SALEM RIVER, NEW JERSEY

.

WAR DEPARTMENT

# CORPS OF ENGINEERS

U. S. ARMY

#### WAR DEPARTMENT

#### OFFICE OF THE CHIEF OF ENGINEERS

WASHINGTON

ENGWR

Subject: Salem River, New Jersey

TO: THE SECRETARY OF WAR

1. I submit for transmission to Congress my report with accompanying papers on preliminary examination of "Salem River, Salem County, New Jersey," authorized by the River and Harbor Act approved March 2, 1945.

2. Salem River rises in southwestern New Jersey and flows 22 miles generally southwesterly to empty into Delaware River through Salem Cove. Little Salem River enters Salem River from the east at the town of Salem 2 miles above the mouth. Many years ago dikes were constructed by local interests along the river to exclude tidal water from marshlands extending from the mouth to a dam 9 miles above. Failure to maintain the dikes has caused the land to revert to its original marshy condition. The mean range of tide at the mouth of Salem River is 5.4 feet. The improvement authorized by Congress for Salem River provides for a channel 12 feet deep, 150 feet wide in Delaware River across Salem Cove to the mouth of Salem River, and thence 100 feet wide to fixed highway bridge over Little Salem River at Salem, including a cut-off. The project is 60 per cent complete. Total costs of permanent work to June 30, 1945 were \$159,460 for new work including \$51,825 of contributed funds, and \$145,011 for maintenance. The latest approved estimate of annual cost of maintenance is \$8,000. Actual cost has averaged less than \$2,000 annually for the past ten years.

3. Salem with a population of 8,600 has 2 establishments manufacturing glassware, one cannery, 4 petroleum distributors, one fertilizer distributor, and 2 boat yards. Water-borne commerce consists principally of receipts of petroleum products and fertilizers carried in vessels and barges drawing up to 8 feet.

4. Local interests desire restoration by the United States of the dikes to exclude tidal water from the marsh and meadow land, protective works to inhibit erosion along the south shore of Salem Cove, and widening and deepening of the navigation channel to permit use of ocean-going tankers and freight vessels. They offer lands for disposal of dredged material.

5. The district engineer finds that the protected lowlands along the river formerly used for farming have been allowed to revert to their natural condition and are now used for production of muskrats for their pelts. As this industry has been found more profitable than farming of the protected lands restoration of the banks would be objectionable to the owners and occupants of the area and the expenditure of funds for the purpose is not warranted. An examination of the shore of Salem Cove disclosed no evidence of accelerated erosion or the need for shore protection works. There is no indication that the movement ENGWR To: The Secretary of War

of cargoes in vessels of ocean-going size could be developed in such volume as to warrant the provision of the deeper ship channel in the harbor. The district engineer concludes that improvement of Salem River is not warranted and recommends that no survey be made. The division engineer concurs.

6. The Board of Engineers for Rivers and Harbors concurs with the reporting officers in the view that the desired improvements are not warranted. The Board recommends that no survey be made.

7. After due consideration of these reports, I concur in the views and recommendations of the Board. I therefore report that improvement of Salem River, Salem County, New Jersey, is not advisable at this time.

R. A. Wheeler Lieutenant General Chief of Engineers

Subject: Salem River, New Jersey.

827 (Salem River, N.J.) 3d Ind.

The Board of Engineers for Rivers and Harbors, Washington, D. C., October 7, 1946.

To: The Chief of Engineers, U. S. Army.

1. Local interests were advised of the adverse conclusions of the division engineer and were invited to submit additional data to the Board. No communications have been received.

2. The Board concurs with the reporting officers in the view that the desired improvements are not warranted. The Board recommends that no survey be made.

For the Board:

R. C. Crawford, Brigadier General, Senior Member.

Incls:

Record of public hearing, List of interested parties, Estimate of cost, 2 tracings and Notice of unfavorable report with list.

# WAR DEPARTMENT CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PHILADELPHIA DISTRICT 1400 PENN MUTUAL BUILDING PHILADELPHIA 1, PA.

1 February 1946

SUBJECT: Report on Preliminary Examination of Salem River, New Jersey.

- THROUGH: The Division Engineer North Atlantic Division 270 Broadway New York 7, New York
- TO: The Chief of Engineers U. S. Army Washington 25, D. C.

#### SYLLABUS

Interests of the Salem River locality desire that the United States undertake the restoration of meadow banks along the shores of Salem River, and provide protection for the frontage of a cottage colony that faces the south shore of Salem Cove in Delaware River. Consideration is requested also of the possibility of increasing the width and depth of the Federal project channel in Salem River so as to permit its use by oceangoing vessels.

A diversity of interests respecting the restoration of banks along Salem River upstream from the mouth of Little Salem River makes it unlikely that a feasible plan could be formulated for this area that would not meet with objection. A highway fill that parallels the south shore of Salem River near the mouth appears to serve the purpose for which the old bank or dike was built. The lowlands for which protection from tidal action is requested are similar to marshes that extend for miles along both shores of Delaware River and Delaware Bay.

Examination has revealed no evidence that such erosion at Oakwood Beach on the south shoreline of Salem Cove as may have occurred is due to improvements made in the interest of navigation on the Salem or Delaware Rivers.

There is no reason to expect that the desired increase in navigable capacity of the Salem River channel would yield benefits commensurate with its cost.

The District Engineer concludes that further study of Salem River is not warranted at this time and recommends that a survey be not made.

Serial No. 13

NOT FOR PUBLIC RELEASE

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Serial No. 13

NOT FOR PUBLIC RELEASE

#### AUTHORITY

1. This preliminary examination report is submitted pursuant to the following item in the River and Harbor Act approved 2 March 1945:

"Sec. 6. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys to be made at the following named localities \*\*\*\*\*

Salem River, Salem County, New Jersey."

Preparation of the report was assigned to the Philadelphia District Office by letter, Office of the Chief of Engineers, to the Division Engineer, North Atlantic Division, dated 9 March 1945, and by letter, Office of the Division Engineer, North Atlantic Division, to the District Engineer, dated 14 March 1945.

#### DESCRIPTION

2. U. S. Coast and Geodetic Survey chart No. 294 shows the navigable portion of Salem River, Atlas Sheet No. 30, State of New Jersey Department of Conservation and Development, shows the topographical features of land areas bordering on Salem River. Plate 1 is the index map of this report, and Plate 2 is a location map which shows Salem River in greater detail.

3. Salem River rises in the eastern part of Salem County, N. J. and flows westward about thirteen miles, passing through the borough of Woodstown; thence southward about 7 miles to the city of Salem; and

thence westward about 2 miles to its mouth in the easterly shoreline of Delaware River in Salem Cove. The river is joined by its only navigable tributary, Little Salem River (formerly Fenwick Creek), in the city of Salem.

4. From a point about 9 miles above the mouth, where the general

course of Salem River changes from westward to southward, a canal extends

westward about 2 miles to Delaware River, the canal entering the Delaware about 1/2 mile south of Deepwater Point. A dam in the canal, about 800 feet from Delaware River, and a dam in Salem River just below the canal impound the run-off from the upper watershed of Salem River, making the water available to industrial installations located at Deepwater Point on the Delaware. The drainage area thus controlled is about 58 square miles, leaving an uncontrolled area of about 50 square miles between the dam in the river and the river's mouth.

5. A navigable channel with authorized depth of 12 feet, extending from deep water in Delaware River to the confluence of Little Salem River with Salem River, and thence up the Little Salem to a fixed highway bridge in Salem, is maintained by the United States under an adopted project. The width of the channel is 150 feet in Delaware River to the mouth of Salem River, and thence 100 feet to the highway bridge in Salem. The channel includes a cut-off that eliminates a horseshoe bend immediately downstream from Salem. The total length of the project is about 4 miles.

6. The mean range of tide at the mouth of Salem River is approximately 5.4 feet. Extreme tidal elevations range from 1 foot below mean low water to 2 feet above mean high water. Tidal action extends up Salem River to the dam below the canal, and up Little Salem River to a dam about 1 mile above Salem.

7. The basin of Salem River is relatively flat, elevations ranging from about the elevation of mean sea level near Delaware River to 150 feet above on the highest ground in the headwaters area. Extensive

marshes border the lower courses of the river and the tributaries that enter this part of the stream. The soil is mostly a sandy loam, well suited to the production of truck crops, which is one of the principal industries of the tributary area. The land is approximately 90 per cent cleared and in use.

8. About one-half of the frontage on Salem Cove that extends

south from the mouth of Salem River about 2 miles to Elsinboro Point is occupied by a summer cottage colony and is known as Oakwood Beach. The north shore of Salem Cove, extending about 3-1/2 miles to Fort Mott at Finns Point, is bordered by marshes and open farmland.

9. Sinnicksons Landing is located on the left bank of Salem River, approximately 4,000 feet upstream from the shore line of Salem Cove, and at the downstream end of the cut-off which is a part of the Federal navigation project. A row of small dwellings, mostly of light construction, faces the river at this point, occupying about 900 feet of frontage.

10. Marsh and meadow land so low that it is naturally subject to immersion twice daily by ordinary high tides borders both banks of Salem River from the mouth to the dam about 9 miles upstream. The lowlands between the mouth of Little Salem River and the dam are particularly extensive. Beginning prior to 1800, banks or dikes were constructed along the river to exclude tidal water from these lowlands, sluices with gates being installed in the dikes to permit the outflow of drainage. This work was accomplished as private enterprises for the purpose of reclaiming the land for agricultural use. There is no clear record of the extent or duration of agricultural use of the reclaimed lowlands, but it is known that as early as 1880 the dikes were falling into disrepair for lack of maintenance. They have deteriorated progressively to the present time, and the lowlands once reclaimed have largely reverted to

their original condition. This is reported to be due, in part, to inability of the owners or occupants to finance the work of maintaining the dikes and sluices. It is quite clearly established, however, that some of the owners prefer that the lowlands remain subject to overflow in the interest of producing muskrats for the yield of fur, evidently finding this use of the area more lucrative than agriculture.

#### TRIBUTARY AREA

11. Salem River serves a local area that is mostly within the

county of Salem, N. J. This local area is both agricultural and industrial. River trade consists principally of inbound movement of petroleum products and agricultural fertilizers coming from nearby New Jersey, Pennsylvania and Delaware, and from Chesapeake Bay. While the more extensive tributary area is not clearly defined, finished products of local industry are widely distributed via rail and truck.

12. Salem, N. J., is the only city or town on the navigable portion of the waterway. Its 1940 population is given as 8,618. The county population in the same year was 42,274. The principal industries of Salem are two establishments engaged in the manufacture of glassware, one cannery, four petroleum distributors, one fertilizer distributor, and two boatyards.

13. There are two banks in Salem which on June 30, 1945, had combined resources of \$13,927,000. The latest available general statistics showing other resources of the county of Salem are given below.

Land Area (Sq. Mi.)	350
No. of farms (1939)	1,547
Farm acreage (1939)	128,889
People engaged in agriculture (1939)	2,699
Value of Crops (1939)	\$3,423,866
Value of Dairy Products (1939)	\$2,009,105
Value of Livestock (1939)	\$1,655,120
No. of manufacturing establishments (1939)	34

People engaged in manufacturing (1939) 6,516

Value of manufactured products (1939) (1)

(1) Figures withheld from publication.

14. Salem is on the main State highway system and has adequate passenger bus service. Rail freight and passenger service is furnished by the Salem Branch of the Pennsylvania-Reading Seashore Lines with two passenger trains in each direction daily.

#### BRIDGES

15. The navigable channel in Salem River is crossed by a highway bridge about 500 feet downstream from the mouth of Little Salem River. It is a single leaf bascule draw span with 60-foot horizontal clearance and vertical clearance of 5.1 feet at mean high water when in closed position.

#### PRIOR REPORTS

16. Nine (9) prior reports on Salem River are of record, the earliest having been submitted in 1870 and the latest under date of 3 March 1923. Only the latest report is regarded as pertinent to the examination reported herein. It recommended the further improvement of Salem River to provide a rectified channel 12 feet deep and 100 feet wide from the fixed bridge in Salem to Salem Cove, and 150 feet wide through the Cove to deep water in Delaware River at an estimated cost of \$130,000 for new work and \$6,000 annually for maintenance, subject to the provision that local interests furnish a free right-of-way for a proposed cut-off and contribute 50 per cent of the cost of dredging. This report is printed in House of Representatives Document Number 110, 68th Congress, 1st Session.

# EXISTING PROJECT

17. The original project for improvement of Salem River was adopted by the River and Harbor Act of 3 March 1871. This project was modified in 1878 and a subsequent project was adopted by the River and Harbor Act of 2 March 1907. Details of the projects are given in the Annual Report of the Chief of Engineers for 1915 on page 1784, in the Annual Report for 1924 on page 349, and in the Annual Report for 1938 on page 346.

18. The existing project was adopted by the River and Harbor Act of 3 March 1925, in accordance with the recommendations in the reportprinted in House Document Number 110, 68th Congress, 1st Session. It provides for a channel 12 feet deep, 150 feet wide in Delaware River

across Salem Cove to the mouth of Salem River, and thence 100 feet wide to the fixed highway bridge over Little Salem River at Salem, including a cut-off to eliminate a large horseshoe bend between the mouth and Salem. The project requires that local interests contribute 50 per cent of the cost of new work dredging and convey to the United States, free of cost, a right-of-way for the cut-off channel.

19. As of the end of the fiscal year 1945 the project was about 60 per cent complete. All work in Delaware River, and in Salem River to the mouth of Little Salem River, was completed in 1928. The work remaining to complete the project is dredging to project depth in Little Salem River from the mouth to the fixed highway bridge in Salem.

20. The costs under the existing project and prior projects to the end of the fiscal year 1945, were \$159,459.53 for new work (including \$51,825.10 of contributed funds), and \$145,010.82 for maintenance, a total of \$304,470.35.

21. The estimated cost of new work required to complete the project is \$36,000, one-half of which is to be contributed by local interests.

22. The latest (1927) approved estimate for the annual cost of maintenance is \$8,000. The cost of maintaining the project as thus far completed has averaged a little less than \$2,000 a year for the past 10 years. The approved estimate should be adequate for the project when completed.

23. No changes in the existing project have been recommended to

the Congress.

### LOCAL COOPERATION

24. As prescribed in the project adopted for Salem River, local interests have contributed funds to defray one-half the cost of new work thus far accomplished, and have provided the required right-of-way. The funds contributed amount to \$51,825.10.

#### OTHER IMPROVEMENTS

25. Subsequent to adoption of the existing project local interests have made no improvements for the benefit of navigation.

#### TERMINAL AND TRANSFER FACILITIES

26. All terminal and transfer facilities on the navigable channel are located in the city of Salem. They comprise seven wharves and three marine railways operated by two boatyards which repair and store small vessels. These facilities are considered adequate for the existing and reasonably prospective commerce.

#### IMPROVEMENT DESIRED

27. To learn the views of local interests respecting the improvement desired, a public hearing was held by the District Engineer in Salem on 25 July 1945. A record of the proceedings at the hearing, with letters and briefs submitted in connection therewith, are submitted with this report as Appendix I.

28. The local interests for whose benefit the directive for this examination was issued, and who constituted practically the entire representation at the public hearing, desire that the United States restore the banks or dikes that were provided at private expense to exclude tidal water from marsh and meadow land along both banks of Salem River above the mouth of Little Salem River and along the south shore of Salem River in the vicinity of Sinnicksons Landing, also provide protective works to inhibit erosion that is alleged to be taking place

at Sinnicksons Landing and on the frontage occupied by a cottage colony along the south shore line of Salem Cove in Delaware River, known as Oakwood Beach. Reasons advanced in support of the proposal are that the owners and occupants of the properties affected feel unable to finance the work desired; that the values of affected lands are depreciating due to the erosion and inundation experienced; that this reduces the tax yield to the political subdivision that includes this area;

and that further inundation of reclaimed lowlands through failure of the protective dikes is impending in the vicinity of Sinnicksons Landing. A further reason advanced is that certain county or township roads that cross the lowlands would be relieved from the threat of inundation and damage by high tidal waters.

29. The Anchor Hocking Glass Corporation, which operates a glass works in Salem, requested by letter that consideration be given to the widening and deepening of the navigation channel so as to permit its use by ocean-going tankers and freight vessels in order that the Corporation might receive fuel oil and merchandise by tankers and ships. In conjunction therewith the Corporation requested, further, that special consideration be given to deepening and marking the junction of the Salem River channel with Delaware River.

30. No request was made for completion of the existing navigation project, which would involve dredging to project depth and width in Little Salem River from its confluence with the main stream to the highway bridge in Salem.

31. The owners of lands through which the cut-off channel passes, upstream from Sinnicksons Landing, offered at the public hearing the use of these lands for disposal of material removed by dredging, should such disposal areas be needed. No offer was made of other cooperation that would assist in defraying the cost to the United States of the improvement desired.

32. A field examination of the areas that would be affected by the

improvements desired has revealed conditions as follows:

(a) The extensive marshes that border both banks of Salem River from the mouth of the Little Salem to the dam upstream have largely reverted to their natural condition by failure of the protective dikes. Considerable areas of these tidal marshes are now devoted to the production of muskrats for their pelts, and the best information available

indicates that the owners and occupants of these lands, finding muskrat farming more profitable than use of the lands for agriculture when drained, would object strongly to restoration of the old banks, or to any other measures that would interfere with their present business. It appears unlikely that the various owners would agree on any overall plan for restoring the lowlands, as requested by the proponents at the public hearing.

(b) The old bank or dike along the south shore of Salem River, downstream from the cut-off, is breached at two points. This bank, however, is parallelled by a highway that is mostly within two to five hundred feet of the river. The highway is carried across the meadows and marshes on a very substantial earth fill at an elevation level with, or above, the top of the bank, and this fill effectively excludes tide water from the meadows and marshes on its landward side, A stream that . drains the inland marshes delivers its flow through a masonry culvert in the highway fill, and a sluice structure has been installed a short distance landward from the culvert, apparently to permit the outflow of drainage while excluding tide water inflow. So far as the marshes on its landward side are concerned, the highway fill apparently serves the purpose for which the old bank along the river was built. The lowland area that lies between the river and the highway is not extensive, and is being used in part as a dump. There is no visible evidence that the highway has been damaged by overflow in the past, or would be particularly vulnerable to such action in the future.

(c) The erosion on the south shore of Salem River at Sinnicksons Landing, complained of at the public hearing, is found to affect the river side of the old bank or dike which is parallelled by a highway fill a short distance landward, as noted in the preceding sub-paragraph (b), Considering that the old bank is an earth fill with no protection on its face and that it has been in service for several generations, its

deterioration can be accepted as only normal, irrespective of the increase in current velocity in the river that may have resulted from the increase in tidal prism that followed flooding of the lowlands upstream.

(d) Oakwood Beach, on the south shore of Salem Cove, is reported to comprise 125 dwellings, and occupies about a mile of shore midway between the mouth of Salem River and Elsinboro Point. Most of the structures are lightly constructed summer camp buildings, and only a very few are occupied during the winter. All were built about as close as possible to high water line in the Cove. What appear to be the oldest structures were built on a narrow crest about 5 feet above ordinary high water level. From this crest the surface sloped steeply down to the foreshore in front, and moderately down to marshes in the rear. With the apparent object of gaining more ground above high water, retaining walls were built in front of nearly all the cottages, some units of this construction extending over several frontages. The walls appear to be founded approximately at mid-tide elevation and at the north and south ends of the colony some of the footings are exposed when the tide recedes, although no failure of walls was evident. In the central portion the strand is higher, and near the walls it is covered by a growth of sedge and rushes. No evidence of accelerated erosion was observed. In the course of an investigation of the regimen of Delaware River made in 1931, it was observed that the foreshore at Oakwood Beach was under water at high tide.

33. No evidence has been found of shore line changes that are attributable to work of improvement that has been done in the interest of navigation on Salem River or Delaware River.

34. It is pertinent to note that in 1939 the District Engineer at Philadelphia received by letter from the Honorable Charles A. Wolverton, Congressman from the 1st New Jersey District, an inquiry as to the availability of Federal funds for the work of repairing and protecting

tide banks along Salem River, New Jersey. The matter was referred to the Chief of Engineers through the Division Engineer, North Atlantic Division, by the District Engineer by letter dated 3 May 1939. By 2nd Indorsement dated 8 May 1939, file reference 7402 (Salem River, N. J.)-1, the Chief of Engineers concurred in the view which had been expressed by the Division Engineer in the 1st Indorsement, that the problem was that of land reclamation rather than protection against flood damages, and that the Flood Control Act of 1936, as amended by the Act of 28 June 1938, therefore was not believed to be applicable.

#### <u>COMMERCE</u>

35. Salem River has had a substantial commerce for many years, the greater part of the freight carried being inbound. The principal commodities handled are gasoline, kerosene, fuel and other oils, and fertilizers. Other commodities which have moved by water include glass bottles, tomatoes, corn, piling, stone, ammunition and army supplies. The commerce for the past ten years of record is shown in Table 1.

36. The trend has been away from water transportation for certain commodities, such as tomatoes and corn, which now move quickly to canneries by truck and avoid spoilage occasioned by the longer and slower boat haul. Since 1939, rail and truck movement also have supplanted water for the movement of glass bottles. It is evident that the water movement of ammunition and army supplies in 1940 was peculiar to the emergency conditions of that year. Increase in total commerce over the years is attributable to growth in tanker delivery of petroleum products following the establishment of storage and distribution stations at Salem by major oil companies.

37. There appears to be no foreseeable additional commerce in prospect for Salem River. With the rationing of petroleum cils ended, there is already evidence that deliveries of gasoline and other oils will be restored to, or even surpass, the pre-war volume. No reason is

TABLE 1

STATEMENT OF COMMERCE, SALEM RIVER, 1935-1944, IN NET TONS

Year	Gasoline	Kerosene	Fuel and other oils	Fertilizers	Tomatoes	Corn	Glass Bottles	All Other	Total
1935	6 <b>,</b> 477	307	17,613	1,148	_ 782	230	1,335	35	27,927
1936	13 <b>,</b> 368	249	18,529	561	-	-	1,479	-	34,186
1937	15 <b>,</b> 719	289	22,726	572	-		1,464	-	40,770
1938	2 <b>2,</b> 316	511	27,814	718	-	-	220	5	51,584
1939	23,561	1,806	30,924	704	-	-	-	900	57,895
1940	25,014	4,028	29,089	595	-		-	*4,450	63,186
1941	29,469	6,171	35,218	373	-	-	-	-	71,231
1942	20,478	3,567	32,318	463	-	-	_	-	56,826
1943	-	-	28,825	- 240	-	-	-	-	29,065
1944	2,826	_	27,241	360	-	-	-	-	30,427

\*Includes 4,208 tons of ammunition and army supplies shipped from river.

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found to expect that movement of cargoes in vessels of ocean-going size could be developed in volume that would warrant the provision of a channel having width and depth sufficient for such ships.

#### VESSEL TRAFFIC

38. The vessels that used Salem River in 1944, which are shown in Table 2, are typical of traffic in recent years in respect to the types and drafts of commercial vessels in use. The number of vessels using the channel will vary with the total tonnage moved. The yacht movements shown, which is the only record available for this class of traffic for Salem River, are boats that passed to and from Chesapeake Bay via Salem River, Delaware River, and the Chesapeake and Delaware Canal.

#### DIFFICULTIES ATTENDING NAVIGATION

39. There are no difficulties attending navigation of Salem River that cannot be removed by the restoration of project channel dimensions by maintenance dredging. This applies to shoal areas in the channel that were mentioned by local interests at the public hearing. There is no problem in navigation due to increase in current velocities resulting from increase in tidal prism by the flooding of lowlands that adjoin the river.

#### SPECIAL SUBJECTS

40. There are no possibilities of developing a coordinated plan for navigation and other beneficial use of the waters of Salem River.

### SHORE LINE CHANGES

41. No changes in the Salem River project that would affect shore lines in the vicinity are contemplated in this report,

#### DISCUSSION

42. The banks or dikes along the shores of Salem River, restoration of which at Federal expense is sought by local interests, were constructed by private interests for the reclamation of tidal marshland

# TABLE 2

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# TRIPS AND DRAFTS OF VESSELS; SALEM RIVER, N. J., 1944

Draft (feet)		In-bound			Out-bound					
	Motor Vessels	Tugs	Barges	Yachts	Total	Motor Vessels	Tugs	Barges	Yachts	Total
8	3	20	20	-	43	-	20	-	_	20
7.	-	64	64	<b></b> .	128	-	64		-	64
Under 7	-	-	_	131	131	3	-	84	143	230
Total	3	84	. 84	131	302	3	84	84	143	314
Total net registerea tonnage	132	1,560	17,148	1,673	20,513	132	1,560	17,148	1,775	20,615

for agricultural development. For want of maintenance over a long term of years the banks deteriorated and finally became breached and useless. These facts indicate that the benefits derived from the lowlands by farming in the past were insufficient to justify the labor and expense required to maintain the protective works, and that the benefits to be derived in the future would not justify the investment required to restore these lands to a condition suitable for agriculture. Support for such a conclusion is found in the fact that large expanses of marshland, which also were once reclaimed and farmed, are now by preference left open to tidal submersion so that they can be used for muskrat culture. In respect to the marshes upstream from the mouth of Little Salem River, the conflict of interests that is found would preclude the formulation of a feasible plan for improvement that would meet with popular approval. From an examination of the Sinnicksons Landing locality it appears that the highway fill that roughly parallels the river and bank serves the purpose for which the bank was constructed, and can continue to so serve without likelihood that the highway will be damaged, and leaving only a small marsh area of no great value between the road and the river. The lowland areas on Salem River are similar to marshlands and meadows that extend for miles along both the east and west shores of Delaware River and Delaware Bay, and which are subject to natural tidal overflow twice each day.

43. The summer cottages in the Oakwood Beach colony apparently

were located as close as possible to the shore because of the proximity of tidal marshland to the rear. A field examination revealed no evidence of accelerated erosion along the retaining walls that hold the frontages on the foreshore, which is known to have been awash or submerged by ordinary high tides as early as 1931. No evidence has been found to support the view that such shoreline erosion as has occurred was caused by improvements that were accomplished in the interest of navigation on

Salem River or Delaware River.

44. No reason is found to expect that increase in the navigable capacity of the channel in Salem River to permit its use by oceangoing vessels would be followed by an increase in commerce or vessel traffic that would justify the investment that would be required.

## CONCLUSIONS AND RECOMMENDATION

45. The District Engineer concludes that further study of Salem River, New Jersey, is not warranted at this time, and recommends that a survey be not made.

> GEORGE B. SUMNER Lt. Col., Corps of Engineers Acting District Engineer



SUBJECT: Preliminary Examination Report on Salem River, Salem County, New Jersey. (1 February 1946)

NADGW (1)

lst Ind.

Office, Division Engineer, North Atlantic Division, NEW YORK 7, N. Y. 27 March 1946

To: The Chief of Engineers, U. S. ALMY. SPEWR

I concur in the views and recommendation of the District Engineer.

6 Incls:

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- 1. Report, 15 cys, Serial Nos. 1 to 15 Incl.
- 2. Pub. Notice w/list of names (in trip.)

3. Minutes & Exhibits of Pub. Hearing, Salem Miver, N.J.

- 4. Draft of Public Notice (in dup.)
- 5. Map, File No. 20698 Index Map (Tracing) U.S.C.
- 6. Map, File No. 20699, Location Map (Tracing) U.S.C.

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Colonel, Corps of Engineers Division Engineer



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