS

9. Blue Hill Harbor has been the subject of three prior survey reports. The first report, dated 17 November 1890, was published as House Ex. Doc. No. 19, 51st Congress, 2d Session; the second made in 1911, was published as House Document No. 420, 62d Congress, 2d Session; and the third survey dated 1 April 1952 was unpublished. All of the earlier reports were found to be unfavorable to navigation improvements.

#### OTHER IMPROVEMENTS

10. No improvements for general navigation, other than construction of wharves by local interests, have been made at Blue Hill Harbor.

#### TERMINAL AND TRANSFER FACILITIES

11. There is an existing town-owned wharf located at the head of the inner harbor which is open to the public free of charge. The wharf consists of a rockfilled, timber crib bulkhead with fender piles on the outer face. Located adjacent to the wharf is a hard surfaced launching ramp. At low tide the area in the vicinity of the wharf is dry and consequently, no floats are attached to the bulkhead during the boating season. In order to procure fuel and supplies in the center of Blue Hill from local gas stations and stores, boat operators must land at the wharf only during the upper one-third of the tide cycle.

12. At Peters Point, about 3,400 feet downstream of the town wharf, there are remains of an old steamship company wharf which is now privately-owned as part of a large summer estate. There is a depth of about 13 feet of water near this wharf. Owners of the wharf allow transients and some locally-based boatowners to use it but there are no supply facilities. The wharf is located about 1.5 miles from the center of town. Access by land is over a state highway and a dirt road leading to the summer estate which cannot be acquired by the town.

13. The Kollegewidgwok Yacht Club, located on the east bank of the middle harbor, has the only other waterfront structure in Blue Hill. It consists of a timber pile wharf 25' x 40' in fair condition, equipped with a float system during the summer. Oil, water and fuel supplies are provided at the yacht club. Just north of the yacht club there is a privately-owned stone fill quay formerly used for the operation of the White Granite Company. During winter months most of the small boats in the harbor are stored onshore at the cove adjacent to Cemetery Point, at the town wharf, and at the yacht club.

#### IMPROVEMENT DESIRED

14. As part of our earlier studies a public hearing was held in Blue Hill, Maine on 18 July 1945 to determine the improvements desired by local interests. The plan of improvement proposed at the hearing consisted of a channel 100 feet wide and 6 feet deep at mean low water extending from the 6-foot depth in the vicinity of the old steamboat wharf at Peters Point to the town wharf at the head of the harbor and a turning basin at the inner end of the channel, of the same depth as the channel and about 350 feet square. This plan was studied under the authority of Section 6 of the River and Harbor Act, approved 2 March 1945 (Public Law No. 14, 79th Congress.)

15. The plan of improvement considered in the report was similar to that desired by local interests differing only in the size of the turning basin which was decreased to 300 feet wide by 300 feet long to eliminate ledge rock excavation. The estimated cost for dredging was \$182,000 (1951 prices). Estimated annual charges amounted to \$8,740. Total benefits derived from the improvement amounted to \$2,300, based on use of the facility by 64 locally-based recreational craft and 18 fishing boats. At that time, it was concluded that Blue Hill Harbor provided adequate navigational facilities for all craft using the harbor, thus the proposed project was not economically justified.

16. Since that time, the number of locally based recreational craft has substantially increased to a total of 117 boats that would benefit from harbor improvement. In addition, more transient craft are visiting the harbor each season. Existing shore access at the old steamboat wharf and the yacht club are no longer capable of meeting the demands of these boating activities. At the public hearing held in Blue Hill on 12 July 1968, town officials requested reconsideration of channel access to the Town wharf with a turning basin at the head of navigation or as an alternative the dredging of approximately 6 acres, 6 feet deep at mean low water, easterly of the site of the old wharf on the Dodge property. This property was the location of a shipbuilding yard during the 19th century. A second alternative to be considered was to dredge a 50-foot wide channel, 6 feet deep at mean low water extending from the present deep water anchorage at the steamboat wharf to the head of the cove east of Cemetery Point, with a 2-acre turning basin at the inner end of the channel.

17. Local interests report that public access to an all-tide docking facility capable of accommodating the increasing size of the permanently based and visiting fleets, is needed. Access to the harbor would give the town the opportunity to expand existing marine-oriented business. They report further that improvement would have a major impact upon the economy of a number of businesses in Blue Hill.

## EXISTING AND PROSPECTIVE COMMERCE

18. There are seven men in Blue Hill who earn a substantial portion of their income from lobster fishing. These men fish an average of 17 weeks each year landing an annual total of 28,560 pounds valued at \$1.00 per pound at retail prices. Four of these fishermen keep their boats in Blue Hill Harbor. The others operate out of South Blue Hill which is closer to good offshore fishing grounds. There are no facilities in Blue Hill for commercial fishing operations as the town is too remote from prime fishing areas.

19. There are 117 locally-based recreational boats which would benefit from navigation improvements. The proposed project would be of primary benefit to recreational boating. At the public hearing, several people stated that access to the main waterfront would be a substantial boom to business. A representative of a local yacht sales company stated that the company would expand its operations to include a general boatyard business capable of storing up to 200 boats with both inside and outside storage. A hardware store which provides ship chandlery service presently carrying a small supply of marine hardware and fittings would expand into a full marina supply outlet occupying a full time salesman with increased sales estimated at \$50,000 per year. Some store owners remarked that they would run advertising in all boating magazines, predicting as much as \$25,000 a year increase in sales of food, clothing and other supplies to boatowners.

20. Transient craft presently anchor near the yacht club to obtain shore access by permission of the yacht club owners. Supplies are delivered from the village of Blue Hill to the club and transferred from the club's float to rowboats to service the transient fleet. In the 1951 survey study it was found that although access to the town wharf would relieve congestion at the yacht club and provide visiting craft with a choice of landings, only 5 percent of the fleet would use the town wharf, because existing craft were substantially accommodated by the yacht club facilities. The present study revealed that with the increased number of boats using the harbor, major changes have taken place. Over the past 20 years the yacht club has been unable to expand and can no longer meet the needs for shore access. As a result, boatowners on cruise by-pass Blue Hill Bay for other areas that have suitable waterfront facilities. These conditions are likely to prevent further expansion of the fleet unless an access channel to the main part of town is provided.

## DIFFICULTIES ATTENDING NAVIGATION

21. The principal difficulty is the lack of sufficient water depth in the western portion of the inner harbor to provide access to the publicly-owned shorefront facilities at Blue Hill. Under present conditions,

navigation is limited to the period of 3 hours before and 3 hours after high water. At low water a boat drawing 2 feet or more cannot approach closer than 2,000 feet seaward of the wharf. The only other landings which can provide access to the town are the Kollegewidwok Yacht Club and the privately-owned old steamboat wharf at Peters Point. Both of these sites are remote from the town center. The lack of shore access and supporting facilities has limited the number of visiting yachts and commercial vessels. There is no opportunity for fishermen to get traps to their boats and to refuel. There are, at present, no boatyard facilities because of inadequate water depths.

#### ECOLOGY AND OTHER SPECIAL SUBJECTS

22. The entire waterway is tidal. There are no problems pertaining to water power, flood control, pollution or related subjects. The improvement contemplated would have no adverse effect on fish and wildlife resources.

#### PROJECT FORMULATION

23. In order to determine whether Blue Hill Harbor was worthy of improvement or whether some other harbor in Blue Hill Bay could accommodate the boats requiring repairs, supplies and fuel, a review was made of all harbors in the area from a regional harbor improvement standpoint. The nearest harbor where suitable anchorage and supply facilities are presently available is Bass Harbor located at the south side of Mt. Desert Island, 20 miles southeast of Blue Hill. There are no towns south or west of Blue Hill Bay where there are existing facilities for boating use nor is the coastline in this reach susceptible to a sheltered anchorage where an onshore access to a developed community is available, with the exception of Stonington Harbor located 25 miles south on the south side of Deer Isle. Local boatowners now receive their fuel supplies at the Kollegewidwok Yacht Club, at a commercial fishing wharf in East Blue Hill or carry the supplies from gas stations located in Blue Hill Center to the town landing at higher stages of the tide.

24. Local interests decided to ask for consideration of two other sites at the hearing in July 1968. The Blue Hill Harbor Improvement Committee requested dredging a 6-acre anchorage, 6 feet deep adjacent to the Dodge property on the southwest side of the inner harbor. An alternative possibility which the committee requested was to dredge a channel 6 feet deep, at mean low water, to the head of the cove located between Cemetery Point and Peters Point, including a 2-acre turning basin at the head of the channel. Consideration was given to developing each of these sites. Results of the investigation indicated that dredging an anchorage in the vicinity of the Dodge property is economically feasible but would only accommodate 64 of the 117 boats based in the harbor together with additional cost of acquiring the land needed for onshore facilities. Since the public hearing in 1968, town officials have been informed that the heirs to the Dodge property are not willing to sell the necessary land for a public landing at this site.

25. The town does own a small amount of land at Peters Point but would have to acquire more in order to construct an access road and adequate parking facilities for the Cemetery Point improvement. At both sites, a wharf, floats, dredged berths, gas and water supplies would have to be constructed at considerable expense compared to the improvement of the existing town landing to meet project requirements. Benefits derived from improvement at the Cemetery site indicate a feasible project could be developed. The benefit-cost ratio for these two plans is less than that realized from improvement for direct access to the existing town wharf at Blue Hill village. The commercial facilities of the town would still be more than a mile away from either site by road. Discussion of the study with local interests clearly showed that they prefer access improvement to the existing waterfront facilities in lieu of the other proposals, and that considerable opposition would arise to improvement at the other sites.

26. Reconsideration was given to providing a channel directly to the shorefront at the center of town on the basis of the large increase in the number of craft using the harbor as compared to 1951. Also, the town would only have to provide berthing depths, floats, gas and water supplies to complete the necessary public landing requirements. The amount of material to be removed by dredging a channel and turning basin at the existing town landing would be greater than at the other two sites but the boating public would receive maximum benefits from direct access to the village.

27. There are 117 locally-based boats which need an access channel to a depth of 6 feet. Due to the shorter boating season experienced in this area (100 days) and because the harbor is remote from major population centers, it is projected that the recreational fleet will increase on an average of 3 percent per year, rather than the present national rate of 6 percent per year. On this basis, the total prospective fleet could number about 175 boats by the end of 50 years with harbor improvement but only 1.0 percent per year without improvement.

28. There is enough naturally deep water area available in the eastern portion of the inner harbor, and in the middle harbor, to accommodate all of the existing and prospective recreational boats, as well as any lobster fishing craft that might use the improved harbor facilities. The area available in the inner harbor with depths in excess of 6 feet, totals 57 acres while the middle harbor has about 80 acres of naturally deep anchorage. These two areas could accommodate all of the craft expected to use the harbor following improvement. Local interests report that once deep water access is available at the main waterfront, several interested parties would be able to obtain financial backing to develop marina facilities near the town wharf. In the meantime, the town would furnish water taxi service to the naturally deep anchorage area if the need develops.

## PLAN OF IMPROVEMENT

29. The selected plan of improvement would provide the following:

a. A major access channel 100 feet wide and 6 feet deep at mean low water extending from the existing 6-foot depth in the vicinity of the old steamboat wharf to within 150 feet of the town wharf at the head of the harbor;

b. Widening adjacent to the town wharf to form a turning basin 6 feet deep at mean low water, 300 feet wide by approximately 300 feet long.

30. Under the considered plan, it would be necessary for the town to extend the wharf and dredge a berthing area, 6 feet deep, adjacent to the turning basin. The size of the turning basin and distance from the existing wharf is limited to the above dimensions to eliminate ledge rock excavation.

## SHORELINE CHANGES

31. The entire harbor is surrounded by ledge outcrops interspersed with short "pocket" beach areas. It is considered that dredging within the inner harbor would have no effect upon such a shore.

## REQUIRED AIDS TO NAVIGATION

32. The Commander, First Coast Guard District, has been consulted on the matter of aids to navigation and has advised that there is no requirement for additional aids to navigation at this time. The U.S. Coast Guard report is included in Appendix B.

## ENVIRONMENTAL IMPACT

33. An environmental impact statement on the proposed improvement was not prepared as a result of learning that the town would not be able to provide items of local cooperation.

## ESTIMATES OF FIRST COST

34. The estimated first cost of construction of the selected plan of improvement is based on soundings made in May 1970 and on extensive probings made during the 1951 improvement study. Construction would involve the removal of mud, sand and gravel by hydraulic dredging with spoil disposal in an approved diked onshore area. This method of dredging would be used in lieu of bucket dredging with disposal in an offshore area beyond the 3-mile limit. Local interests would be responsible for construction of the public landing and the provision of a suitable disposal area. Dredging quantities are based on in-place measurements and provide for removal of materials to a depth of six feet below mean low water, plus an allowance of one foot overdepth

with side slopes one vertical to three horizontal. Unit prices used for dredging costs are based on those prevailing in April 1972 for similar work. The estimate of first cost, including an allowance for contingencies is as follows:

PROJECT COST ESTIMATE

Project Features - (6-foot channel and turning basin)

<u>Cost Acct.</u> <u>No.</u>	<u>Item</u>	<u>Estimated Cost</u> <u>(Apr. 1972 Prices)</u>
09	Dredging (ordinary material) 91,000 c.y. @ \$2.80	\$254,800
	Contingencies	38,200
30	Engineering & Design	24,000(1)
31	Supervision & Administration	<u>27,000</u>
	Total Construction Cost	\$344,000
	Public landing (pier and berths)	<u>30,000(2)</u>
	Total Project Cost	\$374,000

(1) Excludes \$27,500 project study costs

(2) Self-liquidating

ESTIMATES OF BENEFITS

35. The access channel and turning basin would result in substantial benefits to the existing and prospective recreational fleet and provide minor benefits to a small number of commercial lobster fishermen through ease of operation.

36. Benefits to the recreational fleet have been computed on the basis of annual net return to the owners if the boats were "for hire". Row-boats, of which there are 50, are not included in the benefit evaluation. The net return varies with the type and size of the craft benefiting from the improvement and is expressed in terms of average depreciated value. The ideal return is considered the maximum return that could be obtained with full, unrestricted use of the harbor. For this particular harbor, the ideal net return varies from 7 percent for the large, deep draft auxiliary sailing vessels to 14 percent for the smaller outboards. The present return is less than ideal because of the existing navigation difficulties. The improvement would not result in the full, ideal return, since provision of access to the Town Wharf would still leave the

boats moored a considerable distance from the center of town. Full use of the harbor would be obtained only if a marina were developed near the public landing. An estimate was made of the percent of optimum use which could be received following improvement. The difference or gain between the existing conditions and the improvements represents the evaluated net benefit.

37. It is estimated that owners of 117 of the existing recreational boats would benefit from the proposed improvement. Benefits to this locally based fleet have been estimated to amount to \$18,100 after a proper reduction for time away on cruise (See Table I).

38. Provision of access to the waterfront at Blue Hill would encourage an estimated 10 boat owners to transfer to the harbor from other nearby areas. In order to evaluate benefits, it is considered that these boats would receive the same net return as the existing local fleet. On this basis, the benefits from this source would amount to \$3,300 annually, as shown in Table II.

39. Local interests have stated that approximately 200 boats visit Blue Hill Harbor during the boating season. Based on a 100-day season, this is equivalent to 4 locally based boats. Benefits for these boats have been computed on the same basis as the local fleet and amount to \$1,460 annually.

40. Blue Hill Bay borders the west side of Mt. Desert Island. During the summer months this reach of the Maine coast offers an unexcelled cruising ground for the boating enthusiast. Bar Harbor on Mt. Desert Island is considered to be the largest yachting center east of Marblehead, Massachusetts. Although there are three other harbors along the east and south sides of the island which are used by boats on vacation cruises, there are no suitable harbors on the Blue Hill Bay side to attract these craft. Improvement of Blue Hill Harbor would provide access to a population center which would attract many craft that presently by-pass the upper reach of Blue Hill Bay. Another factor which deters visitors from using the harbor under existing conditions is the congestion encountered at the yacht club landing. Without additional access, transients will continue to by-pass the harbor seeking other ports where suitable wharf facilities are available. It is expected that with improvement, 10 boat owners per day will visit the harbor to shop in the business center or enjoy the recreational advantages of the area. These boats would remain overnight for a total of 2,000 boat days or the equivalent of 20 locally based boats. Annual benefits derived would amount to \$7,800 (See Table III).

41. It is estimated that during the first five years following completion of the access channel, at least 25 new boats would be purchased and added to the fleet. Seven of these boats are considered to be

outboards of shallow draft which would be moored near the head of the channel and would receive full benefit from the improvement. Annual benefits for a total of 25 new boats have been computed at \$3,800. (See Table IV).

42. Without navigation improvement, growth of the locally based fleet would be severely curtailed by a lack of shore access for those boat owners who do not own property fronting directly on the existing deep water areas. Following improvement, the fleet is expected to expand at about 3 percent a year, representing a total increase of 175 boats over the 50-year life of the Federal project. It is noted that the greater percentage of the local fleet composition is sail type craft rather than cabin cruisers, based in part on a lack of readily available repair facilities. Cruisers require somewhat more service than sailing type craft. It is expected that with improvement of access to the village waterfront, these facilities will be made available at an early date resulting in a trend toward purchase of more cruiser types than auxiliary sail, thus resulting in a change in fleet composition. This trend is reflected in Table V. Following improvement it is reasoned that new boats would receive the same benefits as the existing fleet because there is enough anchorage space available in the harbor to provide for such expansion. The benefits accruing to 150 boats purchased uniformly over the life of the project total \$25,400 at the end of 50 years. The equivalent annual benefits from this growth are estimated to be about \$8,000 (See Table V).

43. The U.S. Fish and Wildlife Service indicated in their report that access to the Town Wharf would provide the local lobster fishermen an opportunity to unload their catch directly at the wharf, thus making it somewhat easier for them to carry out their in-harbor work. However, most fishermen in the area base at either South Blue Hill or East Blue Hill and would remain there as they are much closer to the fishing grounds. The improvement is not expected to result in any noticeable increase in lobster trapping effort or landings.

TABLE I BENEFITS TO RECREATIONAL BOATING

Existing Locally Based Fleet

HARBOR: BLUE HILL HARBOR, MAINE

TYPE OF CRAFT	LENGTH (feet)	No. of Boats	DEPRECIATED VALUE		PERCENT RETURN				100 Day Boating Season			
			AVERAGE	TOTAL	Ideal	% of Ideal	Gain	VALUE	ON CRUISE			
			\$	\$	Pres.	Fut.		\$	Avg. Days	% of Season	Value \$	
<b>RECREATIONAL FLEET</b>												
Outboards	15-20	19	2,400	45,600	14	70	90	2.8	1,280	-	-	-
Inboards	21-30	5	6,300	31,500	11	65	90	2.75	866	-	-	-
Sterndrive	21-25	5	6,000	30,000	11	65	90	2.75	725	-	-	-
Cruisers	21-30	4	8,300	33,200	9	65	90	2.25	747	9	9	67
	31-40	8	21,000	168,000	8	60	90	2.4	4,032	12	12	485
Aux. Sail	21-30	12	7,300	87,600	8	65	90	2.0	1,752	5	5	87
	31-40	14	21,000	294,000	8	65	90	2.4	7,056	12	12	845
Sailboats	16-20	50	2,100	105,000	12	65	90	3.0	3,150	-	-	-
TOTALS		117	\$794,900						\$19,608	\$1,484		
								Annual Benefits = \$19,608 - \$1,484 =		\$18,124		
								SAY		\$18,100		

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TABLE II BENEFITS TO RECREATIONAL BOATING

Transferred Boats

HARBOR: BLUE HILL HARBOR, MAINE

100 Day Boating Season

TYPE OF CRAFT	LENGTH (feet)	No. of Boats	DEPRECIATED VALUE		PERCENT RETURN			VALUE \$	ON CRUISE			
			AVERAGE \$	TOTAL \$	Ideal	% of Ideal	Gain		Avg. Days	% of Season	Value \$	
<u>RECREATIONAL FLEET</u>												
Cruisers	21-30	2	3,300	16,600	9	65	90	2.25	373	9	9	34
	31-40	4	21,000	84,000	8	60	90	2.4	2,016	12	12	242
Aux. Sail	21-30	2	7,300	14,600	8	65	90	2.0	292	5	5	15
	31-40	2	21,000	42,000	8	60	90	2.4	1,020	12	12	121
Sailboats	8-15 16-20 21-25 26&Up											
<b>TOTALS</b>		10		\$157,200					\$3,701			\$412
					Annual Benefits = \$3,701-\$412 =				\$3,289			
									SAY \$3,300			

TABLE III BENEFITS TO RECREATIONAL BOATING

Attracted Equivalent Transients

HARBOR: BLUE HILL HARBOR, MAINE

100 Day Boating Season

TYPE OF CRAFT	LENGTH (feet)	No. of Boats	DEPRECIATED VALUE		PERCENT RETURN			VALUE \$	ON CRUISE		
			AVERAGE \$	TOTAL \$	Ideal	% of Ideal Pres.	Gain Fut.		Avg. Days	% of Season	Value \$
<u>RECREATIONAL FLEET</u>											
Cruisers	21-30	5	8,300	41,500	9	65	90	2.25	935		
	31-40	5	21,000	105,000	8	60	90	2.4	2,520		
Aux. Sail	21-30	2	7,300	14,600	8	65	90	2.0	292		
	31-40	8	21,000	168,000	8	60	90	2.4	4,032		
Sailboats	8-15 16-20 21-25 26&Up										
TOTALS		20		\$329,100					\$7,779		

Annual Benefits - SAY \$7,800

TABLE IV BENEFITS TO RECREATIONAL BOATING

New Boats Immediately Purchased

HARBOR: BLUE HILL HARBOR, MAINE

100 Day Boating Season

TYPE OF CRAFT	LENGTH (feet)	No. of Boats	DEPRECIATED VALUE		PERCENT RETURN			VALUE \$	ON CRUISE			
			AVERAGE \$	TOTAL \$	Ideal	% of Ideal Pres.	Gain Fut.		Avg. Days	% of Season	Value \$	
<u>RECREATIONAL FLEET</u>												
Outboards	15-20	5	2,400	12,000	14	70	90	2.8	336	-	-	-
Inboards	21-30	3	6,300	18,900	11	65	90	2.75	520			
51 Sterndrive	21-25	6	6,000	36,000	11	65	90	2.75	990			
Cruisers	21-30	3	8,300	24,900	9	65	90	2.25	560	9	9	50
	31-40	2	21,000	42,000	8	60	90	2.4	1,020	12	12	120
Aux. Sail	21-30	3	7,300	21,900	8	65	90	2.0	428	5	5	21
Sailboats	16-20	3	2,100	6,300	12	65	90	3.0	189			
TOTALS		25		\$162,000					\$4,043			\$191

Annual Benefits = \$4,043 - \$191 = \$3,852

SAY \$3,800

TABLE V BENEFITS TO RECREATIONAL BOATING

Gradual Growth

HARBOR: BLUE HILL HARBOR, MAINE

100 Day Boating Season

TYPE OF CRAFT	LENGTH (feet)	No. of Boats	DEPRECIATED VALUE		PERCENT RETURN				VALUE \$	ON CRUISE		
			AVERAGE \$	TOTAL \$	Ideal	% of Ideal Pres.	% of Ideal Fut.	Gain		Avg. Days	% of Season	Value \$
<u>RECREATIONAL FLEET</u>												
Outboards	15-20	32	2,400	76,800	14	70	90	2.8	2,150	-	-	-
Inboards	15-20	10	4,500	45,000	12	70	90	2.4	1,080			
	21-30	10	6,300	63,000	11	65	90	2.75	1,730			
Sterndrive	15-20	15	3,750	56,250	12	70	90	2.4	1,350			
	21-25	16	6,000	96,000	11	65	90	2.75	2,640			
Cruisers	21-30	10	8,300	83,000	9	65	90	2.25	1,870	9	9	168
	31-40	10	21,000	210,000	8	60	90	2.4	5,040	12	12	605
	41-50	5	45,000	225,000	8	55	90	2.8	6,300	20	20	1,260
Aux. Sail	21-30	11	7,300	80,300	8	65	90	2.0	1,606	5	5	80
	31-40	12	21,000	252,000	8	60	90	2.4	6,050	12	12	725
Sailboats	16-20	11	2,100	23,100	12	65	90	3.0	694			
	21-25	8	3,000	24,000	11	60	90	3.3	792	5	5	40
TOTALS		150		\$1,234,450					\$31,302			\$2,878
Annual Benefits $\$31,302 - 2,878 = \$28,424 \times 0.3134 =$									8,908			
SAY									\$ 8,900			

44. The evaluated benefits for improvement of Blue Hill Harbor are summarized below:

Increased by use of recreational boats:

1. Existing fleet (117 boats)	\$18,100
2. Transferred fleet (10 boats)	3,300
3. Equivalent existing transients (4 boats)	1,460
4. Equivalent attracted transients (20 boats)	7,800
5. New boats immediately purchased (25 boats)	3,800
6. Normal growth (150 boats)	<u>8,900</u>
Total 326 boats	\$43,360

#### APPORTIONMENT OF COSTS AMONG INTERESTS

45. The first cost of construction of the proposed improvement has been apportioned between Federal and non-Federal interests in proportion to the general and local benefits derived. The benefits accruing from improvement of Blue Hill Harbor are considered to be entirely recreational in nature. Therefore, the costs are apportioned as 50 percent Federal and 50 percent non-Federal.

#### Summary of Apportioned Cost

##### Federal

Corps of Engineers	\$172,000
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##### Non-Federal

Cash Contribution	\$172,000
Public landing	<u>30,000*</u>

Total Non-Federal Cost	\$202,000
------------------------	-----------

#### ESTIMATE OF ANNUAL CHARGES

46. The annual charges for the improvement have been computed on the basis of a project life of 50 years with an interest rate of 5-1/8 percent for both Federal and non-Federal charges. Maintenance costs for re-dredging the channel are based on experience with other projects under similar conditions. An allowance for a shoaling rate of 1,500 cubic yards per year has been made. The annual charges for the improvement are shown below:

\*Self-liquidating

Annual Charges

Interest and Amortization (0.0580 x \$344,000)	\$20,000
Maintenance: Channel and turning basin dredging 1,500 cubic yards @ \$3.50	<u>5,250</u>
Total Annual Charges	\$25,250

COMPARISON OF BENEFITS AND COSTS

47. A comparison of the estimated annual benefits totaling \$43,360 and annual charges of \$25,250 indicates a benefit-cost ratio of 1.7 to 1.

PROPOSED LOCAL COOPERATION

48. Federal participation in development of navigation improvements for recreational boating use is subject to cost-sharing policies similar to those applied to the recreational components of other Federal water resources development projects. Since the evaluated benefits to be derived from the improvement of Blue Hill Harbor are considered to be entirely recreational in nature, Federal participation is limited to 50 percent of the first cost of construction. Accordingly, construction of the project shall not be initiated unless appropriate non-Federal interests have agreed in writing to assume one-half of the first cost of construction, currently estimated to be \$172,000. Also, local interests will be required to:

a. Provide an adequate public landing with berthing depths commensurate to the Federal project. The landing should be equipped with a suitable parking area, fuel supplies and potable water, open to all on equal terms;

b. Perform, or contribute the cost of performance of, that part of the operation and maintenance of the project allocable to recreation;

c. Provide without cost to the United States all lands, easements and rights-of-way required for construction and subsequent maintenance of the project, including suitable areas required for disposal of spoil with the necessary retaining dikes, bulkheads and embankments thereof or the cost of such retaining works;

d. Hold and save the United States free from damages due to the construction and subsequent maintenance;

e. Regulate the use and development of the harbor including prohibiting discharge of pollutants in the waters of Blue Hill Harbor by users thereof in accordance with applicable laws and regulations of Federal, State and local authorities responsible for pollution prevention control.

## COORDINATION WITH OTHER AGENCIES

49. All Federal, State and local agencies having an interest in the navigation improvement of Blue Hill Harbor were notified of the public hearing held in Blue Hill on 12 July 1968. The United States Fish and Wildlife Service has submitted a conservation and development report. Their report is included in Appendix A. The United States Coast Guard letter concerning aids to navigation is included in Appendix B.

## DISCUSSION

50. Blue Hill Harbor, located on the northwesterly end of Blue Hill Bay, northwest of Long and Mt. Desert Islands, is one of Maine's oldest summer resorts. The harbor has a safe entrance and the middle and inner harbors provide adequate and reasonably sheltered anchorage. The navigational problem evolves from a lack of sufficient channel depth in the upper portion of the inner harbor to enable boats to reach the Town Wharf at any time but the high water period.

51. Recreational boating activity is concentrated in the middle harbor and the naturally deep water at the lower end of the inner harbor. A yacht club was established in 1946 on the north shore of the middle harbor. For a number of years the yacht club provided fuel and access for supplies brought from the center of town, but has been unable to keep up with the demand for services. Some locally based boats unable to use the yacht club facilities due to over-crowding now use the privately owned old steamboat wharf for access. Both of these sites are remote from the center of business activity. Under existing conditions the majority receive fuel and supplies at the town wharf during high tidal periods. Outfitting and repairs are obtained elsewhere.

52. In view of the fact that a 1951 survey report indicated that access to the town wharf was not economically justified, local interests requested that two alternate sites be investigated for access improvement. Studies found that these locations would not provide sufficient benefits for public use to enable future expansion of the fleet. However, it was noted that the size of the locally based fleet has increased enough to warrant improvement of access to the town wharf. It was also found that expansion of recreational boating activity in Blue Hill Harbor and use of Blue Hill Bay by boating enthusiasts on summer cruise along the Maine coast is severely limited by this lack of access. There are no other towns located on the bay where supplies can be obtained or minor repairs made.

53. The existing town wharf is the only site available to the general public for shorefront access. The town is unable to acquire sufficient property in areas where deep water is close to shore to construct a new landing because of the large summer estates bordering the northern and western end of the harbor and a private golf course along the southern side. If public access were obtained, the site for a landing would be too remote from the center of town to serve its purpose.

54. Provision of an access channel 100 feet wide and 6 feet deep leading to the town wharf with a turning basin at the head of the channel was found to be warranted. On 15 March 1971 a meeting was held with town officials to discuss the results of the study. The requirements of local cooperation for construction of the improvement were presented in detail to these officials and they were requested to furnish comments on the considered improvement. The selectmen agreed that the plan would meet the needs of boating interests but indicated that the town could not participate in the project at this time. The town's primary concern is to construct a sewage treatment plant currently under study. The sewage treatment program is to be conducted in three phases. Plans currently envision completion of the treatment plant by 1974. Because of the debenture involved in the construction of this system, the selectmen stated that the town could not be committed to providing assurances to undertake their share of the proposed harbor improvements until 1976.

55. Considering the scope of the improvement desired it appears that when the town is ready to participate in harbor improvement, a review study for economic justification could be conducted under the authority of Section 107 of the 1960 River and Harbor Act as amended in 1970.

#### CONCLUSIONS

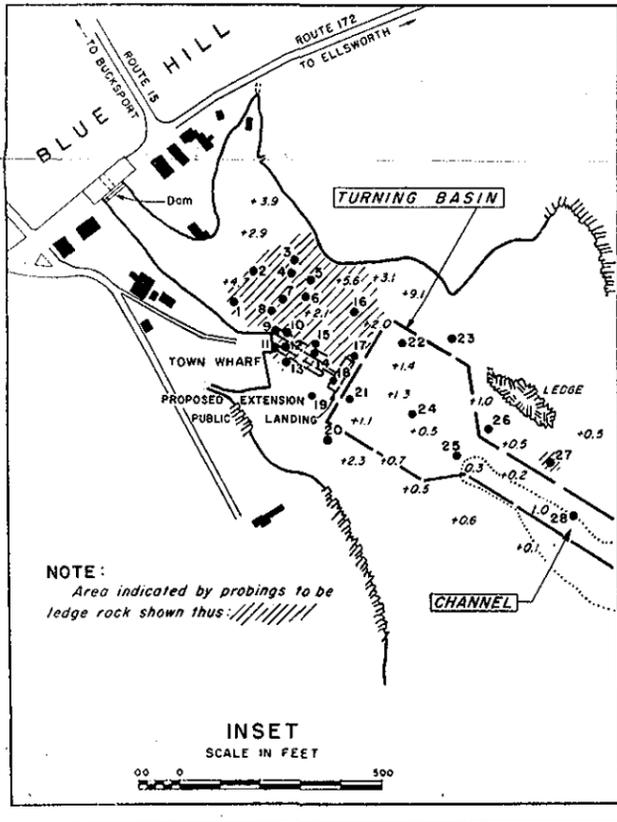
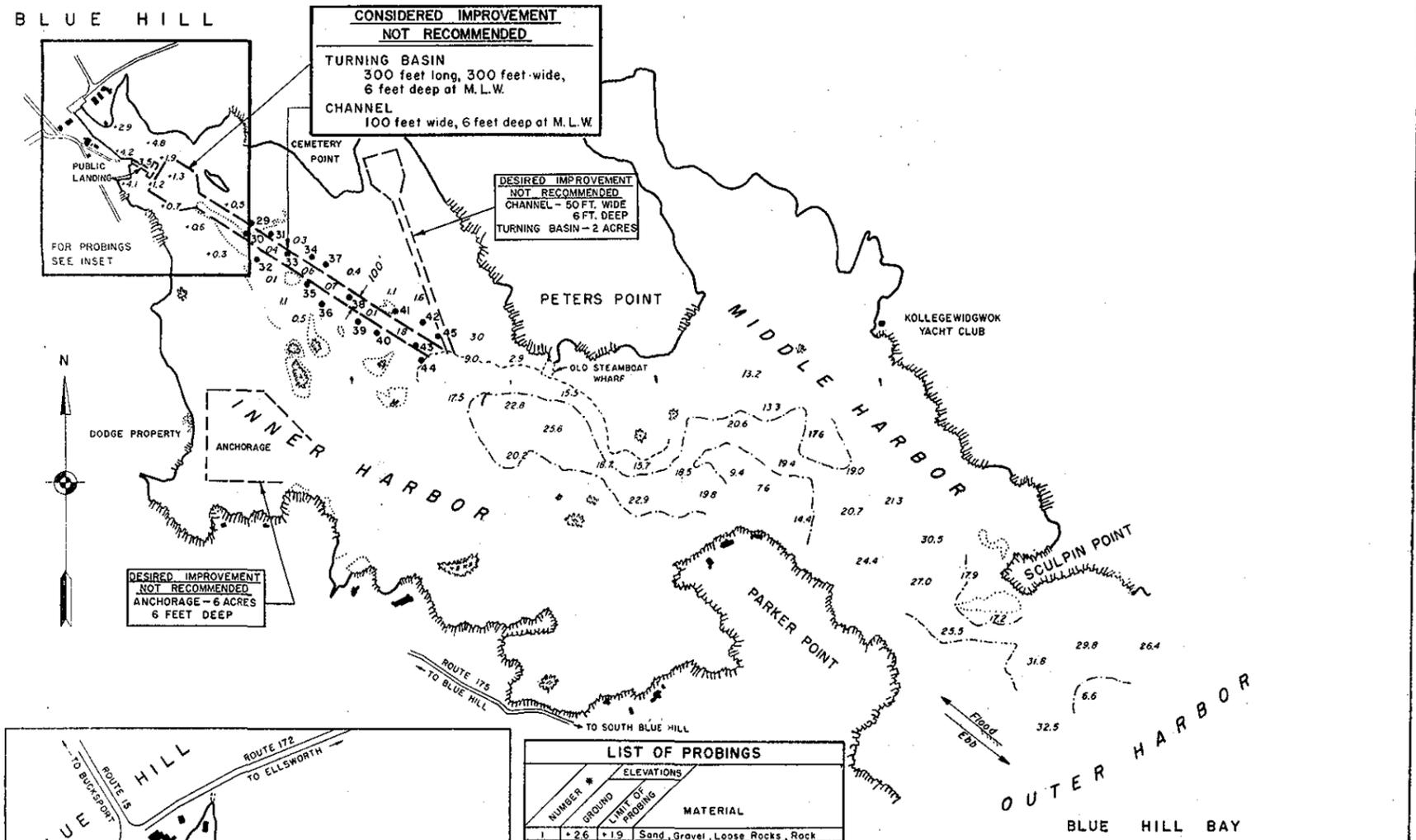
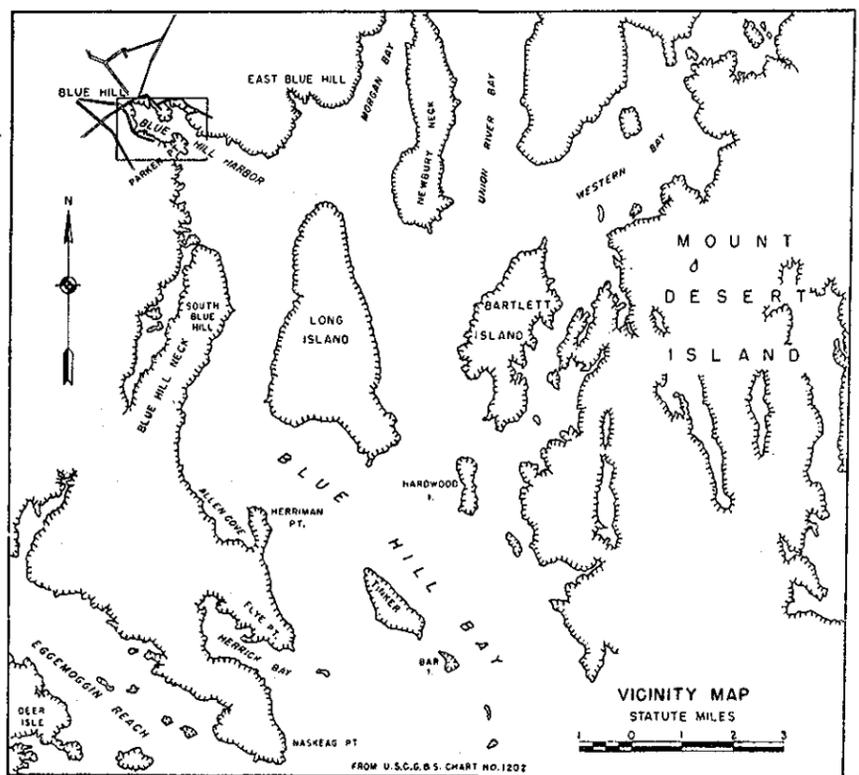
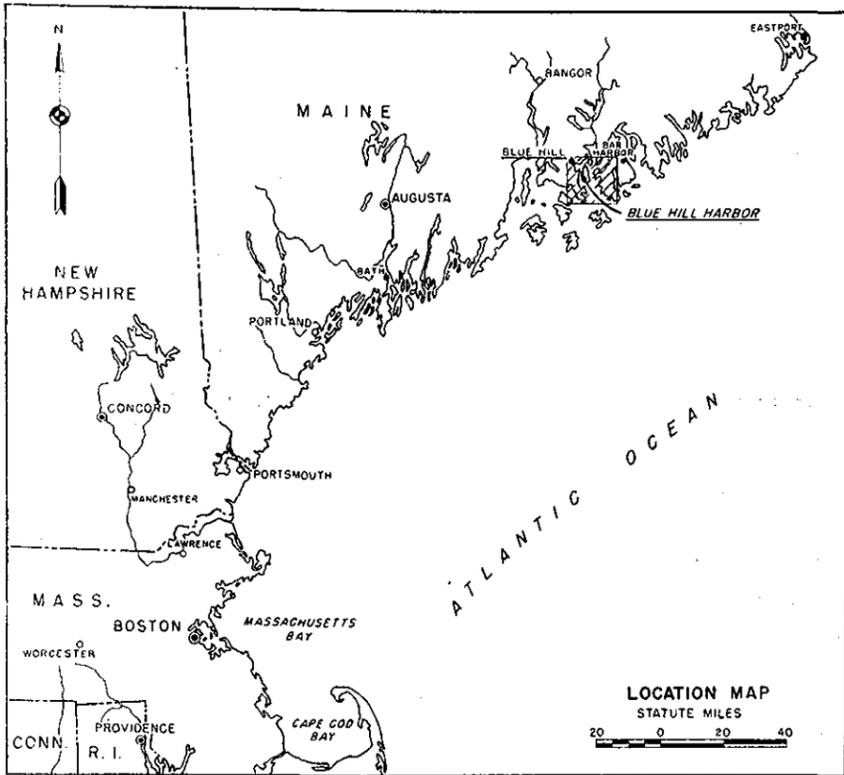
56. The Division Engineer finds that provision of an access channel to the Town Wharf at Blue Hill Harbor is economically justified. He concludes that the needs of recreational boating could be met by constructing a channel 100 feet wide, 6 feet deep, from deep water to the Town Wharf including a turning basin 300 feet by 300 feet, 6 feet deep, adjacent to the wharf. The benefits to recreational boating are sufficient to warrant Federal improvement. However, local interests are unable to meet the requirements of local cooperation at this time.

#### RECOMMENDATIONS

57. The Division Engineer recommends that no Federal navigation improvement be made at Blue Hill Harbor at this time.

- 4 Incl
- 1. Map - Plate I
- 2. Appendix A - U.S.F.&W. Report
- 3. Appendix B - U.S.C.G. Letter
- 4. Info - Sen. Res. 148

FRANK P. BANE  
Colonel, Corps of Engineers  
Division Engineer



NUMBER	ELEVATIONS		MATERIAL
	GROUND	LIMIT OF PROBING	
1	+2.6	+1.9	Sand, Gravel, Loose Rocks, Rock
2	+2.7	-0.4	" " " " " "
3	+2.6	+0.3	" " " " " "
4	+2.5	+0.3	" " " " " "
5	+2.9	+1.4	" " " " " "
6	+2.0	-2.5	" " " " " "
7	+2.3	-0.7	" " " " " "
8	+2.4	-0.1	" " " " " "
9	+2.3	+0.7	" " " " " "
10	+2.1	+0.6	" " " " " "
11	+2.9	-5.6	" " " " " "
12	+2.2	-0.3	" " " " " "
13	+1.8	-4.8	" " " " " "
14	+1.6	-4.3	" " " " " "
15	+1.6	-4.1	" " " " " "
16	+3.0	-3.1	Gravel, Stones, Rock
17	+1.2	-0.9	" " " " " "
18	+1.5	-6.1	Sand, Gravel, Stones
19	+0.6	-6.8	Gravel, Stones, Rock
20	+1.5	-7.6	Medium Packed Sand, Clay, Gravel
21	+1.4	-5.4	" " " " " "
22	+1.2	-8.1	Hard
23	+1.8	-7.6	Hard Packed Sand And Clay
24	+1.4	-8.0	Medium Packed Sandy Clay
25	+0.7	-9.3	Sand, Clay, Mud
26	+0.8	-8.5	Sand, Clay, Light Gravel, Hard Packed
27	+0.4	-4.1	Sand, Clay, Gravel, Rock
28	-0.0	-8.0	Sand, Clay, Mud
29	-0.2	-8.5	" " " " " "
30	-0.1	-8.1	" " " " " "
31	-0.0	-9.9	Mud
32	-0.2	-9.5	" " " " " "
33	-0.2	-9.2	" " " " " "
34	-0.6	-9.4	" " " " " "
35	-0.6	-9.2	" " " " " "
36	-1.0	-9.3	" " " " " "
37	-0.9	-9.2	" " " " " "
38	-0.4	-8.6	" " " " " "
39	-1.4	-8.7	" " " " " "
40	-0.3	-8.5	" " " " " "
41	+0.1	8.6	" " " " " "
42	-2.0	-8.2	" " " " " "
43	-2.6	-8.5	" " " " " "
44	-5.4	-9.5	" " " " " "
45	-1.9	-9.6	" " " " " "

**LEGEND**  
 MEAN HIGH WATER 10.3 FT.   
 MEAN LOW WATER   
 6-FT. CURVE OF DEPTH   
 18-FT. CURVE OF DEPTH   
 PROBING LOCATIONS   
 LEDGE ABOVE M.H.W.

**NOTES:**  
 Soundings and probings are in feet and tenths and are referred to the plane of Mean Low Water.  
 Hydrography and topography from survey of Aug. 30 to Sept. 14, 1948.

DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION, CORPS OF ENGINEERS WALTHAM, MASS.		
OR BY: _____ TR BY: _____ CK BY: _____ SUBMITTED: _____ PROJECT ENGINEER: _____ CHECKED: _____ CHIEF OF DISTRICT: _____	<b>BLUE HILL HARBOR MAINE</b> GENERAL MAP SCALE IN FEET 500 0 500 1000 1500	
APPROVAL RECOMMENDED: _____ CHIEF PLANNING BRANCH	APPROVED: _____ CHIEF ENGINEERING DIVISION	DATE: MARCH 1972
TO ACCOMPANY SURVEY REPORT DATED: APRIL 1972	SCALE AS SHOWN	DRAWING NUMBER 1956-D-6-2 SHEET 1 OF 1

APPENDIX A



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE  
U. S. POST OFFICE AND COURTHOUSE  
BOSTON, MASSACHUSETTS 02109

January 13, 1969

Division Engineer  
New England Division  
U. S. Army Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Sir:

This is our conservation and development report on the navigation improvement project for Blue Hill Harbor, Hancock County, Maine, which you are studying under authority of Section 107 of the River and Harbor Act approved July 14, 1960 as amended in 1965. This report was prepared under authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-666 incl.), in cooperation with the Maine Department of Sea and Shore Fisheries and has its concurrence as indicated by letter dated December 27, 1968. The report has also been coordinated with and represents the views of the Bureau of Commercial Fisheries.

It is our understanding that the improvements to be considered may involve either of the following sites:

Site I - A mooring basin in the area of the so-called old wharf just off property owned by the Dodge heirs on the western shore of the Inner Harbor. The approximate area of this anchorage would be six acres, with dredging to a depth of six feet below mean low water.

Site II - A channel dredged to a depth of six feet below mean low water with a width of 50 feet extending approximately 1,200 feet from the deep water channel in the Inner Harbor to the head of the cove east of Cemetery Point. The channel will end in a 300 feet square anchorage basin which will also be dredged to a depth of six feet below mean low water.

Dredging as described at either Site I or Site II will not adversely affect the fish and wildlife resources if the spoil is deposited on approved offshore dumping grounds.

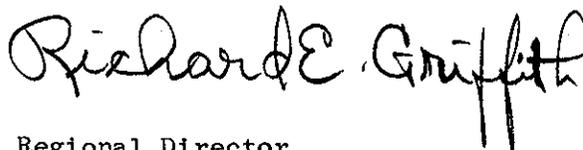
Navigation improvements would primarily benefit recreational vessels but would also provide minor benefits to the commercial fishery.

We recommend that spoil be deposited on an approved offshore dumping ground.

Please advise us of any changes made in project plans or scope of the desired improvements so that we can re-evaluate the effects of the project on fish and wildlife and prepare a revised report if necessary.

We appreciate the opportunity to report on the project.

Sincerely yours,

Handwritten signature of Richard E. Griffith in cursive script.

Regional Director

APPENDIX B



DEPARTMENT OF TRANSPORTATION  
UNITED STATES COAST GUARD

Address reply to:  
COMMANDER (oan)  
First Coast Guard District  
J. F. Kennedy Federal Bldg.  
Government Center  
Boston, Mass. 02203  
Tel: 617 223-3632

3260  
31 March 1971

Mr. John W. Leslie  
Chief, Engineering Division  
Department of the Army  
New England Division  
Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Mr. Leslie:

In reply to your letter NEDED-R, dated 18 March 1971, concerning navigation improvements at Blue Hill Harbor, Blue Hill, Maine, and after reviewing your drawings for improvements in this area, I believe that there is no requirement for additional aids at this time.

Sincerely,

A handwritten signature in cursive script, appearing to read "B. E. Thompson".

B. E. THOMPSON  
Captain, U. S. Coast Guard  
Chief, Aids to Navigation Branch  
By direction of the Commander  
First Coast Guard District

## BLUE HILL HARBOR, BLUE HILL, MAINE

Information called for by Senate Resolution 148, 85th Congress, Adopted 28 January 1958.

1. Navigation Problem. Blue Hill Harbor is located on the northwesterly side of Blue Hill Bay, 160 miles northeast of Portland, Maine and 34 miles west of Bar Harbor, Maine. The extensive harbor is divided into three parts by the surrounding land formations. The outer harbor contains approximately 350 acres of navigable water, the middle 80 acres, and the inner harbor 30 acres. The outer harbor is exposed to easterly and southerly winds. There is no Federal navigation improvement project in Blue Hill Harbor.

2. The principal navigation difficulty is a lack of channel access to publicly-owned shorefront facilities at the center of Blue Hill village. At low water shallow draft recreational craft cannot approach closer than 2,000 feet seaward of the town landing.

3. Improvement Considered. Consideration was given to relocating the public wharf to a site closer to the naturally deep anchorage areas within the harbor. The northerly side of the harbor adjacent to deep water is entirely occupied by large summer estates, as Blue Hill is one of the oldest summer resorts in Maine. The south side contains a privately owned golf course. Any public landing location adjacent to deep water would be far removed from shore based facilities thus defeating the purpose of the improvement.

4. Discussion. All possible sites were investigated and it was found that the existing town wharf would be the best location to obtain desired access. A plan of improvement was developed which would provide a channel 100 feet wide, 6 feet deep at mean low water, leading from deep water to the town wharf, a distance of 2,300 feet, including a turning basin at the head of the channel 300 feet wide by 300 feet long of the same depth. The plan is economically justified. Because the benefits to be derived would accrue to recreational boating interests, local interests would be required to furnish a cash contribution of 50 percent of the cost of construction as part of the requirements of local cooperation. Town officials have indicated that although the proposed improvement would meet the needs of boating interests, the town cannot participate in the project at the present time due to prior commitments to construct a three phase sewage treatment project currently underway. As a result, the Division Engineer has concluded that navigation improvements should not be undertaken until local interests could assure their participation. Therefore, he has recommended no Federal improvement of Blue Hill Harbor be made at this time.