

INTERSTATE CONFERENCE

on

BOAT POLLUTION

Sponsored by

THE INTERSTATE
SANITATION COMMISSION

SHERATON MOTOR INN

West 42nd St. at 12th Avenue

New York City

APRIL 17, 1968

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on

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INTERSTATE SANITATION COMMISSION

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Welcome:

Dr. Natale Colosi, Chairman
Interstate Sanitation Commission

On behalf of the Interstate Sanitation Commission, I want to welcome you to this Conference which I am certain you will find interesting and provoking.

As you know, the Interstate Sanitation Commission is an agency of the states of New York, New Jersey and Connecticut dedicated to the elimination of water pollution. We feel that the Commission has achieved many of the objectives which were created by the legislatures of the three states. Practically every municipality in the district is under orders to construct sewage treatment plants.

We feel that the program is well underway, and that much of the program has already been accomplished. Now that we have solved most of the problems originating from land sources of pollution, we have to turn to other sources of pollution, namely boats. They create a problem which we intend to solve.

We are very happy to have you here because most of you are officials interested in water pollution abatement. I've seen some representatives here from the League of Women Voters and other distinguished citizens.

You share with us and we share with you the hopes and aspirations for clean waters in this area. So, out of this conference, I'm sure, will emerge plans, ideas and suggestions for the ways in which this important problem will be solved.

Introductory Remarks

Thomas R. Glenn, Jr., Director
Interstate Sanitation Commission

Thank you, Dr. Colosi. The Interstate Sanitation Commission was created by compact between New York, New Jersey and Connecticut for the abatement of existing and control of future pollution in the waters of the New York Metropolitan area.

Its programs not only supplement the abatement activities of the state, but provide coordination for an effective water quality management of regional problems.

The problem of pollution of our major streams by land-based sources has long been recognized, and control measures in most areas have been instituted. In 1965, the states and the Commission agreed that more than primary treatment would be required within the Interstate Sanitation district, and the degree of secondary treatment would depend on local conditions.

This was followed by several conferences where the conferees agreed that the secondary treatment would be required. The states have issued orders and timetables which require secondary treatment or the equivalent for all domestic and industrial wastes in many areas by 1970, and in all areas by not later than 1972.

To comply with these orders many of the plants are under construction, under design, completing their pilot

plant studies as an aid for design or making comprehensive studies to determine the regional solutions to problems, if they are feasible.

Therefore, abatement of the land-based sources of pollution are beginning to become a reality and in the foreseeable future, pollution from vessels of all types and sizes will constitute one of the major remaining sources.

The Commission has been interested in small boat pollution since the 1950's, since many of the marinas were in waters which were relatively free of pollution. They sponsored a study of the effect of cabin cruiser waste discharges on Long Island Harbor waters in 1953. Members of the staff served on the Committee of the American Boat and Yacht Council on recommended practices and standards for sewage treatment devices for toilet waste and encouraged the development of the macerator-chlorinator type of treatment units for cabin cruisers. Although the treatment units did not meet the standards of the Interstate Sanitation Commission, it has been considered a step in the right direction. Since they did not meet our standards, we could not insist on their use.

We suggested to publicly owned marinas that cabin cruisers with acceptable pollution control units be given a reduction in the rates charged. When the marina was filled to capacity, boats with such units should be given priority when vacancies occur.

Since that time in 1962, the New York State

Health Department issued a report on their study, An Evaluation of Marine Chlorinator Units and in 1963 a report was prepared on the pollution effect on marine waters from the waste discharge of small boats. This was sponsored by the New York Department of Health in cooperation with the New York State Conservation Department.

The required degree of treatment from land-based plants in the meantime, has been upgraded and the use of macerator-chlorinator units must be re-evaluated on this basis.

This Interstate Conference on Boat Pollution is being held at a very appropriate time. New York State passed a law in 1967 which requires developing rules and regulations on boat pollution by June of this year. The Department of Interior's Federal Water Pollution Control Administration submitted their report in 1967 to the Congress on waste from water craft with their recommendations for necessary legislation.

Earlier this month Senator Muskie's Senate Subcommittee on Air and Water Pollution held hearings on new legislation. This is Senate Bill 2525, for abatement of pollution from water craft.

During this morning's session we are going to have discussion on the present status of Federal activity in boat pollution. First, I would like to thank Mr. Paul De Falco and Mr. Paul Resnick, from the Federal Water Pollution

Control Administration, for their assistance in planning this conference.

We are quite fortunate to have three speakers who are thoroughly qualified to discuss this subject. I would now like to introduce Mr. Lester M. Klashman, who is Director of the Northeast Region of the Federal Water Pollution Control Administration who will act as moderator of this panel.

Discussion:

PRESENT STATUS OF FEDERAL
ACTIVITY IN BOAT POLLUTION

Moderator:

Lester M. Klashman, Director,
Northeast Region of the Federal Water Pollution
Control Administration, U.S. Department of the
Interior.

I won't spend any time in preliminaries but get right down to our speakers. Our first speaker is Jack Rademacher, who has been with the Federal Water Pollution Control Administration since 1956, first as Chief Enforcement Officer for our Chicago office. Then in 1964 we were together out in our Denver office where Jack joined me as Project Director on the Colorado River Project.

In 1966 Mr. Rademacher moved to Washington as Chief of our Technical Programs. He has been very active in this question of boat pollution which is one of the activities which is directly under him in the administration.

Mr. Rademacher.

Panel Participant:

John M. Rademacher, Director,
Division of Technical Services, Federal Water
Pollution Control Administration, U.S. Department
of the Interior.

Just a few days ago Mr. Joe G. Moore, Jr.,
Commissioner of the Federal Water Pollution Control Admin-
istration, testified before the Subcommittee on Air and Water
Pollution, Committee of Public Works, United States Senate.
He made the following points:

"Pollution of waters by watercraft discharges
is widespread. Boats and vessels move from point to point
in the Nation's waters and may cause local pollution at any
point in their travels. Pleasure craft gathering for a week-
end of fun or for a holiday may suddenly impose a load of
untreated wastes on receiving waters equivalent to those
from a small community. Vessels traveling to and from for-
eign ports may well transport organisms which can reinfect
our environment.

"Today there are approximately 46,000 docu-
mented commercial vessels, 65,000 non-documented commercial
fishing vessels, 1,500 federal vessels, and 8,000,000 recre-
ational watercraft using the navigable waters of the United
States. There are, in addition, almost 40,000 foreign ship
entrances through Customs recorded each year in these waters.
The 8,000,000 recreational watercraft are served by some

5,500 marinas, many with satellite facilities such as restaurants, boatels, and shore-based sanitary facilities located across the Nation.

"No single control mechanism of watercraft pollution exists today over this Nation's waterways. To be sure, there is some State regulation, but this is for the most part imperfect and certainly non-uniform. The inadequacy of these controls can be demonstrated by the needs of watercraft using public waterways.

"A barge tow plowing its way down the Ohio and Mississippi Rivers from Pittsburgh to New Orleans may pass through the jurisdiction of 11 states.

"A coastal freighter may touch as many as 25 harbors in 20 state jurisdictions between Portland, Maine, and Portland, Oregon ... not to mention the Panama Canal.

"The pleasure boater whose number is increasing by more than 200,000 owners per year faces the same problem since the ubiquitous boating public often travels or trailers watercraft from one jurisdiction to another.

"Essentially, each and every one of these watercraft operators needs a uniform set of waste control regulations and approved treatment of control devices."

The Federal government has, for some time, been concerned about the problems caused by the discharge of vessel wastes into the waters of the Nation.

In 1960, an Interdepartmental Committee on

Sewage and Waste Disposal from vessels was formed under the Chairmanship of the U.S. Public Health Service. At that time we were under the Public Health Service. This Committee recommended amendments to the Interstate Quarantine Regulations which have not been adopted to date.

In 1966, the Interdepartmental Committee on Water Pollution from the Operation of Vessels was established under the directives of Executive Order 11288. Section 8 of this Order directed the Secretary of the Interior to prepare a report to the President on water pollution caused by the operation of vessels. This report was prepared in consultation with, and with the advice and assistance of the Secretary of Defense, the Secretary of Treasury, the U.S. Coast Guard, the Secretary of Commerce, and the Secretary of Health, Education and Welfare. The Interdepartmental Committee, which comprised the designees of the Secretaries, functioned to provide this consultation, advice and assistance.

In addition, Congress also directed the Secretary of the Interior to conduct a study of water pollution from discharges from watercraft and to report thereon. The Interdepartmental Committee was continued at the request of the Secretary of the Interior to consult on this report which was completed and sent to Congress in mid 1967.

The Federal Water Pollution Control Administration has been actively engaged in studies, having as their objectives a better understanding of the extent and character of the problem. For example, studies of water pollution by

wastes from houseboats in the Pacific Northwest have been completed and a report issued. The effects of water discharges from the recreational boats on water quality in the Ross Barnett Reservoir in Mississippi have indicated significant bacterial pollution there. A study of the effects of vessel waste discharges on the water quality of San Diego Bay is in its terminal stage with a report planned for completion by early fall.

Further, an evaluation of the macerator-chlorinator on larger Coast Guard craft has been made by our New Jersey laboratories and a report is now in the final stage of preparation. The Federal Water Pollution Control Administration is represented on the National Sanitation Foundation's Joint Committee for Watercraft Sewage Disposal Devices, the Technical Committee on Test Procedures for Watercraft Sewage Disposal Devices, and on Panel M-17, Disposal of Shipboard Wastes of the National Society of Naval Architects and Marine Engineers.

On March 12, 1968, the Federal enforcement conference on pollution of the waters of Lake Michigan and its tributary basins, that is, Illinois, Indiana, Michigan, and Wisconsin, adjourned. Among the conclusions unanimously agreed to by the conferees was the following:

"Watercraft plying the waters of Lake Michigan and its tributaries are contributors of both untreated and inadequately treated wastes in local harbors and the open lake, and intensify local pollution problems."

Unanimously, the conferees recommended, "The representatives of the conferees within 60 days, meet and agree upon uniform rules and regulations for controlling wastes from watercraft. These rules and regulations will generally conform with the harbor pollution code adopted by the City of Chicago, and the regulations adopted by the Michigan Water Resources Commission. Since each of the four States operates under different statutes, conferees will recommend approval of the proposed uniform rules and regulations to their respective boards, legislatures, etc. Commensurate requirements controlling the discharge of waste from commercial vessels is to be the responsibility of the Federal government."

The Federal Water Pollution Control Administration, one of the conferring agencies, will be represented at meetings called for the development of these rules and regulations. Their promulgation within the time limits set by the conference will provide a framework for immediate action and serve as a proving ground for actions leading to abatement of water pollution in Lake Michigan by watercraft.

Two additional tools are available which have a bearing on vessel waste control. Under the Program of Federal Grants to the State water pollution control agencies, FWPCA can and will stress the control of boat and vessel wastes to the individual states, recommending that they incorporate reasonable programs for watercraft pollution control.

Further, the water quality standards which have been developed by the States for interstate and coastal waters must have an implementation plan as an integral part of the standards.

Aside from setting the basic quality levels in the rivers, lakes and harbors, such continuing sources of waste as shoreside facilities for docking all types of watercraft, commercial piers, waterfront terminals, etc., can be required to provide adequate control for the wastes generated directly or, in the case of facilities which serve a mooring area for watercraft, to provide approved solid and liquid waste receiving systems. The State and Interstate water pollution control agencies, including port authorities, can make a major impact by developing control programs for their shorefront waste sources under present authorities.

Mr. Glenn pointed out that some very positive steps are being taken at the present time and I hope that more will be forthcoming in the future. They should evaluate the effectiveness of present litter laws and analyze the enforcement provisions of applicable laws which may be adapted for covering uniform interstate or national requirements.

The need for on-board waste treatment and control devices for watercraft of all types which can meet the very critical space-weight requirements as well as effluent limits still is unmet. Industry has responded and is responding by developing many ideas for workable devices. FWPCA's Research and Development Program is encouraging

such activity and has published a general request for proposals from watercraft waste treatment and control devices.

Whatever the standards or capabilities of the equipment developed to meet the need, the basic consideration centers on how efficiently it is operated, or how well it does the job in the absence of operation. A device may be capable of producing a drinking water quality effluent, but can only do so if properly operated. If maintenance and operation are required, the only insurance factor is the boat operator who understands why it is necessary to operate and maintain the unit to assure a clean water environment. In short, education of the boat operator is a vital need which must be met.

The time frame for compliance, we feel, must be geared to the development of meaningful standards which will insure clean water without imposing an unreasonable burden on vessel owners. In view of the many interests involved, approximately 18 months will be needed to develop these standards subsequent to passage of enabling legislation.

The standards will be developed only after extensive investigation and research to examine the efficiency and effectiveness of various systems for the treatment of sewage from vessels, including a careful study of the costs of installing, operating, and maintaining such systems on various classes of vessels.

The standards will be as uniform as possible for various classes of vessels within similar circumstances. The regulations will set reasonable compliance schedules. These schedules will distinguish between new vessels to be constructed and existing vessels. Special consideration will be given to those vessels that have installed sewage control systems on board to meet State requirements or the voluntary levels of treatment established in the 1965 Handbook on Sanitation and Vessel Construction of the United States Public Health Service.

Sewage treatment devices for boats and vessels must be made foolproof and be capable of operating satisfactorily under conditions quite different from those for land-based plants. In particular, the units must operate with a minimum amount of attention and service. Clean water is not served if a device is a mere palliative. This presents a challenge to the manufacturers of waste control units, the boat builders and the boat owners themselves.

Significant questions remain to be answered in the development of equipment standards and uniform regulations and their enforcement. Cooperative action is essential among the States, industry, the boating public and the Federal government in meeting these problems. The Congress is now considering legislation, which Mr. Nicoll will be discussing, and which we believe is required to mount a comprehensive attack on vessel pollution as one step toward the

control of all types of pollution from its many sources in the Nation's waters.

MR. KLASHMAN: We are very fortunate this morning to have Mr. Don Nicoll, who is Administrative Assistant to Senator Edward W. Muskie, who as you all know is the Chairman of the Subcommittee concerned with water pollution and is part of the Senate Public Works Committee.

Panel Participant:

Don Nicoll, Administrative Assistant
Office of Senator Edmund W. Muskie

I hope that I can bring to you this morning some sense of where the Congress seems to be going in developing and enacting legislation affecting discharges from vessels, large and small.

A short description of the present status of Federal activity in boat pollution might well be, "suspended animation."

The Senate Committee on Public Works has completed its hearings on S. 2525. The House Committee on Public Works has not yet begun its active consideration of the legislation. It is scheduled to start hearings next week on April 23 on several bills pending before the House Public Works Committee, including the legislation that was derived from the Secretary's report on waste from watercraft.

I think there is every indication that both the Senate and the House will take steps to enact a Federal statute this year, providing new authority for standards, regulations and enforcement of watercraft pollution abatement. I say this in spite of the hue and cry which greeted our hearings in early April, particularly from those associated with pleasure boating. We were treated once more to the truth of the old adage: "It depends on whose ox is being gored."

Joseph E. Choate, the Administrative Vice President of the National Association of Engine and Boat Manufacturers, sounded the keynote for the boating industry and its customers when he told the Committee:

"The amount of effluent being discharged from recreational craft was and is minute in terms of the total water pollution problems."

In more colorful terms, he advised the Committee not to "tie a diaper on a seagull."

Mr. Choate's views were echoed by Harper W. Hull, President of the American Boat and Yacht Council, who said, "Many yachtsmen feel that they are being unduly singled out for attention in this matter while major pollution sources, industries and municipalities, are being ignored or given substantial reprieves."

The views expressed by Mr. Choate, Mr. Hull and others were not unlike those of industry in another day..."We are opposed to pollution. We have been moving voluntarily to clean up what little contribution we make. But don't make us clean up until all the other sources have been taken care of."

Mail from pleasure boat owners has eclipsed the statements of industry spokesmen in its vituperative attacks on Secretary Udall, the Subcommittee on Air and Water Pollution and on Senator Muskie. Some of the writers seemed unaware of the efforts already launched to reduce the pol-

lution loads from industry and municipalities.

The legislation now pending before the Congress was delivered in response to a mandate from the 89th Congress, for the Secretary of the Interior to conduct a study of watercraft pollution on consultation with other directly concerned Federal agencies and to appoint a technical committee of representatives of these agencies and other persons to advise him in formulating recommendations for dealing with boat and vessel pollution.

The study was ordered because the Congress believed that the effective programs to control the dumping of refuse and discharges of wastes into all navigable waters from boats and vessels must be developed without delay. The Congress was also convinced that the study was needed before the programs were authorized.

The Secretary of the Interior submitted his report on "Wastes from Watercraft" to the Congress in early August of 1967. Legislative proposals to implement the report were introduced in the Senate on October 11th of that year. I would like to give you a brief description of the legislation as it is now pending before the Committee.

First, under the bill, the Secretary of the Interior would be authorized, after taking into consideration technological feasibility, economic costs, the type of vessels, their operating patterns and such other factors as he deems appropriate, to prescribe regulations: -- first,

establishing standards for the control of sewage discharges from boats and vessels; second, regulations covering the discharge of bilge water from commercial vessels; third, regulations governing the discharge of litter, sludge, garbage or any substances of any kind or description other than oil or dredge oil from vessels.

The regulations may exempt classes of vessels and shall cover U.S. owned as well as privately owned vessels.

The Secretary would consult with the Secretary of State, the Secretary of Health, Education and Welfare, the Secretary of Transportation, the Secretary of Defense, the Secretary of Commerce and other Federal agencies and affected states and industries.

The second major provision in the legislation would authorize manufacturers of sewage control devices to obtain certificates of conformance with standards established by the Secretary. The Secretary of the Interior would certify the conformance with the water quality standards and the Coast Guard would check the devices for safety.

The Bill prescribes penalties for violations of the regulations:

(1) A knowing violation is punishable by a \$2,500 fine and up to a year imprisonment or both. I should say a \$2,500 fine or a year's imprisonment or both.

(2) Violation by a vessel, that is, not a knowing violation, is punishable by a penalty of up to

\$10,000.

(3) A vessel which is required to have a number under the Federal Boating Act of 1958, may have its number suspended; additionally, its owner is liable to a fine of up to \$100 for a violation.

Enforcement of the act extends to domestic and foreign vessels. The Department of the Interior, the Coast Guard and the states are designated then eligible to enforce the act under the supervision of the Secretary of the Interior.

Section 12 of the Water Pollution Control Act, as it would be amended by S. 2525, would prohibit the discharge of sewage, ballast and bilge water, sludge, garbage or other substances in the contiguous zone, except under regulations prescribed by the Secretary. The penalties provided in Section 11, which I have described earlier, would apply within these zones as well.

I want to point out that the proposals contained within S. 2525 are, for the most part, consistent with earlier water pollution control laws, and are designed to carry out the intent of the Congress that standards of water quality developed by the States or established by the Secretary should provide for the protection of water quality against vessel, boat and marina sources of pollution as well as all others.

That language was contained in the 1966 report

of the Senate Committee on Public Works on the Clean Water Restoration Act.

No one is singling out the boating industry or boat and vessel operators. The Congress and the Administration recognize that boats and vessels can and do cause pollution problems, particularly in confined waters, that the problem will be worse as boat populations increase, and that boats are mobile pollution sources comparable in some respects to the automobile, which cannot be controlled easily by local jurisdictions.

In spite of the many questions raised about the bill, there was substantial interest in having uniform requirements for classes of vessels throughout the United States ... this is more apparent in the testimony presented by witnesses for the commercial vessel and the water transportation industry than from those witnesses who represented the small boat owners or pleasure craft.

However, Mr. E. S. Terwilliger, the Executive Vice President of the Yacht Safety Bureau, testified: "That the uniformity of advisory standards and of regulations, if regulations are necessary, is a vital need. That need is particularly emphasized for the boating field for which the maintenance of freedom of mobility is so desirable."

Representatives of the commercial shipping operators were emphatic in their demand for Federal pre-emption of boat and vessel pollution controls.

Out of the hearings, the following major questions emerged. They must be answered, I think, by the Committee, if it expects to present a sound package to the Congress for action.

(1) Should a separate boat pollution act be passed or should the boat pollution control program be grafted on the existing 1958 Boating Act as some of the witnesses suggested?

(2) Should a Federal statute require State and local compliance, with guidelines provided by the Secretary and standards prescribed by the Secretary, or should the States be given some leeway and an opportunity to develop their own standards within the simple guidelines offered by the Secretary of the Interior?

(3) Should the Department of the Interior have the responsibility for the development and implementation of the discharge standards, or should the responsibility be divided with the Interior having the ultimate policy-making authority and the Department of Transportation being responsible for implementation and enforcement?

I might note here a humorous aside in the legislation. There are several places in which the Coast Guard is noted and it is always noted in terms of the Department in which the Coast Guard is operating. If I were a member of the Coast Guard, I would be a little leery of what the Congress and the Administration has in mind for future

reorganizations.

(4) Should legislation wait on perfection of boat and vessel waste control technology?

I shall be interested in your views on these and other questions which I'm sure many of you have.

Open Discussion

MR. KLASHMAN: I wonder if either of you gentlemen would like to discuss a problem that has been raised by many of the States: what is the Department of Defense doing about this problem?

For example, up in this area we have Narragansett Bay with a large Navy installation at Newport. We have the Coast Guard base in New London. Just what is the Federal government doing about this?

MR. RADEMACHER: I think you have to break this question down into two parts -- if you are talking about the installations themselves or the vessels that are served by these installations.

Talking about the installations themselves, this is a companion program which is under the Executive Order 11288. Progress is being made within the constraints of the Defense budget.

Insofar as vessels are concerned, we have several agencies in the Department of Defense and other parts of the Federal government that do have vessels. A great deal of work is being done by the Navy Department, by the Coast Guard, and by the Corps of Engineers -- both from the standpoint of evaluation and testing devices and also installation of specific treatment devices in the vessels.

Briefly, the Corps of Engineers, during the fiscal year 1967, equipped a total of 255 vessels at a cost of \$1,116,000 or approximately \$5,000 a vessel. Installation of treatment devices on an additional 66 vessels is programmed by early 1970.

The larger Corps craft are equipped with biological treatment systems which are capable of effecting what we call "secondary treatment." Several of these are under evaluation right now in terms of studies that are being made jointly with the Corps down in Florida and in New Orleans.

The Navy also has a program going on. They have some specific problems with respect to our defense posture which makes it a little more difficult for them to respond with as much alacrity as the Corps. But, they have had a development program underway for some time and at this point in time have got a treatment system which is apparently a pretty good one from what we can find out.

It is suitable to meet the Navy requirements in terms of space and weight requirements. It requires separation of sewage solids, chlorination to disinfect the effluent and incineration of the collected solids.

A prototype of this particular unit has recently been installed on a destroyer operating out of Boston -- which you probably are aware of, Mr. Klashman -- and this is after a very extended test run on land down at their

laboratories at Annapolis.

The Coast Guard has an active program for equipping its vessels with sewage treatment devices and as of mid 1967, approximately 100 of its 300 vessels were equipped with treatment plants. They have also done a lot of work with us in terms of evaluating macerated chlorinator disinfection units for both the small water craft and the larger ones.

I defer to Mr. Klashman and his cohorts in Metuchen to discuss any facets of that particular study if this is warranted.

The Maritime Commission has initiated provisions for the installation of sewage treatment facilities in a new construction program and has sponsored research concerned with the prevention of water pollution from vessels.

Their current program consists of 19 aerobic type treatment units being installed in vessels under construction. They've provided for common soil line connections and space for sewage treatment plants for 22 vessels under construction and for all new construction. They are developing an oil-water separation system employing the principle of static coalescence for their ballast waters from dual tanks and for the tanker type operations.

The decision not to install sewage treatment equipment on any of the reserve fleet now operated by the Military Sea Transportation Service is because of the age

and the interim service of the vessels. The Coast and Geodetic Survey, a small but important service, has 12 vessels and all vessels have treatment on them.

Basically this is what the Federal government is doing within its own house. It's not complete, but I believe the intention is to get the job done with the best means available.

MR. KLASHMAN: I think one of your points is important for all of us to recognize. That is, if we just sit back and wait until everything else is cleaned up until we start hitting this boat pollution, we're really going to have a problem because there has to be a big time phase here.

For example, with the Department of Defense when you consider the fact, if you have ever been aboard one of these vessels and you consider all the piping and the very critical space need, it gets down to a point that when you put in a treatment device that hasn't been designed into the vessel, either a gun or some ammunition is going to be lost, or some storage of some kind.

So what has to be done, both on this type of vessel and on commercial vessels, we have to get to the point where, at least in new designs, we really are getting this type of facility installed so that eventually when the old boats are gone we will be in business. But if this isn't done and we don't hit this problem, we are really in trouble.

MR. COWHERD, FROM THE AUDIENCE: I was wondering if Mr. Rademacher could elaborate just a little more on the specific boat pollution standards to be set by the Federal conference on pollution in Lake Michigan?

MR. RADEMACHER: Of course this is a joint conference of the Federal and State agencies. Specifically, the regulations will be state regulations. The common interest there would be following the general patterns set down by the Port of Chicago and also by the State of Michigan.

Essentially these requirements -- and I can state specifically for Michigan -- it states that holding tanks are the preferred ones followed by incineration as secondary, and thirdly any other treatment device that is approved by the Water Resources Commission. Generally, this is what the City of Chicago has also. I suspect that general pattern will be followed.

A VOICE, AUDIENCE: Does S. 2525 cover U. S. government owned vessels? Does it cover Department of Defense vessels?

MR. DON NICOLL: They are covered. There is an exception which allows the Secretary of Defense to, in effect, exempt Defense Department vessels when it involves the question of national security.

Essentially, they are already following this rule in complying with the Executive Order by converting the pilot project bases first and by scheduling as much

as they can their retrofitting, as they call it, within the regular overhaul. But this is the only limitation.

I must say that we have been impressed and encouraged by the response of the Department officials. The principal roadblock at the present time is a Congressional roadblock through the appropriations measures and a rider which was applied in fiscal 1968 of the Defense appropriations bill which affects, primarily, the installations. In that case they may not spend money on treatment facilities unless the community in which the installation is located is also treating its wastes. Again, the point that I made earlier in my remarks.

A VOICE, AUDIENCE: What has been the results of your studies with these little macerator chlorinators?

MR. RADEMACHER: Mr. Dewling is the director of our laboratory at Metuchen, the North Atlantic Water Quality Management Center. We have carried out some studies on a Coast Guard vessel having a macerator chlorinator. We haven't been too happy in some cases, but Mr. Dewling will discuss this for you.

MR. DEWLING, FWPCA: In the period of evaluation we had an intensive survey and then a surveillance program. During the intensive survey we lived on board the vessel, which is a 180-foot buoy tender with a complement of about 40 men. We found that on the vessel, the maximum use period on the vessel was during the early morning hours.

And, noticing the actual use of the macerator system, you notice that the detention time in the macerator unit based on a number of toilet facilities, based on the number of men on board, was approximately 2 minutes during a maximum use period.

So our program was designed to test the unit under actual performance during this maximum use period. The coliform standard we used was the one that was suggested by the Public Health Service when we were under that organization, of a thousand coliforms per hundred ml.

Of the 228 effluent samples that were analyzed, 17% had a coliform density of greater than 1,000 per 100 ml. Prevalent during these sampling periods where you had high coliform densities, was the presence of large fecal particles. I say large, I mean between a quarter and a half inch in diameter.

The reason for the high coliform density was because of the masking effect of the chlorine, that the chlorine didn't have the contact time to penetrate the fecal particles to give you the disinfection capacity that you were looking for.

The effluent from the macerator-chlorinator was tested from the effluent line using a T valve system. The macerator operates for approximately 2 minutes. The sample for the first 30 seconds of the functioning of the macerator was discarded. The next one minute sample, which

represents about a gallon, was collected into a sterile bottle. It was immediately de-chlorinated and all the bacterial analyses were performed on sight and were incubated within 20 minutes of the time of taking the sample.

Chemical analyses were also performed for chlorine residuals, available chlorine with hypo-chlorite used, pH, and settled solids. The reason the latter was run was to determine whether the discharge was fecal or urine.

MR. KLASHMAN: Do you have any judgment as to disinfection on a small boat where the macerators are used, and there is a holding time?

MR. DEWLING: On our vessels, the Queen Waters as well as the Hutton, which have a crew on board of about 5 or 6 men and have a small macerator chlorinator, the unit tested has been satisfactory where it had a coliform density of less than 10.

On the Coast Guard tugboats in the New York harbor area you have a 15 to 20 minute detention time in the macerator, and we have been getting good coliform densities.

MR. CARLEY: Mr. Rademacher, according to the report of 12 states which have, at this time, regulations prohibiting any discharge whatsoever from pleasure boats, would the Department of Interior follow up on this program and go along with all 50 states that have no discharge regulations?

MR. RADEMACHER: This is a question that says, "Well, are we going to go to the limit as to what these 12 states say?" I think again, as I have pointed out, that we are going to do an evaluation based upon the various classes of vessels and the equities of the situation across the country. It's just not limited to 12 states.

Certainly if the state law has more severe restrictions than the Federal law, it certainly is going to apply. I don't know as of this point in time, just what the Federal standards will be because we have not done that study.

Until that is done in consultation with all interests, including the boating interests, the regulatory interests, the various departments in government both in the states and the Federal government -- until this is done I think it would be just a guess on my part.

MR. CARLEY: I talked with Mr. Nicoll during the recess and his mention on S. 2525. He only mentioned vessels, boats and marinas. I wonder whether he would talk about ports. I wonder what the attitude is of Congress concerning the legislation pertaining to regulations concerning marinas and ports? What part will the Federal government play in that?

MR. NICOLL: Legislation that is pending before the Committee now, S. 2525, does not address itself to either marinas or ports. The Committee's position and

the Congressional intent is that marinas and ports are covered by the basic Water Pollution Control Act or the Water Quality Act and should be treated as any other stationary source of pollution. This is in terms of the formal application of the act.

However, I think the point should be made that since holding tanks and policy questions regarding discharges from treatment systems on board vessels raise questions in the terms of discharges at the time a boat is docked, either at a marina or at a port, it will be necessary and desirable, in all probability, for all marinas and all ports to have available facilities for off loading sewage from vessels.

And, in such cases where such ports and marinas are located in communities, discharging such sewage into the community treatment system or in cases where there are no community facilities, discharging them into a treatment system on shore.

This is not spelled out in the legislation because the legislation is not designed to lay down every single standard. This is something that must be developed administratively.

MR. RADEMACHER: I might add a point and expand on this particular thing, that the State of Michigan, in their proposed regulations, Section 3C of their proposed regulations, says:

"No persons shall dispose of sewage accumulated in the holding tank or any other container on a watercraft in such manner that the sewage reaches or may reach the waters of this State except through a sewage disposal facility approved by the State Department of Public Health or its designated representatives."

MR. KLASHMAN: Mr. Carley, in addition to that I might say that before a marina is built, a permit must be obtained from the Corps of Engineers. As a matter of routine, the Corps under the executive order and under our law, must check with the Federal Water Pollution Control Administration to get our views on this. We discuss this with the State. We have a standard position that we take that is exactly what Mr. Nicoll said. I mean, the marina must do the things that you mentioned, Don. That's right in the language.

MR. NICOLL: I would like to also make an additional point here. S. 2525, or the Oil Pollution Control Act which passed the Senate last year and is now pending before the House, should be read in the context of the basic Water Quality Act and the Clean Waters Restoration Act.

Because, the Congress looks at these individual items of legislation as parts of a whole. You don't answer all the questions in one piece of legislation but you fit them together in such a way that they do

cover the waterfront, literally.

In the sense of establishing legislative framework, we've taken care of the major crisis problems through the enforcement program aimed at the endangerment of health or welfare, particularly from industrial and municipal sources. We are gradually tightening down on the odd items of discharge, in this case vessels, which are not susceptible to the conventional approach of shore-based treatment systems. But we are trying to prevent any loopholes here, for example, where you do not have the capacity on shore to deal with discharges which come from vessels to the shore.

MR. CARLEY: It seems to me that marinas and boats and ports are so closely interrelated that it will require holding tanks. What about standardization of the connections across the country and so forth as it relates to the boat and the port and the marina? They are so interrelated you cannot separate it.

MR. RADEMACHER: The National Sanitation Foundation has a committee on this in which we participate. We do have some proposals on standard fittings.

In the Conference on Lake Michigan, one of the recommendations to the conferees was that a technical committee evaluate this very point that you are talking about so that standard fittings are provided for connections to take care of this very thing that you mention.

Certainly, this matter of standardization of fittings is an important one that I don't feel will be missed at all in terms of implementation of any act.

MR. CROWELL: I would like to ask a question of Mr. Dewling. He mentioned that he has had a test run that was used on what he called a "two minute interval" or time between uses.

Perhaps I should identify myself. I am Chairman of the Pollution Committee of the American Boat and Yacht Company. One of our projects is to set standards and criteria by which anti-pollution devices may be developed.

We have always assumed that a minimum of 5 minutes between use of a marina head was the greatest frequency which could possibly occur. I would like to ask on what basis he determined the 2 minute time between uses.

It would seem to me, to be very earthy about it, that it is impossible for two different people to use the same head in a two minute period.

MR. DEWLING: As I mentioned to you, these were on Coast Guard vessels with 40 men in which you have 5 heads and one urinal. Standing in the head physically myself and timing the actual use during the act of urinal, this was actually how it was done.

We found out that 2 toilets during the 60 to 90 minute period in the morning were flushed almost simultaneously leaving zero retention time. With a 12 gallon

storage capacity in the macerator and 4 gallons per flush, you can flush one toilet every three minutes.

MR. RADEMACHER: We in the Federal Water Pollution Control Administration actually have a vessel with only 5 men aboard, which is similar to a large pleasure craft. But in this case he mentioned that we were getting very effective results with the macerator.

But the question was, you can't use this, at least the way the unit is designed now, for the larger vessel, and that is the point he was trying to make.

MR. CROWELL: This is when the large vessel has one tank. My thinking is entirely oriented around the small pleasure craft and these are the type of vessels that are in the great majority. It is estimated that 450,000 pleasure craft exist that are equipped with marine toilets.

MR. RADEMACHER: Do you happen to know what the interval is, Mr. Crowell?

MR. CROWELL: Yes, I would say that we based our calculation and the development of our devices on a maximum frequency of 5 minutes. This is a situation where you figure that one head is used by one person and the same head cannot be used by another person except for that interval. I have one other question about that. Did you make tests according to standard methods?

MR. DEWLING: Yes.

MR. KLASHMAN: Are there any other questions?

MR. CARLEY: I have a question wrapped up in a recommendation and I don't know whether this is a proper form. I am Editor of Motor Boating Magazine and I suspect, therefore, partial to boat owners.

There have been some comments made that the boating industry is being singled out and I can tell you from my reader mail that boat owners also feel, very definitely, that they are being discriminated against. The reason for that is, as Mr. Rademacher announced this morning, Federal grants will be available for states and communities and as Mr. Nicoll has said, orders have gone to communities in this interstate area to install devices. But the deadline he gave, I believe, was 1972.

MR. GLENN: That was land based.

MR. CARLEY: I understand that. You said land based, therefore land-based pollution control is becoming a reality and I'm sure you are referring to this particular area. I question that because I don't know whether New York City or New Haven is being controlled by 1972. If they are not, certainly the waters in this area will be polluted.

Therefore, my recommendation is to you gentlemen collectively and through you, if possible, to the Congress or any other authority, that you treat the boatmen the same that you are the other communities. In other words, if the deadline is 1972 for the installation of pol-

lution control devices in this area, then give the boatmen in this area the same headlight.

In addition to that, since Federal money is being given and State money, too, to community and industry to install these devices for wastes, then I think it is only fair to give the average boat owner the same privilege. Make him make his installation costs tax deductible. I think this way, gentlemen, you can get the job done on time.

MR. NICOLL: First, with respect to the question of deadlines. There are no formal deadlines in the existing Water Pollution Control legislation. The 1972 figure or date stems from the estimates made by the Senate Subcommittee on Air and Water Pollution.

At the time it was pressing for an expansion of the grant program and based its projections of a cost of providing 80% secondary treatment between 1967 and 1972. That was picked up by a number of people in and out of the Federal government as the deadline for providing such treatment across the country.

This has never been the recommendation of the Committee and we have gone to some lengths and some pains to point this out. The legislation pending before the Committee now on S. 2525, does not contain any deadline for compliance. The only time projections which have been made were by the department. Mr. Moore's testimony indicated that it would take about 18 months for the de-

partment to develop the proposed regulations affecting sewage discharges. This time would start at the point of enactment, realistically allowing for a little lag time here should mean that you are talking about regulations being promulgated about the middle of 1970.

Those regulations would not require compliance as of the date the regulations were issued. So we are talking about considerable lead time and lead time which is geared to technological and economic feasibility. If you re-read the legislation, you will see that this is stressed at several points.

With respect to the question of costs and compensation or grants or subsidies, whether direct or through tax incentives, no tax incentives are provided now to anyone with respect to treatment facilities.

I think as a general proposition, the possibility of such benefits grows less with each passing day in terms of water pollution control. This is not only true of motor boat owners but also of industries. The technique which is being encouraged by the Congress is the development of joint treatment systems, not joint treatment plants but joint treatment systems, which are capable of handling both industrial and municipal wastes. In such systems, those that discharge into the municipal system benefit.

If holding tanks are required, discharged at marinas or ports, then obviously the owner of the vessel

who does discharge into those facilities does benefit from the Federal grant program, since presumably those facilities will discharge into a community stream system.

I have my doubts as to whether the Congress would go so far as to provide grants or other subsidies for pleasure craft owners particularly, to help them to install facilities to control pollution. This is, I believe, a luxury item, and I must say at this juncture in our history I would put down the question of additional benefits for those who can afford pleasure craft fairly well down the priority list.

I am reminded -- and I do not want this to be distorted -- I am reminded of J.P. Morgan's comment to the effect that anyone who has to ask the cost of a yacht shouldn't own one.

MR. KLASHMAN: Are there any other questions?

Yes, Sir.

MR. KINNEY: First of all I would like to compliment the panel. I would also like to add that the cost of the Navy program regarding waste control for our existing vessels will amount to approximately 255 million dollars. This is based on some feasibility work that has been accomplished and we expect to ask for this money starting with the fiscal 1970 program. When I say "ask" this is, of course, up to the legislative branch.

I would like to eliminate the fear of the per-

son who asked the question regarding S. 2525 on the exemption for military craft. I think you will find that most of the pollution and other related bills that this statement is in there for obvious reasons.

However, we are very highly disposed, as Mr. Nicoll has stated, towards gaining the technology which we feel will equip our ships with pollution control devices. To this end we have already spent a half a million dollars in research money to develop and determine the feasibility of such devices for military ships.

This is a report out, and if you would like to write to my office I can send you a copy of it free. It's called the Navy's Technological Progress in Water Pollution Abatement. It's a paper given to our association which outlines and briefly describes our progress to date from the military hardware standpoint. You can address me, E. Kinney, Naval Ships Systems Command, Room 3544, Washington, D.C.

MR. NICOLL: Mr. Chairman, I'd like to make one clarifying comment. I don't want my response to the gentleman from the Motor Boating Magazine to be misinterpreted by anyone.

I hope I made it clear in my earlier remarks that, certainly the Congress, and I know from the testimony of the Secretary, the comments of the Secretary and the testimony of Mr. Moore, that no one is going to impose on

any vessel owner, boat owner, at this time an impossible or economically unfeasible treatment system. My comments about being concerned with subsidies for such treatment systems is the only one that I would connect with my quotation from Mr. Morgan.

A VOICE: I would like to clear up an impression that has been made by yacht remarks. I will safely say, and I think that boatmen here will agree, that the vast majority of pleasure boats today are, I would say, under \$1,000 either by virtue of age or size or something else. These devices are going to create a great hardship to these owners and a lot of people will have to get rid of their boats because I believe the general estimates of installation are around \$700.

On behalf of all the boat owners that have to invest \$700 or \$1,000 per boat, it just won't happen. Most of the people today, I can safely say 95%, are just ordinary people and do not have yachts. They are the regular, common people who go in for motor boating.

I'm talking of boats that exist that would be required to be installed with heads. I would say that more than half of them are under \$1,000. I think every boatman would verify that.

MR. NICOLL: The legislative history to date is very clear on the point that no one is going to insist on taking all vessels, older boats, unless they

have a lot of life left in them, and converting them. The requirements for treatment facilities on board, if treatment facilities are required, are obviously going to be limited to those vessels which are away from port for a considerable length of time and which carry a number of passengers.

I think we have to answer the question of cost -- the cost of the vessel and the cost of the treatment system -- realistically in terms of what size vessels, what the cost, what amount of money.

I don't think that the Congress or the Administration or the State officials who are pressing for action in this area should be accused in blanket terms of putting impossible requests on boat owners when we don't get back from you an accurate estimate. I'd like to know just how large a vessel costs a minimum of \$1,000.

A VOICE: I would say that would be in an outboard class, a very small boat about 16 feet long.

MR. RADEMACHER: Don, he made a statement there that I think has to be clarified. You have 8 million pleasure craft in the country of which anywhere from 400,000 to a million or more have head facilities on right now, depending on whose estimate you use.

We are not saying that every boat above that point is going to have to put a head on it. You don't have a head on a boat if you have a comfort jar. All right, the

disposal of that over the side is a violation. Dump it at the marina. But to put a head on it, no, I don't think that you are going to have to put a head on it.

We are concerned about those vessels with heads and the treatment of the wastes or the containment or control of the wastes on those vessels that do have them.

Every year there are 200,000 more new owners of boats. Now, if history follows its pattern in terms of our affluent society, a good many of these things are going to have heads on them. It's something that the vessel owners are going to demand.

With the head you are going to have to provide adequate control. That's the point. And those boats, the 16 footers that don't have a head on it, I don't think that anybody expects to put heads on those things unless you want to.

MR. KLASHMAN: Can you give an estimate of the costs that we are talking about, this \$700?

MR. RADEMACHER: Yes. \$700, you can probably spend \$7,000 if you wish, but all the estimates that I have heard range anywhere from \$40 up to about \$450 to about \$500 for the most part. The re-circulating toilet, this is the type that is used in the airplanes, for instance -- 60,000 of them were sold for home trailers in the past year. These go at about \$350.

A VOICE: Installed?

MR. RADEMACHER: Yes. I am not going to defend one product or another on the cost...

A VOICE: I'm certain that the boat owners are the ones most concerned to clean up pollution, very definitely. And when you speak about new boats, those boats certainly -- when a man buys a new boat he wants his boat clean. But what I am talking about now are the boats that are older, 15, 20 year old boats, and there are an awful lot of them sailing around. These are the ones I am talking about.

MR. KLASHMAN: On the crafts that do have heads, the feeling is that if there is a head and if it is causing a problem, the owner, ultimately, will have to do something about it.

MR. JIM O'BRIEN: I would like to direct my question to Mr. Nicoll. You made reference before to the Muskie Bill and to the possibility of adopting it as an amendment. Am I right?

MR. NICOLL: This has been suggested.

MR. JIM O'BRIEN: We are probably all aware of what this act requires and that it sets the basic standards as a minimum. The United States Coast Guard approves vessels as to sea worthiness, and I would like to suggest that the same approach be taken. That this be a party to whom the Federal Government will dictate a particular set of standards.

I would feel there that minimum standards should be established for the Federal government which the States would have to establish, too, and have accepted. I suggest that we not only have the Federal navigable waters to concern ourselves with but thousands of other waters throughout the State to which you must also give consideration.

For this reason I suggest that we have one standard within the state so that we are not faced with a standard on Federal waters and another standard on State waters.

MR. NICOLL: I think the testimony before the committee supports your general proposition, Mr. O'Brien. The only major problem you encounter when you discuss the possibility of a minimum national standard with an option for the states to go beyond that if they wish is the problem of a host of different state standards which, in turn, impose serious burdens on manufacturers or potential serious burdens on manufacturers and boat owners, particularly if boat owners move from state to state operating their boats.

The commercial industry, the water transportation industry, is insisting on Federal pre-emption. I suspect there would be very little problem in enacting Federal pre-empting legislation for that class of boats.

It is more difficult in the area covering

pleasure craft, not commercial craft, because of the inherent antagonism, I guess you might call it, toward Federal regulation as distinct from State regulation.

I don't know where the Committee will come out on this. It's a question of balancing practical considerations. I can say that the intent of the existing Federal water pollution control legislation has been increasingly to try to encourage a continuing partnership between the states and the Federal government and partnership between adjoining states with common problems, as we have in the case of this Interstate group.

This spirit, I think, will be carried out in the Watercraft Act, if and when it is passed. Where it comes out, I think, will depend in a large part on what seems to be the most practical approach taking into account these various considerations.

MR. DEWLING: How does this present legislation handle the problem of foreign vessels, the ones that dock with a standing population of 600 or 700 people per vessel? What sort of program, legislative-wise, is being considered before permitting installation of treatment facilities for foreign vessels as well as larger American ones?

MR. NICOLL: The legislation would authorize the Secretary to issue regulations on sewage discharges, litter, garbage, etc., bilge water discharges covering both

domestically owned and foreign vessels using U.S. navigable waters, either in in-shore or in the contiguous zone.

The logic for this, of course, is that you don't require one standard for your vessels and another standard for foreign vessels.

The question of how you enforce this is a fairly simple one. The Coast Guard simply refuses to permit foreign vessels in. In order to get the business which they are anxious to have, the foreign flag owners will comply.

MR. TERWILLIGER, AUDIENCE: I am the Administrator of the Yacht Safety Bureau. Just a little while ago there was a statement made by me and in this statement I tried to give a brief history of what we have been trying to do for this problem over the course of quite a few years.

It happened to be my privilege to form, I think, one of the first committees that would deal with standards for water pollution control devices for boats. The boating game, as a whole, has for some time been alerted to and aware of these problems. I think that the boating game can be pretty proud of what it has been doing.

I still make this observation today talking in terms of the problem, where we have a great tendency at this level, to gloss over the great strides that have been made in taking care of this problem. More of a tendency is to prepare procedures used to control the same type of prob-

lem in commercially oriented areas with their commercial vessels and have a tendency of applying up to the private boat area, because the practical considerations are not quite the same.

When we speak in terms of boating there is an over-simplified concept that is applied to those. This needs to be looked into, just how to provide services and installations for small boats so they can be incorporated. These things are going to smell and they are going to have one horrible picture.

Speaking in terms of incinerators, again, this is an over-simplified concept on how to handle this problem on small boats, because if you go to existing regulations, the various ways of applying these devices and providing the heat that is necessary to dispose of these matters, this is quite a problem as applied to small boats. We have to go into an awful lot of considerations. Taken from the owner's point of view, that system seems to be one of the more practical concepts, simply because it has a method for getting something overboard that you don't have to obtain aboard.

But here in the overall picture you have various regulations where no discharge is permitted at all so you get back to other concepts. Even when you come to re-circulating types of toilets, it is one thing to think in terms of these devices aboard aircraft or aboard com-

mercially controlled units where they are very quick to service, but it is quite another when put aboard these private boats.

The overall picture that I am trying to give you is that none of the existing solutions are easy of accomplishment in the small boat field.

My question is, how can we accomplish this in the small boat field? Again I refer to the statement I made in Washington where I tried to give a picture of what is being done.

MR. NICOLL: Mr. Terwilliger, if you were here at the beginning, you know that I quoted your comment on the need for conformity in the testimony. I think it should be clear that the legislation itself and the approach taken by the Committee does not pass over the difficulties encountered in applying the technology of pollution control to small vessels.

There is a danger, as people look at the legislation -- and this is not peculiar to this bill -- of assuming that the bill somehow sets the regulations. The bill does not do this. It simply sets the framework on which the regulations will be developed.

For those of you who have an opportunity to read the testimony, I think you will find in reading not only the statements by Mr. Moore, the Federal Water Pollution Control Administration, but also the statements from the

representatives of the Coast Guard Maritime Administration that the technical problems are fully appreciated, particularly the safety problems and the weight and space problems, and that these are to be incorporated into any consideration of regulations or standards developed by the Administration.

I say this only to make sure there is no misunderstanding as to what the Committee's point of view is, and the detail which the legislation itself contains. It contains very little. It's very short.

The real question we have to answer in the Congress is whether or not the system which the legislation provides is practicable and equitable and whether the Congressional intent is clear enough to achieve the goal and to do so in such a way that it does not impose an impossible or an unreasonable burden on anyone -- keeping in mind that the primary goal is to protect the quality and the uses of the water for the boat owner as well as for others.

MR. CROWELL: I greatly appreciate your remarks about the law that is not to create a situation of a boat owner that is impossible for compliance but I would like to point out that in certain areas this is exactly what is being done.

For the harbor of Chicago, the ordinances there that they read indicated, among other things, no sewage, no garbage, no fuel, solid or liquid, oils or anything else

shall be discharged into the harbor waters.

I said, "What about a man who comes in here and has never yet seen a bilge in a boat that did not have a film of oil on top of the bilge water. A little. Not much. But nevertheless it was there."

One of the Commissioners there promptly spoke up. He said, "Why of course you pump your bilge into a holding tank."

I was also told that outboard motors, which are famous for leaving an oil slick behind and burn fuel and oils, that this too will have to stop. This is impossible of compliance and if they want to legislate boats out of business that is exactly the direction they are taking now. Any law which is impossible of compliance is going to effect two things:

(a) Either a cessation of pleasure boating and especially the smaller boat. The smaller the boat, the more serious is the problem, and the smaller the boat, the more noise is the problem -- or

(b) There is going to be wholesale evasion of the law and that is the one thing that I would like to see avoided, wholesale evasion of the law. But frankly, a law that is as rigid as this is impossible of enforcement and impossible of compliance.

MR. KLASHMAN: I think we have to recognize that in those areas where we have waters, like in Lake

Michigan or Lake Winnepesaukee up in New Hampshire, that are being used directly for the water supply, that you have a rather unique problem.

When the regulatory authorities concerned feel that to protect this resource, a device such as the one that you are talking about is needed, I think it is a question of whose interest is being protected. Is the interest of these millions of people less important than that of the boat owner? I am not asking you this question, I'm just throwing it out.

Do you have any comment to make on this, gentlemen?

MR. BILL FENNECKEN: I would like to just make this observation. In relation to this situation, in 1965, when they were pumping waters from Lake Hopatcong into the reservoir, there was quite a bit of this problem involved. One of the representatives of this reservoir came over to Lake Hopatcong the day after Labor Day and there were supposed to be 6,000 outboards on this lake. We do not allow the open heads. They must be sealed.

Samples of the water were taken the day after Labor Day and I received a report back from the samples that the water was clear in Lake Hopatcong as against what was presently in the reservoir. So here was a lake with reportedly 6,000 boats on it that stated on problem.

We see no big pollution problem in our lake.

A VOICE: Mr. Klashman, I would like to be sure of this question. You said that in your district, the Corps of Engineers required marinas to provide facilities for pumping these things?

MR. KLASHMAN: What I said was that in our region, in our comments to the Corps, we are indicating that this probably is going to be required in the future and that a provision should be made for doing this.

MR. KLEIN: In other words, this would be a part of their permit?

MR. KLASHMAN: That's right. This is what we are recommending.

MR. KLEIN: The reason I am pursuing this question is that one of the questions in the Ohio Valley is this push and pulling tanks. I think the regulatory agency, if it goes down this particular road, as our Commission may very well do, behooves them to provide some means for the boater to pump his tank.

This, of course, puts a further burden on us that (1) the boater has a place to pump his tank. To be sure that he is pumping it into a municipal system or an approved on-shore facility.

(2) If we require the marina to do that we are providing a divergence from the original thing in that we are requiring the marina to provide a service. Now, that is not only to care for his own problem but to provide a ser-

vice to the general public. Furthermore, it provides some burden to see that the place, the discharge port in that case, is reasonable to the boater.

I just wondered how, in your particular area, you were pursuing this. We are faced with this problem in having a thousand miles of river and going with the holding tank concept.

MR. KLASHMAN: Let me explore this with you a little further if I might. When the Corps comes to us with a project and somebody is asking for a permit for a marina, we recognize, of course, that at this point in time we don't have any regulation. But the permit states that it appears that this is coming and that provisions should be made so that when it does come, the marina will have to provide it. In other words, I don't think that the Corps is insisting that the marina provide it immediately but they have to agree that they will put it in when it is required. When the regulatory authority -- I am talking about the state regulatory authority -- does require it at this time in a particular area, then they must put it in right away.

MR. KLEIN: In other words, when we get the Federal Water Pollution Control Administration law through, it will require the determination as to whether or not the marina or the facility does, in fact, create any pollutional hazard. This is with respect to water pollution.

We have some of those under discussion now.

But there is nothing that I know of that provides or requires that the man who wants to should put in that facility to furnish a service to the public.

MR. RADEMACHER: I mentioned before, Section 3C of the proposed act in the State of Michigan which says that these marinas, docks and so forth will provide receiving facilities approved by the proper state authority.

It would pose a problem in terms of construction grants, for instance. This is a whole new area. I pose it only as a possibility for the states and for our people to consider that in an area which is served by a sanitary district or a marina, where boats are docked, there may not be an interceptor sewer to pick up this waste. Receiving facilities that are constructed there must properly be considered as part of the interceptor system and the transport of such materials on a scavenger basis may be part of the sewage authorities' responsibility.

Properly these might have a possibility of being part of the total system that comes under the grant provision. I believe that there are commercial units available also. One outfit in the State of Ohio has a device with standard fittings and so forth, that had the tank scavenged on a regular basis by scavengers. The man comes up and puts a coin in for evacuating the tank on his boat.

I'm not making a judgment as to whether this is totally acceptable or not. I am just saying that

these devices are already on the market. Probably refinements do have to be incorporated in them and all the problems are not completely solved. But I think that the concept of the area where the man docks his boat providing facilities is not too far fetched. It can be done.

MR. KLASHMAN: May I explain to you where this authority that I am talking about comes from. There is an Executive Order, 11288, and there is a copy of it in the Water Pollution Control legislation. If you don't have a copy I will be glad to send you one.

Under Section 1, paragraph 3, it reads:

"Pollution caused by all other operations of the Federal government, such as water resource projects, operating under Federal loans, grants or contracts shall be reduced to the lowest levels practicable."

When the Corps of Engineers is involved in the issuing of a permit, that permit must insure that there is not going to be any water pollution that is going to cause a problem.

MR. KLEIN: But I was addressing myself to the fact that this doesn't mean that a particular marina has to furnish a service to the public.

MR. KLASHMAN: First we warn that it appears that the way we are going, that the regulatory authorities are going to require this. As a matter of fact, in some places in our region they are already -- in some of the

interior waters, the ones that are navigable.

MR. NICOLL: It seems to me that you have raised the question in terms of, as I understand it, placing a burden on the marina operator to provide a service to the public. It strikes me that this is a case where it is also in the self-interest of the marina operator to provide such off-loading facilities. Because, if the discharges are made at his docks and he has a well patronized marina, it is not going to be very long before the marina is unattractive and undesirable and unhealthy.

In microcosm you have the problem we are faced with across the country. We have a larger and larger population, in general, and specifically in terms of recreational use of our waterways. The uses are progressing at almost geometric proportions. The more people you have, the more of a pollution problem you have. The more concentrating that polluting population becomes, the more careful you have to be, the more burdens you have to impose upon yourself in terms of treatment.

It would seem to me that any marina operator who hopes to be in business for a long time, will attract people to come and buy the services that he is providing. He should be encouraged to provide this kind of facility.

MR. PERRY: I'm a sales manager of a company in New Jersey. I'd like to get information on the government attitude of attacking the boat owner all over the country.

Sometimes we cannot ship to Connecticut and we cannot ship to Illinois because of the different requirements.

There is nobody more interested in clean waters than boat manufacturers and salesmen. If we don't have clean waters, we will sell less and less boats. If a marina cannot put his own tank in, there will be problems. The problem is right here today and we must be consistent from state to state as soon as possible.

I can understand why some parts are local targets but we are creating a system we just can't live by. The government is attacking the owners of 8 million boats that really want clean waters.

MR. NICOLL: Let me be very clear about this, ladies and gentlemen. The Federal government and the Congress have not picked out the boat owner, and are not engaged in an attack on the boat owner.

The legislation affecting commercial vessels and pleasure craft came out of a study required by the Congress in 1966 as part of the Clean Waters Restoration Act, which was the last of a series of legislative proposals, that had come before the Congress and accelerated the National Water Pollution Control Program.

It is quite comparable to the legislation enacted in the Clean Air Act of 1965, requiring control devices on individual automobiles. In terms of basic principle it is exactly the same.

The reasons for suggesting the need for legislation and regulations are twofold: First, if this does constitute a problem, if not in the larger sense, that is, in proportion to industrial pollution, at least it does present a problem in terms of individual cases and enough individual cases to cause national concern.

The second reason is the one which you, yourself, gave. The problem is with us today and it is a problem of uniformity as much as anything else. Given the national demand for cleaner water and given the specific problems which are arising, for example, in Chicago or on Lake Winnipiasakie or on a number of other bodies of water.

There is pressure at the local level for community ordinances or for state laws controlling pollution coming from vessels, both pleasure craft and commercial vessels. The danger is, if we do not establish a consistent framework and a desirable body of law on which we can build a sensible program, we shall be faced not with 50 different standards but with hundreds of different standards.

MR. PERRY: It seems there is an inconsistency when you are asking some people to spend \$7,000 or \$700 for a holding tank to go into a harbor and dump it into another tank that goes back out into Long Island Sound.

MR. NICOLL: I'll say again what I said earlier. We in the legislation are not asking anybody to do anything specific. We are simply providing a framework for

arriving at sensible decisions which are part of an overall decision, to start treating all waste before it is discharged into the public waterways of the United States.

The argument as to who is picking on the boat owners did not start in the Congress. Let me give you a little legislative history. In 1966, the Committee was considering legislation which would have imposed standards or which would have provided the Secretary of the Interior with authority to set standards on discharges from vessels.

The Committee shelved that pending a study to be absolutely sure that they had some understanding of the magnitude of the problem and that the administration had thought through the administrative and other problems which it would encounter in administering such a program. That is why the study was authorized and directed.

The study has been presented to us and now the Congress is ready to act on it. This is long after the Congress of the United States and the Administration started imposing substantial burdens on industry and on municipalities.

I can't see how anybody could construe the actions of the Congress or of the Administration as putting a boat owner ahead of industry or ahead of municipalities. These are not the facts. And I don't see why we come back to this point over and over again.

MR. CROWELL: Could I ask you to look into

your crystal ball and see what you see for legislation that will have been made for the next 5 years? Where we might be in 1972 or 1973?

MR. NICOLL: I think we can see passing this year, legislation in effect which would either provide for Federal guidelines or Federal standards for vessels used on the navigable waters of the United States. Those guidelines or standards to be developed in conjunction and consultation with state officials, industry representatives, etc.

I would not see any additional legislation making basic changes in those requirements, unless it develops in the course of the Committee's action and in review of the existing program, that some loopholes need to be closed.

There is a problem, for example, which has been raised here informally this morning, relating to out-board motors, particularly the 2 cycle engine. It is entirely possible, if it becomes clear that this is a major problem, not only from the point of view of pollution and its contribution to pollution, but also in terms of a burden on interstate commerce stemming from differing standards in different states, that the Congress might decide to enact the legislation similar to that now applied to automobiles, with reference to motors used by vessels on navigable waters.

But beyond that I would anticipate no major changes of legislative direction. My plea this morning really is to stop treating this as Uncle Sam trying to beat

the poor boat owner over the head and start looking at it as a practicable problem, which witnesses for the industry and for the boat owners conceded in their testimony. Not conceded but stated.

Mr. Terwilliger stated this very clearly. The public demand is there and the demand is from boat owners. The same boat owner who will scream about being imposed upon will scream tomorrow about the waste he finds on the water, some of which has been put there by another boat owner and perhaps by himself.

I have some good friends who count themselves outdoorsmen and fishermen whose habits of throwing litter overboard when they are out in the woods and nobody is looking is appalling. We all tend to do this. But instead of screaming that we are being beaten over the head, let's take a cool, close look at this problem and try to come up with some practical legislation and then influence the department to develop reasonable, practical regulations which enable us, as a Nation, to do the job we have to do.

MR. CROWELL: I want to make one observation, if I may, to show a comparison between the pollution from automobiles and the pollution from boats. I would remind you that the laws and regulations regarding automobiles only refer to those automobiles built after 1968 and left immune all those automobiles already on the road. I wish to God boats got the same break.

MR. NICOLL: Please don't distort what I said. I simply said the problem was comparable in terms of the nature of the pollution. The distinction we are making is between stationary sources which can be controlled, for example, in industry or municipalities, or, in the case of air pollution, a factory which is discharging through the stacks, which can be controlled, in most cases, by local enforcement, and a source of discharge which is moving.

The question is, if it is a serious enough problem in terms of polluting the environment, how do you control that emission? Now, in the case of the automobile and, I suspect, in the case of the motor, an outboard motor, there are two points of control.

One is at the manufacturing level by requiring engine modifications or devices to reduce the emissions and the second, which is far more difficult, is in requiring inspection for conformance with operating standards.

In making the analogy between boats, outboard motors and automobiles, I am not comparing them in terms of similar magnitude of the problem as a public health hazard. I'm simply saying that in terms of the kinds of sources they represent, they are very similar and the control techniques may have to be very similar.

I think it has been clear through the testimony before the Committee and what Mr. Rademacher has said here this morning, that consideration is certainly

going to be given to existing sources of pollution because it is very difficult and very expensive to put devices on existing sources, particularly small boats, etc.

You can only start cutting back on the pollution. You can't start off with a fresh slate. We all are responsible for the inadequacy of our existing modes of transportation. We are responsible for the inadequacy of our treatment systems because we did not focus on this in time.

I think that we are going to have to work very hard and, wherever possible, without casting aspersions on each other, to clean up the problem as fast as we can and let's hope we are not too late.

MR. KLASHMAN: Several people have approached me and there have been some other questions here about what is going on in water pollution control other than boats. I would like to make it very clear that the Congress passed a law in 1966 requiring that the states set standards by June 30th of 1967 in this region which has 9 states. In 6 of the states, the standards have already been approved. Three more we hope will be approved soon.

But these standards call for three things: criteria which spell out the water quality and the water uses; a plan of implementation with a list, municipality by municipality and industry by industry with dates as to exactly when things are going to be done; lastly, a plan

of enforcement.

I can assure you that we are moving ahead to get these things cleaned up. I think for the first time in the 30 years that I have been involved in this kind of work, for the first time I, personally, can see some hope that we are going to achieve a clean-up.

(ADJOURNMENT FOR LUNCH)

LUNCHEON

Speaker:

Alexander Aldrich, Executive Director,
Hudson River Valley Commission

Recording equipment was not available in the dining room for a recording of Mr. Alexander Aldrich's luncheon speech. A copy of the talk was not available and could not be included as a part of this report.

Panel Discussion:

APPROACH TO BOAT POLLUTION
PROBLEMS IN THE TRI-STATE
AREA

Moderator:

Senator John J. Marchi, Chairman,
New York State Joint Legislative
Committee on Interstate Cooperation.

Thank you, Mr. Glenn. I was very happy to respond to the invitation. I thought this was a marvelous opportunity, even if I didn't provide a significant service, to up date my own thinking and my own information on what is a truly important subject.

I had the good fortune many years ago of being Chairman of the Senate Committee on the Congress of Navigation and of being a member of the Joint Legislative Committee that provided for the registration of boats. As a Coast Guard reservist and all of these interests, and coming from Staten Island, we are strictly a water borne county out there, there was a convergence of natural interest there, I think, to keep my appetite whetted at all times.

There is great public interest in the question of environmental control, water pollution, air pollution, as certainly indicated by the very massive vote. You can't get a yes vote on almost any kind of a bond issue with the public today if it involves a substantial expenditure of money. We hit the people with a billion dollars

for clean waters and we were extremely successful. People from all hues of political persuasion recognized something around which the entire community could rally.

We feel there are many considerations, whether they are economic, recreational, aesthetic, commercial, any one of a number of considerations which undoubtedly prompted the huge majority of the people to respond so well with respect to the bond issue.

This is a dramatic manifestation. It is not a question of drumming up public support or really directing the public to a worthwhile objective or supplying an emphasis that it needed. The public acceptance was there.

The main problems, as I see them and as I think most legislators see them, are the feasibility of programs, the technological implementation and the means by which we realize certain desirable objectives and their feasibility. If the means exist and if they are, indeed, feasible and we can conserve the balanced considerations which take in the economic as well as the health, recreational and all the other aspects, then you have the making of a real program.

We have an impressive panel of experts. People who shoulder very significant responsibilities in areas that certainly include, in a very substantial way, the problem of boat pollution.

Panel Participant:

Roger H. Gilman, Director of Planning
and Development, Port of New York
Authority.

It is a real pleasure to be here with you today, particularly at a conference which is sponsored by a regional agency such as the Interstate Sanitation Commission with which it has been my pleasure to work very closely over the years.

Five years ago, the Port of New York Authority, in association with the New York City Department of Marine Navigation, with many civic and port agencies and many civic and recreational boating organizations, initiated a vigorous campaign to combat a form of water pollution that is often overlooked in this vital subject.

I refer to the hundreds of tons of floating debris that daily litter the harbor and its tributaries. Floating logs, many of them partly submerged so that they elude the eye of the most alert navigators, have been the cause of heavy damage to all types of craft using the port.

Boat owners estimate the collective cost of repairs to propellers, hulls and engines, at about 8 million dollars a year. There is also the serious element of personal risk to those using the port's waters for navigation, since the comparatively light material used in manufacturing pleasure craft is not sufficiently sturdy to withstand a collision with a floating log which may weigh

up to 100 pounds. Should a boat be badly holed in a collision, loss of life could result if help is not close by. Only last month, James McAllister, who is President of one of our largest tugboat companies and a man who is very familiar with the practical aspects of navigation, pointed out at a meeting of New York and New Jersey Congressmen that:

"The danger to pleasure boats is so great that only the most hardy amateur navigators venture into harbor waters and they usually pay heavily for their courage in damages to their craft. The sources of most of this debris is some 2,000 wrecks and hulks that have been abandoned along the 650 miles of waterfront in this harbor and its tributary waters."

On my left and on your right are photographs of some typical installations -- I hardly dare call them installations because they are relics of piers, harbor craft of one sort or another, which are littered on both sides of the harbor in every portion of this tremendous port of ours.

Unused piers and bulkheads that are being allowed to slowly disintegrate also contribute to the accumulation. In some areas of the port these sunken vessels and rotting piers have become eyesores that have seriously lowered property values in addition to being sources of debris with each rise and fall of the tide.

Some of these ship graveyards have been defacing the waterfronts since the beginning of the 20th Century. In certain port areas wrecks lie on top of other wrecks which in turn are resting on still other abandoned hulks. It is said that a sailing gunboat of Revolutionary War vintage is among the 2,000 rotting, wooden hulks.

The laws of the land presently contain no provision for the clearing away of abandoned craft as long as they do not obstruct the port's navigable channels. If a vessel sinks in a channel, the Army Corps of Engineers has the responsibility of having it removed in order to maintain navigation.

If a craft is abandoned in waters outside of channels, however, it is permitted to remain there until it falls apart. The majority of the abandoned craft in the port were deliberately deposited in the makeshift water dumps by owners who did not know what else to do with them after they became unusable.

A thorough harbor clean-up will be a task of major magnitude involving many communities in the States of New York and New Jersey. Such a project, obviously, would be best accomplished by the Federal government. The Port Authority and other organizations supporting the clean-up campaign believe that the Army Corps of Engineers would be the appropriate agency for such a project.

The Army Engineers are presently responsible

for moving floating debris from navigable waters in the harbor and therefore have the knowledge and experience for coping with the clean-up assignment that would eliminate the sources of such debris right at their origin.

In fiscal 1964, almost 5 years ago now, the Congress appropriated funds to enable the Corps to make a study of the clean-up problem. The study has been prolonged because the Corps was faced with several problems for which no precedent exists. Among them are the following:

(1) The cost of cleaning up the port, estimated at perhaps 16 million dollars or more.

(2) The question of whether the Corps of Engineers should have responsibility for maintaining all inland waters free of abandoned wrecks and rotting piers since they become sources of floating wrecks.

(3) The extent of municipal participation in the clean-up project, especially in the removal of deteriorating bulkheads and piers.

(4) The type of Federal and local legislation necessary to prevent a recurrence of the disgraceful port conditions.

(5) How to dispose of waste materials when the clean-up takes place.

The last problem, the disposal of waste materials, has been complicated in recent years by restrictions on burning wastes because it would pollute the

atmosphere. Commissioner Halberg is familiar with this particular problem.

While I am sure we all agree, in principle, with such restrictions, it must be recognized that they do pose the necessity of finding other ways of disposing of the rubble accumulations. Several studies have been made on the possibility of converting the materials into useful commodities, such as paper.

To date, however, no economically feasible proposition has been presented. We understand that the Corps of Engineers' study is about completed and that the New York District Engineer will present the findings and recommendations soon to their superiors for review and action.

If Washington approves the recommendations, the next step will be to secure legislation in the Congress authorizing a harbor clean-up project. Following the adoption of such a measure, it would then be necessary to persuade Congress and our States and our communities to appropriate the necessary funds to carry out the job.

Every owner in this region of commercial or pleasure boats, every person interested in making our harbor shorelines fully presentable and usable, should support the clean-up program. Certainly the unnecessary litter in the port caused thousands of New York and New Jersey dwellers to worry and think twice about the harbor dangers in

boating, one of the nation's most popular forms of recreation, even though many of them live only a few yards from the water's edge.

Even more important, the unsightly wrecks and the rotting piers and bulkheads are obstacles to the development of many areas of the harbor's waterfront for commerce, recreation and even housing. Certainly it would be impractical to construct a housing development or a marina on a site overlooking an accumulation of rotting barges and other craft.

Of course I realize that this conference is concerned with other aspects of the water pollution problem than the floating litter resulting from abandoned ships and piers.

What about the active vessels that use our port? Do they contribute to the pollution of these waters? What is being done about it if they do?

As the nation's busiest port, the New York, New Jersey harbor is used by virtually every type of vessel afloat. In size the vessels range from the super liner Queen Elizabeth, the world's largest passenger ship, to small rowboats.

On every business day, passenger liners, combination passenger and cargo ships, freighters, container ships, tankers, naval vessels, ferry boats, pilot boats, tug boats, car floats, other types of barges, dredges, derrick

barges and pleasure boats navigate the harbor waters or are tied up at its piers. The list is long and the total number is in the thousands.

It is not exceptional for up to 200 large merchant ships to be in this port at one time. The customs service records a total of 24,000 entrances and clearances a year. This does not include the many thousands and thousands of voyages made during the year by small harbor craft which never put out to sea.

What happens to the waste and sewage from these craft? For many years local and federal laws have prohibited vessels from disposing of garbage and wastes such as oily bilge waters by throwing or pumping them overboard, while in coastal or harbor waters.

The Coast Guard and Marine divisions of local police are charged with the enforcement of these laws. While enforcement is sometimes spotty, it has had a deterrent effect especially on large merchant ships.

Some passenger liners dispose of garbage while in ports by having it carted away by private contractors. Most vessels keep such refuse aboard ship until they are sufficiently at sea to toss the garbage overboard without danger, hopefully, of contaminating the beaches of Long Island or New Jersey. As a New Jersey beach visitor, I'm not quite so sure how effective that is at times.

Oily water from empty fuel tanks or from

facilities to the city system which is now complete. Hoboken and Brooklyn are connected to city systems. The Port Authority's proposed consolidated passenger ship terminal on the banks of the Hudson River at midtown Manhattan would, of course, include a connection with the New York sewage system.

This, I should say, is in startling contrast to the facilities that our piers replaced. Some of the toilets for longshoremen and other workers on those antiquated structures were simply nailed outhouses directly over the harbor waters.

Believe it or not, on some piers there were no toilet facilities at all. The Port Authority has always been proud of the clean washrooms it has installed in its new terminals as evidence of our policy that workers are entitled and they must have decent sanitary facilities.

None of our terminals are presently equipped with pipelines that can be attached to ships using their berths, so that these will not discharge raw sewage into the bay. So far as I know there are no commercial piers with such equipment and there has been no demand or request from ships for the use of such a facility.

To offer them would be nonsensical in a way, for the sewage discharge from ships into such facilities would ultimately find its way to the waters under the ship in any event. This is because most of the sewers with

which the piers' sanitary facilities are connected empty into the harbor.

For example, at our Brooklyn piers, the Port Authority was required to extend our sewage outlets inland before connecting with parallel city sewers which then empty into the bay and areas immediately adjacent to the terminals. Thus the sewage from the terminals flows inland parallel to the course it will take when it joins other sewage for its outfall. An interceptor sewer, I should say, is of course planned by the city.

Should the time come when there is a requirement for ship sewage outlets, the Port Authority is giving assurance that there will be no problem in installing them quickly and efficiently at all our waterfront facilities.

Such facilities would not differ greatly in operation from those we maintain for supplying ships with fresh water. Shipyards in this port have long had such connections in their dry docks so that crews of ships within such docks can live aboard their vessels while repairs are being made on them. When the time comes for the shipping industry to alter radically its present procedures of disposing of sewage in order to clear up water pollution, I'm sure that the utmost cooperation will always be given.

As I have noted, there is no serious problem to providing shore facilities to receive sewage from large or small vessels in the port.

I would like to make one more point in my discussion of this very timely topic. Ironically, a reduction of pollution in the harbor waters could well bring about a side effect that must be considered along with its benefits to public health. This is one item which Tom Glenn and I have chatted about for a long time.

I am referring now to the population of marine borers. At present the pollution of harbor waters depletes the necessary oxygen in the water which the marine borer must have to live. These creatures who relentlessly eat away at timber-supported piers, simply have not been able to exist in our inner harbor because it was polluted by industrial wastes and sewage where most piers are located.

Even though marine borers have always been active around the periphery of the port, particularly outside the harbor entrance, pollution of the inner harbor during the past 100 years has been so great as to create an unfriendly environment for their survival. The gradual and relentless elimination of pollution in the harbor waters makes essential our close observation of the marine borer activity.

I can assure you that the subject of water pollution in the Port of New York is a major concern to the Port of New York Authority. As a public agency we are dedicated to a program of making this a most attractive

port for the movement of cargo and passengers.

For this reason we have been very active in the efforts to secure Federal assistance for removing the wrecks and rotting waterfront installations which have disfigured the port for years and have been the source of the floating pollution of its water.

The Port Authority is also keenly interested in any program looking to eliminate other forms of water pollution. You can be assured that we will be ready to provide a means for disposal of sewage from vessels using our waterfront terminals when there is evidence that such facilities will be used. Meanwhile, we will continue research in the problem of the marine borer so that we will be prepared to combat this destructive creature which may return to the harbor after pollution is eliminated.

Thank you.

of pleasure boats and the significance of their plying about in waters that are presently grossly polluted, we are concerned with their effects upon relatively clean waters in New Jersey. This is particularly true with respect to high density use of such pleasure boats in docking areas and marinas. In recognition of the need for some control measures, legislation in New Jersey has been introduced during the past several years. Such legislation has never been passed and we are presently awaiting action on a Senate bill identified as S. 159.

This bill provides for the State Department of Health to certify marine toilet pollution control devices to the Department of Conservation and Economic Development which, in turn, would be responsible for the general administration of the law, particularly with respect to certifying or licensing of such watercraft.

The possibility of passage of this bill during this session is unclear. I would suggest that legislation, state or Federal, as well-meaning as such action might be, is doomed to failure unless a clear need is demonstrated.

We in the New Jersey Water Pollution Control business, must, of necessity, be pragmatic. We have to be since we, as a State Water Pollution Control Agency, and not necessarily the report makers, must live with the problem from here on out. I think that we have to develop

some perspective.

I think that the problem must be well defined, well documented and with firm conclusions reached without resort to misleading wording. If we are presently uncertain about actual or, perhaps more importantly, potential hazards to the public health and well being, then let us set about to determine the facts and to determine them firmly and move ahead.

We in New Jersey are in the process of studying the problem of marina activity in relatively clean waters. We hope, at least, to be able to contribute to the general knowledge of the situation.

I should perhaps point out that New Jersey is obligated to move in the direction of control over boat sewage disposal. Last November the Federal Water Pollution Control Administration called a conference in the matter of pollution of the navigable waters of eastern New Jersey, from Chart River to Cape May and their tributaries. The Conference was called pursuant to the provisions of Section 10 of the Federal Water Pollution Control Act. One of the recommendations agreed upon by the conferees, that is, the Federal Water Pollution Control Administration and the State Department of Health, reads as follows:

"Control measures aimed at abating pollution from boats operating in the tidal waters of the area are to be adopted by the State of New Jersey. Such control meas-

ures require either satisfactory treatment or adequate tanks capable of holding waste material for subsequent discharge to on-shore treatment facilities.

"Such regulations must be adopted so that pollution from this source will be controlled no later than November 30, 1970."

We therefore have more than a passing interest in this matter. We are vitally concerned that such state or Federal legislation, or administrative rules as may be enacted, relate and concern themselves with the following points:

- (1) That they be reasonable.
- (2) That they be practical.
- (3) That they be enforceable.
- (4) That they be uniform with respect to interstate travel.

We in New Jersey are anxious to work with the private sector and with our fellow regulatory agencies to develop meaningful pollution control measures designed to meet both current and future needs.

Let us get on with the job, and let us do the job based upon facts and not emotions.

Thank you very much.

SENATOR MARCHI: Thank you, Mr. Segesser.

Of course we do have in the State of New York, Section 33C of the Navigation Law which attempts to do most of the things that are in the proposed New Jersey legislation. The effective date is for this year. Undoubtedly, the legislature will extend the effective date another year.

But the authority already exists under New York State Law to have this kind of an administrative determination approach based on those factors that you mentioned, practicability, feasibility and effectiveness.

Jim O'Brien over here, who is Director of the Motorboat Division of the Department of Conservation, I guess is at least, if not more than, guardedly optimistic that many of these practical considerations can be resolved in favor of an effective program that will be operative by next year.

Panel Participant:

Commissioner Herbert B. Halberg,
Commissioner of Marine and
Aviation of New York City.

As you are aware, water pollution has many sources in a city the size and complexity of New York. Our pollution problem, however, is primarily the result of the disposal of raw sewage from land-based sources into our surrounding rivers and waterways, the creation of floating debris, and the elimination from vessels of untreated wastes as well as litter.

This afternoon I would like to discuss each of these problems generally, and more specifically to discuss the problem of vessel pollution.

The treatment of sewage which is created from land-based facilities is primarily the problem of our Public Works Department in the City of New York. In that connection, substantial advancement has been made in the recent past toward the elimination of all raw sewage entering into the surrounding waters of the City of New York. Funds have been provided for the creation of pollution treatment plants with the assistance of the State of New York.

At present, all raw sewage created in the City of New York is treated prior to its release into our surrounding waterways except for a small portion of upper Manhattan and the Bronx. The construction of a pollution plant to handle this additional sewage, it is hoped, will

commence shortly, after having been delayed for a number of years.

The plant to be erected on the North River of Manhattan will be the final link in the City's chain of pollution treatment plants. The cost of these plants and their capacities may be of interest to you. However, I may note that in addition to constructing the sewage treatment plants, interceptor systems have been created and plants have been upgraded over the last 10 years to handle the ever-increasing flow of raw sewage.

Some of the larger plants operated by the City of New York are the Wards Island Plant which has a capacity of 220 million gallons per day; the Newtown Creek Plant, which is capable of handling 310 million gallons per day and the Owlshead Plant in Brooklyn, which can handle 160 million gallons per day and the Hunts Point Plant in the Bronx, which has a capacity of 150 million gallons per day.

Unfortunately, as I mentioned before, the city has been delayed in the completion of its pollution abatement program. The program began with the creation of the Wards Island Plant in 1931 and by 1945 the city's program had cost 67 million dollars and was capable of handling 497 million gallons per day.

Despite a delay in work due to the Korean conflict, the program by 1957 was capable of handling 897

million gallons per day at a construction cost of upwards of 184 million dollars. In 1967 the City's capacity was increased to 1347 million gallons per day, at a cost of 416 million dollars. Additional plants would increase our capacity by 468 million gallons daily and cost approximately 350 million dollars. These plants are presently in the planning stage. The importance of this program cannot be underestimated since the primary cause of water pollution is the sewage and industrial wastes which come from land based facilities.

Another source of pollution which comes from both land and vessels is floating debris. Roger Gilman discussed that matter at length and we recently organized and held a Congressional breakfast in Washington to present some of our problems to the Congressmen in the Port district from New York and New Jersey. One of the items which we did discuss at length was the problem of the clean-up of the harbor, which has been under study for a number of years and where a report has been completed but it is still unreleased by the Corps of Engineers. Once that report is released, we are hopeful that Federal funds can be brought into play to assist the local funds and effort that we have been putting out.

The Department of Marine and Aviation has spent much time, effort, energy and money over the past year and a half to eliminate some of the sources of harbor debris. During that period we have removed, or caused to

be removed, more than 20 piers in New York Harbor. These piers were old and obsolete and in a state of disrepair and an enormous source of debris and harbor pollution.

In addition, the timbers which broke free from these old piers were sources of menace and danger to shipping, causing damage, it is estimated, up to 8 million dollars a year to pleasure and commercial craft. More than one million dollars was spent by Marine and Aviation on its pier demolition program during that period, and it is anticipated that a sum at least equal to that amount will be spent next year on this vital program.

Supplementing this program is the Department's inspection program covering more than 578 miles of New York City waterfront. This program has a number of functions, one of which is to maintain constant surveillance in all sectors of the port in order to deter the development of sites which will be the sources of future pollution for the harbor and in further causing to be rectified conditions which have been permitted to develop due to improper management of waterfront sites by private owners. Had this program been fully operational and effective over the past 50 years, or perhaps 150 years, we would not have the sources of pollution that are piled upon our beaches and shoreside areas to which Mr. Gilman referred.

These sources of pollution which are merely old vessels, sections of old ferry racks, railroad tenders,

anything that could be just dumped, have been left on waterfront sites since it was the most convenient way to eliminate them.

Had this program that Marine and Aviation has been implementing in the last year been effective over the last 100 years, we would not have this problem today. However, it exists with us today and we will need Federal help to clean it up.

The measures that I have noted have been therapeutic and have assisted materially in eliminating substantial pollution in the harbor. But, as I point out, other funds and other energies are going to be needed to assist us.

The third cause of pollution is the one which we are most concerned with at this meeting: the pollution originating from vessels. The problem, of course, has existed for many years. When pollution of land origin is coupled with that from the enormous group of pleasure craft, we are led to a very serious condition in our waterways. It is the genesis of the enactment of Section 33C, which Senator Marchi just mentioned, of the Navigation Law, which was adopted in 1966 by the New York State legislature. It is a model act, and I think it will be used by many other states for the development of pollution control systems.

In passing the law, the State legislature

noted that the purpose of the law was the protection of the safety, health, cleanliness and usefulness of the waters of the State, which required the operation of watercraft and marinas to be regulated in the interest of public health and public enjoyment.

The rapid growth of the pleasure industry in New York State, together with supporting marinas, required the strong language which was enacted into 33C. Subdivision A2 mandates that no person, when engaged in commerce or otherwise, shall place, throw, deposit or discharge from any watercraft any sewage, liquid or solid, which renders the water unsightly, noxious, or otherwise unwholesome. This subdivision makes the law applicable to litter.

Subdivision 4 of Section 33C, which is to become effective this year, as Senator Marchi pointed out, requires an extension of time for the development of facilities aboard vessels to handle sewage originating aboard watercraft.

Since the passage of this law, problems have arisen as to the development of devices so that they can be both economical and efficient for the small boat user. The development of anti-pollution devices has caused the State legislature to consider an extension of the effective date of this law.

A number of devices have been tested by the

State Health Department which must, ultimately, approve the use of the pollution control device aboard the watercraft. Various types of macerators and chlorinators have been tested. No clear decision has yet been reached as to the specifications for these devices which will satisfy the New York State Health Department.

The Department of Marine and Aviation which operates about 9 ferry boats in New York Harbor between Whitehall Terminal and St. George Terminal, has been fully aware of this problem since the passage of the legislation in 1966. We are aware that of all the inland carriers which this law affects, we are probably the major carrier of passengers in the State of New York

The ferry service carries 23 million passengers annually. It is therefore of particular importance that the macerator-chlorinator device which is finally approved be efficient enough to handle the discharge of wastes created aboard our vessels, and at the same time, be economical both as a capital item and as an operating device.

Other inland vessels, both commercial and of the pleasure variety, which are subject to the navigation law must likewise install devices which are capable of handling the effluents both efficiently and economically.

We unfortunately face a serious financial crisis in the operation of our ferry boats. We are pres-

ently losing approximately 12 million dollars per annum and it would be a serious burden for us to invest new funds in pollution control devices while suffering these enormous financial losses.

We feel these devices are necessary but we are also in a financial crisis from which it will be almost impossible for us to extricate ourselves. We are therefore hopeful that the State of New York will see fit to provide the necessary funds for the installation of the numerous devices needed aboard our ferry boats.

They have, in the past, provided assistance for the development of sewage treatment plants, and we are hopeful that they will likewise see fit to assist us.

The real problem, I think, will nevertheless be the small pleasure craft which operate in and about the lakes, harbors, bays and rivers of New York State. Unless real enforcement can be effectuated by the State Conservation Department, Section 33C will be rendered, substantially, ineffective.

The assistance of local police departments should be sought, especially those which have harbor and river patrols, in enforcing the law. Since the City of New York exercises little jurisdiction over the small pleasure craft, the Conservation Department of the State of New York should develop regulations and guidelines for the City of New York to act upon.

Similarly, if the Department of Marine and Aviation is furnished some guidelines by the State Conservation Department for our guidance in overseeing marinas within the City of New York, we would enforce these regulations and require that marinas be built with the specifications necessary for holding tanks and other things required under the appropriate regulations.

We have, unfortunately, not at this time been furnished with these necessary guidelines. To further enhance the intent of Section 33C, it would, of course, be appropriate for the Federal government to develop uniform water pollution control regulations so that the problem can be attacked on a national level.

One area of attack has started and that is in the oil pollution control problem. Oil pollution control was the subject of a recent special message from the President to Congress. The President referred to several major oil spillage incidents and recommended legislation which would make the discharge of oil unlawful if it occurs from a shore facility or from a vessel operating within 12 miles of shore.

This would expand the present 3 mile limit of liability. It would also impose upon the oil pollutor the responsibility for cleaning the beaches and waters and empower the government to clean up oil spills whenever the owner or operator failed to act, and require the pollutor

to reimburse the government for the costs.

It would also authorize the government to establish regulations for shipboard and related marine operations to reduce the possibility of oil leakage and provide protection against large and dangerous discharges of pollutants, other than oil, by requiring those responsible to take whatever clean-up or other action the government considers necessary. This legislation is being introduced in 3 bills in the House of Representatives, numbers 15906, 15907 and 15908, if you are interested in obtaining copies of them.

The other steps which can be taken in addition to the Federal government developing a uniform law for the United States, would be the rendering of national assistance to the City of New York for the development of the necessary purchases to handle the raw sewage aboard our ferries as well as other municipally owned vessels.

The development of guidelines for the construction of marinas so that adequate facilities can be developed for the handling of wastes from watercraft. The rapid development of an efficient and economical macerator-chlorinator device to be used on board watercraft.

I would say that the last step that could be taken is to provide for effective enforcement of Section 33C.

SENATOR MARCHI: Thank you, Commissioner, for a very excellent presentation. I was mildly amused in this connection, going back to the previous report from the Presidential Commission taking a critical view of some of the local efforts. I suspect that they are 100% right.

But in the excellent background material that you can find on the table out here, we find that one out of 80 Coast Guard vessels have sewage treatment facilities; that less than 10% of the other thousand Navy and Coast Guard vessels operating in our waters have these facilities.

So we may have the ironic situation of government vessels, which are not equipped with these facilities, some day inspecting and trying to enforce a law which they themselves are not observing.

But in any event, it indicated, I think, that there is a great deal of work at all levels, local, state and Federal, for a problem which is growing in intensity and dimension.

Panel Participant:

Moulton H. Farnham, Editor
"Boating"

I think that your last point on the Federal installations and what they contribute to water pollution is very germane. Right here in your own borough, Staten Island, I think the U. S. Public Health Service contributes some 50,000 gallons of raw sewage to your waters.

President Johnson did take cognizance of that in a message he sent to Congress on March 8th, where he talked about air and water pollution from Federal installations. He said:

"In the field of pollution it is not enough for an enlightened Federal government to stimulate the work of the States, localities and private industry; it must also set a good example for the Nation.

"Across the Nation, Federal installations are adopting the latest air and water pollution control methods. During the coming year, that effort will be intensified. We expect to devote 53 million dollars to the task, for 13 separate Federal agencies and 360 air and water pollution abatement projects."

My guess is that the Coast Guard cutters will get their pollution control devices in about the year 2000. I was in the Coast Guard during World War II. I know how our older service suffers at the hands of the more demanding agencies.

In any public discussion about a subject as complex and emotionally charged as marine pollution, I think it is important that each speaker announce loudly and at once, who he is and what his interest is in the subject.

If he is a manufacturer of chlorinator toilets or holding tanks or incinerators, let him say at the outset that he hopes to make a great deal of money from legislation that may require the use of a specified kind of marine toilet on every boat and inland waters, especially if the legislation happens to approve only his type.

If the speaker is a boat builder, or a manufacturer in the boating industry who is worried that conflicting requirements among the 50 States may chase away many prospective customers who do not want to be bothered with trying to meet the demands of uninformed bureaucrats, let him so state. Or if he is merely the ultimate target of all this attention, the practicing boat owner and user who wants to have the fun of boating on the simplest possible terms, he should so identify himself.

Now, to practice what I preach, let me say who I am and what motivates me on the subject of marine pollution. I am Moulton H. Farnham, better known as Monk Farnham, Editor of Boating Magazine, which, our publisher tells me, has the largest circulation of any boating magazine in the world -- some 2,000 copies each month.

I want to make a statement. I do not stand

to profit by the sale of, nor do I have what the boys at the FCC call "a beneficial interest" in pollution control equipment, chemicals or facilities of any kind.

I do, however, have a vested interest in the field of recreational boating. I depend, for my living, on keeping enough people interested in the sport so that they will continue to buy "Boating" magazine and keep it a profitable medium for our advertisers to use.

But in the same breath, let me make it clear that I do not believe everybody should be on the water. Nor do I think that you or anyone at this conference believes that there is a place on the water for boatmen who do not, and will not, acknowledge their responsibility to operate their craft in a safe and law-abiding manner.

Already we have too many people on the water who view it as a vast playground that has no traffic rules. Some people will never accept responsibility for their actions. We should not encourage such people to crowd our waterways. They endanger us all.

As a practicing boatman of more than 40 years' experience on both fresh and salt water, I am very much aware that the States will enter a dead end street if they demand standards of sanitation from the boatman that are physically impractical to meet.

Unintelligent legislation on pollution will

be as unenforceable as was the Volstead Act. At the same time I cannot be persuaded that, because some cities and even the Federal government, continue to pour vast quantities of raw sewage into our waterways, that the boatman does not need to be concerned about his own pollution of these same bodies of water.

The annual amount of raw sewage pumped into inland waters by all boatmen is only a fraction of the total from municipal and other sources. But it is muddy thinking to deal on a national basis with a problem that comes directly down to a local situation.

As a specific example, take a popular boating spot like Lloyd Harbor on Long Island Sound on any good weekend during the summer. Here you may find as many as 150 boats or more of all types, anchored within a short distance of the beach for the entire weekend.

Though the harbor is tidal, the circulation of water in and out of the harbor is not rapid. The result is that solid sewage pumped from boats tends to remain very much in evidence, not only in the water but drifting in and onto the beach.

You would find it hard indeed to convince non-boating members of the community who use the beach that the raw sewage from the anchored boats is only a fraction as offensive as the raw sewage that New York City dumps into the Hudson River 40 miles to the west.

The sewage from boats can matter in a great many areas around the country. It is time for both the industry and the boatmen to recognize this fact. When it is acknowledged that the boatman does have a responsibility to the rest of the community not to pollute the waters he is privileged to use, the question then becomes: "How does he prevent such pollution?"

That, of course, is the number one question and, presumably, finding the answer to it is the end goal of conferences like this. Three different methods of dealing with marine pollution are currently being promoted: incinerators to burn off the waste, macerator-chlorinators to treat the wastes chemically, and holding tanks to contain the wastes until it can be brought to a shoreside pumping station and discharged to a sewer system ashore.

Each of these three methods has certain advantages and each has such apparent disadvantages that I'm sure the average boatman is as confused by the claims and counterclaims as anyone in this room.

There is no question, for example, that an incinerator can dispose effectively of waste produced aboard a boat. There is a large question, however, about the size of a boat for which this is practical. Is it feasible to install this equipment in a 16 foot outboard runabout? Apart from the feasibility of installation itself, I'm not convinced that waste can be burned without involving temper-

atures and the use of combustible gases that have a great potential for fire and explosion.

The manufacturers may argue that they have contained these two hazardous elements so that there is no danger, but with regard to the operation of any piece of equipment by great numbers of boatmen, I am a firm believer in Murphy's Law: "If anything can go wrong, it will."

So I, for one, would not contemplate using an incinerator on my boat nor would I try to persuade any member of our boating audience to install such a device.

How about the macerator-chlorinator widely advertised as an answer to marine pollution? Certainly it does not have the fire and explosion potential of the incinerator, yet it does have the mechanical problem of being sure that the supply of chlorine is being maintained. Otherwise, the boatman would just pump raw sewage through the outlet.

A more basic consideration, however, is whether or not the answer provided by the macerator-chlorinator is a satisfactory answer. Many experts who are concerned about maintaining the purity of recreational waters disagree with the manufacturers of these devices that the effluent put out by a chlorinator is an acceptable addition to waters in which people will be swimming, fishing and skin diving.

Since I have no personal expertise in the biology involved, I can only rely on the testimony of quali-

fied research people who have. These people have told me that although the macerator-chlorinator breaks up the solids into small particles, there are still solids, and they can accumulate in the water as a separate pollutant.

The fact that they may or may not be chemically free of pathogenic bacteria is beside the point. The solids can become imbedded in the bottom and act as a continuing source of nutrients for aquatic growths of various kinds.

There is also some doubt, apparently, about whether or not the macerator-chlorinator is effective in killing pathogenic bacteria. From an aesthetic standpoint, I am not sold on the virtues of swimming in the effluent of any such device regardless of how finely it may be ground up or chemically treated.

In this respect, I cannot muster up the same degree of enthusiasm that was exhibited by Yale University's renowned Dr. Charles Emory Winslow in the days when he was pioneering chemical treatment plants for municipal sewage.

He made an impression on my wife, who was then a student at the Yale School of Nursing, with a demonstration that is still one of her most vivid memories. Having taken a public health class through New Haven's sewage treatment plant, Dr. Winslow paused a moment at the final outlet pipe, drew off a beaker of the effluent and proceeded to drink it.

It was a dramatic and memorable lesson, though, according to my wife, few of the girls were inspired to follow Dr. Winslow's example.

But if my friends who are concerned about water quality standards were to tell me that a chlorinator had been devised that would exclude the solids from the effluent and would meet all the other criteria, I'm sure I could live with it.

It would still leave unanswered, however, the problem of getting the boatman to keep his chlorine bottle filled.

Well, if incinerators scare me and macerator-chlorinators do not really do the job, that leaves as the only possibility, the holding tank. Right away, you have a great object for an emotional appeal from all sides.

Who wants to have a lot of sewage sloshing around in his boat even if it is confined in a tank? The answer, of course, is nobody. But then nobody wants sewage sloshing around in an airplane or in a trailer or anywhere else.

The question is cleverly designed to get the listener emotionally charged up so as to tune out any rational discussion of the pros and cons of the holding tank. It doesn't get me charged up, though, for I am a country boy who didn't know what indoor plumbing was until I was almost 10. I developed an early understanding of the

practical value of the old thundermug.

For the life of me I can't see what is wrong with eventually equipping every boat on the water with a seagoing thundermug, provided that it has several parts:

(1) That a marine holding tank be developed which is feasible for use on the smallest cruising sailboat or a 16 foot outboard runabout.

(2) There must be shoreside facilities available for pumping out or emptying these holding tanks for a nominal fee at every public boating facility where the average boatman might tie up.

(3) That the wastes discharged from these holding tanks be disposed of in a shoreside sewage system that does not empty its effluent back into the water anywhere.

Bill Scott, President of Outboard Marine Corporation, spoke out very clearly on the subject of watercraft pollution in a press meeting during the national boat show here in New York last February. He said:

"If we want people to go boating, we have to provide them with clean water. When the holding tank is fully developed and the shore facilities have been established, boatmen will be able to help keep clean the waters they use."

This is a picture of what I, personally, would like to see in recreational boating. It will remain

a dream, however, if the only progress made is by the manufacturers of holding tanks. It is an inescapable responsibility of the Federal government and the individual states, to establish the necessary shoreside facilities to make possible the boatman's use of holding tanks.

Until these facilities exist, the boatmen should not be required to go it alone.

Open Discussion

SENATOR MARCHI: We now have some time for questions. If we will follow the format that Mr. Farnham suggested in the beginning of identifying yourself and the person to whom you wish to address the question. If you address the question to me, I will then call on the panelist you seek to challenge or draw out more fully.

MRS. JONES: I have a question for you. If the State legislature postpones the boating pollution requirements another year, and if they decide to finally have a holding tank as the required device, and, so far as I know, most marinas are not equipped, won't you have to start from that end in requiring marinas to have some sort of equipment for removing the holding tank effluent and have some connections to sewers?

Don't you think it would be more realistic to go at this end first and have some way in which the marinas will be required to put in facilities before the boats?

SENATOR MARCHI: I think you are raising a question of timely notice, so that the public can respond on some sensible basis. And as I understand it, and Commissioner O'Brien is here now, the time within which to promulgate these rules and regulations is not too far off. But there must be lead time to permit affected elements to

comply with the provisions of the rules and regulations. So that with the reaching of the effective date, all component parts will have had the opportunity to adapt.

This, of course, would not be the case were these regulations to be promulgated now. I am going to take the liberty -- is there anything you would like to ask or add to that, Jim?

MR. JIM O'BRIEN: The original law as it was written to install such a device, and the definition of a marina so broad that it would require anybody who had two boats or more in his backyard to install such a device.

We feel that this was too all-inclusive and consequently the law was amended to delete the compulsory nature of this type of installation.

We do expect that within a matter of two months or so we will have the rules and regulations adopted so that we will be able to obtain good manufacturing. We must have an open mind on the question to consider all types of methods.

We hope we will have a health standard as well as a safety standard. It will be the requirement of the manufacturers to adhere to the standards and methods attested to by approved laboratory tests.

It is further hoped that within the next several months we will go into this so that in approximately 8 to 9 months we will be able to install these devices.

MR. ATKINS: My name is Arthur Atkins. I have an observation to make. I think it was mentioned earlier today that boats, and I'm talking about only pleasure boats, and assuming that 4 million of them had a head, they would have to flush their heads 50 times each day to add raw sewage to equal the 400 million gallons a day that is not now receiving treatment by the New York system.

I think that focuses the point on the fact that the pleasure boating industry pollutants are miniscule to the whole problem and I would just like to make that observation from the figures that I heard.

SENATOR MARCHI: Of course, this would have to be against the background, the nature of the water, tidal conditions, the size of the body of water. We've had reports from some very small lakes where there is, apparently, a severe problem. Obviously you would make qualitative distinctions depending on the circumstances.

MR. FARNHAM: Mamaroneck Harbor, which is a fairly small body of water, isn't fit for swimming.

You can argue as much as you want and I tried to make that point that, sure, nationally on any statistical basis the boatman's contribution is minute. That still doesn't mean that in some areas it cannot be a great problem and a problem of public health. This is what the Commissions are concerned about, the health, safety and well being of the community.

In local waters, in enclosed waters, it becomes a very serious problem.

MR. ATKINS: I said that if New York City is untreated 400 million gallons a day of waste material, the boats in Mamaroneck Harbor are not going to add very much to it. You are assuming that all the pollution in Mamaroneck Harbor comes from the boats.

SENATOR MARCHI: I think we covered that point.

MR. ATKINS: The gentleman from the Port of New York Authority mentioned that some of their terminals are being disposed of and that they are equipped and ready to hook up as soon as the disposal is being treated. Now I would imagine that you would render the same privilege to the average boatman.

SENATOR MARCHI: Anyone else?

MR. CLASH: Commissioner Halberg, do you have any idea what the cost is going to be to take care of ferry boats?

MR. HALBERG: I don't know what the cost of the device to be approved is going to be. We have 6 operating vessels -- I'm sorry, we have 9 vessels with 6 operating each day. So you have to provide for 81 devices. We carry about 50,000 passengers daily.

MR. CLASH: I mean, is it a question of a million dollars, \$100,000 or half a million dollars, or

do you have any idea at all?

MR. HALBERG: I couldn't give you the answer to that. We do not know what the state is going to require in the way of a device.

SENATOR MARCHI: I would ask a question. Are any of these chemical processes effective in dealing with the virus?

MR. FARNHAM: The New York State Department of Health has some data on that. I talked with people in Michigan and in Chicago and the New York Department of Health. They have a report on a shellfish study that was done out on Long Island there was one point that came up in their summary as far as chlorinators are concerned.

Because of the uncertainty of proper maintenance of the chlorine and also the particular chlorine used, there was a doubt as to whether the boatman would use it properly.

On the basis of present knowledge concerning the survival of enteric organisms in sea water, it appears that discharges of improperly treated bodily wastes from boats in the marine estuary waters may constitute a real or potential hazard to the health and well being of persons utilizing the waters for bathing and shell fishing.

In surveys and in checking with marina operators and with the state control people, we found that on a great many of the boats on Lake Winnipasaki, the chlor-

inator device was not operative. You couldn't even get the bottles off the racks, they were so frozen in. They hadn't been used for a long while.

MR. DEWLING: Mr. Farnham, you seem to feel that the holding tanks are the only way to go. Do you feel that this is applicable to commercial as well as pleasure craft?

MR. FARNEAM: No. It would seem to me that on a big ship, it is quite feasible to burn wastes. After all, most ships have a high degree of fire on board and they are using high temperatures and have safety controls.

SENATOR MARCHI: It seems we have run the gamut of emotions here on all aspects of boating. We are certainly very much indebted to the panel and to you for supplying thoughtful questions.

Concluding Remarks:

Thomas R. Glenn, Jr., Director,
Interstate Sanitation Commission

I know that some of you are tired of sitting after this all day session so I will make this brief. I would like to thank each of our speakers for their excellent presentations. They have succeeded in bringing all of us up to date in the activities concerning boat pollution as viewed from the Federal, State and local levels.

I would also like to thank each of you who attended this conference for the interest and contributions you have made. As many of you probably have observed, a recording has been made of the entire conference.

The Commission will prepare a report covering today's proceedings and will send a copy to each of the registrants. The Interstate Sanitation Commission will review all materials presented today and will gather supplementary information as needed in preparation of a comprehensive regional approach to this phase.

We propose to have further discussions and plan an orderly and reasonable program concerning the abatement and control of boat pollution. We would like to state that we are well aware of the fact that boat pollution is not just a local problem but also a national problem. For this reason we shall coordinate our activities very closely with the Federal authorities.

Once again, in closing, we would like to thank each of our speakers and each of our people who attended. With this, I would like to close this session on Interstate Boat Pollution.

(END OF SESSION)