

ENVIRONMENTAL PROTECTION AGENCY

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POLLUTION OF NAVIGABLE WATERS
BY THE OPERATION OF WATERCRAFT

INTRODUCTION

This report has been prepared in response to a request from the Acting Chief, Technical Services Division, FWPCA.

It covers the results of an investigation of pollution of the navigable waters of the Great Lakes Region by the operation of watercraft.

Information relative to watercraft are generally available by States rather than drainage basins. The data contained herein relating to registration of watercraft and certain other facilities cover only the five States for which the Great Lakes Region has primary responsibility for State-Federal liaison: Michigan, Wisconsin, Minnesota, Iowa and Illinois. In describing water pollution problems, navigable waterways and other information available on the basis of drainage basins, the Regional boundaries have been used. The Regional boundaries encompass the Great Lakes system including the St. Lawrence River to the International Boundary and the Upper Mississippi River basin above the mouth of the Ohio River, but excluding the Missouri River Basin.

SUMMARY OF FINDINGS AND CONCLUSIONS

1. The opportunities for pleasure boating in the Great Lakes Region far surpass those of any similar region in the United States. Approximately one-fourth (1,002,128) of the 1965 national recreational watercraft registration (4,138,140) are registered in the Region's five States, Michigan, Minnesota, Wisconsin, Iowa and Illinois. In addition many watercraft registered in Indiana, Ohio, Pennsylvania and New York use waters of the Great Lakes for their principal harborage and boating.
2. There are 13,560 miles of commercially navigable waterways in the Great Lakes and Upper Mississippi Drainage Basins.
3. Marinas and facilities offering services to watercraft are not licensed and information concerning availability of such services is not generally available.
4. Although waste discharges from vessels equipped with toilets contribute to pollution of waters of the Great Lakes, Illinois and Mississippi Rivers, reliable information as to the effect of vessel wastes on water quality is limited. Pollution from municipal and industrial sources tend to mask the effect of vessel pollution in harbors, marinas and boat anchorages.
5. Numerous instances have been reported of nuisance conditions in waters of the Region resulting from the discharge of garbage, dunnage and other debris from vessels.

6. Spillage and accidental losses of oils, chemicals and other materials have created problems, some of highly hazardous nature.
7. Vessels equipped with mascerator-chlorinator devices contribute to pollution, even if the discharge meets coliform requirements. The decomposable organic matter and nutrient content of the treated wastes are significant pollutants.
8. Most, if not all of the pollution described is preventable.
9. An extensive training and awareness campaign must be part of an abatement program.
10. Laws and regulations to control this pollution should be uniform and national in scope. Pleasure boats, as well as commercial shipping, cross state lines and use waters of many states. Present state laws are conflicting. Enforcement is highly variable.
11. International agreements are needed to provide uniform requirements for treatment and disposal of wastes from vessels engaged in international commerce. Such agreements should include handling and disposal of sewage, garbage, ballast waters, dunnage and debris of any kind.

RECOMMENDATIONS

1. A model State law for licensing and regulating marinas should be prepared. The law should provide for a permit system which would prescribe the conditions under which the marina would be permitted to operate. Among the requirements to qualify for a permit should be the following:
 - A. A water supply from a source approved by the State Health Authority.
 - B. A convenient building provided with toilets, showers and lavatory facilities.
 - C. Facilities for pumping and treatment of wastes from boat holding tanks. Treatment facilities for items B and C must be approved by the State Water Pollution Control Agency.
 - D. Facilities for receiving and proper disposal of garbage, refuse, cans, combustibles and other waste materials.
 - E. Prohibition against vessel waste discharges in and near marinas and anchorages for recreational watercraft.
 - F. Permit fees should be adequate to cover the cost of administering the law.
 - G. The law should contain penalties for violations.
2. A model State law should be prepared which would require licensing of all boats above a prescribed size using the State's waters. Temporary permits should be available for boats from other States. Requirements for a license or permit to operate would include:

- A. Vessels accommodating fewer than 40 persons (crew and passengers) manufactured after a specified date and containing toilet, shower, lavatory or galley facilities must be equipped with an approved holding tank and standardized connections by which the holding tank can be pumped or dewatered.
- B. Vessels equipped with mascerator-chlorinator devices would be permitted to use the devices only in specified areas. Operation of such vessels would not be permitted in certain lakes or waters unless the heads were sealed. Their use would be prohibited after a specified date.
- C. Vessels accommodating 40 or more persons (crew and passengers) must be equipped with an approved holding tank with facilities for dewatering the unit or an approved type of waste treatment device. Holding tank dewatering devices should be sealed when the boat is not in port, and waste treatment devices should be sealed while in port unless provision is made for temporary connection to shore facilities served by an adequate waste treatment facility.
- D. Waste treatment devices on larger vessels must be under the supervision and control of a crew member with training and knowledge of the operation of the device.
- E. All vessels must be equipped with an approved receptacle having a sealable watertight container for garbage and decomposable organic wastes.

- F. All vessels must have a receptacle for rubbish, cans and other waste materials of a non-decomposable nature.
 - G. The fee and permit system should provide funds to administer the law.
 - H. Penalties should be provided for violations.
3. Accidental discharges and vessel accidents should be carefully studied and regulations developed to minimize pollution resulting from these causes in the future.
 4. International agreements relating to vessels engaged in foreign commerce should be sought to develop uniform requirements concerning disposal of wastes, garbage, refuse from such vessels and to minimize problems resulting from shipping and handling of hazardous cargoes.
 5. The FWPCA should conduct or contract for research in the following areas:
 - A. Requirements for holding tanks, vessel waste treatment devices, garbage and refuse receptacles related to the size and number of people and available space on vessels.
 - B. Standardization of fittings and connecting devices on holding tanks, vessel sewage treatment devices and shore facilities.
 - C. Design of receptacles with a sealable, water-tight removable container for garbage and decomposable organic material.

- D. Design of a nuisance-free convenient mechanical device for removing and discharging the contents from such sealable containers directly into disposal or treatment units.
 - E. Development of incinerator-type toilets utilizing electrical energy.
 - F. Improving the effectiveness of modified activated sludge type units designed for vessel use. Such research should include investigation of the use of effluent filtration and chlorination to produce a discharge of acceptable quality.
 - G. Establishment of effluent standards for modified activated sludge units designed for vessel use.
 - H. Provision for testing and evaluating the performance of vessel waste treatment units under operating conditions.
- 6. The FWPCA should provide competent technical services and advice to States adopting the model laws concerning approved devices and methods for controlling vessel waste pollution.
 - 7. The FWPCA should actively support and encourage adoption and enforcement of such model acts by all States.
 - 8. The FWPCA should undertake an extensive awareness program to promote and publicize abatement of vessel pollution in United States waters.

REGIONAL CHARACTERISTICS

The Great Lakes Region includes the United States waters of the Great Lakes and the areas tributary to them, the St. Lawrence River to the International Boundary with Canada, and the Upper Mississippi River Basin above the Ohio River, except for the Missouri River Basin. The commercially navigable waters in the Basin include the St. Lawrence River; the Great Lakes and connecting channels; the Illinois Waterway; the Mississippi River from Cairo, Illinois to Minneapolis, Minnesota; portions of the St. Croix, Minnesota, and Black Rivers; and Beaver Slough at Clinton, Iowa.

The opening of the St. Lawrence Seaway in 1960 provided navigation routes for ocean-going vessels to all major Great Lakes Ports. At Chicago, cargo can be transferred to smaller vessels for shipment via the Illinois Waterway to any part of the extensive Mississippi River navigational system.

The 95,000 square miles of water surface makes the Great Lakes the world's largest body of fresh water and provides the means of transportation for over 100 billion ton-miles of water-borne freight per year over the Great Lakes-St. Lawrence navigation system. The availability of low cost water transportation on the Great Lakes for the vast resources of iron ore, coal and limestone has resulted in making the Great Lakes Region the leading area of the Nation for heavy industry including the production of iron and steel and related manufactures. Almost 40 per cent of the U. S. Primary Metals Industry is located in the Great Lakes Study Area. During the 1955-1964 period, the total annual commerce on the Great Lakes averaged 190,000,000 tons. In addition to iron ore, coal and limestone, there are large shipments of chemicals, grain, and petroleum.

The Upper Mississippi River Basin accounts for one-sixth of the value of all farm products sold in the United States, including one-third of the nation's grain production. Annual traffic on the upper Mississippi is now in excess of 10.5 billion ton miles, compared to 1.2 billion ton miles in 1940 (from the head of navigation at Minneapolis, Minnesota to the mouth of the Ohio River at Cairo, Illinois). In 1964 freight traffic included over 45,000,000 short tons of commodities including grain, coal and coke, petroleum, stone and gravel, iron ore, chemicals and other commodities.

EXTENT AND SERIOUSNESS OF PROBLEM

Navigable Waterways

The following is a list of the commercially navigable inland waterways in the Great Lakes Region (1), (2).

River	Miles
Illinois River	357.1
Mississippi River (Cairo to Minneapolis)	856.8
St. Croix River (Minn. and Wisc.)	24.5
Minnesota River (Minnesota)	25.2
Black River (Wisconsin)	1.4
Beaver Slough (Clinton, Iowa)	4.8
Total mileage navigable waterway	1269.8

Commercially navigable shipping lanes in the Great Lakes are as follows (3).

Lake	Area (Square Miles)	Miles of Shipping Lanes
Superior	31,800	2360
Michigan	22,400	6372
Huron	23,000	965
Erie	9,900	1390
Ontario	7,500	1095
St. Lawrence River	(to International boundary)	111
Totals	94,600	12,293

Type and Number of Watercraft

Information concerning the number of recreational watercraft using a specific body of water such as one of the Great Lakes is not generally available. Acting under the Federal Boating Act of 1958, most States now require such craft to be registered. Since this information is available only by States, recreational watercraft registrations will be given only for the five States for which the Great Lakes Region has primary liaison responsibilities. Although some boats registered in Iowa will primarily use only the Missouri River (not in the Great Lakes Basin) these will be offset by boats registered in Indiana, Ohio, Pennsylvania and New York which use the Great Lakes. Because of differences in State watercraft registration systems a note indicating the scope of the numbering system used is indicated in the column on the right (4).

Recreational Watercraft		
State	1965 Registration	Type of Watercraft
Illinois	156,605	All motorboats
Iowa	66,456	All motorboats
Michigan	398,608	All motorboats
Minnesota	211,630	All watercraft
Wisconsin	268,829	All motorboats
	<hr/> 1,102,128	
Total for all States	4,138,140	

In a report dated November 8, 1965 prepared by the Pollution Study Committee of the National Association of State Boating Law Administrators (Exhibit A) it was estimated that the number of

recreational watercraft equipped with marine toilets would average less than 5 per cent. This is in line with boat registrations in Minnesota - which requires certification of installation of acceptable waste treatment devices on all boats having marine toilets. Only 6,000 boats, out of a total Minnesota registration of more than 200,000, have such facilities (5). Assuming that 5 per cent of the boats registered in the 5 States have marine toilets, 55,000 boats in this Region would have such facilities. Of this number 20,000 watercraft registered in Minnesota and Wisconsin are assumed to have treatment devices or holding tanks. This would leave an estimated 35,000 recreational watercraft discharging untreated wastes. These would be principally larger vessels with sleeping accommodations. It is reasonable to assume an average occupancy of 4 persons per vessel. This would give a pollutional potential for waters of the Great Lakes Region of 140,000 persons on peak days assuming all craft were operating.

Commercial Watercraft

There are 29 United States companies operating 209 commercial vessels on the Great Lakes. These include 16 car and railroad ferries. Twelve companies have equipped 40 of these vessels with waste treatment devices. Seven additional vessels are scheduled to have such devices installed within the next two years (6). Vessels of the type used on the Great Lakes normally require crews ranging from 25 to 45, averaging about 35. Assuming wastes from ferries as negligible except for the crew, the pollution potential from 169 commercial vessels would be equivalent to that from about 6,000 people. Garbage and trash from these vessels are incinerated aboard or taken to shore installations for disposal.

In 1966, 3,374 vessels of foreign registry (including Canadian vessels) entered the Great Lakes through the St. Lawrence Seaway (7). No information is available concerning waste treatment or holding devices on these vessels. The seaway is normally open about 240 days a year. Assuming an average stay of two weeks, the average number of foreign vessels in the Lakes at one time would be about 196. Although the size of the crew on these vessels varies with the degree of automation, it can be reasonably assumed that an average crew would not exceed 40. On this basis, and assuming no treatment is given the wastes, the daily pollution potential from foreign vessels would approximate that from about 8,000 people. The United States has strict regulations relating to the disposal of garbage and refuse from foreign vessels.

In 1964, 8,098 commercial vessel-trips were made using the navigable channels of the Mississippi River above Cairo, Illinois (8)(9)(10). These included both cargo ships and barge tows. No information is available concerning the installation of sewage treatment devices on these vessels. Although the size of the crews varies, an average figure of 21 has been suggested. Assuming the length of the navigation season to be 270 days, and the average trip requires 5 days, the number of vessels in port or in transit on the waterways on any day would be 300. The daily pollution potential from these commercial vessels would then be equivalent to 6,300 persons.

Federal Vessels

The following is a summary of Federal vessels operating in the Great Lakes Region (11).

Agency	Number of Vessels	Personnel
Corps of Engineers	55	375
Navy	5	600
Coast Guard	27	653
Bureau of Commercial Fisheries	5	30
	92	1,380

The North Central Division of the Corps of Engineers has advised that installation of waste treatment devices of the mascerator-chlorinator type is in progress and will be completed within the next six months. Assuming that one-half of these units are now operational, the pollution potential of Corps boats would be equivalent to the untreated wastes from about 180 people.

The Naval vessels operating in the Region are training ships. They are now seeking approval for the installation of waste treatment devices. Present pollutorial potential is equivalent to 600 people.

The Coast Guard fleet consists of 27 vessels. Nine are rescue vessels equipped with chemical toilets. The remaining 18 are larger vessels ranging from 100 to 150 feet in length. Three of these vessels are equipped with mascerator-chlorinator devices. Four more vessels are scheduled to have similar devices installed this summer. Plans for equipping the remaining eleven vessels with waste treatment devices are indefinite at this time. Pollution potential of Coast Guard vessels is equivalent to that from about 600 people.

The Bureau of Commercial Fisheries of the Department of the Interior operates 5 research vessels in the Great Lakes. There are no definite plans for the installation of waste treatment devices. Pollution potential from these vessels approximates 30 people.

From the preceding evaluation, the pollution potential from all vessels using the navigable waterways of the Great Lakes Basin would be:

Recreational watercraft	140,000
Commercial vessels	14,900
Federal vessels	<u>1,410</u>
Pollution potential - all vessels	156,310

In evaluating the possible pollutional effects on navigable waterways the following factors must be considered:

1. The large water surface area of the Great Lakes (94,600 square miles) and the total number of miles of navigational channels in the Basin (13,500 miles).
2. The number of boats equipped with mascerator-chlorinator devices which would reduce coliform concentration in discharges. (Only partially available)
3. The diluting effect of discharging wastes from moving boats followed by the turbulence in the boat's wake.

Considering limitations in the available data, the vast water area traversed by commercially navigable shipping lanes, and the relatively low population equivalent of waste discharges no meaningful

estimate of the pollutional effect on water quality of sewage wastes discharged from vessels in transit is possible for the Great Lakes Region. This is confirmed to some extent by studies conducted by the Great Lakes-Illinois River Basins Project of the quality of the deep waters of Lakes Michigan, Huron, Erie, and Ontario. Except in the vicinity of waste discharges from major cities and large streams, bacterial quality of the deeper Lake waters was consistently acceptable as a source of water supply with chlorination as the only treatment. Such waters must not exceed 50 coliforms per 100 ml.

This is not to say, however, that vessel waste discharges do not affect adversely the quality of the Basin's waters. There is the effect of adding nutrients to waters in which the nutrient levels are critical. There is also the local effect where decomposable organic matter and pathogenic microorganisms affect only the waters adjacent to the point of discharge. Both effects must be evaluated on the basis of specific situations. The addition of nutrients to the nutrient-deficient waters of Lake Superior could be considered beneficial from the standpoint of productivity. Similar additions to Lake Erie would be considered highly detrimental because of the present state of eutrophication.

CAUSES

Pollution resulting from the discharge of sewage wastes from vessels are covered in other sections of this report. Two additional sources of pollution will be discussed in this section:

1. Pollution resulting from garbage, rubbish and other debris from watercraft.
2. Accidental spills or losses of liquids or chemicals from vessels resulting in pollution of the Basin's waters.

Although most instances of pollution resulting from the discarding of garbage, rubbish and other unwanted materials from vessels are probably not reported, the number of reports and complaints of pollution of this type are relatively few. The reports that are received appear to be isolated instances not related to a pattern of using the Basin's waters to dispose of such materials. Detection and prosecution of such violations are almost impossible. First, the violations are not detected until the offending material is washed ashore, usually hours or days after wastes were discarded. Second, it is indeed rare to find among the debris anything which can be identified with the vessel discarding the material.

Recent examples of problems of this type involve complaints forwarded to the Administration by Senator Gaylord Nelson on October 13, 1966 and Governor Warren P. Knowles of Wisconsin on September 28, 1966. Senator Nelson's complaint involved the dumping of garbage and trash overboard from the car ferries City of Midland and Milwaukee Clipper operating out of Milwaukee.

Governor Knowles' complaint concerned similar dumping from the ferry, Badger operated by the Chesapeake and Ohio Railroad out of Ludington, Michigan. In both instances investigations were made by the U.S. Public Health Service and both companies involved agreed to cease all such dumping (12).

A listing of accidental spills in the Great Lakes Region resulting from vessel operation is given in Table 1 (12). The two principal causes would appear to be accidents (collisions) and carelessness. Increased emphasis on safety and alertness in industrial operations would help combat the type of accidental losses reported. Alarms and automatic safety devices would eliminate some. For example, a broken pump line usually results in a loss of pressure. A pressure actuated switch could operate an alarm system, cut off valves and shut off pumps, minimizing losses. A careful study of each spill or loss would assist in the development of technology and equipment to minimize or prevent recurrence.

POLLUTION RESULTING FROM SPILLAGE

COMPANY OR VESSEL	LOCATION	DATE	TYPE MATERIAL	CAUSE	QUANTITY	DAMAGE
Brooks Liquid Transport Co.	L. Michigan Gary, Indiana	11/29/58	#6 Fuel Oil	Sinking Barge	352,000 gals.	None, considerable Cleanup
Unknown, Believe from passing Ship.	L. Michigan Indiana-Mich Boundary	4/18/61	Heavy Oil	Unknown	Sev. thous. Gals.	12 miles of beach affected, consider we cleanup
Mid South Chemical Corp.	Illinois River Peoria, Ill.	8/1/61	Anhydrous Ammonia	Broken pipe Line	900 Tons	Estimated Damage in fish kill \$77,000
American Oil Company	L. Michigan Indiana Harbor Canal	12/16/63	Toluene	Wrong Valve Opened	800 Barrels	None
Vessel PHYRGIA	Detroit River Wyandotte, Mch.	6/15/64	Sodium Cyanide	Collision	Minor Leakage	None
Freighter Stonefax	L. Ontario Welland Canal	10/14/66	Potassium Chloride	Collision	Partial Loss Quantity not known	None
Tanker Mercury	L. Huron Harrisville, Mich.	11/14/66	JP 4 Jet Fuel	Dropped Anchor on Fuel Line	162,000 Gallons	None

TABLE 1 (Cont.)

POLLUTION RESULTING FROM SPILLAGE

Hannah Inland Oil Barge Corp.	Illinois River Chicago	12/23/66	#6 Fuel Oil	Vessel draft too great for channel	120,000 Gallons	None considerable cleanup
Marathon Pipeline Co. Barge	Mississippi R. Hartford, Ill.	2/13/67	Aromatic Naptha	Leak from Minor Collision	30 Barrels	None
Marathon Pipeline Co. Barge	Mississippi R. Wood River, Ill.	2/16/67	Aromatic Naptha	Faulty Packing on pumps	unknown	Complaint E. St. Louis Water Company

PROBLEM AREAS

The principal areas affected by vessel waste pollution are the harbors, marinas, and anchorages for vessels of various types. These installations are most frequently located near major population concentrations and along the shores of principal streams. They are subjected to waste discharges from municipalities and industries as well as vessel wastes.

Studies of pollution in marinas conducted by the State of Michigan (Exhibit A) were not conclusive in that no significant difference could be found in the bacterial quality of the waters above and below the marina areas. Similar studies of marinas in Lake Michigan were conducted by the Great Lakes-Illinois River Basins Project in August 1963. The quality of the water observed in the marinas did not reflect any significant bacterial difference from the quality of the adjacent waters. No special report was prepared on this subject but microbiological and chemical findings will be included in Appendix 3 of the Lake Michigan Report. In the absence of information concerning the number of vessels discharging wastes during these studies, the quantities discharged and the treatment given to the wastes, if any, the results have little significance.

More extensive and sophisticated studies, including data concerning actual use of marine toilets and knowledge of the type and effectiveness of treatment of wastes discharged during the study period will be required to effectively evaluate the extent to which marina water quality is affected by vessel waste discharges. The study should include biological

observations of aquatic flora and fauna before, during, and following the boating season, and analysis of the composition of bottom deposits during the same three periods. Such a study is not recommended unless it becomes evident that the use of on-board waste treatment devices with effluent discharge to waters rather than storage of wastes for on-shore disposal, will become generally accepted practice.

All efforts to secure maps showing the location of marinas and boat anchorages have been unsuccessful. Efforts have also been made to secure a list of such installations, but no such lists can be found. Installations of these types are not required to have a license and there are not official records from which information can be obtained. The Outboard Boating Association plans to develop a listing of facilities available to watercraft, but this activity is in its initial phase. The Corps of Engineers Lake Survey District also plans to develop charts on which the location of anchorages will be shown.

EXISTING MEANS OR METHODS OF CORRECTING
OR ELIMINATING POLLUTION

Vessel Waste Treatment Devices

There are at present three principal types of waste treatment devices available for installation on water craft. The most widely used is the mascerator-chlorinator type which is approved in some States. This device pulverizes the solid materials and holds them in contact with a chlorine solution for a period of time sufficient to greatly reduce bacterial concentrations. The second type is a compact modification of the activated sludge process and can be installed only on larger vessels. The third type is a modified incinerator utilizing some type of fuel (usually bottled gas) for reducing waste materials to an ash which is discharged to the atmosphere.

Under properly controlled conditions the mascerator-chlorinator will produce a discharge which will meet most bacterial criteria for waters used for recreational purposes involving whole body contact. There is a serious question as to whether this method is effective in destroying viral agents and the more persistent pathogens. Further, the oxygen-consuming characteristics of the wastes are not materially affected, and extensive use of this device in shallow waters and protected areas will result in the accumulation of bottom sludge deposits, destruction of desirable pollution-intolerant bottom fauna, and conditions which would interfere with other water uses. The mascerator-chlorinator has one additional shortcoming which must not

be overlooked. It is effective only if properly maintained. It is not enough to require only that an approved type of this device be installed. Some means must be provided to insure that such units are properly maintained and that the waste discharges are effectively chlorinated if bacterial pollution from this source is to be controlled. The State of Wisconsin now prohibits their use, the States of Indiana and Ohio prohibit their use except in waters of the Great Lakes (Exhibit B), and the Ontario Water Resources Commission has adopted regulations which will prohibit their use after it becomes fully effective on July 1, 1968 (Exhibit C).

The use of larger sewage treatment devices incorporating the activated sludge process is new in the United States. Several manufacturers have developed, or are developing such units.* One problem confronting these manufacturers is that of securing approval. Ship owners are reluctant to install costly units of this type unless assured that they are acceptable. The U.S. Public Health Service, which approves the design of sanitary features of vessels, does not give blanket approval of such devices. The effluent from treatment facilities of this type would be expected to contain finely divided particles of settleable organic matter. If such devices were permitted to discharge in harbors and protected areas, this could lead to the accumulation of a bottom organic ooze and changes in the biota. Such conditions have been found in harbors receiving the effluent from conventional activated sludge treatment plants. The quantities discharged would be substantially less than from shore installations and the rate of accumulation of bottom deposits very slow. Filtration of

* Chicago Pump Co., Crane Co., Infilco, Inc., Youngstown Welding and Engineering Co., Dravo Corp., and American Shipbuilding Co.

the effluent followed by chlorination in a separate detention tank should result in a waste discharge having a very low pollutional potential. Research and testing would be necessary to confirm the effectiveness of such units, and to develop design criteria.

Incinerator-type units are effective in controlling water pollution because there is no liquid discharge. The ash discharged would ultimately reach adjacent waters but in a highly dispersed condition. If the ash should be considered a problem it could be removed by filtering the exhaust gases. The most serious problems related to this device are its slow operation and the hazard of having fuels of a combustible or explosive nature aboard ship.

In addition to the three types of waste treatment devices described above, it was found that a few Coast Guard vessels are equipped with chemical toilets. These units have removable receptacles which are emptied into the sewage facilities serving the Coast Guard stations. No other facilities of this type were reported.

Holding Tanks

Holding tanks of adequate capacity would provide the best solution to the vessel waste disposal problem. For such tanks to be effective, marinas must be equipped to remove and provide adequate treatment for the wastes. Standardization of fittings and equipment would facilitate removal of tank contents. Design of the units should be such that the tank contents cannot be drained or discharged while the vessel is away from port.

ADDITIONAL NEEDS FOR MEANS OR
METHODS FOR CORRECTING OR ELIMINATING POLLUTION

The general adoption of holding tanks for containing vessel wastes will require convenient well equipped service facilities to remove and treat the accumulated wastes. The preferable solution would be by connection to a municipal system which could absorb the shock effects of such waste loads. Where municipal facilities are not available the sudden discharge of concentrated fecal material containing odor-controlling chemicals (probably bactericides) and in some state of decomposition could seriously interfere with the operation of small sewage treatment works. Research studies should be undertaken to assess the magnitude of problems of this nature and to develop design criteria and operational techniques to achieve an effluent of satisfactory quality. Other research needs concern the design of the holding tanks, methods of removal of tank wastes, types of fittings which will prevent leakage, and construction materials which will resist the corrosive effect of tank contents and chemicals.

Many larger vessels may not be able to accommodate holding tanks. For these ships suitable waste treatment devices capable of providing an effluent of satisfactory quality must be available. Presently available units should be extensively evaluated and both design criteria and standards of effluent quality developed. Research may be needed to find solutions to such problems as the removal of solids in waste effluents, effective effluent disinfection and disposal of sludge.

LEGISLATION

Existing State legislation to control vessel pollution varies widely in the Great Lakes Region. No State licenses or regulates marinas, boat anchorages or facilities of these types. accordingly, services available to recreational watercraft are not uniform and are seldom adequate. Yet, if pollution is to be adequately controlled, the conscientious boat operator must have a place to dispose of garbage, cans, refuse and other unwanted material and those installations receiving the materials must be required to dispose of it in a proper manner. Further, those aboard vessels not equipped with marine toilets should expect to find sanitary facilities available at points where boat services or anchorages are offered to the boating public. If the use of vessel holding tanks continues to gain acceptance vessel servicing points must be equipped to remove and properly treat the contents.

It could be argued that marinas and boat servicing installations are subject to Federal laws because they serve boats from other States engaged in interstate travel. While Federal legislation licensing and controlling installations offering services to out-of-state vessels may ultimately become necessary, Federal policy as expressed in the Federal Water Pollution Control Act tends toward giving the States an opportunity to solve the problem first. Accordingly, it is recommended that the FWPCA develop a model law relating to licensing and regulating facilities offering services to recreational watercraft.

Legislation pertaining to control of vessel pollution in the States in this region has been reviewed (Exhibits B, C, D, E, F).

The following comments pertain to this legislation:

Michigan. Michigan laws are specific in prohibiting garbage, oil and refuse dumping from vessels 25 feet or more in length. The disposal of such wastes from smaller vessels and the disposal of wastes from marine toilets could be prosecuted under their general health laws. Attempts have been made to secure more specific laws (See attached letter from John E. Vogt). Current thinking is toward permissive use of suitable waste treatment devices.

Minnesota. Minnesota laws permit the use of marine toilets equipped with a suitable treatment device. Registration is contingent upon certification that vessels with marine toilets are equipped with an acceptable device. They also prohibit the discharge of other wastes and the abandonment of containers holding sewage or other wastes which might create a nuisance, health hazard or water pollution.

Wisconsin. Since April 1, 1965 Wisconsin law requires the use of a holding tank. In June 1966 Wisconsin adopted a new law relating to control of water pollution. No change was made in the existing law related to vessel pollution.

Iowa. The State Conservation Commission of Iowa is responsible for regulations governing vessel waste disposal. Consideration is being given to legislation requiring holding tanks. At this time the Commission does not favor such legislation because of opposition of the Outboard Boating Association.

Illinois. Illinois does not have specific legislation relating to vessel waste pollution. However, to protect the Fox Chain-O-Lakes (a series of small shallow lakes in northern Illinois), Lake County passed an ordinance requiring the sealing of toilets on all boats using these waters.

Indiana. Indiana does not permit the discharge of vessel wastes except in Lake Michigan waters. Vessel waste discharges in Lake Michigan waters would be subject to control under the general powers of the Stream Pollution Control Board.

Ohio. Ohio does not permit vessel waste discharges into waters of the State except in Lake Erie, the Muskingum River and the Ohio River. Discharges into these waters would be subject to the general water pollution laws administered by the Ohio Water Pollution Control Board.

Pennsylvania. Pennsylvania has no specific laws relating to waste discharges from watercraft. The Sanitary Water Board has the power to enact rules and regulations governing such discharges but has not done so. The Board has given some consideration to legislation. There is some feeling among members of the staff that action is being delayed pending agreement within the Federal establishment as to whether holding tanks should be required.

New York. The Navigation Laws of New York were amended in 1966. They now permit the use of waste treatment devices approved by the State Commissioner of Health (Exhibit D)

New Legislation

The control of vessel waste pollution will require not only

new legislation, but an intensive awareness program to gain public acceptance and support for needed legislation and for a program for effective control. Adequate control of vessel pollution will require legislation regulating both the disposal of wastes from watercraft and the availability of facilities to adequately treat or dispose of waste materials from watercraft.

Legislation pertaining to vessel waste disposal should consider that coliforms are not the only criteria to be considered. Treated waste discharges contain decomposable organic matter and nutrients, and may contain viral agents and other pathogens. The knowledge that human wastes subjected only to chlorination are being discharged into adjacent waters is offensive to many people and should result in support for the use of holding tanks. The fact that mechanical devices are subject to failure and that failure to replenish the chlorine supply will result in the discharge of raw sewage presents an ever-present hazard to accidental human contact with waters receiving such discharges. For these reasons the recommendations presented earlier propose model State legislation requiring the use of holding tanks, with alternative use of waste treatment plants for larger vessels. Even this legislation would be ineffective unless services to empty and treat the tank contents are readily available. It is important also that vessels be provided with a container for garbage and rubbish. Few people like to have their boat littered with waste material and most will utilize such a receptacle, if available. A complementary model

State law is recommended providing for licensing of marinas and other installations servicing watercraft, and suggesting minimum standards to quality for a license.

The legislation recommended, backed by research and an intensive public awareness program, will result in an effective program for the control of vessel pollution in the Great Lakes Basin, and nation-wide.

BIBLIOGRAPHY

1. Charts of the Illinois Waterway. U. S. Army Engineer District, Corps of Engineers, Chicago, Illinois.
2. Navigation Charts, Middle and Upper Mississippi River. Cairo, Illinois to Minneapolis, Minnesota. U. S. Army Engineer Division, North Central, Corps of Engineers, Chicago, Illinois. January 1963.
3. Navigation Charts prepared by the Lake Survey District, Corps of Engineers, Department of the Army, Detroit, Michigan.

Lake Superior	Chart No. 9
Lake Michigan	Charts Nos. 7, 70, 73-77, 701-706
Lake Huron	Chart No. 5
Lake Erie	Chart No. 3
Lake Ontario	Charts Nos. 2, 21-25, 211
4. Report on Water Pollution Caused by the Operation of Vessels. U. S. Department of the Interior, Federal Water Pollution Control Administration. December 1966.
5. Information obtained from the Minnesota Department of Conservation, Bureau of Water Safety, St. Paul, Minnesota.
6. Information obtained from U. S. Public Health Service, Region V, Chicago, Illinois.
7. Information obtained from St. Lawrence Seaway Development Commission, Detroit, Michigan.
8. Waterborne Commerce of the United States, 1964. Part 2. Waterways and Harbors Gulf Coast, Mississippi River System and Antilles. Department of the Army, Corps of Engineers.
9. 1965 Annual Report for Fiscal Year Ending 30 June. Volume 1. Department of the Army, Corps of Engineers.
10. Transportation Lines of the Mississippi River System and the Gulf Intracoastal Waterway, 1965. Transportation Lines 4. Department of the Army, Corps of Engineers.
11. Information secured through the Federal Installations Coordinator, Great Lakes Region.
12. Information from files, Great Lakes Region, FWPCA.

REPORT OF THE POLLUTION STUDY COMMITTEE

NATIONAL ASSOCIATION OF STATE BOATING LAW ADMINISTRATORS

NOVEMBER 8, 1965

WARWICK HOTEL

PHILADELPHIA, PENNSYLVANIA

REPORT OF THE POLLUTION STUDY COMMITTEE, NATIONAL ASSOCIATION OF
STATE BOATING LAW ADMINISTRATORS

November 8, 1965

At the Oklahoma City meeting of the National Association of State Boating Law Administrators, held November 18-20, 1963, a Committee was appointed to develop a report on the nature and extent of pollution of the waters of the United States by recreational watercraft and to make recommendations relative thereto. The following were appointed as members of this Committee:

CHAIRMAN

Keith Wilson, Director, Michigan State Waterways Commission

MEMBERS

Bernard W. Chalecki, Director, Connecticut Boating Safety Commission
Peter J. Gannon, Chief, New Jersey Bureau of Navigation
John Grenoble, Member, Pennsylvania Fish Commission
DuWayne Henrie, Boat Registration Section, Arizona Highway Department
Milton Johnson, Director, Minnesota Boat & Water Safety Division
James J. O'Brien, Director, New York Division of Motorboats
Wilton Vaughn, Director, Massachusetts Division of Motorboats
Ron Stone, Government Relations Department, Outboard Boating Club of America

A review of information provided to the Committee by the Outboard Boating Club of America indicated a reason for the concern of the Association in this area. According to OBC, a total of 23 states have already adopted legislation controlling the discharge of sewage from recreational watercraft on some or all of the individual state's waters, while many other states are considering such action. These totals include only states specifically legislating on this subject and do not include those states which may have passed laws dealing with trash, garbage, litter, etc.

The approach to this problem by the various states appears to be characterized by its individuality. In almost every instance, the boat pollution laws adopted by one state have little or no resemblance to those adopted by others, even in the case of neighboring states. Legislation involving varying and differing standards presents a considerable problem to the boatman who wishes to use his boat in a number of different states.

Further complicating the picture is the propensity on the part of the individual states to select one type of anti-pollution device and to permit only its use in the particular state. Whether this is done deliberately or in ignorance of the existence of other equally suitable devices is not known. In any event, it further complicates the mobility of boats cruising on the waters of more than one state.

STUDY METHOD

In view of the extensive activities in the various states on this subject, it was concluded by the Committee that there must be available a number of detailed studies analyzing the extent of pollution of waters by recreational watercraft. Accordingly, the first action of the Committee was to attempt to gather together all such reports to permit an analysis of the nature and extent of pollution by recreational watercraft of the waters of the United States.

An extensive survey of Federal agencies and of agencies of all of the states was made to locate such reports. This survey resulted in turning up only two reports that dealt in any manner with this problem. One report dealt with the effect of pollution from houseboats in the vicinity of Portland, Oregon, and was prepared by the Oregon State Sanitary Authority.

The second report, entitled "Survey of Marina and Watercraft Use in Relation to the Public Health Aspects", and jointly prepared by the Macomb County Health Department and Michigan Department of Health, dealt specifically with this problem.

Because of the inability of the Committee to assess the nature and extent of pollution by recreational watercraft from only two reports made in widely separated parts of the country, an alternative method of assessing this problem was developed. This was by means of a questionnaire designed to elicit responses from boating, health, and recreation officials throughout the country from which conclusions could be drawn. The questionnaire is reproduced as Appendix A.

The questionnaire was mailed to some 200 agencies in and out of government, both state and Federal, including public health departments, water pollution control boards or commissions, state boating law administrators, and virtually every Federal agency having any connection with waters used for recreation. A cover letter was provided with the questionnaire explaining the desire of the Committee to determine whether or not recreational boating is a significant contributor to the water pollution problem, and requesting the assistance of the addressee. The returns were most gratifying and extremely helpful. More than 90 replies were received representing one or more agencies in almost every state. A list of the agencies responding and a summary and analysis of the replies received is reproduced as Appendix B.

In the course of its study, the Committee collected a large number of newspaper clippings, magazine articles, and similar releases dealing with this subject. Many of these articles and clippings were especially helpful and presented insights into the over-all problem under study. Reproduction of these articles is not feasible, but several of those considered by the Committee are as follows: "Boat Sanitation" by Elbert Robberson, Yachting magazine, October, 1964; "Federal Policy Proposed on Disposal of Wastes", The Waterways Journal, July 11, 1964; and "Water Pollution from Boats", Boating Industry magazine, January, 1964.

THE EXTENT OF THE PROBLEM

The two reports dealing with pollution from houseboats and recreational watercraft were carefully reviewed by the Committee, because they were the only such reports located. An evaluation of the Oregon State Sanitary Authority Report on Houseboats is very well summarized by the conclusions stated therein and appearing on page 10 of the Report:

"1. Domestic wastes including garbage from approximately 294 houseboats are dumped without treatment into the Willamette and Columbia River in the vicinity of Portland. This represents a population of between 500 and 1,000 persons. Inclusion of boathouses, marinas, and other waterfront facilities would increase this number somewhat.

"2. The measurable organic and chemical pollution load from houseboats in the Portland area is relatively small compared to the total pollution load discharged from all sources.

"3. Aesthetic nuisance conditions resulting from floating materials and health hazards from pathogenic organisms are considered to be the significant polluttional factors involved.

"4. Collection and adequate disposal of houseboat wastes can be accomplished with reasonable application and modification of present equipment and techniques.

"5. All but one or two houseboats in the lower Willamette River are located at established marinas, in groups of 20 or more, which are within reasonable pumping distances of city of Portland sewers.

"6. All but 10 or so houseboats in the Columbia River, adjacent to the Portland area, are in groups of 5 or more and subject to service by group facilities.

"7. The requirement for treatment of wastes from houseboats and boathouses would make it possible to require installation of holding tanks on boats which could be pumped out for a nominal fee at practically any marina or moorage along the River.

"8. It is believed that the collection and treatment of disposal of wastes from houseboats and boathouses could be required and enforced under existing state statutes and regulations."

The significant conclusions are contained in paragraphs 2 and 3 where it is noted that the pollution load from the subject craft is relatively small compared to the total pollution load from all sources but that a nuisance and health hazard is created by floating wastes. The extent of the health hazard could undoubtedly be debated at considerable length, but the nuisance factor of floating waste materials cannot be refuted. It is to be noted that no mention of trash, litter, or similar materials is made in the report.

The Michigan Report resulted in conclusions very similar to those of the Oregon Report. The complete Summary and Conclusions can be found on page 23 of the Report and only selected paragraphs are reproduced here:

"2. While the study was designed to obtain data relative to sewage pollution and sanitation conditions at marinas it was evident from statements made under the item 'comments' on the questionnaire that there was great interest in watercraft safety (reckless driving, operator training, and operator licensing) and pollution other than sewage, i.e., trash, garbage, beer cans, wood or other floating debris.

"3. The bacteriological sampling program showed that the water quality at six of the fourteen stations was extremely variable with high coliform concentrations a significant percentage of the time. The eight remaining stations showed a water quality quite variable but with coliform concentrations under 2500 for 95% of the time and no statistically significant difference detectable among these stations. The water quality at all stations was so variable that there was no statistically significant difference between any two stations or groups of stations. It was therefore not possible to measure the effect of pollution which might be contributed by a marina area into adjacent waters whether this be a stream or along the shoreline of a lake.

"4. The stations which showed the highest chloride concentrations also showed some of the highest biochemical oxygen demand concentrations and in nearly the same order, namely (4, 5, 1, 2, 8, and 3) and (5, 4, 1, 2, 8 and 3) respectively. Concentrations actually decreased from a point on the river above the marinas to a point on the river below the marinas. The opposite trend would be anticipated if pollution from marina areas which might be detected by a sampling program was contributing a significant pollution load to the receiving stream in relation to pollution already in the stream as measured by these parameters."

The Report also concluded, through the process of deductive logic, that raw sewage was being discharged from recreational watercraft:

"8. Observations of watercraft use while away from home port indicate the majority of one day trips cover from 3-1/3 to 7 hours on the average and it is evident that the head would be used under these extended use conditions. Since the high percentage of watercraft now in service are not equipped with holding tanks for sewage or macerator chlorinator devices, raw sewage is being discharged into the waters of the state from watercraft."

The Michigan Report made no recommendation or reference to the nuisance and/or health hazards created by floating wastes, nor was any reference made to trash, garbage, and litter, even though the Report did mention that great interest in these matters was evidenced by the completed questionnaires gathered as a part of the Report. Both reports concurred in the fact that the pollution load attributable to houseboats and recreational watercraft was relatively small and, in fact, could not even be measured in Michigan. Both also concluded that raw sewage was being deposited in the water from these craft.

An analysis of the questionnaires returned to the Committee established the fact that very few officials believed that pollution attributable to recreational watercraft was much of a problem. The results of the questionnaire are summarized in Appendix B but it should be noted that an average of all answers indicated that trash disposal from recreational watercraft was the greatest problem, followed by sewage, garbage and waste, in that order.

The Committee also reviewed such information as was available to determine the number of recreational watercraft within their various registered fleets that actually possessed marine toilets. Inasmuch as no statistical data was available on this subject, it was necessary to resort to estimates. It was concluded, after careful analysis, that a maximum of 10% of the recreational watercraft of any one state contained marine toilets and that the national average would probably be less than 5%. Necessarily, the craft with marine toilets were the larger craft which are generally located on coastal and Great Lakes waters rather than on small land-locked lakes.

The general use patterns followed by owners of recreational watercraft were also noted. It was found that only a very few watercraft were used for any extensive periods of time as dwellings but that, rather, most use was concentrated on weekends, holidays, and during summer vacations. Further, the boating season of most states was found to be rather limited with the exception of the southern, southwestern, and western states. As an example, it was noted that in Michigan the boating season is regarded as extending from May 1 to November 1, a period of six months, but that virtually all boating use was confined to the months of June through early October. Even if it was assumed that 10% of all recreational watercraft in Michigan contained marine toilets, that six persons were regularly utilizing the watercraft, and that the average boat was in use in one form or another for 60 days per year, the extent of pollution attributable to these craft would certainly have to be classified as negligible.

COMMITTEE FINDINGS

From the two health reports on this subject that were turned up by its research, from the results of its questionnaire survey, and from the results of its own independent analysis, the only conclusion that can be reasonably established and logically defended by this Committee is that pollution from recreational watercraft is, at most, negligible. This pollution is so slight on the total scale of pollutant sources that it is, at this time, unworthy of the considerable attention it has been given.

To support the finding of this Committee as to the relative insignificance of pollution from recreational watercraft, the Committee draws the reader's attention to a report on pollution of the Detroit River and Lake Erie, released by the U. S. Public Health Service on May 8, 1965. The report resulted from a two and one-half year study by the Public Health Service of these waters and found that pollution had reached a stage hazardous to human health, fish, wildlife and recreation. The report further claimed that 1.6 million gallons of waste flows into the Detroit River annually, "one-third from municipalities and two-thirds from industries." The report charged that the Scott Paper Company alone discharged wastes "equivalent in oxygen-consuming capacity to the untreated sewage from a population of over 800,000 persons."

The report recommended "correcting the pollution from six municipalities, 42 industrial establishments, and three Federal installations" and estimated the

cost of remedial measures at \$200 million. The subject is still under debate in Michigan and promises to be actively discussed for many years before the situation outlined in the report is corrected, if ever.

Based on the assessment by the Committee of the total boating population in this country with marine toilets, the patterns of use of such craft, and the total days per year they are in operation, it is the opinion of this Committee that the pollution of the Detroit River which is caused by municipalities and industries is of greater national concern than such pollution as is caused to the nation's waters by the total recreational boating fleet of this country.

But if the Committee is correct in its conclusion, then how can the vigorous legislative activities in this field on the state level and, now, on the Federal level, be explained? The only explanation available to the Committee is that curbing whatever pollution is attributable to recreational watercraft is considered to be reasonably easy, and is therefore a good place for health officials wishing to make a start in this field to begin. Further, because such legislation affects a relatively small percentage of the population of a given state and because the goal of the legislation is admittedly for the good of all, it is difficult for those opposed to such regulation or the form it takes to gain any appreciable support for their position.

If this has been the source of the considerable legislative activity on this subject in the past, then it is the inescapable conclusion of this Committee that it will continue to be in the future. That such legislation can and often does impose incalculable and unnecessary hardships on recreational boat owners hasn't deterred such efforts in the past and is unlikely to be of greater significance in the future.

The Committee predicts that legislation prohibiting entirely the use of a marine toilet on the waters of a given state will continue to be passed in the future as it has in the past, even though no action of any consequential nature is taken by the same state to clean up the heavy pollution of its waters caused by municipal and industrial wastes.

What can and should recreational boat owners or the National Association of State Boating Law Administrators do to correct this situation? Should we oppose each and every attempt to curb such pollution as can be attributed to recreational boating because it is of such insignificance in the total pollution picture? Should we advocate a total program to correct all pollution as an alternative to regulations covering boating alone? Or should the Association continually refer to this report and its conclusions in hopes that this alone will reduce legislative activity in this field?

Reasonable though any of these courses of action may appear, it is obvious that none of them will result in action favorable to recreational boat owners. Legislating against pollution in any form is gaining popularity, and opposing anti-pollution legislation or regulations is comparable to opposing motherhood or the American flag. The situation has passed the point where reasonableness is a criteria so that concerted opposition to such regulation by recreational boat owners or groups representing them, regardless of the facts in their favor, will accomplish nothing constructive and might even result in the adoption of harsher regulations than would otherwise be the case.

The Committee believes that what must be done by this Association and by other recreational boating interest groups in the country is recognize that regulation of this problem, regardless of its significance, is certain to continue; that

such regulations will continue to vary considerably from state to state; that many, if not a majority, of the regulations in this area will be of the type completely prohibiting the discharge of wastes in any form, whether treated or not, from marine toilets; and that such regulations will be injurious to the mobility of recreational boating that this Association is attempting to foster in other fields.

If this is so, then what can be done to amend or modify these regulations so that they are less injurious to recreational boat owners and to the mobility of recreational craft? The solution suggested by the Committee is the preparation of a model law on this subject that will avoid the shortcomings of most of the present regulations and still alleviate the problem of the discharge of untreated wastes from recreational watercraft.

Before such legislation can be effective, however, there must be available anti-pollution devices capable of installation on recreational craft at a reasonable cost. An assessment of such devices is then necessary.

ANTI-POLLUTION DEVICES FOR RECREATIONAL WATERCRAFT

There are three principal types of treatment devices now available:

1. Chlorinators. Chlorinators are devices designed to hold sewage for at least a nominal period of time to permit introduction of dosages of disinfectants to kill bacteria contained therein. To meet any reasonable health standard, such units must be equipped with a macerator or with some other type of agitator which will cause the breakup of solids to permit disinfection and to inhibit settling of solids in the chlorinator.

2. Incinerators. These units are designed to trap the waste material, generally in a previously inserted bag, and to hold the materials until the device is activated. Upon activation, the bag with the sewage materials is dropped into a burning chamber where it is consumed by a burner which is ignited by turning the burning control as prescribed. These units are usually provided with exhaust fans to remove odors from the area to over-board vents. Generally, appropriate controls are provided to assure that the device cannot be activated when the toilet is in use.

3. Holding Tanks. A holding tank is simply a waste tank placed on board the vessel and attached to the marine toilet so that all materials are pumped from the toilet into the tank. Such devices can be emptied in one of two ways, the first through a pump attachment which empties the tank into a shoreside sewer or septic tank and the second by pumping the materials directly into the waters of the lake.

Each of these units has some disadvantages which should be mentioned.

1. Chlorinators. An "Evaluation of Marine Toilet Chlorinators" is a report prepared by Syracuse University in 1962 for the New York State Department of Health and contains some excellent suggestions relative to the use of chlorinators. This report as well as the experience of others in using chlorinators indicates that the devices must retain the waste materials for a minimal period of time to assure adequate treatment by the disinfectant used with the device. Also, should the boat owner allow the disinfectant source to become depleted, there is no way that the unit can be designed to continue to hold the materials until a disinfectant is introduced. It is believed that this situation could be greatly alleviated simply by having manufacturers of

such devices print on the devices themselves or on literature designed to be placed in the head of a boat, instructions as to its use. It is not considered probable that many boat owners who have had these units installed will permit them to be regularly operated in a manner designed to destroy their effectiveness.

2. Incinerators. The principal objections to units of this nature relate to their size and to the fact that most use propane gas as fuel. In other respects, they are considered to be the most effective anti-pollutant device because they destroy the wastes entirely. Although the size limitation cannot easily be modified, the danger of introducing propane gas on board a boat can be almost completely reduced by a carefully designed and proper installation of the unit and the fuel bottles.

3. Holding Tanks. Units of this nature seem to have the greatest appeal to health officials, probably because they are regarded as the next best thing to actually sealing a toilet. However, these installations are not without disadvantage. If holding tanks are to be pumped ashore, relatively expensive sewer installations at marinas are required. If they are to be emptied in outlying waters, the possibility of their being discharged at dockside will continue to exist and, should such happen, would completely negate the installation of the device. Holding tanks also require considerable space on board boats where space, regardless of the size of the boat, is always limited. Holding tanks should have chemicals added from time to time to reduce the increased bacteriological effects of retaining sewage for prolonged periods of time. The longer such materials are retained without the introduction of appropriate chemicals, the more virulent the waste materials become. However, it is believed that with the provision of appropriate instructions to the user, any boat owner utilizing such an installation will assure that it is used properly.

Although there are disadvantages to each of these units, it is not felt by the Committee that these are such that the only alternative to continued pollution is the sealing of toilets. Certainly these units will perform with no less effectiveness than the average municipal sewage treatment plant, and because of the boat owner's interest in unpolluted waters, it is believed by the Committee that the units will be carefully and properly maintained and operated.

It is therefore the conclusion of the Committee that suitable and adequate devices are presently available for installation aboard recreational watercraft that will treat sewage to a standard acceptable to most health officials. Since any of the three units above are acceptable treatment devices, and since the selection of one of the three by a boat owner will be based on personal considerations, it is recommended that a model law permit the use of any of the three devices.

MODEL LAW

After concluding that suitable anti-pollution devices were available for installation on recreational watercraft, the Committee requested the Outboard Boating Club of America to prepare a model law dealing with the general subject of pollution from recreational craft. This model law has been extensively reviewed by the Committee and others, and suggested revisions or modifications incorporated into the final draft which is included in this Report as Appendix C. This model law provides for several features that are worthy of individual mention.

To assure that the standards required by such legislation do not vary from state to state, they have been incorporated into the model act as a part thereof. This is most important, for one of the principal justifications of this model act to the Committee has been that adoption thereof nationally would greatly facilitate the mobility of recreational craft. If individual standards could be established by each state, this mobility would be completely destroyed and the purpose of the act entirely negated.

The Committee was also impressed by testimony of manufacturers of anti-pollution devices wherein they pointed out to the Committee that the trend in current legislation was to require a complete laboratory test of every anti-pollution device by its manufacturer before the unit would be accepted by the particular state. In an effort to reduce this expense to the manufacturer, and to avoid duplicate tests of an almost identical nature, the Committee has permitted the manufacturer in the model law to certify in writing on the basis of any test which the manufacturer makes of its unit, whether or not the unit meets the requirements of the model act.

In other respects, the model law has been drafted in such a manner as to assure that it can easily be used without major amendments in any State in the country. This was, of course, done intentionally in hopes that the goal of uniformity in this legislation would be further accommodated.

LITTER

During its investigations, the Committee was impressed with the number of persons who, when discussing pollution from recreational watercraft, were concerned only with the depositing of trash, garbage, and other materials in the water which, perhaps, could be more appropriately termed "litter". Before receiving the results of its questionnaire survey, it was the personal opinion of most of the Committee members that the litter problem was of greater concern than the problem of pollution, and the questionnaire results confirmed this belief.

American ingenuity being what it is, it appears that food and beverage containers are becoming more and more indestructible. Milk cartons, beverage cans and bottles, and other food containers are not only extremely resistant to deterioration through exposure to the elements, but most of them float, resulting in their accumulation on the beaches adjacent to heavily used waterways. Even when the items washed up on the beach are not necessarily dangerous to humans, they offend the senses because they are so foreign to the area. Since they do not appear to naturally waste away and since they are not capable of being eaten by fish, fowl, or wildlife, the only way they can be removed is through human action and such is difficult, if not impossible, when the cost of patrolling the thousands of miles of shoreline of this nation is considered.

This does not mean that recreational boat owners are the primary offenders in this area. There is no question in the Committee's mind that a substantial amount of this litter is being deposited by the crews of commercial vessels plying these waters. Because such crews eat all meals on board and naturally consume a far greater amount of foods per person than is consumed by recreational boat owners who, although greater in numbers, cruise much less and appear to eat on board less frequently, it is apparent that the continued practice of dumping all waste materials over the side into the waters will result in a large accumulation of litter on the beaches

The litter problem is not easily resolved simply by passing legislation. This is a problem which can only be resolved through a direct attack utilizing all possible means to educate every segment of the public as to the problem and its likely effects if not abated. Appropriate legislation can be helpful, however, to ensure that marinas and public boating facilities provide trash receptacles and that commercial vessels are required by law to destroy materials through incineration or to place them in trash receptacles for disposal on shore. Because of this, provisions of this nature are included in the model law recommended herein by the Committee.

IN CLOSING

The Committee has attempted to maintain an objective approach to the problems covered by this report. As more and more evidence was uncovered indicating the miniscule nature of the pollution problem and the gargantuan efforts being made by persons who should know better to correct it, the objectivity of the Committee lessened considerably. Still, we believe we have well and amply supported our conclusions herein.

The Committee was appalled at the tremendous amount of industrial waste and untreated sewage being regularly deposited in the lakes, streams and rivers of this country. Although it was gratifying to the Committee to establish to its complete satisfaction that virtually none of this pollution was the result of the use of recreational watercraft, this limited satisfaction was completely overwhelmed by the staggering knowledge of the condition of much of our water. Indeed, unless much stronger efforts to correct this situation are made in the future than have been made in the past, there may well be no recreational watercraft in existence to worry about because no waters suitable for recreation will remain.

APPENDIX A

QUESTIONNAIRE ON WATER POLLUTION BY RECREATIONAL WATERCRAFT

STATE OF MICHIGAN



Waterways Commission

GEORGE ROMNEY, GOVERNOR

1004 CADILLAC SQUARE BUILDING
DETROIT, MICHIGAN 48226

LEONARD H. THOMSON
DETROIT

DR. WALLACE B. WILLMAN
TRAVERSE CITY

LOUIS H. FREYE
ROMEO

CHARLES A. BOYER
MANISTEE

VOLMAR J. MILLER
PAW PAW

KEITH WILSON, DIRECTOR
TEL. 222-1800

May 25, 1964

Dear Sir:

The National Association of Boating Law Administrators is an organization consisting of State officials concerned with programs involving the registration, regulation, and development of facilities for recreational watercraft.

Because of the considerable concern being expressed throughout the country at this time about the continuing pollution of our waters, it is the desire of this Association to determine the extent of such pollution attributable to recreational boating. After basic determinations of this type have been made, it is the further intent of the Association to make recommendations to the various States of ways to combat pollution from this source.

To assist the Association's Pollution Study Committee, it is requested that you complete the enclosed questionnaire and return it to the Outboard Boating Club of America which is serving as special Staff Assistant to the Committee on this study. If you are unable to complete the questionnaire yourself, it is requested that the form be forwarded to the appropriate State agency having jurisdiction over this matter.

Your cooperation in this important study will be most sincerely appreciated.

Very truly yours,

A handwritten signature in cursive script, reading "Keith Wilson".

Keith Wilson
Chairman, Pollution Study Committee,
National Association of Boating
Law Administrators

QUESTIONNAIRE ON WATER POLLUTION BY RECREATIONAL WATERCRAFT

Completed by

NAME _____

REPRESENTING _____

ADDRESS _____

The object of this questionnaire is to try to develop information and data on the extent of water pollution attributable to recreational boating, whether or not such pollution is a significant factor, and the nature and measure of corrective action to be taken, if any, which will provide a remedy without unduly penalizing the boat owner.

For purposes of this study, the term "recreational watercraft" is defined as every description of vessel, regardless of method of propulsion, which is used or capable of being used as a means of locomotion on the water for recreational pursuits.

1. Can you estimate, from boat registration data or any other appropriate source, the number of recreational watercraft in your State with marine toilets? Yes ____ No ____

2. If the answer is "Yes," please indicate in the following space how many recreational watercraft with marine toilets you estimate to be operating on waters in your State. _____

3. If your area of jurisdiction is defined other than by state boundaries, please explain and, if possible, estimate the number of recreational watercraft with marine toilets in your area. _____

4. Can the total number of recreational watercraft with marine toilets in your State or area be broken down according to boat size? Yes ____ No ____

5. If the answer is "Yes," please indicate in the spaces below the number of recreational watercraft with marine toilets in your State or area in each of the following size groups:

_____ Less than 26 feet in length
_____ 26 feet to less than 40 feet in length
_____ 40 feet to not more than 65 feet in length

6. If you have a numerical breakdown of recreational watercraft with marine toilets classified other than by size or length of the vessel, we would appreciate having this information. Please show any such data in the following space.

7. Can you estimate the number of recreational watercraft without marine toilets in your State or area? Yes ____ No ____

8. If the answer is "Yes," please indicate how many. _____

9. Below are listed the types of water, some or all of which may exist in your State or area. Please mark the degree and kind of pollution FROM RECREATIONAL CRAFT ONLY on your waters.

Mark the degree of pollution by circling #1, 2, 3 or 4. For example, on rivers and streams, sewage and/or garbage, trash and waste FROM RECREATIONAL CRAFT are possibly contributing to pollution. If, in your State or area, sewage is a MAJOR contributor to pollution, circle #1; if MODERATE, circle #2; if a MINIMAL contributor, circle #3; if it does NOT contribute, circle #4. Do the same with garbage, trash and waste, marking the degree of each in each type of water.

	<u>SEWAGE</u>	<u>GARBAGE</u>	<u>TRASH</u>	<u>WASTE</u>
EXAMPLE: RIVERS AND STREAMS	1 2 (3) 4	1 2 (3) 4	1 (2) 3 4	1 2 3 (4)

DEFINITIONS

Sewage: The contents of a drain, especially human excrement.

Garbage: For example, animal or vegetable matter from a kitchen, market or store.

Trash: Something discarded as no longer useful or not useable, especially paper, metal, wood, glass or plastic products.

Waste: Material lost or unused during a process, leakage, e.g., motor oil.

KEY

- 1 Circling this number means that the kind of pollution listed is a MAJOR contributor to pollution in your area.
- 2 Circling this number means a MODERATE contribution to pollution.
- 3 Circling this number means a MINIMAL contribution to pollution.
- 4 Circling this number means NO contribution to pollution.

TYPE OF WATER

KINDS OF POLLUTION

	<u>SEWAGE</u>	<u>GARBAGE</u>	<u>TRASH</u>	<u>WASTE</u>
COASTAL OR OCEAN	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
GREAT LAKES	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
INLAND LAKES				
Under 500 acres	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
500 acres or over	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
RIVERS AND STREAMS	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
RESERVOIRS	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

10. How is the problem of pollution from recreational watercraft being handled in your State or area: by regulation? ___ by education? ___ otherwise? ___
Please elaborate. _____

11. Do you have any suggested solutions over and above what is already being done to combat pollution from recreational watercraft in your State or area?

12. To your knowledge, have any studies been made in your State or area regarding contribution to the water pollution problem by recreational watercraft?

Yes ___ No ___ (In answering the foregoing, you may include studies by public health or water pollution agencies of Federal, state or local government, and/or studies by universities and private research organizations or any other studies of which you may know.)

If the answer is "Yes," and copies of these studies are available in your files, we would greatly appreciate your sending one of each to us along with this completed questionnaire.

If extra copies of these studies are unavailable to you, it is requested that you furnish all appropriate names and addresses where we can write for copies of such studies. Please give these sources of information in the space provided below.

13. In your opinion, are boating groups and individuals self-policing in efforts they make to keep the water clean and shoreside areas clean for their own sake?

14. Do you think marinas are contributing to water pollution by lack of adequate facilities at docking and mooring areas to remove sewage from boats or garbage and trash deposited in the water? Yes ___ No ___ Please comment. _____

15. Additional comments, if any _____

PLEASE RETURN THIS QUESTIONNAIRE, UPON COMPLETION TO:

OUTBOARD BOATING CLUB OF AMERICA
307 NORTH MICHIGAN AVENUE
CHICAGO, ILLINOIS 60601

APPENDIX B

FINDINGS OF WATER POLLUTION QUESTIONNAIRE SURVEY

FINDINGS OF WATER POLLUTION QUESTIONNAIRE SURVEY

Scale of Degree of Pollution

1.0 - 1.5 Major
1.6 - 2.5 Moderate
2.6 - 3.5 Minimal
3.6 - 4.0 No problem

KIND OF WATER	SEWAGE	GARBAGE	TRASH	WASTE	AVERAGE VALUE OF ANSWER
COASTAL/OCEAN (30 responding)	3.0	3.3	3.1	3.3	3.2
GREAT LAKES* (7 responding)	2.9	2.9	2.7	3.1	2.9
INLAND LAKES					
Under 500 acres (50 responding)	3.2	3.2	2.8	3.1	3.1
500 acres or over (45 responding)	3.1	3.0	2.7	3.1	3.0
RIVERS AND STREAMS (54 responding)	3.1	3.2	3.0	3.1	3.1
RESERVOIRS (43 responding)	3.2	3.1	2.9	3.3	3.1
AVERAGE VALUE OF ANSWER	3.1	3.2	2.9	3.2	

How is the problem of pollution from recreational watercraft being handled in your state or area? (52 responding)

Regulation 42.3%

Education 21.2%

Both 36.5%

Are boating groups and individuals self-policing in efforts they make to keep the water and shoreside areas clean for their own sake? (58 responding)

Yes 39.6%

No 46.6%

Boating groups and clubs are but not individuals 13.8%

Do you think marinas are contributing to water pollution, etc.? (61 responding)

Yes 62.3%

No 37.7%

The figures for the Great Lakes may be misleading inasmuch as the total number of responses concerning this type of water was only seven. Therefore, a single extreme response will affect the final average answer more than a single such response would in any of the other KIND OF WATER categories.

91 State and Federal agencies who answered the questionnaire only 8 cited pollution from recreational watercraft as a major contributor to the over-all water pollution problem by circling on the questionnaire form. They and the kind of pollution they stressed are as follows:

Division of Water Safety
Alabama Conservation Department
--Sewage and waste on rivers and streams

Chief Sanitary Engineer
Arkansas State Board of Health
--Trash on lakes under 500 acres; trash and waste on lakes 500 acres or over; trash and waste on rivers and streams; garbage, trash and waste on reservoirs

Georgia Department of Public Health
--Garbage and trash on lakes under 500 acres

Michigan Department of Health
--Trash on Great Lakes

5. Sanitary Engineering Division
North Carolina State Board of Health
--Sewage on coastal or ocean waters, lakes under 500 acres, lakes over 500 acres, rivers and streams, and reservoirs

6. Municipal Waste Section
Division of Water Resources
West Virginia Department of Natural Resources
--Sewage and waste on rivers and streams

7. Region 6, U. S. Forest Service
(Oregon and Washington)
--Trash on lakes under 500 acres

8. Boat License Division
Illinois Department of Conservation
--Sewage and waste on rivers and streams

AGENCIES RESPONDING TO QUESTIONNAIRE

Division of Water Safety
Alabama Conservation Department

Registration Branch
Alabama Motor Vehicle Division

Water Quality Control Board
California Resources Agency

Water Pollution Control Engineer
Colorado Department of Public Health

Sanitary Engineering Division
Connecticut State Department of Health

Small Boat Safety Division
New Jersey Commission of Shell Fisheries

Engineer
Florida Board of Conservation

Division of Water Resources
Florida Board of Conservation

Georgia Department of Public Health

Environmental Health Engineering
Illinois Department of Health

Idaho Motor Vehicle Bureau

Division of Public Health
Alaska Department of Health & Welfare

Chief Sanitary Engineer
Arkansas State Board of Health

California Division of Small Craft Harbors

Bureau of Sanitary Engineering
California Department of Public Health

Chief Boat Warden
Colorado Game, Fish & Parks Department

Boating Safety Commission
Connecticut Dept. of Agric. & Natural Resources

Harbor Precinct
Washington, D. C. Metropolitan Police Department

Florida Boating Council

Bureau of Sanitary Engineering
Florida State Board of Health

Georgia Game & Fish Commission

Harbors Division
Hawaii Department of Transportation

Health Biologist
Engineering and Sanitation Division
Department of Health

s Forestry, Fish & Game Commission

ucky Water Pollution Control Commission
Water Improvement Commission

ict Engineer
yland Department of Water Resources

chusetts Division of Motorboats

igan State Waterways Commission

on of Water Pollution Control
nesota Department of Health

Pollution Board
ouri Department of Public Health & Welfare

ana Pollution Control Sect., Aquatic Biol.
ana State Board of Health

ing Division
aska Game, Forestation & Parks Commission

orboat Section
Department of Motor Vehicles

Jersey Marine Patrol

Mexico Park & Recreation Commission

son of Environmental Health Services
ork Department of Health

tary Engineering Division
h Carolina State Board of Health

ision of Water Supply & Pollution Control
h Dakota State Department of Health

Division of Watercraft

Sanitary Authority
gon State Board of Health

son of Harbors & Rivers, Rhode Island

le Island Department of Health

son of Law Enforcement
h Dakota Game, Fish & Parks Department

Boat Licensing Division
Illinois Department of Conservation

Superintendent of Waters
Iowa Conservation Commission

Division of Boating
Kentucky Department of Public Safety

Boating Division
Maryland Department of Chesapeake Bay Affairs

Sanitary Biologist
Massachusetts Department of Public Health

Michigan Department of Health

State Boating Safety Committee
Mississippi Game & Fish Commission

Sanitary Engineer Director
Water Supply and Pollution Control
Missouri Department of Health, Education & Welfare

Montana State Board of Health

Environmental Health Services
Nebraska Department of Health

Nevada State Health Department

New Hampshire Water Pollution Commission

New Mexico Department of Public Health

Division of Motorboats
New York Conservation Department

Division of Stream Sanitation
North Carolina Dept. of Water Resources

North Carolina Wildlife Resources Commission

North Dakota Game & Fish Department

Oklahoma Planning & Resources Board

Oregon State Marine Board

Division of Sanitary Engineering
Pennsylvania Department of Health

Division of Boating
South Carolina Wildlife Resources Department

Tennessee Game and Fish Commission

Texas Department of Health

Boating Division

Military Engineering Section
Washington State Department of Health

Municipal Waste Section
Division of Water Resources
West Virginia Department of Natural Resources

Military Engineering
Wisconsin State Board of Health

Boating Game & Fish Commission

Motor Vehicle Division
Texas Highway Department

Virginia Commission of Game & Inland Fisheries

Washington Pollution Control Commission

West Virginia Department of Health

Port Advisor
Wisconsin Department of Resource Development

Wisconsin Department of Conservation

Wyoming Department of Public Health

S. COAST GUARD

First District (New Jersey, Connecticut, Vermont, portions of New York, Pennsylvania, Delaware)

Fourth District (Louisiana, Texas, New Mexico, portions of Alabama, Arkansas, Mississippi, Georgia and Florida)

Fifteenth District (Washington, Oregon, Idaho and Montana)

S. BUREAU OF RECLAMATION

Region 2 (California)

Region 4 (Colorado, Wyoming, New Mexico, Arizona)

Region 5 (Oklahoma, Texas, Colorado, Kansas, New Mexico)

S. FOREST SERVICE

Region 5 (California)

Region 6 (Oregon and Washington)

Bureau of Sport Fisheries and Wildlife
Regional Office, Oregon

Headquarters
Bureau of Outdoor Recreation

National Park Service
National Capital Region

Tennessee Valley Authority

ANALYSIS OF RESPONSES TO QUESTIONS 11 AND 15
OF WATER POLLUTION QUESTIONNAIRE SUBMITTED BY WATER
POLLUTION STUDY COMMITTEE, NATIONAL ASSOCIATION OF BOATING LAW ADMINISTRATORS

It would appear from the questionnaire that the pollution problem created by recreational watercraft is considered to be, in most waters, negligible. A few quotes from the questionnaire will suffice in this regard:

"In my opinion, pollution from recreational craft is infinitesimal."

"Make cities and communities put in proper disposal plants. Get at the source -- clean up the big polluters like cities, towns, industry and shore cottages."

"Most of the trash in our freshwater streams is left by people fishing on the banks."

Answers to the questionnaire indicated that, of the small part of the pollution problem created by recreational watercraft, trash thrown overboard by individuals was of the greatest concern. Most individuals believed that members of boating organizations, clubs, etc., are fairly well self-policing. The majority of those replying suggested education through literature, posters, and clubs as the best and ultimate solution to stopping whatever pollution is being contributed by recreational watercraft users -- "the water they pollute is their own" idea. An example of a successful education program against water pollution is that conducted by the Ohio River Valley Water Sanitation Commission, which has done a big job in the last few years through educational programs.

It was the consensus of those replying that the marine toilet is not a noticeable contributor to water pollution where it exists, with the exception of a few areas of heavy boating concentration, notably marinas. Those replying said that marinas could and should solve their problems by providing adequate shore facilities and regulating marine toilet use by those docked at the marina. Rough figures indicate that on a nationwide average, less than 10% of all recreational watercraft have marine toilets. Necessarily, these are larger craft which are found more often on coastal and Great Lakes waters than on small land-locked lakes.

With the expected increase in recreational boating, there was some concern expressed about marine toilets becoming a pollution problem in the future. Most thoughts expressed in this area were that if the problem does arise, it could best be handled by installation of various treatment devices on marine toilets, including chlorination, incineration, and holding tank systems. Where there are regulations, the trend is noticeably away from toilet sealing restrictions and toward treatment systems. The sealing restrictions, operating against nature, decidedly discourage recreational boating and also create administrative headaches.

Virtually all who made suggestions of any nature, stressed the idea of uniformity among the states in implementing regulations to control this matter. Without uniformity, it was felt that new regulations would be unreasonably burdensome on interstate boaters as well as difficult to enforce.

APPENDIX C

A MODEL ACT TO PROHIBIT LITTERING AND THE
DISPOSAL OF UNTREATED SEWAGE FROM BOATS

A MODEL ACT TO PROHIBIT LITTERING AND THE DISPOSAL OF
UNTREATED SEWAGE FROM BOATS

TITLE

An Act to regulate the disposal of sewage from watercraft and to prohibit littering of waterways

§ 1. DEFINITIONS

For purposes of this Act, unless the context clearly requires a different meaning:

(a) The term "watercraft" means any contrivance used or capable of being used for navigation upon water whether or not capable of self-propulsion, except passenger or cargo-carrying vessels subject to the Interstate Quarantine Regulations of the United States Public Health Service adopted pursuant to Title 42 United States Code § 241 and 243.

(b) The term "sewage" means all human body wastes.

(c) The term "litter" means any bottles, glass, crockery, cans, scrap metal, junk, paper, garbage, rubbish, or similar refuse discarded as no longer useful or useable.

(d) The term "marine toilet" means any toilet on or within any watercraft to discharge waste.

(e) The term "waters of this State" means all of the waterways on which watercraft shall be used or operated.

Note: In some states it may be desired to limit the application of this Act to certain waters only and thereby exempt large bodies of water or water areas that are remote from population centers and on which there is no congestion and no conceivable boat pollution problem. The waters subject to pollution control under this Act could be enumerated or the state agency which is designated to administer the Act could be authorized to make a finding that a particular waterway should or should not be affected.

(f) The term "person" means an individual, partnership, firm, corporation, association, or other entity.

(g) The term "Department" means the (name of the State agency which shall administer this Act).

The choice of agency lies within the discretion of each state. It is recommended, however, that consideration be given to the state agency dealing with boating matters in general.

§ 2. LITTERING OR POLLUTING WATER - RESTRICTIONS

(a) No person shall place, throw, deposit, or discharge, or cause to be placed, thrown, deposited, or discharged into the waters of this State, any litter, sewage, or other liquid or solid materials which render the water unsightly, noxious or otherwise unwholesome so as to be detrimental to the public health or welfare or to the enjoyment of the water for recreational purposes.

(b) It shall be unlawful to discharge, dump, deposit or throw garbage into the waters of this State from a watercraft engaged in commerce.

This section is deemed sufficiently broad and flexible to prohibit any act committed on shore, in the water, or from aboard any description of watercraft, which litters or tends to pollute the water.

§ 3. MARINE TOILETS - RESTRICTIONS

(a) No marine toilet on any watercraft used or operated upon waters of this State shall be operated so as to discharge any untreated sewage into said waters directly or indirectly.

(b) No person owning or operating a watercraft with a marine toilet shall use, or permit the use of, such toilet on the waters of this State, unless the toilet is equipped with facilities that will adequately treat, hold, incinerate or otherwise handle sewage in a manner that is capable of preventing water pollution.

(c) No container of sewage shall be placed, left, discharged or caused to be placed, left or discharged in or near any waters of this State by any person at any time.

This section prohibits the discharge of any untreated sewage from marine toilets.

§ 4. MARINE TOILETS - POLLUTION CONTROL DEVICES

(a) After the effective date of this Act every marine toilet on watercraft

used or operated upon the waters of this State shall be equipped with a suitable pollution control device in operating condition.

(b) Pollution control devices that are acceptable for purposes of this Act are:

1. Facilities that macerate or grind sewage solids and which, by chlorination or other means, disinfect the remnants before discharge into the water.
2. Holding tanks which retain toilet wastes for disposal at dockside or on-shore pumping facilities or in deep waters away from shore.
- 3.. Incinerating type devices which reduce toilet wastes to ash.
4. Any other device that is tested by a recognized testing laboratory and determined to be effective in arresting the possibility of pollution from sewage passing into or through marine toilets.

This section recognizes that there are a variety of devices on the market designed to eliminate the possibility of water pollution from sewage passing into or through toilets aboard watercraft. Many of these devices have been tested by various state public health and water pollution control agencies and independent laboratories and found to be efficient for their purpose. However, with further improvements and innovations likely in this product area in the future, it is unwise to "freeze" specifications for such devices in statutory language. All technological changes can be readily incorporated into rules and regulations.

The desirability of nationwide uniformity in requirements for marine toilet pollution control devices cannot be emphasized too strongly. Boatmen will have to incur additional expense to install and maintain such devices. It would be a hardship and an inconvenience for boatmen traveling from state to state to be subjected to different jurisdictional standards of acceptability of these devices.

§ 5. MARINE TOILETS - CHEMICAL TREATMENT FACILITIES - STANDARDS.

(a) Every chlorinator or chemical treatment facility shall be securely affixed to the interior discharge opening of a marine toilet, and all sewage passing into or through such toilet shall pass solely through such treatment facility.

(b) Sewage passing through a marine toilet equipped with a chlorinator or chemical treatment facility shall be deemed untreated unless the effluent meets the following minimum standards:

1. Sufficiently divided into fine particles so as to be free of unsightly solids.
2. Containing 1,000 or less coliform per 100 ml.

This standard meets the requirements of the U. S. Public Health Service and is acceptable by most state public health agencies for swimming and bathing purposes.

(c) The chlorinator or chemical treatment facility shall be of a type which functions automatically with the operation of the marine toilet, does not depend on septic action as part of its treatment, is easy to clean and maintain, and does not permit the escape of dangerous gases or obnoxious odors.

(d) The disinfecting agent used in the facility shall be of a kind that does not necessitate too frequent replenishment, is easily obtainable, and when discharged as a part of the effluent is not toxic to humans, fish or wildlife.

The foregoing standards are generally acceptable under existing state marine chlorinator laws. In the interest of uniformity they are recommended to other states proposing the adoption of such laws.

§ 6. MARINE TOILETS - STANDARDS FOR MANUFACTURERS OF POLLUTION CONTROL DEVICES

Every manufacturer of a marine toilet pollution control device described in this Act shall certify to the Department in writing that his product meets the standards set forth in this Act or in any implementing regulations adopted by the Department. Every such certified statement shall be accompanied by a test report showing that the product meets the prescribed standards. It shall be unlawful to sell or to offer for sale in this State any marine toilet pollution control device that has not been so certified and approved by the Department.

§ 7. CERTIFICATE OF NUMBER

The Department may require persons making application for a certificate of number for a watercraft pursuant to (statutory citation of State Boat Numbering Act to be entered here) to disclose whether such watercraft has within or on it a marine toilet, and if so, to certify that such toilet is equipped with a suitable pollution control device as required by this Act. The Department is further empowered to direct that the issuance of a certificate of number or a renewal thereof be withheld if such device has not been installed as required by this Act.

§ 8. ON-SHORE TRASH RECEPTACLES

The owner or whoever is lawfully vested with the possession, management and control of a marina or other waterside facility used by watercraft for launching, docking, mooring and related purposes shall be required to have trash receptacles or similar devices designed for the depositing of trash and refuse at locations where they can be conveniently used by watercraft occupants.

§ 9. EDUCATION

The Department is hereby authorized to undertake and to enlist the support and cooperation of all agencies, political subdivisions, and organizations in the conduct of a public educational program designed to inform the public of the undesirability of depositing trash, litter, and other materials in the waters of this State and of the penalties provided by this Act for such action, and use funds provided by the Legislature for this purpose. The Department is further authorized to utilize all means of communication in the conduct of this program.

§ 10. ENFORCEMENT

All watercraft located upon waters of this State shall be subject to inspection by the Department or any lawfully designated agent or inspector

thereof for the purpose of determining whether such watercraft is equipped in compliance herewith. The Department is further authorized to inspect marinas or other waterside public facilities used by watercraft for launching, docking or mooring purposes to determine whether they are equipped with trash receptacles and/or sewage disposal equipment.

§ 11. LOCAL REGULATIONS PROHIBITED

Through the passage of this Act, the State fully reserves to itself the exclusive right to establish requirements with reference to the disposal of sewage from watercraft. In order to ensure state-wide uniformity, the regulation by any political subdivision of the State of sewage disposal from watercraft is prohibited.

§ 12. RULES AND REGULATIONS

The Director of the Department is hereby authorized and empowered to make, adopt, promulgate, amend and repeal all rules and regulations necessary, or convenient for the carrying out of duties and obligations and powers conferred on the Department by this Act.

§ 13. FILING OF REGULATIONS

A copy of the regulations adopted pursuant to this Act and any of the amendments thereto, shall be filed in the office of the Department and in the office of the (official State record keeping agency). Rules and regulations shall be published by the Department in a convenient form.

§ 14. PENALTIES

(a) Every manufacturer of a marine toilet pollution control device who violates Section 6 of this Act or any regulations adopted by the Department pursuant thereto shall be deemed guilty of a misdemeanor and upon conviction shall be punished with a fine of not more than \$_____.

(b) Any person who violates any other provision of this Act or regulations of the Department adopted pursuant thereto shall be deemed guilty

of a misdemeanor and upon conviction shall be punished with a fine of not more than \$_____, or by imprisonment of not more than _____ days, or by both such fine and imprisonment at the discretion of the court.

§ 15. SAVINGS CLAUSE

If any court shall find any section or sections of this Act to be unconstitutional or otherwise invalid, such findings shall not affect the validity of any sections of this Act which can be given effect.

§ 16. EFFECTIVE DATE

The provisions of this Act with reference to requiring watercraft with toilet facilities to be equipped with pollution control devices shall take effect three years from the date of the adoption of this Act. The provisions of this Act prohibiting littering the waterways shall take effect immediately.

It is suggested that the effective date of this Act be delayed so that all persons affected by its provisions will have a reasonable amount of time to become acquainted with it and secure the required treatment devices.

Division of Water Supply and Pollution Control
Washington, D.C. 20201

DIGEST OF STATE LAWS
FOR
SANITARY FACILITIES FOR BOATS AND MARINAS

BY
THOMAS F. KELLEHER
PROGRAM PLANNING OFFICER FOR BOATS AND MARINAS

Prepared as a Service to the States and Others
Interested in the control of Boat and Marina Pollution
March 15, 1965



Alabama
Code of Alabama

Section 22-132

Any person who deposits the body of a dead animal or fowl in any running stream must, on conviction, be fined \$10; and one-half of the fine must go to the informer.

Section 22-133

It shall be unlawful for any person to knowingly deposit any dead animal or noxious substances in any source, standpipe, or reservoir, from which water is supplied to any city, or town of this State, or in any private well, spring, reservoir, tank, vessel, or receptacle. Any person violating the provisions of this section, shall be guilty of a misdemeanor, and, upon conviction, shall be punished by a fine not exceeding \$500, and may be sentenced to hard labor for the county not exceeding one year.

Arizona
Arizona Revised Statutes Annotated

1953 Cumulated Pocket Part
Chapter 3 - Boating and Water Sports

Section 5-311

No person shall dump, deposit, place, throw or leave refuse, rubbish, debris, filthy or odorous objects, substances or other trash on any waterways or the shorelines of any waterways of the State.
(Added laws of 1953, Chapter 100, Section 1.)

Section 5-312

A. All peace officers of the State, counties and cities shall enforce the provisions of this Article.

Section 5-313

Any person who violates this Article is guilty of a misdemeanor punishable by a fine of not more than \$300.00, by imprisonment for not more than 90 days, or both. (Added laws of 1953, Chapter 100, Section 1.)

ARKANSAS
Regular Session
Act 147, Laws 1965
House Bill No. 382

AN ACT to regulate marine toilets and disposal of sewage from boats.

Be It Enacted by the General Assembly of the State of Arkansas:

Section 1. Definitions. As used in this Act, the following words shall have the following meanings:

(a) "Boat" means any vessel or watercraft moved by oars, paddles, sails, or other power mechanism, inboard or outboard, or any other vessel or structure floating upon the water whether or not capable of self-locomotion, including but not limited to house boats, barges and similar floating objects;

(b) "Marine toilets" means any toilet on or within any boat.

(c) "Waters of the State" means all streams, lakes, marshes, ponds, water courses, waterways, irrigation systems, drainage systems, and all other bodies or accumulations of water, natural or artificial, public or private, which are contained within or flow through the territorial jurisdiction of the State.

(d) "Sewage" means all human body waste.

Section 2. Acts Prohibited. No marine toilet on any boat, operated upon waters of the State, shall be so constructed and operated as to discharge any inadequately treated sewage into waters of the State directly or indirectly. No boat shall be equipped to permit discharge from or through its marine toilet, or in any other manner, of any inadequately treated sewage at any time into waters of the State, nor shall any container of inadequately treated sewage be removed from any boat and placed, left, discharged or caused to be placed, or discharged in or near any waters of the State at any time by any person whether or not he is the owner, operator, guest or occupant of a boat.

Section 3. Marine Toilets. Any Marine Toilet located on or within any boat operated on waters of the State shall have securely affixed to the interior discharge opening of the toilet a suitable treatment device in operating condition, constructed and fastened in accordance with regulations of the State Board of Health or some other treatment facility or method authorized by regulation of the State Board of Health. All sewage passing into the waters of the State from boats shall pass solely through the suitable treatment devices affixed to the interior discharge opening of the marine toilet.

Approved, March 9, 1965

CALIFORNIA
West's California Codes

Health and Safety Code, sec. 5411

Prohibits the discharge by anyone of sewage or industrial waste in any manner which will result in contamination, pollution or a nuisance.

Health and Safety Code, sec. 5461

The discharge of sewage or industrial waste in any manner which results in contamination is a misdemeanor.

Health and Safety Code, sec. 4401

It is a misdemeanor for any person to place, deposit or dump any garbage in or upon the navigable waters of the State.

Harbors and Navigation Code, sec. 133

The discharge of oil into the navigable waters of the State from any vessel is a misdemeanor except in an emergency.

Health and Safety Code, sec. 4459

The mooring of a houseboat or boat used as a residence on any waters within two miles above the intake or place where any city, town, or village takes its water from a river or stream for drinking or domestic purposes is unlawful except for temporary mooring during transportation for not longer than one day.

COLORADO
Colorado Revised Statutes

Sec. 66-1-7(19) (1960 Par. Suppl.)

(a) Declares it to be the public policy of the State that no discharge which contains human excreta shall be permitted to flow in the streams, lakes, or other waters of the State, unless such discharges shall comply with all standards of the State Board of Health adopted pursuant to law.

Sec. 13-22-4 (1960 Par. Suppl.)

The Director of the Park and Recreation Board is authorized, after public notice and hearing, to promulgate such rules and regulations with reference to the operation of motorboats as are necessary for the protection and safety of watercraft and persons engaged in recreational boating and other public interests which may be concerned therewith.

Sec. 13-22-3

Any person who violates any provision of this Act shall be guilty of a misdemeanor and shall be subject to a fine of not to exceed \$50 for each violation.

Sec. 40-12-22

It is unlawful to throw or discharge into any stream of running water, or into any ditch or flume in the State any obnoxious substance, such as refuse matter from slaughter house or privy, or slops from eating houses, or any other fleshy or vegetable matter which is subject to decay in the water. Violation is punishable by a fine of not less than \$100 nor more than \$500.

Sec. 40-12-23

It is unlawful to empty or flow oil, petroleum or other oleaginous substance into any of the waters of the State, or deposit or cause the same to be deposited at such a distance that it may be carried into such waters by natural causes. Violation is a misdemeanor and upon conviction is punishable by a fine not exceeding \$1,000 or imprisonment in county jail not exceeding six months, or both.

OFFICIAL
Connecticut Gen. Statutes, Annotated

Section 25-24

No person or municipal or private corporation shall deposit any garbage, domestic refuse or other material of like nature, and no person or corporation owning or operating a waterborne craft or vehicle shall deposit or permit the deposit or discharge of any garbage, waste matter or refuse matter of any kind or description whatever, from such waterborne craft or vehicle, in the waters of any river, stream, pond, lake or tidal waters of this State, or shall establish or maintain or cause the use of any place for the disposal of any such material on any land within a distance of fifty feet of the high water mark of any such waters in any place where storm or high water may carry such material to any adjacent waterway. The Commission may require the harbor masters to investigate any source of pollution and to make reports concerning the same. Any person who violates any provision of this section shall be fined not more than \$1,000, or imprisoned not more than three months, or both.

Section 25-25

No person, corporation or municipality shall place in or permit to be placed in, or discharge or permit to flow into, any of the waters of the State, any sewage prejudicial to public health.

Section 25-31

Violation of above section carries a fine of \$500, or a prison term of six months, or both.

DELAWARE
Delaware Code Annotated

Section 23-708

The Water Pollution Commission exercises general supervision over the administration and enforcement of all laws relating to the pollution of the waters of the State.

Section 23-711

Violation of any provisions of the laws relating to pollution or of any orders of the Commission subjects the offender to a fine of not less than \$10 nor more than \$100 for each offense.

Section 16-1301

It is unlawful to discharge or permit or allow to escape into any running stream of water within the State, the water of which stream is used by inhabitants for drink or beverage purposes, any dye-stuffs, drugs, chemicals or other substance of any kind, whereby and by means whereof the water so supplied is made and becomes noxious to the health or disagreeable to the senses. Violation is punishable by a fine of not less than \$1,000 nor more than \$5,000. In addition, the court issues an order for abatement of the nuisance within 20 days after conviction.

GEORGIA

Georgia Laws of 1964
Approved 3/11/64
Effective 7/1/64

Sec. 5 (Act 870, Laws of 1964)

(1) The Water Quality Control Board exercises general supervision over the administration and enforcement of the Act.

Sec. 5 (Act 870, Laws of 1964) - The Water Pollution Board shall:

(11) Require any marine toilet or other disposal unit located on or within any boat operated on waters of this State to have securely affixed to the interior discharge toilet or unit a suitable treatment device in operating condition, constructed and fastened in accordance with regulations of the Board or some other treatment or facility or method authorized by regulation of the Board. All sewage passing into or through the marine toilet or units shall pass solely through the said device. All boats located upon the waters of this State are subject to inspection by the Water Quality Control Board or its duly authorized agents at any time for the purpose of determining compliance with the provisions of this paragraph; provided, however, that this paragraph does not apply to ocean going vessels, of 20 tons displacement or more.

Sec. 10 (Act 870, Laws of 1964)

Makes it unlawful to use any waters of the State for the disposal of sewage, industrial wastes, or other wastes, except as to conform to and comply with all rules, regulations, orders and permits established under the provisions of this Act.

HAWAII
Revised Laws of Hawaii
(2 1963 Suppl.)

Sec. 112-5

The Board of Harbor Commissioners (the functions of which were transferred to the Dept. of Transportation as of 7/1/61), is authorized to make, alter and amend such rules and regulations as may be deemed necessary for the regulation and control of all shipping in the harbors, shore waters and navigable streams, and also such rules and regulations to prevent the throwing into the harbors, shore waters and navigable streams of rubbish, refuse, garbage or other substances liable to make such harbors, shore waters and navigable streams unsightly, unhealthful or unsafe, or liable to fill up or shoal or shallow such harbors, shore waters and streams and likewise to prevent the escape of fuel or other oils into such harbors, shore waters and streams, either from any vessel or from pipes or storage tanks upon the land.

Such rules and regulations when published in the manner prescribed for the promulgation of laws, shall upon publication have the force and effect of law.

No refuse shall be thrown overboard. All vessels maintained as residences for living purposes shall be equipped with a toilet in working condition, and all such toilets, excepting those on vessels from out-of-state visiting for a period not exceeding 60 days, shall be equipped with a sewage ejector chlorinator, or other approved means of preventing pollution in harbor waters.

INDIANA

Burns Indiana Statutes, Annotated
(& 1963 Cum. Pocket Suppl.)

Sec. 68-820

It shall be unlawful to keep, maintain or operate upon the public waters of this State any boat which is equipped with a water closet or toilet unless the same is sealed or otherwise rendered inoperative so that no human waste can be discharged into such waters therefrom, excepting any boat operating solely upon the water of Lake Michigan.

Sec. 68-868

Violation of above section is a misdemeanor, punishable for first offense by maximum fine of \$10 and/or thirty days, and subsequent offenses by maximum fine of \$100 and/or sixty days.

Sec. 68-520 (1961 Replacement)

The Stream Pollution Control Board has jurisdiction to control and prevent pollution in the waters of the State with any substance which is deleterious to the public health or to the prosecution of any industry or lawful occupation, or whereby any fish life or any beneficial animal or vegetable life may be destroyed, or the growth or propagation thereof prevented or injuriously affected.

Sec. 35-2901

Prohibits the deposit into the waters of the State any substance which is deleterious to the public health or to the prosecution of any industry or lawful occupation in which the water may be lawfully used.

Sec. 68-524 (1961 Replacement)

It is made unlawful for any corporation, municipal corporation, association, partnership, person or any other legal entity to throw, run, drain, or otherwise dispose into any of the streams or waters of the State, or allow to seep or otherwise dispose into such waters any organic or inorganic matter that will cause or contribute to a polluted condition of such waters according to determination made by the Stream Pollution Control Board.

MICHIGAN
Michigan Statutes Annotated

Sec. 3.523

The Commission is authorized to bring court action as may be necessary to carry out the provisions of the Act, and to enforce any and all laws relating to the pollution of the waters of the State.

Sec. 3.525

The Commission has the authority to take all appropriate steps to prevent any pollution which it deems to be unreasonable and against the public interest in view of existing conditions in any lake, river, stream or other waters of the State.

Sec. 3.526

It is made unlawful for any person to discharge into any lake, river, stream or other waters of the State any substance which is injurious to the public health or to the conducting of any industrial enterprise or other lawful occupation. Any person who discharges or permits to be discharged any waste or pollution into any of the waters of the State in contravention of the provisions of this Section shall be deemed a violator.

Sec. 3.529

Anyone who willfully violates any provisions of the Act or any restriction, regulation or final order of determination of the Commission made thereunder is subject to a penalty of not to exceed \$500 per day for each day of such violation.

Public Act 132, Laws of 1964

Section 1. Act no. 328 of the Public Acts of 1931, as amended, being section 750.1 to 750.568 of the Compiled Laws of 1948, is hereby amended by adding a new section 110b to read as follows:

Section 110b. Any person who discharges, dumps, deposits or throws or causes or permits the discharging, dumping, depositing or throwing of any garbage, except that which has passed through a disposal unit of a type approved by the United States Public Health Service, or oil or rubbish from a vessel or watercraft of 25 or more feet in length into a river or inland lake within this state, or within three miles of the shoreline of any part of the Great Lakes or connecting water thereof within this state, is guilty of a misdemeanor punishable by imprisonment in the county jail for not more than one year or by a fine of not more than \$1,000, or by both.

Section 2. This act shall take effect January 1, 1965.

Water Resources

MINNESOTA
Minnesota Statutes Annotated
(6 1963 Cum. Annual Poc. Pt.)

Sec. 115.03, Subd. 1

The Water Pollution Control Commission is authorized to administer and enforce all laws relating to the pollution of any waters of the State.

Sec. 115.07, Subd. 4

Pollution of any waters in violation of the Act or any order of the Commission constitutes a nuisance and may be enjoined.

Sec. 115.07, Subd. 6

Violation of any provisions of the Act or of any order of the Commission is a misdemeanor.

Sec. 351.29

Provides that no person owning or operating a watercraft or other marine conveyance upon the waters of the State of Minnesota or other marine conveyance upon the waters of the State shall use, operate or permit the use or operation of any marine toilet or other similar device for the deposition of sewage or other wastes, unless the marine toilet is equipped with a treatment device of a type acceptable to the water pollution control commission of the State of Minnesota. No person shall discharge into the waters of the State, directly or indirectly from a watercraft, any untreated sewage or other waste, nor shall any container of untreated sewage or other waste be placed, left, discharged in or near any waters of the State from a watercraft in such manner or quantity as to create a nuisance or health hazard or pollution of such waters, by any person or persons at any time whether or not the owner, operator, guest or occupant of a watercraft or other marine conveyance.

On and after January 1, 1965, no watercraft or other marine conveyance upon the waters of the State shall be equipped with any marine toilet unless also equipped with a treatment device acceptable to the Water Pollution Control Commission of the State; this requirement, however, does not apply to certain exempt watercraft.

Provides that no license shall be issued for any watercraft bearing a marine toilet except upon certification by the owner of the installation of an acceptable treatment device for use with such marine toilet.

Anyone violating the provisions of this section is guilty of a misdemeanor.

MISSOURI
Vernon's Missouri Statutes Annotated

Sec. 204.080

Authorizes the Water Pollution Board to administer and enforce the laws of the State relating to the prevention and control of water pollution.

Sec. 204.030

Makes it unlawful for anyone to cause pollution of State waters. Any such action is declared to be a public nuisance.

Sec. 306.260

No marine toilet on any boat, operated upon waters of the State, shall be so constructed and operated as to discharge any inadequately treated sewage into the waters directly or indirectly. No boat shall be equipped to permit discharge from or through its marine toilet, or in any other manner, of any inadequately treated sewage at any time into waters of the State, nor shall any container of inadequately treated sewage be removed from any boat and placed, left, discharged in or near any waters of the State at any time by any person whether or not he is the owner, operator, guest or occupant of the boat.

Sec. 306.270

Any marine toilet located on or within any boat operated on waters of the State shall have securely affixed to the interior discharge opening of the toilet a suitable treatment device in operating condition, constructed and fastened in accordance with regulations of the Water Pollution Board or some other treatment facility or method authorized by regulation of the Water Pollution Board.

Sec. 306.290

Violation of the Act is a misdemeanor.

The provisions of the Act do not apply to boats engaged in interstate commerce on the Missouri and Mississippi Rivers.

MONTANA
Regular Session

-----I

House Bill No. 53

AN ACT to prevent water pollution by prohibiting the discharge of sewage from vessels; and amending Section 69-3505, R.C.M. 1947.

Be It Enacted by the Legislative Assembly of the State of Montana:

Section 1. Section 69-3505, R.C.M. 1947 is amended to read as follows:
69-3505. (1) Every vessel shall have aboard: * * * * *

(2) No vessel shall be equipped in a manner which will permit discharge of inadequately treated sewage into waters of this state. No container of inadequately treated sewage shall be placed, left, or discharged in or near waters of this state by anyone at any time. All toilets located on any vessel operated on waters of this state shall have securely affixed to the interior discharge opening of them an operating treatment device or retaining tank meeting the standards established by the State Board of Health.

Section 2. No person shall discharge or cause, permit or suffer to be discharged, any garbage, refuse, waste or sewage from any boat into or upon the waters of any stream, river or lake within the boundaries of the State of Montana.

Section 3. A person who is convicted of a violation of this Act shall be punished by a fine of not more than twenty-five dollars (\$25.00).

Approved, March 4, 1965

NEBRASKA
Revised Statutes of Nebraska
(& 1961 Cum. Suppl.)

Sec. 71-3003

Creates within the Department of Health a State Water Pollution Control Council.

Sec. 71-3004(2)

The Council adopts a comprehensive program for the prevention, control and abatement of pollution of the waters of the State.

Sec. 37-516

Makes it unlawful for anyone to discharge any refuse into or near any State waters.

Sec. 28-1016

Makes it a nuisance for anyone to corrupt or make impure any stream or watercourse.

Sec. 81-315.17

Authorizes the Game, Forestation and Parks Commission to prescribe regulations to carry out the State Boat Act.

NEVADA
Nevada Revised Statutes

Sec. 439.200

The St B/E is authorized to make and enforce rules and regulations for, among other things, the sanitary protection of water and the control of sewage disposal.

Sec. 445.060

The State Board of Health is authorized, among other things, (5) to recommend measures for abatement of water pollution originating in this State.

Sec. 488.335

Any marine toilet located on or within any boat operated on waters of this State shall have securely affixed to the interior discharge opening of such toilet a suitable treatment device in operating condition, constructed and fastened in accordance with regulations of the State Department of Health or some other treatment facility or method authorized by regulation of the State Department of Health. All sewage passing into or through such marine toilets shall pass solely through such devices.

Sec. 488.325

1. No marine toilet on any boat operated upon waters of this State shall be so constructed and operated as to discharge any inadequately treated sewage into such waters directly.

2. No boat shall be so equipped as to permit discharge from or through its marine toilet, or in any other manner, of any inadequately treated sewage at any time into waters of this State, nor shall any container of inadequately treated sewage be placed, left, discharged in or near any waters of this State by any person at any time whether or not the owner, operator, guest or occupant of a boat.

NEW HAMPSHIRE
New Hampshire Revised Statutes Annotated

Sec. 149:4

(1) The Water Pollution Commission exercises general supervision over the administration and enforcement of the Water Pollution Control Act.

Sec. 149-A:2

Provides that after December 31, 1958, any marine toilet located on or within any boat operated on waters of this State shall have securely affixed to the interior discharge opening of such toilet a suitable treatment device in operating condition, constructed and fastened in accordance with regulations of the Water Pollution Commission or some other treatment facility or method authorized by regulations of the Commission. All sewage passing through such marine toilets shall pass solely through such device.

Sec. 149-A:4

Violations of the Act or of the regulations of the Commission carries a fine of up to \$500, or imprisonment up to one year, or both. Such fine when imposed constitutes a lien against the boat.

NEW JERSEY
New Jersey Statutes Annotated
(Permanent edition)
(1964 Gen. Ann. Pocket Parts)

Sec. 58-12-2

The State Department of Health is authorized, among other things, to investigate all complaints of pollution of the waters of the State which are brought to its attention, and may inspect any of the waters of the State.

If the Department finds that any of the waters are being polluted in such a manner as to threaten injury to any inhabitant of the State in their health, comfort, or property, it notifies the polluter to cease such pollution and make other disposition of its pollution.

Sec. 58-12-4

The Department is authorized to bring injunction proceedings against alleged polluters.

Sec. 2A: 170-69.1

Any person who discharges or suffers, or permits the discharge of any waste, debris, refuse or any other matter or material by any method, means or manner into or upon the coastal waters or tidal water bays of this State from any vessel afloat on said waters, which waste, debris, refuse, material or matter may or will tend to litter any established bathing beach or any beach customarily used for bathing purposes or to pollute the waters adjacent to any such beach, is a disorderly person.

Sec. 2A: 170-69.1a

Any person who discharges, or suffers or permits the discharge of any excrement, waste, debris, refuse, chemical or any other matter or material by any method, means or manner, into or upon any of the fresh waters of this State from any vessel afloat on said waters, which excrement, waste, debris, refuse, chemical, material or other matter may or will tend to pollute said waters, or to harm or destroy the fish therein or the wildlife thereupon, or to litter said waters or the shores or banks adjacent thereto, is a disorderly person, and upon conviction, shall be punished by a fine of not less than \$25 nor more than \$100 for the first offense and for each subsequent offense a fine of not less than \$100 nor more than \$200 or by imprisonment for not more than ninety days, or both.

Sec. 2A: 170-69.1b

No vessel which is required to be registered or licensed pursuant to law in order to operate in any of the waters of this State, other than tidal waters, shall be registered or licensed to so operate if it contains any toilet facility, which permits or could permit the discharge into any of the waters of this State of any excrement, waste, debris, refuse, chemical or other matter or material that might or would tend to pollute said waters, or to harm or destroy the fish therein or the wildlife thereon, or to litter said waters or the shores adjacent thereto.

New Jersey Statutes Annotated
(continued)

2

Sec. 58: 10-15

Prohibits the discharge from water closets or urinals from any steam or other power boat while being operated within territorial limitations of designated watersheds.

Sec. 58:10-16

Violation of above section is a misdemeanor.

NEW YORK

McKinney's Consolidated Laws of New York, Annotated
(a 1964 Cum. Ann. Pocket Part)

Sec. 1210 Public Health Law.

(1) The Department of Health shall have administrative jurisdiction to abate and prevent the pollution of waters of the State in the manner provided in accordance with the classification of waters adopted by the water resources commission.

Sec. 1220 Public Health Law.

Makes it unlawful for any person, directly or indirectly, to throw, drain, run or otherwise discharge into such waters organic or inorganic matter that causes or contributes to a condition in contravention of the standards adopted by the water resources commission.

Sec. 1250 Public Health Law.

(1) Provides that any person who violates any of the provisions of, or who fails to perform any duty imposed by this article, or who violates any determination or order of the water resources commission or of the commissioner, promulgated pursuant to this article, is liable to a penalty of not to exceed the sum of \$500 for said violation and an additional penalty of not to exceed \$100 for each day during which such violation continues, and, in addition thereto, such person may be enjoined from continuing such violation.

Sec. 1252 Public Health Law.

Any person who wilfully violates any of the provisions of this article or any final determination or order of the water resources commission or of the commissioner made pursuant to this article is guilty of a misdemeanor and, upon conviction thereof, is punished by a fine of not less than \$100 nor more than \$500 or by imprisonment for a term of not more than one year, or by both such fine and imprisonment, for each separate violation. Each day upon which such violation occurs is a separate offense.

Sec. 1221 Public Health Law.

The pollution of the waters of the marine district which is injurious to edible fish and shellfish or the culture thereof, or the dumping of garbage, oils, sludge or refuse of any kind from a vessel or building in the waters of the marine district is prohibited.

Sec. 324 Conservation Law.

It is unlawful to pollute the waters by sludge, acid, other refuse, sewage or other substances injurious to shellfish culture or fish. It is also unlawful to throw or dump sludge or other refuse from any vessel or building in the waters of the marine district.

Sec. 33 Navigation Law.

It is a misdemeanor for anyone to deposit any dead animal, carrion, offal, excrement, garbage or other putrid or offensive matter into the navigable waters of the State, except as the same may be authorized by the State Department of Health.

Violation carries a fine of not to exceed \$100 or imprisonment of not more than one year, or both.

Sec. 33-a Navigation Law, (1934 Gen. Ass. Rec. Part)

It shall be unlawful to launch, moor, dock or operate any craft upon Lake George and upon Greenwood Lake, Orange County, their tributaries or outlets, equipped with toilets or other sanitary facilities which in any manner discharge into the waters of the lake, its tributaries or outlet. All such toilets, or other sanitary facilities, shall be removed or sealed, or made to drain into a tank or reservoir which can be carried or pumped ashore for disposal according to the regulations of local boards of health or county and state health agencies. Failure to comply with the provisions of this section shall be a misdemeanor punishable by a fine of not to exceed \$100, or by imprisonment of not more than one year, or by both such fine and imprisonment.

NORTH CAROLINA
General Statutes of North Carolina

Sec. 143-213

Establishes the State Stream Sanitation Committee.

Sec. 143-215.2

Prohibits anyone from discharging sewage or other wastes into the waters of the State, after the effective date applicable to any watershed.

Chapter 912 (Laws of 1963)

Makes it unlawful for any person or group of persons to occupy, use, or permit to be used, upon the waters of Lake James in Burke and McDowell Counties, any boathouse, houseboat, or raft containing an enclosed area for living quarters, or any other water craft containing living quarters without such craft being equipped with chemical toilets approved by the health department of either Burke or McDowell Counties, or other sanitary toilet facilities which will prevent the discharge of any raw sewage into the waters of the said lake.

Sec. 6111.03

The Water Pollution Control Board is authorized to develop programs for the prevention, control and abatement of new or existing pollution of the waters of the State; to issue, modify, and revoke orders prohibiting or abating the discharge of sewage, industrial waste and other wastes into State waters.

Sec. 6111.04

Prohibits the pollution of State waters; any such pollution is a public nuisance, except where the Board has issued a permit.

Sec. 6111.07

Provides that no person shall violate the provisions of the Act or any order of the Board. An action for an injunction may be brought against the violator.

House Bill No. 885, approved 7/10/63, effective 10/8/63

Amends sec. 1541.31 of the Revised Code, relating to an Agreement between the States of Ohio and Pennsylvania regarding Lake Pymatuning. Section 4 of such Agreement provides, as follows: "The lake shall be forever protected against pollution of its waters by industrial trade waste, individual, or municipal sewage from shore or boat, and the discharge of any noxious or deleterious substance, liquid or solid, into the waters of the lake which is or may become inimical, or injurious, to public health or to animal or aquatic life is hereby expressly forbidden."

"No sewage may be discharged into the waters of the lake except after complete treatment and then only upon permit approved by the health departments of both States."

House Bill No. 602, approved 7/1/63, effective 9/30/63

Amends sec. 3767.99 and sec. 3767.31 are enacted to prohibit the throwing or depositing into any river, stream or any other body of water various materials, and provides for penalties therefor.

Sec. 1547.33

Provides that no person shall launch, moor, dock, use or operate any watercraft on State waters which contains a sanitary system capable of discharging human or household wastes into the water. Such sanitary system shall be removed, sealed or made to drain into a portable tank for disposal ashore according to local health regulations. Watercraft operating solely on Lake Erie, the Muskingum River, the Ohio River, and the immediately connected harbors and anchorages, excepted.

Sec. 1547.99

Violation punishable by fine from \$10 to \$100.

OREGON
Oregon Revised Statutes

Sec. 449.080

The Sanitary Authority has general responsibility of controlling water pollution of State waters.

Sec. 449.115

It is unlawful for anyone to pollute by sewage or other deleterious matter any river, stream or other body of water.

Sec. 448.830

The State Marine Board is authorized: (14) To make rules and regulations regarding marine toilets and their use consistent with the prevention and control of pollution of the waters of the State and not in conflict with the rules and regulations of the State Board of Health or the Sanitary Authority. Such regulations may include sealing or otherwise rendering inoperative toilets not equipped with an approved device to render waste harmless.

PENNSYLVANIA
Purdon's Pennsylvania Statutes, Annotated
(& 1983 Cumulative Supplement)

Sec. 71-540

The Sanitary Water Board in the Department of Health has the primary functions of controlling water pollution.

Sec. 71-540

(11) (e) The Board is authorized to make rules and regulations for the effective administration and enforcement of the laws of the Commonwealth prohibiting the pollution of the waters thereof.

Sec. 35-691.301

Provides that no person shall place or permit to be placed or discharge or permit to flow, or continue to discharge or permit to flow, into any waters of the Commonwealth any industrial wastes, except as provided in the Act.

Sec. 35.691.601

Provides that all pollution declared to be a nuisance or maintained contrary to the provisions of the Act are abatable.

Sec. 71-1040

This section pertains to an Agreement between the Commonwealth of Pennsylvania and the State of Ohio relating to Lake Eymatuning. Article 4 of such Agreement relates to water pollution, as follows: "The Lake shall forever be protected against pollution of its waters by industrial trade, waste, individual or municipal sewage from shore or boat and the discharge of any noxious or deleterious substance, liquid or solid into the waters of the lake which is or may become inimical or injurious to public health or to animal or aquatic life is hereby expressly forbidden."

SOUTH DAKOTA
South Dakota Code of 1939
(A 1960 Suppl.)

Sec. 61.0104 (1960 Suppl.)

The Water Resources Commission exercises general supervision over the waters of the State.

Sec. 25.1405(10) (1960 Suppl.)

Provides that every vessel equipped with kitchen or toilet facilities shall be so equipped and operated to handle or treat liquid and solid wastes in a manner that will prevent pollution of the receiving waters.

Sec. 25.9914 (1960 Suppl.)

Violation constitutes a misdemeanor punishable by a fine up to \$100 and/or imprisonment up to thirty days.

WISCONSIN
West's Wisconsin Statutes Annotated
(4 1964 Cum. Annual Poc. Pt.)

Sec. 144.53

(1) The Committee on Water Pollution exercises general supervision over the administration and enforcement of all laws relating to the pollution of the surface waters of the State.

Sec. 146.13

(2) Provides that no person shall discharge by any means whatsoever untreated domestic sewage into any surface waters.

Sec. 29.01

(4) All waters within the jurisdiction of the State are classified as follows: Lakes Superior and Michigan, Green Bay, Sturgeon Bay, Sawyer's Harbor, and the Fox River from its mouth up to the dam at De Pere are "outlying waters." All other waters, including the bay, bayous, and sloughs of the Mississippi River bottoms, are "inland waters."

Sec. 30.71 (1964 Cum. Suppl.)

Provides that no person shall maintain or operate upon the inland waters of this State, except Lake Winnebago, the Mississippi river and the Wisconsin river for 15 miles above and below the dam at Wisconsin Dells, any boat which is equipped with a toilet unless such toilet is sealed or otherwise rendered inoperative so that no human wastes can be discharged into such waters. "Inland waters" means the waters defined as inland waters by sec. 29.01(4).

After April 1, 1965, the provisions of this section shall apply also to Lake Winnebago and the hitherto exempted portion of the Wisconsin river.

After April 1, 1965, no person shall operate any boat equipped with toilets on inland waters of this state unless the toilet wastes are retained for shore disposal by means of facilities constructed and operated in accordance with rules adopted by the state board of health.

Amendment Pending

REGULATION MADE UNDER
THE ONTARIO WATER RESOURCES COMMISSION ACT

1. In this Regulation,

- (a) "approved device" means a device of a type and specifications approved by the Commission;
- (b) "marine toilet" means any toilet installed on or within a pleasure boat;
- (c) "pleasure boat" means a boat that is used for pleasure and does not carry goods or persons for hire or reward, and includes a boat chartered or hired by or on behalf of the persons carried therein;
- (d) "sewage" means organic and inorganic waste and litter, and includes human excrement, fuel, lubricants, paper, rags, bottles, glass, crockery, cans, scrap metal, junk, or similar refuse or garbage;
- (e) "sleeping accommodation" means an enclosed or partially enclosed structure designed for the purpose of providing sleeping accommodation and furnished with berths, beds, or any arrangement of seating or dining facilities designed for use as sleeping accommodation, but does not include a sleeper seat, cuddy space or a cabin designed for storage or emergency shelter.

2. Clauses a and b of section 4 and sections 5 and 6 apply only to a pleasure boat that has sleeping accommodation.

3. No person shall discharge or deposit,

- (a) sewage consisting of human excrement; or
- (b) sewage that is not human excrement,

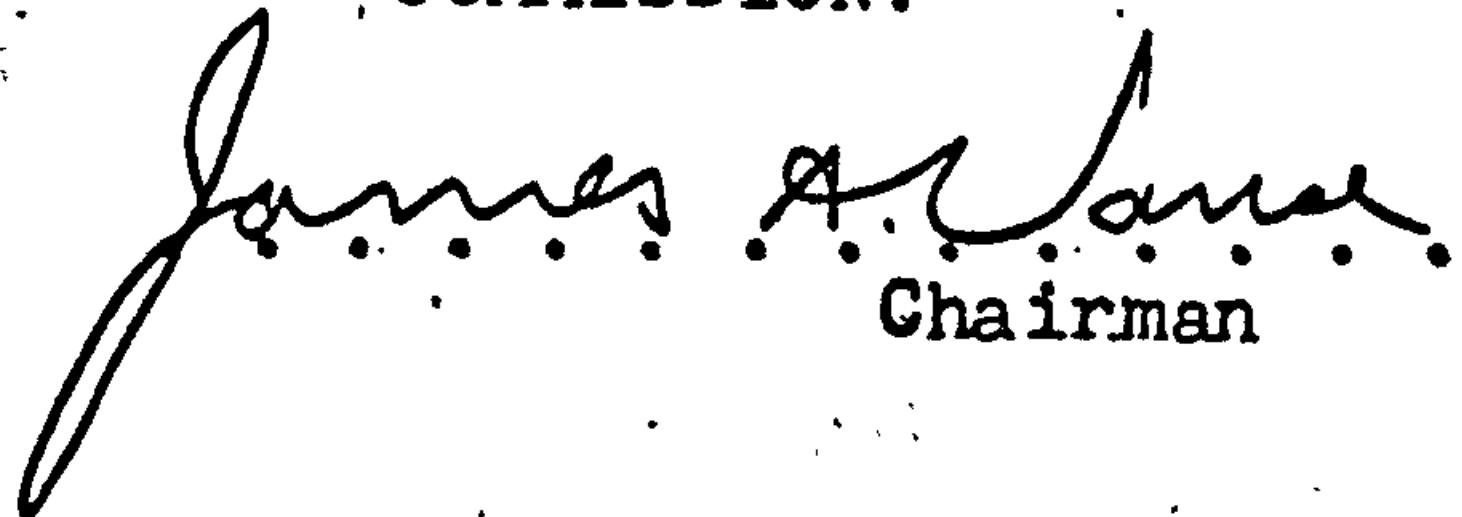
from a pleasure boat into any water or otherwise permit such sewage to enter the water.

4. Every owner of a pleasure boat shall ensure that the boat, while in any water, is equipped with,

- (a) a marine toilet;
- (b) an approved device for the storage or disposal of sewage consisting of human excrement; and
- (c) containers suitable for the storage of sewage that is not human excrement.

5. No person shall discharge or deposit sewage consisting of human excrement into or in a pleasure boat unless the sewage is discharged into or deposited in a marine toilet constructed, installed and arranged in accordance with this Regulation.
6. Every owner of a pleasure boat shall ensure that the marine toilet in the boat is constructed, installed and arranged so that sewage consisting of human excrement deposited in or discharged into the toilet,
 - (a) is stored in or disposed of by an approved device for the storage or disposal of such sewage; and
 - (b) is prevented from entering any water,
7. Every owner or operator of a pleasure boat shall ensure that sewage consisting of human excrement deposited in or discharged into any device provided for the storage, treatment or disposal of such sewage that has not been approved by the Commission is not discharged into, deposited in or otherwise permitted to enter any water but is retained in the device until such time as the sewage can be lawfully discharged or deposited ashore or is stored in or disposed of by an approved device for the storage or disposal of such sewage.
8. Every owner or operator of a pleasure boat shall ensure that sewage that is not human excrement is retained on board in suitable containers until such time as the sewage can be lawfully discharged or deposited ashore.
9. (1) Subject to subsection 2, this Regulation comes into force on the 1st day of July, 1967.
(2) Section 2, clause a of section 3, clauses a and b of section 4 and sections 5, 6 and 7 do not apply until the 1st day of July, 1968 to a pleasure boat in which a device for the treatment of sewage consisting of human excrement that is not an approved device is installed before the date this Regulation is published in The Ontario Gazette.

ONTARIO WATER RESOURCES
COMMISSION:


Chairman

Dated at Toronto,
this 15th day of
July 1966.

* APPROVED DEVICES AT PRESENT (ONLY ONES)

FACT SHEET # 1

New York State Health Department
Pure Waters Division



This Fact Sheet summarizes significant pure waters laws, passed by the 1965 and 1966 New York State Legislature, which have statewide application.

To Provide Financial Aid or Tax Advantages

Chapter # 176 (1965)

(Pure Waters Bond Act) authorizes the creation of a State debt up to \$1 billion for the construction, reconstruction and improvement of sewage treatment plants and interceptor sewers. It also permits the granting of up to 60 per cent of the costs of such construction to local governments. The Act also allows the State comptroller to issue and sell State bonds up to \$1 billion subject to the State Finance Law. The Act was subject to a majority vote as Proposition No. 1 in the November, 1966 election and passed by a large margin.

Chapter # 177 (1965) -- Became # 1263b Public Health Law

(Construction Aid Act) provides for State aid of 30 per cent to local governments for the cost of sewage treatment works, plus the prefinancing of a federal grant share of an additional 30 per cent. This means the local share for pollution control would be only 40 per cent of the total cost. The grant is retroactive to May 12. It would be effective until March 31, 1972. The initial appropriation is \$300 million.

Chapter # 178 (1965) -- Became # 1233 Public Health Law

Chapter 178 permits, under State Income Tax Laws, deduction in the year of construction of waste treatment facilities of the total cost of such facilities by private industry. The legislation is retroactive to January 1, 1965 and effective to January 1, 1972. Such facilities must be certified by the State Commissioner of Health as complying with all pertinent laws, regulations, permits and orders.

Chapter # 179 (1965) -- Became # 1232 Public Health Law

Chapter 179 grants tax exemptions from local real property taxes for all privately constructed industrial waste treatment facilities, when properly certified by the State Commissioner of Health as complying with pertinent laws, regulations, permits or orders. The legislation is effective from May 12, 1965 to March 31, 1972.

Chapter # 627 (1966) -- Amends # 299-W County Law

Chapter # 627 amends the County Law, to require that State aid provisions for small watershed protection districts shall apply to projects for which reimbursement made subsequent to April 1, 1963 was limited to \$20,000, to the extent of the difference between \$20,000 and one-half of such local small watershed protection expenditure.

Chapter # 481 (1966) -- Amends # 43,122 Transportation Corporation Law

Chapter # 481 amends the Transportation Corporations Law, to authorize water and sewer companies to contract with the U. S. Department of Agriculture to operate without profit and receive federal aid under the Consolidated Farmers Home Administration Act, subject to approval of the majority of the stockholders, with those not approving to receive the fair value of their stock and other rights and benefits

To Facilitate Enforcement

Chapter #180 (1965) -- Amends # 1205, 1223, 1245, 1252 and repeals # 1224
Public Health Law

Chapter # 180 abolishes the one-year period before an order to abate pollution becomes absolute. It permits the Commissioner to issue orders to abate pollution and to establish reasonable timetables for compliance with such orders; provides for review by either the Water Resources Commission or the courts, but not both; eliminates independent applications to the Water Resources Commission for dilatory relief by a polluter on the grounds of financial inability or lack of known methods of wastes treatment, and reduces the time for an appeal from an order from four months to 60 days.

Chapter # 451 (1965 -- Amends # 34.00, 36.00 Local Finance Law

Chapter # 451 amends the Local Finance Law by abolishing the authority of cities and villages to require that bond resolutions to finance sewage disposal or treatment facilities ordered by the State Health Commissioner or the courts be subject to permissive referenda.

Chapter # 793 (1966) -- Amends # 1230 and adds # 1255 Public Health Law

Chapter # 793 amends and adds to the Public Health Law, to empower the health commissioner of a county or part-county health district or a city to bring an action in court for recovery of penalties provided by local law for small-scale violations of water pollution control provisions, occurring in the district or city in which the commissioner has jurisdiction, and to make other provisions as to local enforcement.

Chapter # 794 (1966) -- Amends # 1223, 1251 Public Health Law

Chapter # 794 amends the Public Health Law, to authorize the Attorney General, at the request of the Water Resources Commission or the State Commissioner of Health, in the first instance, without prior administrative proceedings, to bring actions for injunction for violations of water pollution control provisions, based on evidentiary matter or proof which the Commission or the Commissioner will furnish him on his request.

Chapter # 402 (1966) -- Amends # 36.00 Local Finance Law

Chapter # 402 amends the Local Finance Law, to except from certain provisions requiring bond resolutions adopted by a village finance board to be subject to permissive referendum, a resolution authorizing issuance of bonds for construction or reconstruction of facilities for the conveyance, as well as the treatment and disposal of sewage required by an order of the State Commissioner of Health or the Water Resources Commission.

To Establish Regulations and Standards

Chapter # 986 (1965) -- Amends # 1205 Public Health Law

Chapter # 986 amends the Public Health Law (Water Pollution Control Act) by establishing water quality and purity standards for various classifications of surface waters in terms of maximum permissible numbers of organisms of the coliform group. It stipulates that surface waters shall be protected by adequate disinfection of sewage treatment plant effluents.

Chapter # 605 (1965) -- Amends # 266 County Law

Chapter # 605 amends the County Law to authorize establishment of scale of sewerage and treatment charges, on any equitable basis.

Chapter # 595 (1966) -- Amends # 1210, adds # 1226 Public Health Law

Chapter # 595 amends the Public Health Law, to require the State Department of Health to make rules, regulations and standards for testing and measuring the volume, strength and constituents of industrial wastes and other wastes at their outlets into classified waters of the State and require such dischargers of wastes to maintain permanent records of the resulting data and to report them periodically to the Commissioner of Health; and to prohibit the use of existing or new outlets for the discharge of such wastes unless in compliance with such rules, regulations and standards and such data are reported thereon.

Chapter # 538 (1966) -- Amends # 429-f, adds # 630, 631 Conservation Law

Chapter # 538 amends the Conservation Law, to fix new provisions prescribing penalties for violations of any provisions of the Water Resources Law, or determinations or orders of the Water Resources Commission, and Procedures for recovery of such penalties.

Chapter # 955 (1965) -- Amends Conservation Law generally and # 31, 32
Navigation Law

Chapter # 955 amends the Conservation Law and the Navigation Law to vest the Water Resources Commission with authority, formerly in the Conservation Department and Department of Public Works to issue permits for construction, reconstruction or repair of dams, impoundment structures, docks, piers and wharfs in any natural watercourse, and for excavations and fills in the navigable waters of the State.

Chapter # 897 (1966) -- Adds # 33c Navigation Law

Chapter # 897 adds to the Navigation Law, to prohibit the discharge of sewage or other liquid or solid materials into the waters of the State from watercraft, marinas or moorings which will render the water unsightly, noxious or otherwise unwholesome and detrimental to the public health or welfare or to the enjoyment of the waters for recreational purposes; to prohibit the discharge of any litter into such waters from such sources; to prohibit the use of marine toilets on watercraft unless such toilets are equipped with approved facilities of a type approved by the State Commissioner of Health that will adequately treat, hold, incinerate or otherwise handle sewage in a manner that is capable of preventing water pollution, and which if they provide for chlorination or chemical treatment will produce an effluent that is free from unsightly or floating solids and contains 1,000 or less coliform organisms per 100 ml.

Provisions of the law relating to use of pollution control devices take effect June 1, 1968; provisions relating to littering take effect August 1, 1966; provisions relating to marina sewage disposal facilities took effect immediately under the provisions of the State water pollution control law.

Chapter # 287 (1966) -- Adds # 1115a Public Health Law

Chapter # 287 amends the Public Health Law, to permit the owner of land acquired as one parcel for residential purposes to apply to local or State Health Departments having jurisdiction, for a certificate approving the water supply and sewage facilities for said parcel as adequate and satisfactory, and to make other provisions as to the contents of such certificate and the filing thereof.

Chapter # 971 (1965) -- Amends # 180 Conservation Law

Chapter # 971 amends the Conservation Law to authorize enactment of compatible local laws, prohibiting the disposal of earth, soil, refuse, or other solid substances in streams, ponds or lakes within any county, city, town or village.

Other Water Resources Legislation

Chapter # 681 (1965)

Chapter # 681 continues the Temporary State Commission on Water Resources Planning until March 31, 1966 and outlines five specific functions of the Commission: completion of studies of effects of detergent wastes and other sewage-origin wastes on ground water resources; investigation of problems of water rights and water laws in terms of effective water resources planning, development and use; completion of studies of waste water treatment to supplement ground waters; investigation of problems of providing sewers and water systems for subdivisions, and study of water pollution from boats and marinas in inland water areas.

Chapter # 661 (1965) -- Adds Article 5-H General Municipal Law

Chapter # 661 amends the General Municipal Law to authorize municipal corporations to engage in and pay for activities to develop the use of atmospheric water resources (rain-making).

Chapter # 663 (1965) -- Amends # 410 Conservation Law

Chapter # 663 makes the Commissioner of the Office for Local Government an additional regular member of the Water Resources Commission.

Chapter # 481 (1965) -- Amends # 192a Town Law

Chapter # 481 amends the Town Law to permit installation of sewage collection facilities in excess of those required to serve a proposed sewer district, by resolution subject to permissive referendum, and to specify financing methods for such excess facilities.

Chapter # 805 (1966)

Chapter # 805 extends until March 31, 1967 the existence of the Temporary State Commission on Water Resources Planning, with the provisions to be retroactive and deemed to have been in effect on and after April 1, 1966.

Chapter # 905 (1966) -- Adds # 823-829 Conservation Law

Chapter # 905 adds to the Conservation Law, to create a regional inter-governmental compact to formulate provisions for planning, conservation, utilization, development and management of water resources and related natural resources of the Champlain basin, and to fix other provisions relating to the purposes, membership on the basin panel, advisory committee, budget and audit, with such provisions to become effective when enacted by the legislatures of New York and Vermont.

To Modify Conservation Laws

Chapter # 630 (1966) -- Amends # 275 Conservation Law

Chapter # 630 amends the Conservation Law, to prohibit a person maintaining a dam which holds back water known by him to be inhabited by fish, from drawing off water so as to cause substantial loss of fish within the empoundment, without written permission from the Water Resources Commission, subject to certain exceptions.

Chapter # 598 (1966) -- Adds # 429-j Conservation Law

Chapter # 598 adds to the Conservation Law, to prescribe the right of persons to make harmless alterations in watercourses and lakes and to prohibit action for damages or for injunction unless harm is caused or would be caused to the plaintiff; defines harmless alterations and prescribes procedures to protect rights and defenses thereto.

SUMMARY OF STATE REGULATIONS
RELATING SPECIFICALLY TO MARINE WASTE DISPOSAL

<u>State</u>	<u>Regulations</u>	<u>Chlorinator-Macerator</u>				<u>Holding Tank</u> <u>Monomarine</u>	<u>Incinerator</u> <u>Destroilet</u>
		<u>Apollco</u>	<u>C-Chlor</u>	<u>Groco</u>	<u>Raritan</u> <u>Seaclo</u> <u>Mark V</u>		
Alabama	No	-	-	-	-	-	-
Alaska	Yes	-	-	-	-	-	-
Arizona	Yes	-	-	-	-	-	1b
Arkansas	Yes	-	2bc	2bc	2bc	2bc	2bc
California	Yes	-	-	-	-	4ac	4ac
Colorado	Yes - self contained for shore disposal only.						
Connecticut	Pending 1967	-	-	-	-	-	-
Delaware	No	-	-	-	-	-	-
Florida	No	-	-	-	-	-	-
Georgia	Yes	-	-	-	2c	-	-
Hawaii	Yes	-	-	-	-	-	-
Idaho	No - regulations regarding discharge of sewage from any source applicable						
*Illinois	Yes - several units under consideration.						
*Indiana	Yes - only sealed units are acceptable.						
Iowa	No	-	-	-	-	-	-
Kansas	No	-	1bc	-	1bc	-	-
*Kentucky	No - will follow ORSANCO regulations.						
Louisiana	No - discharges in general covered in Sanitary Code.						
Maine	No	-	-	-	-	-	-
Maryland	No	-	1c	-	1a	-	-
Massachusetts	No	-	-	-	-	5	-
Michigan	No	-	3b	-	3b	3b	3b
Minnesota	Yes	2ac	2c	-	-	2c	2c
Mississippi	No - but Ross Barnett Reservoir regulations enforced by Board of the Pearl River Valley Water Supply District.					2b, Model 15	
Missouri	Yes	2c	2c	-	-	2c	-

SUMMARY OF STATE REGULATIONS
RELATING SPECIFICALLY TO MARINE WASTE DISPOSAL
(Continued)

<u>State</u>	<u>Regulations</u>	<u>Chlorinator-Macerator</u>			<u>Holding Tank</u>	<u>Incinerator</u>
		<u>Apollco</u>	<u>C-Chlor</u>	<u>Groco</u>	<u>Monomarine</u>	<u>Destroilet</u>
		<u>Mark V</u>				
Montana	Yes - treatment equivalent to secondary sewage treatment or holding tanks.					
Nebraska	Yes - discharging untreated waste prohibited.					
Nevada	Yes	-	-	-	-	-
New Hampshire	Yes	-	2a	-	3	3
New Jersey	No - regulations contemplated.					
New Mexico	No	-	-	-	-	-
*New York	No - Lake George has special regulations				1	
N. Carolina	Yes	-	2c	-	1c	1a
N. Dakota	No	-	-	-	-	-
*Ohio	Yes - self-contained for shore disposal only.					
Oklahoma	Yes	-	-	-	-	-
Oregon	Yes - holding tank with approved shoreside disposal favored.					
*Pennsylvania	No - but has regulatory authority under General Act.					
Rhode Island	No	-	-	-	-	-
S. Carolina	No	-	-	-	-	-
S. Dakota	Yes	(Electro-chemical chlorinator) 1c			-	-
Tennessee	Yes	-	-	-	-	-
Texas	No - regulations accepting holding tanks under consideration.					
Utah	No	-	-	-	-	-
Vermont	Yes	-	1bc	-	1bc	-
*Virginia	No	-	-	-	-	-
Washington	No	-	-	-	-	-
*W. Virginia	No - regulations contemplated.					
Wisconsin	Yes	-	-	-	1b	1b
Wyoming	No	-	-	-	-	-

SUMMARY OF STATE REGULATIONS
RELATING SPECIFICALLY TO MARINE WASTE DISPOSAL
(Continued)

*Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia, and West Virginia are members of the Ohio River Valley Water Sanitation Commission which requires treatment, effective January 1, 1967.

1. Accepted
2. Approved
3. Could approve
4. Recommend acceptance
5. Preferred

- a. Based on tests
- b. Based on manufacturers' literature
- c. Based on research

The above information has been supplied by personnel of the various states in reply to our request of January 14, 1966.

Public Health Engineering Staff
TENNESSEE VALLEY AUTHORITY

STATE

APPROVED TREATMENT
DEVICES

AGENCY RESPONSIBLE FOR
APPROVING DEVICES

TESTING AGENCY

STANDARD FOR MAX.
COLIFORM COUNT

ARKANSAS

1. "C-Chlor Mark 5"
pleasure craft unit.
"C-Chlor Mark 10"
Commercial vessel unit.
Carlson & Son
19 James Place
Metuchen, New Jersey
2. "Sealco"
Wilcox-Crittenden Div.
North & Judd Mfg. Co.
Middletown, Conn.
3. "Raritan Electro-Chem.
Chlorinator ("Crown
Head Unit not accepted)
24 East McNeal St.
Millville New Jersey
4. "Destroilet Incinerator
Gas Fired Toilet"
LaMere Industries, Inc.
Walworth Wisconsin
5. "Mono-Marine Sanitation
System"
Monogram Industries, Inc.
Marine Products Div.
Los Angeles, Calif.
6. Williamsburg Engineering
8407 Monroe at Spencer St.
Cincinnati, Ohio

Bureau of Sanitary
Engineering
Arkansas State Board
of Health
Little Rock, Ark.

Approval based upon own
review of plans and
specifications of units
plus acceptance of find-
ings of Syracuse University
Research Corp., Syracuse,
N.Y., Quality Control Lab-
oratory Philadelphia, Pa.,
and American Boat and Yacht
Council, New York, N.Y.

240 per 100 ml.

Note: Only those units
which have a tank large
enough to provide a
retention time of approx-
imately 15 minutes are
acceptable.

GEORGIA

Some devices have been
approved, one in particular
being the Raritan Chlorinator

State Water Quality
Control Board
47 Trinity Avenue, S.W.
Atlanta, Ga. 30334

Approval based upon inspec-
tion of units under actual
performance conditions on
board boats.

1000 per 100 ml.

HAWAII

No one to date has applied
for approval of a treatment
device.

STATE

APPROVED TREATMENT
DEVICES

AGENCY RESPONSIBLE FOR
APPROVING DEVICES

TESTING AGENCY

STANDARD FOR MAX.
COLIFORM COUNT

MINNESOTA

1. "C-Chlor Mark 5"
Carlson & Son
19 James Place
Metuchen, N.J.
2. "Marine Chlorinator"
Apollco Corp.
1391 Pierce Butler Rte.
St. Paul, Minn.
3. "Destroilet"
LaMere Industries, Inc.
Walworth, Wis.
4. "Mono-Marine Sanitation
System" and "Monomatic
Marine Sanitation System,
Model 1"
Monogram Industries, Inc.
Los Angeles, California

- Water Pollution Control
Commission
Minnesota Dept. of Health
University Campus
Minneapolis, Minnesota 55440
1. The C-Chlor Mark 5
device was accepted
on the basis of offi-
cial New Hampshire data
 2. Tests on Apollco's
Marine Chlorinator
were conducted by
Ruble-Miller &
Associates, Consulting
Engrs., Duluth, Minn.
 3. The Destroilet was
accepted primarily on
the basis of official
North Carolina data
 4. Truesdail Laboratories,
Inc., Los Angeles, Cal.
conducted tests for the
Mono-Marine and Mono-
matic devices.

The coliform group
organisms in effluent
test samples, after
chlorination and macera-
tion in a laboratory
blender, shall not ex-
ceed 1000 per 100 ml.
In more than 10% of the
test samples, and the
average of 10 consecu-
tive daily tests shall
not exceed 500 per
100 ml.

MISSOURI

1. "C-Chlor Mark 5"
Carlson & Son
19 James Place
Metuchen, N.J.
2. "Marine Chlorinator"
Apollco Corp.
1391 Pierce Butler Rte.
St. Paul, Minn.
3. Tank type system
Monogram Industries, Inc.
Los Angeles, California

Water Pollution Board
Missouri Dept. of Pub-
lic Health & Welfare
112 West High
P. O. Box 154
Jefferson City, Mo.

Approval based upon offi-
cial Minnesota data

240 per 100 ml.

NEVADA

No units have been approved
to date

Dept. of Health & Wel-
fare, Bureau of
Environmental Health
790 Sutro St.
Reno, Nevada 89502

Own laboratory would run
the tests for acceptance

No standard has been
established, but 240 mpn
has been considered

