



NEW JERSEY STATE HIGHWAY DEPT.

REPORT ON COMPLIANCE WITH THE  
REGULATIONS OF THE  
DEPARTMENT OF THE ARMY

NEW JERSEY INTRACOASTAL WATERWAY

APPURTENANCES UNESSENTIAL TO  
NAVIGATION.

JUNE-JULY-AUGUST-SEPTEMBER  
1953.

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## GENERAL OBSERVATIONS

Yearly totals of openings of movable bridges in New Jersey, operated by the New Jersey State Highway Department, have steadily increased since 1945, the year of the end of World War II. Openings of movable bridges in the Shore Resort Area of the State have shown a greater yearly increase than those in other parts of the State which span waterways carrying marine traffic predominantly commercial in character.

This report covers nine State Highway drawbridges over the New Jersey Intracoastal Waterway and the two State Highway drawbridges over Shark River. The Route 162 Cape May Canal Bridge is omitted for two reasons: its relatively low clearance; the fact that it was taken over by the Highway Department on April 1, 1953, and so cannot be used in making any comparisons with former years. The Route 72 Manahawkin Bay Bridge is omitted since its very low closed clearance is insufficient to accommodate even the normal superstructure of most boats. The bridges involved are set forth below.

- Rt. 35 Shark River
- Rt. 71 Shark River
- Rt. 35 Manasquan River
- Rt. 88 Inland Waterway
- Rt. 13 Lovelandtown Canal
- Rt. 37 Barnegat Bay
- Rt. US 30 Absecon Channel
- Rt. US 30 Beach Thorofare
- Rt. 52 Beach Thorofare
- Rt. 47 Grassy Sound
- Rt. US 9 Cape May Canal

The graph on Sheet "A" shows total openings on these eleven bridges for each year from 1945 to 1953. The total for 1953 was arrived at by projecting the number of openings for the months of October, November and December.

The drop in the total at the year 1950 reflects the opening of the Route 37 Barnegat Bay Bridge, a bridge with a closed clearance of 30 feet, which replaced one having only 8 feet. In the same year, the Route 47 Grassy Sound Bridge was added, but the reduction in openings due to the elimination of the low bridge at Barnegat Bay outweighed the additional openings caused by the inclusion of the bridge at Grassy Sound.

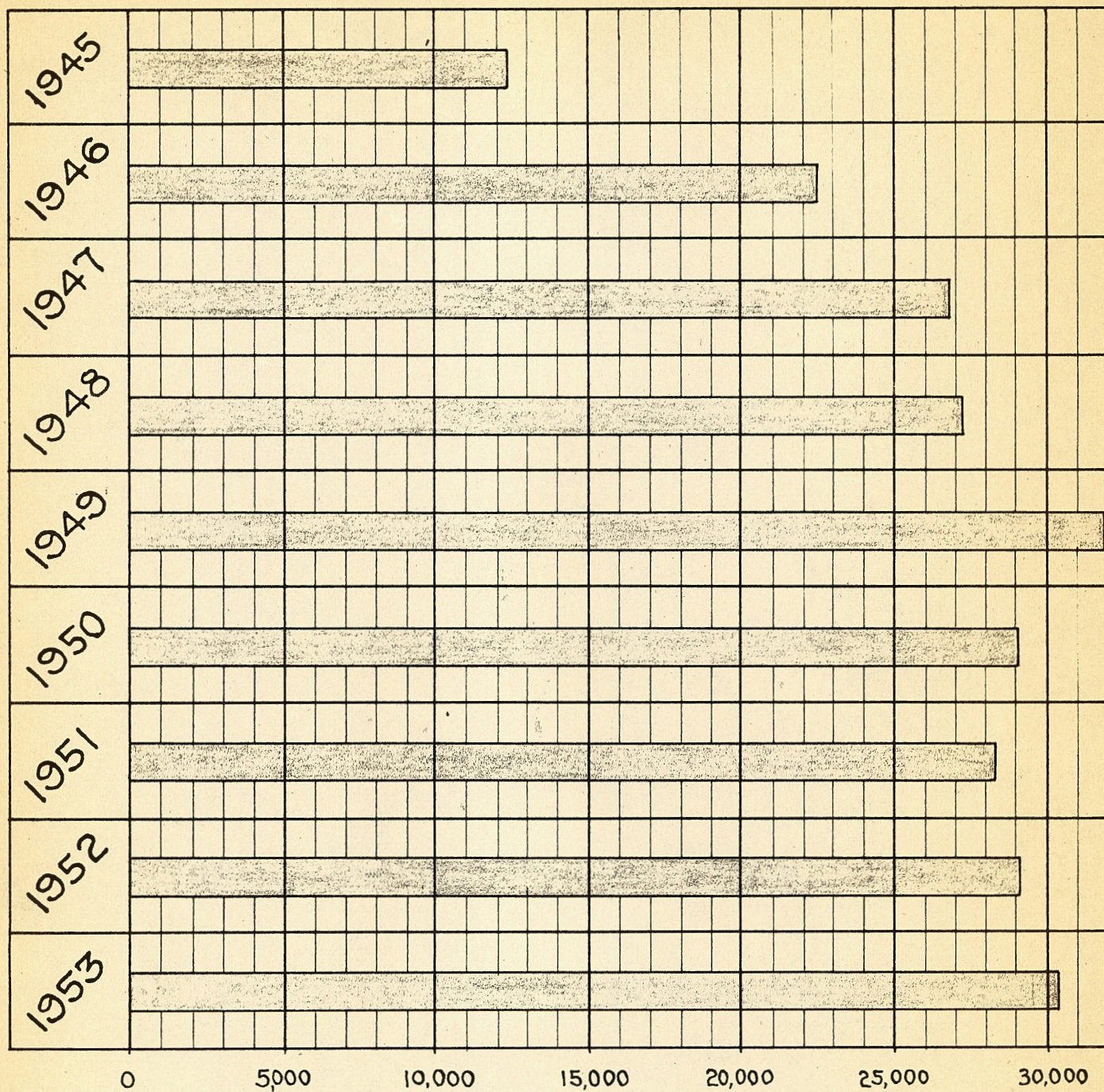
The continued, though less sharp drop in 1951 was produced by the opening of the new Route 35 Manasquan River Bridge, closed clearance 30 feet, replacing one having only 9 feet. The fact that this drop was not greater is evidence of the significant overall increase in marine traffic using the New Jersey Intracoastal Waterway. This continuing overall increase was still in control in 1952, as shown by the slight rise in openings over 1951. We feel that this rise was tempered by the initial effects of our 1951 and 1952 campaigns, and, without our efforts, would have been much greater. Only the cooperation of boat owners has prevented a tremendous increase in openings in 1953, and will prevent it in each succeeding year in the future.

The reduction in openings during the years of 1950 and 1951, due to the opening of two high level movable bridges is striking evidence of the benefits derived from the building of bridges with sufficient closed clearance to accommodate the normal superstructure of marine craft. Failure of boat operators to lower appurtenances extending above the normal superstructure causes unnecessary openings of such bridges, nullifies these benefits and in fact wastes the funds required to build bridges of this height.

This campaign is designed to conserve these benefits by calling the attention of boat owners to the requirements of the Regulations of the Department of the Army related to appurtenances unessential to navigation extending above the normal superstructure of the boat. It is the intent of these Regulations that such appurtenances be collapsibly mounted, and be lowered to enable the boat to pass under the closed spans of those movable bridges having sufficient clearance to accommodate its normal superstructure.

The pertinent portion of the Regulations is quoted below:

"(c) ..... These drawbridges shall not be required to open for craft carrying appurtenances unessential for navigation which extend above the normal superstructure. Upon request, the district engineer in charge of the locality will cause inspection to be made of the superstructure and appurtenances of any craft habitually frequenting those waterways, with a view to adjusting any differences of opinion in this matter between the vessel owner and the bridge owner."



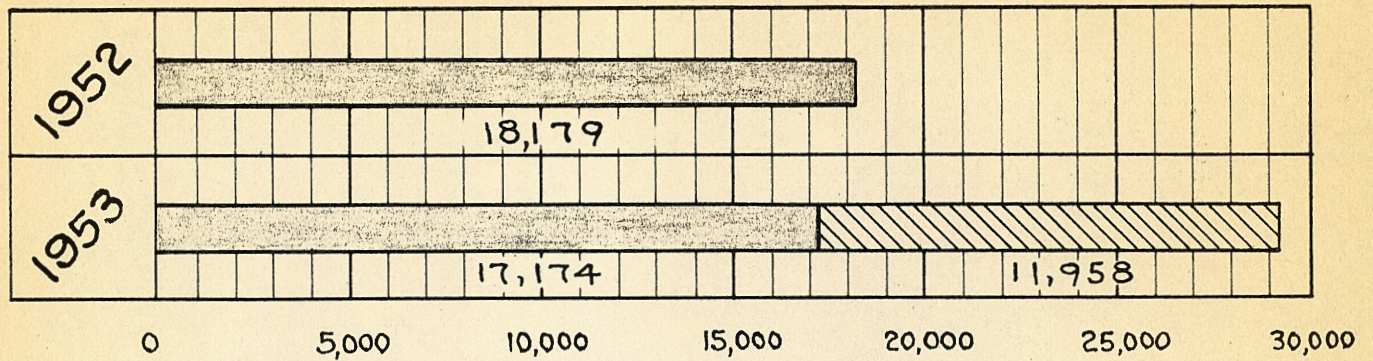
TOTALS OF YEARLY OPENINGS  
ELEVEN SHORE AREA DRAWBRIDGES

## COOPERATION BY BOAT OPERATORS

During the months of June, July, August and September of the year 1952, the eleven bridges covered by this survey were opened 18,179 times for the passage of boats. In the same four months of the current year, 1953, these same bridges were opened 17,174 times, a decrease in openings of 1,005, or about six per cent. This decrease in openings, in spite of the known heavy increase in marine traffic in the Shore Area, is surprising and gratifying. Our records indicate that this decrease was a direct result of this campaign.

These records show that during June, July, August and September of this year, 11,968 passages were made under the closed spans of these bridges by boats which had lowered appurtenances unessential to navigation in order to make these passages. Each one of these 11,968 passages represented cooperation on the part of the boat operator as the result of our campaign. It is evident that had these boats not cooperated, the total number of openings for these bridges during these four months would have been increased by 11,968 to a total of 29,142, instead of 17,174. In other words, these openings would have been sixty per cent greater than in 1952, rather than nearly six per cent less. Sheet "B" sets forth this fact graphically. Had this condition obtained, recalling the traffic situation in the Shore Area in 1952, it is evident that highway traffic in this area would have reached such a point of congestion as to have made the New Jersey Shore less than desirable as a summer resort. In fact, the whole area might have been practically inaccessible to many people.

This report covers only eleven bridges operated by the New Jersey State Highway Department. Nine County-owned drawbridges along the New Jersey Intracoastal Waterway have sufficient closed clearance to have derived similar benefits from the cooperation of boat operators. It is, therefore, reasonable to estimate that more than 20,000 openings of bridges along the New Jersey Shore were avoided during the months of June, July, August and September of this year by virtue of the lowering of appurtenances unessential to navigation.



OPENINGS

JUNE - JULY - AUGUST - SEPTEMBER

1952 - 1953

ELEVEN SHORE AREA DRAWBRIDGES



ACTUAL OPENINGS



OPENINGS ELIMINATED BY  
MARINE COOPERATION

## CONTACTS WITH BOAT OWNERS

During these four months the Bureau of Electrical Operations entered into correspondence with more than two hundred boat owners. These individuals were selected from a total of more than eight hundred reports from bridge operators. On Sheet "C" is a copy of the first letter which was sent to these boat owners. Upon receipt of replies to this letter a second letter was written to fit each individual reply. It is noteworthy that all replies, with the exception of three, indicated that the boat owner desired to cooperate and was in favor of our program. Nearly all the responses indicated that there was a lack of familiarity with the Regulations of the Department of the Army governing the Intracoastal Waterway. Several boat owners expressed appreciation for our courtesy and forbearance in bringing this matter to their attention before making a report to the Office of the District Engineer. This fact justifies the decision of Commissioner R. J. Abbott to make this campaign one of information rather than enforcement.

Along with these contacts by correspondence, personal contacts were made in the field with boat owners and operators by Captain Thomas C. Hickman throughout the duration of the campaign. These personal field contacts total more than one hundred. Captain Hickman reports that responses to these personal contacts indicated a more favorable attitude generally than last year. His report that two men prominent in the boat building industry, have completely changed their attitude and opinion since last year is highly significant. These men will now install for their customers only collapsible mountings for antennae, outriggers and masts of excessive height.

A few responses from boat owners set forth the fact that their outriggers had been installed in Florida, were a very heavy rig, were, therefore, not collapsible, and any change would be very expensive. They, therefore, asked our indulgence and promised to cause as few drawbridge openings as possible.

Our records indicate that you are the owner of the boat  
" \_\_\_\_\_ ", and are a user of the Intracoastal Waterway.

The New Jersey Highway Department is attempting to reduce openings of drawbridges in the shore area and the highway traffic congestion incident to these openings, by familiarizing boat owners with the War Department Regulations applicable to these bridges. We hope to gain the cooperation of boat owners in lowering antennae, outriggers, military masts, and other appurtenances unessential to navigation when passing through these bridge channels so that bridge openings will be reduced.

The War Department Regulations provide that these bridges will not be required to open for craft carrying appurtenances unessential to navigation extending above the normal superstructure of the boat. The Regulations further require that the bridge owner report to the Office of the District Engineer, U. S. Engineers, all boats which fail to comply.

We are reluctant to make these reports without first advising the boat owner of the situation, and asking him to bring the equipment of his boat into compliance with the law. As yet, we have made no report of the " \_\_\_\_\_ ". We will be glad to have from you some indication of intent to equip and operate your boat in compliance with the law.

Enclosed herewith for your information is a schedule showing the minimum closed clearance at mean high water on all New Jersey State Highway Drawbridges across the Intracoastal Waterway.

Very truly yours

STATE HIGHWAY DEPARTMENT

JLH:DJH:k  
Att.

James L. Hays  
Supervising Electrical Engineer  
Bureau of Electrical Operations

Cc: Captain T. C. Hickman  
Mr. E. W. Downs

N. J. STATE HIGHWAY DEPARTMENT  
 MINIMUM CLEARANCE AT MEAN HIGH WATER

STATE HIGHWAY DRAWBRIDGES OVER  
 THE N. J. INTRACOASTAL WATERWAY  
 AND TRIBUTARIES

<u>ROUTE</u>	<u>BRIDGE</u>	<u>LOCALITY</u>	<u>CLEARANCE</u>
162	Cape May Canal	Cape May	10'
US 9	Cape May Canal	Cape May	20'
47	Grassy Sound	Wildwood	25' *
52	Beach Thorofare	Ocean City	14' *
US30	Beach Thorofare	Atlantic City	20' *
US30	Absecon Channel	Brigantine	8' *
72	Manahawkin Bay	Long Beach	6'6"
37	Barnegat Bay	Seaside Heights	30' *
13	Lovelandtown Canal	Bay Head	14'
35	Inland Waterway	Point Pleasant	12'
35	Manasquan River	Brielle	30' *
35	Shark River	Belmar	9'6" *
71	Shark River	Belmar	9'6" *
36	Shrewsbury River	Highlands	35' *

Bridges are listed from South to North.  
 Clearance is measured at the fender line.  
 \* Clearance increases at center of channel.

## INTERSTATE CONTACTS

We endeavored to enter into correspondence with the Highway Departments of Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia and Florida, the states traversed by the Atlantic Intracoastal Waterway, in an effort to discover what state agency was concerned with the operation of bridges across the portion of the Intracoastal Waterway within their respective boundaries. When we obtained this information we wrote to the appropriate body, forwarding a copy of the Department of the Army Regulations related to the New Jersey Intracoastal Waterway, and inquiring if any similar Regulations were in force on the portion of the Atlantic Intracoastal Waterway under its jurisdiction.

We found that Regulations comparable to those of the New Jersey Intracoastal Waterway are not in force on any other portion of the Atlantic Intracoastal Waterway throughout its entire length from Manasquan Inlet to Key West. We were not able to get any satisfactory response from the Merrin Engineering Company, which has jurisdiction over the operation of movable bridges on the Florida portion of the Atlantic Intracoastal Waterway, although we have sent two letters to this company. From the State of South Carolina we had a response indicating that that State would be highly gratified if the New Jersey Regulations were made applicable for the portion of the Intracoastal Waterway within the borders of South Carolina, although it was recognized that their highway traffic problem is not as acute as ours. A copy of this letter is on Sheet "D".

SOUTH CAROLINA  
STATE HIGHWAY DEPARTMENT  
COLUMBIA

June 25, 1953

Mr. James L. Hays, Elect. Engr.  
Bureau of Electrical Operations  
N. J. State Highway Department  
Trenton 1, N. J.

Ref: Intracoastal Waterway -  
Your letter of June 17, 1953

Dear Sir:

The bridges over our portion of the Intracoastal Waterway, so far as I can determine, are governed by the General Law (Sec. 5 of the 1894 Act) and the following paragraphs of the Regulations:

- "d" - The first sentence.
- "e" - Entirety.
- "f" - Entirety.
- "g" - Entirety.
- "h" - Except for reference to paragraph "b"
- "l" - Thru "complete record of all openings of the draw."

Our traffic problem is probably not so acute as yours, but the application of paragraph "c" to our bridges would be welcome. So often our Bridge Tenders have to open for "fishing poles". I feel sure that this Department would make every effort to induce compliance if this regulation were made applicable to our bridges. In fact, I fail to see why the Corps of Engineers does not make this a standard operating procedure for the entire waterway. If this regulation were made applicable, then I think it only fair to the boat operators to provide the board gauges as specified under paragraph "k". I feel that these are constructive regulations which work for the benefit of both the boat owners and the bridge operators.

If I may supply further information, please don't hesitate to advise.

Very truly yours,

J. G. Farmer  
Mechanical Engineer

## OVERALL CONSIDERATIONS

### MOVABLE BRIDGE LOCATIONS AND CLEARANCES

The total length of the Intracoastal Waterway from Manasquan Inlet to Key West is nearly 1200 nautical miles. The Waterway is spanned by 107 movable highway bridges of various types and closed clearances, an average of one movable bridge for twelve miles of Waterway. Sheet "E" sets forth the distribution of these movable bridges by States and by closed clearance.

Of the twenty-seven movable bridges located in New Jersey, eleven are owned and operated by the New Jersey State Highway Department and sixteen by the Counties of Ocean, Atlantic and Cape May. About one hundred nautical miles (8 per cent) of the Intracoastal Waterway lies in New Jersey, and is called the New Jersey Intracoastal Waterway. This short section, less than one-tenth, of the Waterway is spanned by more than one-fourth (25.23%) of the total number of movable bridges. In New Jersey we find one movable bridge for every 3.7 miles of Waterway. This figure is in striking contrast with the overall average of one movable bridge for twelve miles of Waterway. In Florida, which has two-fifths of the length of the Waterway and a little less than half (49.53%) of the total number of bridges, we find one bridge for 9.3 miles of Waterway. (See Sheet "F") These figures of 3.7, 9.3 and 12 miles of Waterway per bridge for New Jersey, Florida and the entire Waterway, respectively, show why the problem of Waterway bridge openings is more acute in New Jersey than elsewhere. This problem is obviously further intensified by the high traffic volumes handled by New Jersey highways and bridges.

Of the twenty-seven bridges over the Waterway in New Jersey, sixteen are over twelve feet in closed clearance. This represents forty per cent of the total number of movable bridges over twelve feet in closed clearance on the entire Waterway. More than thirty-five per cent of all bridges over twenty feet in closed clearance are also located in the New Jersey section of the Waterway. These figures gain added significance when it is recalled that the New Jersey portion of the Waterway is less than one-tenth of its total length. Sheet "G" compares Florida and New Jersey in these respects.

It is our opinion that movable bridges with a closed clearance of twelve feet give reasonable accommodation for the normal superstructure of the type of pleasure craft making up the bulk of marine traffic on the Atlantic Intracoastal Waterway. If this assumption is correct, the right hand column of the table on Sheet "F" would indicate that within the State of New Jersey, the responsibility to provide this reasonable accommodation has been met to a greater degree than in any other State or on the Intracoastal Waterway as a whole. Nearly two-thirds (60%) of the movable bridges on the New Jersey portion of the Waterway are over twelve feet in closed clearance. As set forth in the right hand column of the table on Sheet "F", there are, in New Jersey, sixteen bridges with over twelve feet clearance per one hundred miles of Waterway; in Florida 3.44 per one hundred miles;

on the entire Waterway, 3.45 per one hundred miles. This means that bridges over twelve feet in closed clearance are five times more numerous in New Jersey than in any other portion of the Waterway.

Because of this outstanding effort to provide reasonable accommodation for marine traffic by building higher bridges along the New Jersey Intracoastal Waterway, the State of New Jersey is in a sound position to advocate that the Regulations now applicable only to the New Jersey Intracoastal Waterway be extended to apply uniformly to the entire Atlantic Intracoastal Waterway. Such uniformity of regulations would finally result in uniform practices among boat builders in the mounting of appurtenances unessential to navigation. As a consequence, boat owners who come into the New Jersey area from other home ports, or New Jersey residents whose boats have been equipped elsewhere, would not find themselves in violation of local regulations, would not be embarrassed and inconvenienced by delays, and would not cause unnecessary bridge openings by their inability to lower appurtenances unessential to navigation.

DISTRIBUTION OF MOVABLE BRIDGES  
ATLANTIC INTRACOSTAL WATERWAY

STATE	CLOSED CLEARANCE				TOTAL
	UNDER 9 FT.	9 FT. TO 12 FT.	12 FT. TO 20 FT.	OVER 20 FT.	
NEW JERSEY STATE HIGHWAY	1	2	5	3	27
NEW JERSEY COUNTY HIGHWAY	3	5	5	3	
DELAWARE	1			2	3
MARYLAND					
VIRGINIA	6		1		7
NORTH CAROLINA	5	2	2		9
SOUTH CAROLINA	3	2	2	1	8
GEORGIA					
FLORIDA	19	17	9	8	53
TOTAL	38	28	24	17	107

	PORTION OF WATERWAY	NUMBER OF MOVABLE BRIDGES	MILES OF WATERWAY PER BRIDGE	BRIDGES PER 100 MILES OF WATERWAY	BRIDGES OVER 12 FT. PER 100 MILES OF WATERWAY
INTRACOSTAL WATERWAY ATLANTIC AND NEW JERSEY	ENTIRE LENGTH	107	12	8.3	3.45
FLORIDA	40%	53	9.3	10.7	3.44
NEW JERSEY	8%	27	3.7	27	16

	NEW JERSEY	FLORIDA
PERCENTAGE OF TOTAL LENGTH OF WATERWAY	8.0	40.0
PERCENTAGE OF TOTAL MOVABLE BRIDGES	25.23	49.53
PERCENTAGE OF TOTAL BRIDGES OVER 20 FEET	35.3	47.0
PERCENTAGE OF TOTAL BRIDGES OVER 12 FEET	40.0	41.5

## RECOMMENDATIONS

In view of the matters contained in the foregoing report, we respectfully submit the following recommendations:

1. That this campaign be continued substantially in the same manner for the summer season of 1954, but with particular attention being given to documenting violations by out-of-state craft.
2. That the contents of this report be brought to the attention of the Boards of Freeholders of the Counties of Monmouth, Ocean, Atlantic and Cape May.
3. That correspondence relating to the substance of this report be initiated with the offices of the Governors of Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia and Florida by the Office of the Governor of New Jersey.
4. That the two Senators from New Jersey and the Congressional Representatives from New Jersey, particularly those from Shore Area Districts, be advised of the situation revealed by this report.
5. That the Members of Congress be requested to bring these matters to the attention of the appropriate Congressional Committee with the recommendation that the Department of the Army be advised of the need for considering certain changes in the "Rules and Regulations, Atlantic Intracoastal Waterway and Tributaries; Bridges", such changes to be in the direction of uniformity throughout the entire length of the Waterway.

(It should be noted in connection with this recommendation, that no new legislation is required, since under the existing legislation, the Department of the Army may make appropriate regulations which have the force of law.)

6. That the situation revealed by this report be brought to the attention of the New Jersey Legislature, and that passage of a resolution be sought memorializing the New Jersey Members of Congress and the appropriate Congressional Committee of the need for action in this matter.
7. That the situation revealed by this report be publicized through yachting organizations and automobile associations, and other appropriate avenues.

APPENDIX #1

The foregoing report was compiled in October, 1953. For this reason, as stated in the report, the total yearly openings of these eleven bridges for the year 1953 had to be arrived at by estimating the totals for the months of October, November and December. A final figure for the total openings in 1953 is now available and will show that these eleven bridges were opened 34,695 times during the year of 1953. This figure indicates an increase of 5,611 openings over the 1952 total of 29,084, an increase of 19.3 per cent.

If we keep in mind this substantial increase in total openings during the year of 1953, the decrease in openings of these eleven bridges during June, July, August and September assumes greater significance in evaluating the results of our campaign. In spite of the 19.3 per cent increase in openings for the entire year of 1953 there was a 6 per cent decrease in total openings during the months of June, July, August and September, the critical period for both highway and marine traffic in the shore area. (See Graph Sheet B)

## MOVABLE BRIDGES

NEW JERSEY INTRACOASTAL WATERWAY

<u>Bridge</u>	<u>Closed Clearance</u>	<u>Owner</u>	<u>Crossing</u>
Rt. 35 Manasquan River	30'	State Highway	Main Channel
Rt. 88 Inland Waterway	13'	State Highway	Main Channel
Rt. 113 Lovelandtown Canal	15'	State Highway	Main Channel
Mantoloking	13.5'	Ocean County	Main Channel
Rt. 37 Barnegat Bay	30'	State Highway	Main Channel
Rt. 72 Manahawkin Bay	8.5'	State Highway	Main Channel
Rt. 56 Absecon Channel	11'	State Highway	Inlet
Rt. US 30 Beach Thorofare	20'	State Highway	Main Channel
Albany Ave., Atlantic City	10'	Atlantic County	Main Channel
Ventnor Heights	9'	Atlantic County	Main Channel
Margate City	14'	Atlantic County	Main Channel
Longport	9'	Atlantic County	Main Channel
Great Egg Harbor	23'	Atlantic & Cape May Counties	Inlet
Rt. 52 Beach Thorofare	15'	State Highway	Main Channel
Peck Beach	6'	Cape May County	Main Channel
Corson Inlet	18'	Cape May County	Inlet
Sea Isle City	10'	Cape May County	Main Channel
Townsend Inlet	23'	Cape May County	Inlet
Avalon	6.5'	Cape May County	Main Channel
Stone Harbor	11'	Cape May County	Main Channel
Hereford Inlet (N)	15'	Cape May County	Inlet
Hereford Inlet (S)	15'	Cape May County	Inlet
N. Wildwood	8.5'	Cape May County	Main Channel
Rt. 47 Grassy Sound	25'	State Highway	Main Channel
Ocean Drive	23'	Cape May County	Main Channel
Rt. US 9 Cape May Canal	20'	State Highway	Main Channel
Rt. 162 Cape May Canal	10'	State Highway	Main Channel