

DUMPING OF WASTE MATERIAL

Testimony - John Haen
PG 246

HEARINGS BEFORE THE SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION OF THE COMMITTEE ON MERCHANT MARINE AND FISHERIES HOUSE OF REPRESENTATIVES NINETY-FIRST CONGRESS

SECOND SESSION
ON

H.R. 15827, H.R. 15828, H.R. 15829, H.R. 16229

BILLS TO AMEND THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 TO REQUIRE THE SECRETARY OF THE ARMY TO TERMINATE CERTAIN LICENSES AND PERMITS RELATING TO THE DISPOSITION OF WASTE MATERIAL IN THE WATERS OF THE NEW YORK BIGHT, AND FOR OTHER PURPOSES

H.R. 17603, H.R. 17843, H.R. 17879, H.R. 18043

BILLS TO AMEND THE FISH AND WILDLIFE COORDINATION ACT TO PROVIDE ADDITIONAL PROTECTION TO MARINE AND WILDLIFE ECOLOGY BY REQUIRING THE DESIGNATION OF CERTAIN WATER AND SUBMERGED LANDS AREAS WHERE THE DEPOSITING OF CERTAIN WASTE MATERIALS WILL BE PERMITTED, TO AUTHORIZE THE ESTABLISHMENT OF STANDARDS WITH RESPECT TO SUCH DEPOSITS, AND FOR OTHER PURPOSES

**H.R. 18454, H.R. 18592, H.R. 18593, H.R. 18621, H.R. 18641,
H.R. 18796**

BILLS TO AMEND THE FISH AND WILDLIFE COORDINATION ACT TO PROVIDE ADDITIONAL PROTECTION TO MARINE AND WILDLIFE ECOLOGY BY PROVIDING FOR THE ORDERLY REGULATION OF DUMPING IN THE COASTAL WATERS OF THE UNITED STATES

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DUMPING OF WASTE MATERIAL

MONDAY, JULY 27, 1970

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON FISHERIES AND
WILDLIFE CONSERVATION OF THE COMMITTEE ON
MERCHANT MARINE AND FISHERIES,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:10 a.m. in room 1334, Longworth House Office Building, Hon. John D. Dingell (chairman of the subcommittee) presiding.

Mr. DINGELL. The subcommittee will please come to order.

This morning the Subcommittee on Fisheries and Wildlife conservation will begin hearings on a series of bills designed to afford additional protection to fish and wildlife resources.

One group of bills to be heard this morning includes H.R. 15827 by Mr. Ottinger, and identical bills, H.R. 15828, H.R. 15829 and H.R. 16229 by Mr. Ottinger and 33 other Members of the House.

These bills would amend the National Environmental Policy Act of 1969 to require, within 30 days after passage of the legislation, the revocation of all permits or licenses that authorize the discharge of any sewage, sludge, spoil or other waste into the waters of the New York Bight or into any other waters within a 25-mile radius of the Ambrose Lighthouse.

In addition, the bills would direct the Secretary of the Army to conduct a 1-year study on the methods and cost of restoring such waters to their prior condition. The Secretary would be required to report to the Congress the results of the study, together with any recommendations that he may have.

Another group of bills to be heard this morning is H.R. 17603 and identical bills, H.R. 17843, H.R. 17879, and H.R. 18043, introduced by a distinguished and valuable member of this committee, Mr. Murphy, together with 28 other Members of the House.

These bills would amend the Fish and Wildlife Coordination Act to require the Secretary of the Interior, in cooperation with the Secretary of the Army, to carry out a 2-year study for the purpose of identifying areas in our navigable, coastal, and off-shore waters where discharges of sewage, sludge, spoil and other waste could safely be made, after taking into consideration all ecological and environmental factors, including marine and wildlife ecology.

As soon as practicable after completion of the study, the Secretary of the Interior would be required to establish standards for the purpose of insuring that no damage to, or loss of, any fish and wildlife resources or pollution of the waters would result from any discharges.

Within 1 year after a Federal standard is established, the Secretary of the Interior would be required to review State standards to see if they are as stringent as the Federal standards.

If a determination is made that a State standard is not as stringent as the Federal standard, then the Federal standard would apply. The bills would subject violators of a standard to a civil penalty of \$10,000. In addition, persons dumping waste into a nondesignated area would be subject to a civil penalty of \$10,000.

Also to be heard this morning is a group of bills very similar to Mr. Murphy's bills. They are H.R. 18454, H.R. 18592, and H.R. 18593 introduced by Mr. Harrington and 29 other Members of the House.

Since all of the bills to be heard this morning are similar in nature, the subcommittee will consider them as a group and when the witness comes to the witness table he can comment on all of the bills, or any one of the bills, as he so chooses.

The bills and the departmental reports will appear at this point in the record.

(H.R. 15827, H.R. 17603, H.R. 18454, and departmental reports follow :)

[H.R. 15827, H.R. 15828, H.R. 15829, H.R. 16229, 91st Cong. Second Sess.]

BILLS To amend the National Environmental Policy Act of 1969 to require the Secretary of the Army to terminate certain licenses and permits relating to the disposition of waste materials in the waters of the New York Bight, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the National Environmental Policy Act of 1969 (Public Law 91-190) is amended by adding at the end thereof the following new title:

"TITLE III

"TERMINATION OF LICENSES AND PERMITS

"SEC. 301. Notwithstanding any other provision of law, the Secretary of the Army acting through the Chief of Engineers shall, within thirty days following the date of enactment of this title, revoke or otherwise terminate any license or permit which he has issued authorizing the discharge (including, but not limited to, any spilling, leakage, pumping, pouring, emitting, emptying or dumping of any sewage, sludge, spoil, or other waste into the waters of the New York Bight, or into any other waters within a twenty-five mile radius of the Ambrose Lighthouse.

"INVESTIGATION

"SEC. 302. The Secretary of the Army acting through the Chief of Engineers shall make a complete investigation and study of the methods by which, and the cost of, restoring the waters of the New York Bight and any other waters referred to in section 301 of this title, to their condition prior to the discharges terminated under section 301 of this title. Such Secretary shall report to Congress the results of such investigation and study, together with his recommendations, no later than one year after the date of enactment of this title."

[H.R. 17603, H.R. 17843, H.R. 17879, H.R. 18043, 91st Cong., Second Sess.]

BILLS To amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by requiring the designation of certain water and submerged lands areas where the depositing of certain waste materials will be permitted, to authorize the establishment of standards with respect to such deposits, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Fish and Wildlife Coordina-

tion Act (16 U.S.C. 661 et seq.) is amended by inserting immediately following section 5A thereof the following new section:

"Sec. 5B. (a) The Secretary of the Interior, acting through the United States Fish and Wildlife Service, shall designate those portions of the navigable waters of the United States and those portions of the waters above the Outer Continental Shelf as defined in the Outer Continental Shelf Lands Act, and those portions of the submerged lands beneath the navigable waters and beneath the waters above the Outer Continental Shelf into and onto which he determines sewage, sludge, spoil, or other waste can be safely discharged. In making such designation he shall consider all ecological and environmental factors, including, but not limited to, the effect of such discharging on the marine and wildlife ecology.

"(b) No designation shall be made by the Secretary of the Interior under authority of subsection (a) of this section for the two-year period beginning on the date of enactment of this section. During such two-year period the Secretary of the Interior, in cooperation with the Secretary of the Army acting through the Chief of Engineers, shall make a full and complete investigation and study of potential water and submerged lands areas for designation and shall identify those areas most suitable for such designation.

"(c) As soon as practicable after the designation of an area under subsection (a) of this section, the Secretary of the Interior shall establish standards which shall be applicable to the discharge of material within such designated area. Such standards shall be for the purpose of insuring that no damage to, or loss of, any wildlife or wildlife resources or pollution of the navigable waters of the United States will result from any such activity. Such standards shall be applicable to all of the departments, agencies, and instrumentalities of the Federal Government, and, except as otherwise provided in this section, in the case of a designated area containing any submerged lands within the jurisdiction of the States, to the States and their agencies, including any person having any license, permit, or other authorization from such State or agency for any such activity with respect to any of such submerged lands.

"(d) If a State establishes within one year after the date that a Federal standard is established under subsection (c) of this section its own standard with respect to the activity covered by such Federal standard, such standard shall be applicable to such activity within the jurisdiction of such State if within such one-year period the Secretary, after public hearing, determines that such State standard is equal to or more stringent than the Federal standard established under this section with respect to such activity and that there are adequate procedures for the State to enforce such standard, then such State standard shall apply to such activity within the State's jurisdiction, and the Federal standard shall not apply. If he determines that such State standard is not as stringent as the Federal standard, then the Federal standard shall apply to such activity in such State.

"(e) Whenever a State's standard is applicable within the jurisdiction of that State it shall continue to be applicable until the Secretary, after public hearing, determines that it is not as stringent as the comparable Federal standard. He shall review all of the standards of each State for this purpose at least once each calendar year.

"(f) The Secretary is authorized to issue new standards and to amend existing standards from time to time as he determines necessary, and such new or amended standards shall be considered as initial standards issued under subsection (c) of this section for the purpose of their application to the States under this section.

"(g) The district courts of the United States shall have jurisdiction to restrain violations of this section. Actions to restrain such violations shall be brought by, and in, the name of the United States. In case of contumacy or refusal to obey a subpoena upon any person under this subsection, the district court of the United States for any district in which such person is found or resides or transacts business, upon application by the United States and after notice to such person, shall have jurisdiction to issue an order requiring such person to appear and give testimony or to appear and produce documents, and any failure to obey such order of the court may be punished by such court as a contempt thereof.

"(h) Every department, agency, and instrumentality of the Federal Government and of the States, and every person applying for a license, permit, or other authorization from the United States or from any State to discharge or otherwise dispose of any material in an area designated under subsection (a) of this section shall establish and maintain such records, make such reports, and provide such information as the Secretary may reasonably require to assist him in establishing standards under this section and in determining whether such department, agency, instrumentality, or person has acted or is acting in compliance with this section and shall, upon request by the Secretary, permit him at reasonable times to have access to and to copy such records. All information reported to, or otherwise obtained by, such Secretary or his representative pursuant to this subsection which contains or relates to a trade secret or other matter referred to in section 1905 of title 18 of the United States Code shall be considered confidential for the purpose of that section, except that such information may be disclosed to other officers or employees concerned with carrying out the provisions of this section.

"(i) (1) Whoever discharges (including, but not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping) any sewage, sludge, spoil, or other waste into or upon any waters or submerged lands within the jurisdiction of the United States and not within an area designated under subsection (a) of this section shall be subject to a civil penalty of not more than \$10,000 for each offense. Any such civil penalty may be compromised by the Secretary referred to in subsection (k)(1) of this section.

"(2) Whoever violates any standard established under subsection (c) of this section shall be liable to a civil penalty of not more than \$10,000 for each such violation. In the case of a continuing violation of such a standard, each day of violation shall be considered a separate offense for the purposes of this subsection. The Secretary of the Interior may assess and may mitigate, remit, or compromise any such penalty. In taking any penalty action for violation of a standard, the gravity of the violation, and the demonstrated good faith of the person charged in attempting to achieve rapid compliance, after notification of a violation, shall be considered by the Secretary of the Interior.

"(j) Upon the designation of waters or submerged lands under subsection (a) of this section, all licenses, permits, or authorizations which have been issued by any officer or employee of the United States under authority of any other provision of law shall be terminated and of no effect to the extent they authorize any activity prohibited by subsection (i) of this section. Thereafter no license, permit, or authority shall be issued by any officer or employee of the United States which would authorize any activity prohibited by subsection (i) of this section.

"(k) (1) The Secretary of the department in which the Coast Guard is operating, acting through the Coast Guard, shall enforce subsection (i)(1) of this section.

"(2) The Secretary of the Interior shall enforce subsection (i)(2) of this section."

[H.R. 18454, H.R. 18592, H.R. 18593, H.R. 18621, H.R. 18641, H.R. 18796, 91st Cong., Second Sess.]

BILLS to amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by providing for the orderly regulation of dumping in the costal waters of the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) is amended by inserting immediately following section 5A thereof the following new section:

"SEC. 5B. (a) The Secretary of the Interior, acting through the United States Fish and Wildlife Service, and in consultation with the Chief of Engineers of the United States Army, shall establish standards which apply to the deposit or discharge into the coastal waters of the United States of all industrial wastes, sludge, spoil, and all other materials that might be harmful to the wildlife or wildlife resources or to the ecology of these waters. Such standards shall be for the purpose of insuring that no damage to the natural environment and ecology including but not limited to marine and wildlife ecology of the navigable waters

of the United States will result from any such activity. Such standards shall require, in part, that any person before depositing or discharging of such materials into the coastal waters of the United States must present sufficient evidence to sustain a burden of proof that such materials in the location in which they are to be deposited will not endanger the natural environment and ecology of these waters, and to meet such additional requirements as the Secretary of the Interior may deem necessary for the orderly regulation of such activity.

"(b) Such standards shall be adopted and enforced by any department, agency, or instrumentality of the Federal Government or any State department, agency, or instrumentality that issues any license, permit, or other authorization for any such activity with respect to any of such coastal waters.

"(c) Such standards shall be applicable to all of the departments, agencies, and instrumentalities of the Federal Government, to the States and their agencies, including any person having any license, permit, or other authorization from such State or agency for any such activity with respect to any of such coastal waters.

"(d) After the date that a Federal standard is established under this section, a State may establish its own standard with respect to the activity covered by such Federal standard, except that the State standard must be more stringent than the Federal standard and must provide adequate procedures for enforcement. Such a State standard shall apply to such activity within the State's jurisdiction and the Federal standard shall not apply. If the Secretary of the Interior determines that such State standard is not as stringent as the Federal standard, or is not being enforced, then the Federal standard shall apply.

"(e) Every department, agency, and instrumentality of the Federal Government and of the States, and every person applying for a license, permit, or other authorization from the United States or from any State to discharge or otherwise dispose of any material in the coastal waters of the United States shall establish and maintain such records, make such reports, and provide such information as the Secretary may reasonably require to assist him in establishing standards under this section and in determining whether such department, agency, instrumentality, or person has acted or is acting in compliance with this section and shall, upon request by the Secretary, permit him to have access to and copy such records.

"(f) The district courts of the United States shall have jurisdiction to restrain violations of this section. Actions to restrain such violations shall be brought by, and in the name of, the United States. In case of contumacy or refusal to obey a subpoena upon any person under this subsection, the district court of the United States for any district in which such person is found or resides or transacts business, upon application by the United States and after notice to such person, shall have jurisdiction to issue an order requiring such person to appear and give testimony or to appear and produce documents, and any failure to obey such order of the courts may be punished by such court as a contempt thereof.

"(g) Whoever violates any standard established under subsection (b) of this section shall be liable to a civil penalty of not more than \$10,000 nor less than \$5,000 for each violation. In the case of a continuing violation of such a standard, each day of violation shall be considered a separate offense for the purposes of this section.

"(h) Upon the effective date of this section, all licenses, permits, or authorizations which have been issued by any officers or employee of the United States under authority of any other provision of law shall be terminated.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., October 30, 1970.

HON. EDWARD A. GARMATZ,
Chairman, Committee on Merchant Marine and Fisheries, House of Representatives, Washington, D.C.

DEAR MR. GARMATZ: The Atomic Energy Commission is pleased to submit its views regarding several bills being considered by your Committee, namely: H.R. 15827; H.R. 17603; H.R. 18454; and H.R. 19359. All these bills relate to the discharge or dumping of specified waste material into the coastal waters, including the waters and submerged lands of the Outer Continental Shelf.

Our views on all these bills—as well as related bills, H.R. 18913 (and identical bills, H.R. 18949 and H.R. 18965); H.R. 18914; and H.R. 19077—were orally requested by your staff on September 24. Previously, by your letters dated August 17 and August 18, our views were requested on H.R. 18913, etc. and H.R. 18914. Our comments on H.R. 19359 were requested by your letter dated September 24. We are furnishing our comments on H.R. 18913 etc.; H.R. 18914; and H.R. 19077 under separate letters.

H.R. 15827

This bill would amend NEPA so as to terminate any license previously issued by the Army Secretary (Corps of Engineers) for discharge into the New York Bight of "any sewage, sludge, spoil or other waste." A one-year study would be undertaken by the Secretary directed toward restoring these waters.

H.R. 17603

Essentially, this bill would authorize the Secretary of the Interior to regulate, pursuant to standards to be issued by him, the discharge of "sewage, sludge, spoil or other waste" into those waters to be designated by him as allowing safe discharge. The waters would include U.S. navigable waters, those of the Outer Continental Shelf, and submerged lands below both. Standards would be based on all ecological and environmental factors, and would supersede or preempt State standards which the Secretary found were not equal to or more stringent than the Federal standard. Violations would be subject to civil penalty. This bill provides that any Federal license previously issued would be rendered of no effect to the extent it authorized any activity inconsistent with determinations made by the Secretary.

H.R. 18454

This bill is generally similar to H.R. 17603, except the waters are specified as "coastal waters," and the standards to be established by the Interior Secretary would be in consultation with the Chief of Engineers. State standards would be preempted unless the Secretary determined that they were more stringent than the Federal standard. The bill also provides for termination of all preexisting Federal licenses and permits, without qualification as to inconsistent activity or prohibited acts.

H.R. 19359

Is similar to H.R. 17603 but defines the prohibited waste material as, "sewage, sludge, spoil, landfill, heated effluents, or any other waste or substance (solid, liquid or gas)." Persons seeking to discharge such material into an area designated by the Interior Secretary would have the burden of proving that a proposed discharge would not "endanger the natural environment and ecology." Unlike H.R. 17603, the bill requires the time-phased (1972-1976) treatment (primary, secondary and tertiary) of "sewage and industrial waste." Like H.R. 17603, this bill would terminate prior Federal licenses and permits "to the extent they authorize any activity prohibited" by the bill.

We note that two identical bills, H.R. 16427 and H.R. 16609, introduced earlier this year, were referred to us for comments by your letters of March 17 and March 26, 1970, respectively. These bills, generally similar to H.R. 17603 and H.R. 19359, would authorize the Secretary of the Interior to designate certain navigable waters as marine sanctuaries and prohibit the discharging therein of harmful waste material ("sewage, sludge, spoil or other waste").

AEC has previously indicated, and we iterate here, that we strongly support all efforts directed toward the protection and preservation of our total environment—land, sea and air. Accordingly, we favor the ultimate goals of these bills.

As indicated more fully below, the AEC does not favor enactment of these bills because: (1) they are unnecessary and premature in view of the CEQ's recently completed comprehensive study for a policy and legislation to deal with ocean dumping; and (2) these bills would unduly and unnecessarily interfere with AEC's operational and regulatory activities.

As you know, the Council on Environmental Quality, pursuant to direction of the President on April 15, 1970, undertook a comprehensive, long-term study of pollution in the marine environment. The CEQ's report and policy recommenda-

tions were recently transmitted to the President, who made them public on October 7, 1970. Until there has been an opportunity for study and consideration of that report, we believe it is premature and unwise to enact legislation like the bills in question.

AEC'S REGULATORY AND OPERATIONAL ROLE

Under the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission is vested with both regulatory and operational responsibilities. The regulatory responsibilities relate to the licensing and regulation of nuclear materials, nuclear facilities such as nuclear powerplants, and the disposal of nuclear waste material. The operational responsibilities involve, among other things, the operation of certain facilities for the production of nuclear materials to be used in the national defense.

We would note particularly that the discharge of radioactive and thermal effluent from both AEC licensed and AEC operated facilities is presently subject to a comprehensive system of regulations, licensing requirements, and controls. The discharge of radioactive effluent from AEC licensed facilities is governed by the Commission's regulations in 10 CFR Part 20. These regulations are based upon recommendations made by the Federal Radiation Council, the principal source of guidance to Federal agencies on radiation protection standards, and approved by the President. (Under Reorganization Plan No. 3, these standards will be set by the Environmental Protection Agency (EPA)). The discharge of radioactive materials from AEC operated facilities is subject to a system of controls which is separate but generally similar to that imposed on licensed activities. The discharge of heated effluent from both AEC licensed and AEC operated facilities is subject to the requirements of the Federal Water Pollution Control Act, as amended by the recently enacted Water Quality Improvement Act of 1970. AEC operated facilities are, in addition, subject to Executive Order 11507, "Prevention, Control and Abatement of Air and Water Pollution at Federal Facilities," which sets forth specific requirements for control of air and water pollution by Federal agencies.

IMPACT OF THESE BILLS ON AEC

Prohibited waste material is defined so broadly in all the bills that it could encompass radioactive materials. In the context of ocean disposal of radioactive wastes, sea burial of high-level radioactive wastes from fuel reprocessing operations has not been permitted by the AEC. Low-level liquid waste discharges and the disposal of solid, packaged radioactive wastes into the ocean have been permitted. However, the quantities and types of radioactive waste materials disposed in this manner have been strictly controlled and limited by AEC and the AEC itself has made no sea disposals during the past eight years. We have maintained a moratorium on the issuance of licenses for sea disposal of radioactive substances since 1960, and the four existing licenses have seldom been used. The AEC has licensing authority over the disposal of all radioactive waste material, except radioactive material produced in accelerators, and naturally occurring radium and its daughters.

These bills (H.R. 17603, 18454, 19359) could seriously interfere with AEC's programmatic activities, such as the vital defense programs conducted at Johnston and Amchitka Islands. Also, from the standpoint of national defense, the operations of naval nuclear-powered ships might be seriously impeded if subject to such regulation by the Secretary of the Interior.

The bills (H.R. 17603, 18454, 19359), insofar as they relate to the imposition of penalties for certain waste discharges and the issuance and termination of certain licenses, permits, and authorizations for activities involving discharges, could unnecessarily impose a system of dual regulation with respect to radiological discharges. As noted, the AEC, in the exercise of its regulatory and operational responsibilities has authority to control the release of radioactive effluents from both licensed facilities and AEC operated facilities into the ocean, and the ocean disposal of radioactive materials. It has exercised this authority by strictly controlling and limiting such releases and disposal. We do not believe that experience has shown any need for an additional system of control with respect to ocean disposal of radioactive materials.

It is not clear whether it was intended that the standard setting authority which would be vested in the Secretary of the Interior under these bills be transferred to the Environmental Protection Agency when Reorganization Plan No. 3 of 1970 becomes effective. To the extent that the functions would not be transferred, the enactment of the bills in their present form would result in a confusing and burdensome system of dual regulation as between EPA, exercising the present functions of the Secretary of the Interior relating to abatement and control of water pollution under the Federal Water Pollution Control Act and the functions of the AEC relating to standards for radioactivity in the environment under the Atomic Energy Act, on the one hand, and the Secretary of the Interior exercising the authority granted him under these bills on the other hand.

In summary, we believe that enactment of these bills would be unnecessary and premature.

The Office of Management and Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Cordially,

GLENN T. SEABORG, *Chairman.*

DEPARTMENT OF THE ARMY,
Washington, D.C., July 27, 1970.

Hon. EDWARD A. GARMATZ,
Chairman, Committee on Merchant Marine and Fisheries, House of Representatives, Washington, D.C.

Dear Mr. CHAIRMAN : This is in reply to your request for the views of the Secretary of Defense on H.R. 17603, 91st Congress, a bill "To amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by requiring the designation of certain water and submerged lands areas where the depositing of certain waste materials will be permitted, to authorize the establishment of standards with respect to such deposits, and for other purposes." The Department of the Army has been assigned responsibility for reporting on this bill.

This bill would direct the Secretary of the Interior, acting through the Fish and Wildlife Service, to designate those portions of the navigable waters of the United States, waters over the Outer Continental Shelf, and the underlying lands, where he determines sewage, sludge, spoil, or other wastes can be safely discharged. In designating such areas, he would be directed to consider all ecological and environmental factors including the effect on the marine and wildlife ecology. No designation could be made of a discharge area until two years after enactment. In this two-year period the Secretary of the Interior, in cooperation with the Secretary of the Army, would make a study of potential discharge areas and identify those most suitable for discharge operations.

Discharges of wastes in designated areas would be subject to standards established by the Secretary of the Interior, to insure against pollution and damage to wildlife resources. The standards established would apply to the departments and agencies of the United States and the States.

The bill would also terminate all permits for discharge of wastes upon designation of discharge areas, to the extent that the permits authorize activities prohibited by the Act, and provide that no such permits could be issued in the future.

The President, on April 15 of this year sent a message to the Congress announcing proposed legislation which would stop the dumping of polluted dredge spoil into the Great Lakes and authorize the Secretary of the Army, acting through the Chief of Engineers, to extend to all navigable and allied waters a program of research, study and experimentation related to dredge spoil. In this message he noted that while this legislation represented a major step forward in cleaning up the Great Lakes, it also underlined the need to begin the task of dealing with the broader problem of dumping in the oceans.

We are only beginning to find out the ecological effects of ocean dumping and current disposal technology is not adequate to handle wastes of the volume now being produced. Comprehensive new approaches are necessary if we are to manage this problem expeditiously and wisely.

The President has directed the Chairman of the Council on Environmental Quality to work with the Departments of the Interior, the Army, other Federal agencies, and State and local governments on a comprehensive study of ocean

dumping to be submitted to him by September 1, 1970. That study will recommend further research needs and appropriate legislation and administrative actions, and will include:

Effects of ocean dumping on the environment, including rates of spread and decomposition of the waste materials, effects on animal and plant life, and long-term ecological impacts.

Adequacy of all existing legislative authorities to control ocean dumping, with recommendations for changes where needed.

Amounts and areas of dumping of toxic wastes and their effects on the marine environment.

Availability of suitable sites for disposal on land.

Alternative methods of disposal such as incineration and re-use.

Ideas such as creation of artificial islands, incineration at sea, transporting material to fill in strip mines or to create artificial mountains, and baling wastes for possible safe disposal in the oceans.

The institutional problems in controlling ocean dumping.

We recommend that consideration of H.R. 17603 be deferred pending completion of this study, which will include recommendations for legislation, where needed, to control ocean dumping.

The Office of Management and Budget advises that, from the standpoint of the Administration's program, there is no objection to the presentation of this report for the consideration of the Committee.

Sincerely,

STANLEY R. RESOR,
Secretary of the Army.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
Washington, D.C., November 23, 1970.

Hon. EDWARD A. GARMATZ

Chairman, Committee on Merchant Marine and Fisheries, House of Representatives, Washington, D.C.

Dear Mr. CHAIRMAN: This is in response to your request of July 15, 1970, for a report on H.R. 17603, a bill "To amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by requiring the designation of certain water and submerged land areas where the depositing of certain waste material will be permitted, to authorize the establishment of standards with respect to such deposits, and for other purpose"; H.R. 18454, a bill "To amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by providing for the orderly regulation of dumping in the coastal waters of the United States"; and H.R. 19359, a bill "To amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by requiring the designation of certain water and submerged land areas where the depositing of certain waste materials is prohibited, to require the establishment of standards with respect to such deposits in all other areas, and for other purposes."

H.R. 17603 would instruct the Secretary of the Interior to designate portions of the navigable waters of the United States and portions of the waters above the Outer Continental Shelf, including the submerged lands, where sewage, sludge, spoil, or other wastes can be safely discharged. The Secretary would make no such designation for at least two years during which the Department of the Interior and the Army Corps of Engineers would conduct a complete investigation of suitable sites.

H.R. 18454 would authorize the Secretary of the Interior, acting through the United States Fish and Wildlife Service and in consultation with the Chiefs of the Army Corps of Engineers, to establish standards which apply to "the deposit or discharge into the coastal waters of the United States of all industrial wastes, sludge, spoil, and all other materials that might be harmful to the wildlife or wildlife resources or to the ecology of these waters". The standards would be to provide that no damage to the natural environment and ecology of the navigable waters of the United States will result from any such activity.

H.R. 19359 would instruct the Secretary of the Interior to designate portions of the navigable waters of the United States and portions of the waters above the Outer Continental Shelf including the submerged lands where sewage, sludge, spoil, landfill, heated effluents, or any other waste or substance (solid, liquid,

or gas) cannot be safely discharged. No designation shall be made by the Secretary during the one year period beginning on the date of enactment of this section.

It is unclear in H.R. 18454 whether inland navigable waters are covered by the standards. Also, it seems that the standards provided for in all three bills would apply only to the coastal waters of the United States. Dumping of waste in the waters of the benthic areas should also be regulated with respect to United States citizens or United States flag ships engaging in such activity. There is no reason why the risk of contaminating our ocean resources stops at the continental shelf.

In view of the responsibilities of the Federal Water Quality Administration in the Department of the Interior, and the transfer of this Administration and its function to the new Environmental Protection Agency, we question whether authority such as that proposed in all three bills should be tied specifically to the Fish and Wildlife Service of the Department of the Interior. Such a provision might result in undesirable fragmentation of the Federal water pollution control program.

These proposed bills cover only a small portion of the total solid waste load now finding its way into the marine environment. On October 7, the President submitted to the Congress a study by the Council on Environmental Quality on the total problem of ocean dumping of waste materials. (See House Document No. 91-399). The President endorsed the Council's recommendation for legislation to ban the unregulated dumping of all materials in the oceans and to prevent or rigorously limit the dumping of harmful materials. The President promised to submit legislation to the next Congress implementing the Council's recommendations and calling for a system of permits by the Administrator of the Environmental Protection Agency for the transportation and dumping of all materials in the oceans and in the Great Lakes. In view of the comprehensive nature of the Council's study and recommendations and of the legislation to be submitted by the Administration, we would recommend against further consideration of these bills.

We are advised by the Office of Management and Budget that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

ELLIOT L. RICHARDSON, *Secretary.*

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., July 24, 1970.

Hon. EDWARD A. GARMATZ,
Chairman, Committee on Merchant Marine and Fisheries, the House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: This responds to your request for the views of this Department on H.R. 15827, H.R. 15828, and H.R. 15829, identical bills "To amend the National Environmental Policy Act of 1969 to require the Secretary of the Army to terminate certain licenses and permits relating to the disposition of waste materials in the waters of the New York Bight, and for other purposes."

We recommend that consideration of the bills be deferred pending completion of the study of ocean dumping being conducted by the Council on Environmental Quality.

The bills would amend the National Environmental Policy Act of 1969 to add a new title III requiring the Secretary of the Army to terminate within 30 days licenses and permits authorizing the discharge of sewage, sludge, spoil, or other waste into the New York Bight or any other waters within 25 miles of the Ambrose Lighthouse. The Chief of Engineers would be directed to make a 1-year study of the methods by which the waters covered by these bills might be restored and report the results to the Congress.

We are aware of the dimensions of the pollution of the New York Bight. The tragic destruction of the marine environment in that area is the result of the short-sighted assumption that the ocean's capacity to absorb and dissipate pollutants is endless. For many years, sludge produced by sewage treatment plants in the New York area has been disposed by dumping in the Bight.

We recommend deferral of the bills because of two recent developments which indicate the concern of the Administration for the ecological effects of ocean dumping. On February 10, we sent to the Congress a legislative proposal which was introduced as H.R. 15905. The bill, in part, directs the Secretary to establish water quality standards for the waters of the contiguous zone. In addition, the bills would make subject to abatement water pollution activities in the waters of the contiguous zone which adversely affect water quality in the territorial sea, and pollution of the seas resulting beyond the contiguous zone from discharge of material transported from United States territory.

In a message to the Congress on April 15, the President urged that we now direct our attention to ocean dumping with hope of avoiding "the same ecological damages that we have inflicted on our lands and inland waters" (H. Doc. 91-308). He announced that the Chairman of the Council on Environmental Quality had been directed to work with this Department, the Army, other Federal agencies, and State and local governments on a comprehensive study of ocean dumping. That study, to be submitted to the President by September 1, will include effects of ocean dumping on the environment, adequacy of existing control authority, extent and effect of the toxic wastes now being discharged, availability of suitable sites for disposal on land, alternative methods of disposal, such as incineration and re-use, and innovative techniques for disposal at sea.

There are also substantive grounds on which to question the premises of the bills. Although the bills may have the effect of improving the situation in the New York Bight area, they may also have the effect of simply transferring the problem to another location. The bills would permit dumping close to shore in areas 25 miles or more north or south of the Ambrose Lighthouse, which would have the effect merely of moving the ecological disaster area farther up or down the coast.

We are gravely concerned about the problem of dumping in the New York Bight. The subject bills do not appear to us to provide the needed comprehensive solution. We believe the study called for by the President is a step toward finding solutions to the overall problem rather than stopgap measures.

The Office of Management and Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,

FRED J. RUSSELL,
Under Secretary of the Interior.

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., July 24, 1970.

Hon. EDWARD A. GARMATZ,
Chairman, Committee on Merchant Marine and Fisheries, the House of Representatives, Washington, D.C.

Dear MR. CHAIRMAN: Your Committee has requested the comments of this Department on H.R. 17603, a bill "To amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by requiring the designation of certain water and submerged lands areas where the depositing of certain waste materials will be permitted, to authorize the establishment of standards with respect to such deposits, and for other purposes", and H.R. 18454, a bill "To amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by providing for the orderly regulation of dumping in the coastal waters of the United States".

We recommend that consideration of H.R. 17603 and H.R. 18454 be deferred pending completion by the Council on Environmental Quality of its comprehensive study of ocean dumping.

The bill provides civil penalties of not more than \$10,000 for each infraction of the prohibition against dumping unless in a designated area, and for each violation of standards applicable to dumping within such areas. The Secretary of the department in which the Coast Guard is operating and the Secretary of the Interior, respectively, would be responsible for enforcement.

H.R. 18454 differs from H.R. 17603 in that the former would require the establishment of standards for dumping in the coastal waters and makes no provision for designation of specific discharge areas. The standards established pursuant to H.R. 18454 would require, in part, a showing that any proposed discharge or deposit would not endanger the natural environment or ecology of the waters affected. A civil penalty of not more than \$10,000 nor less than \$5,000 would be imposed for each violation of such standards.

Our recommendation to defer consideration of H.R. 17603 and H.R. 18454 is prompted by two recent developments which reflect the concern of this Administration about the ecological effects of ocean dumping. On February 10, we sent to the Congress a legislative proposal which, if enacted, would direct the Secretary to establish water quality standards for the waters of the contiguous zone. That proposal, to amend the Federal Water Pollution Control Act, is pending before the House as H.R. 15905. In addition to its requirement of water quality standards, the bill would also make subject to abatement water pollution activities in the waters of the contiguous zone which adversely affect water quality in the territorial sea, and pollution of the seas resulting beyond the contiguous zone from discharge of material transported from United States territory.

In a message to the Congress on April 15, the President urged that we now direct our attention to ocean dumping with hope of avoiding "the same ecological damages that we have inflicted on our lands and inland waters" (H. Doc. 91-308). He announced that the Chairman of the Council on Environmental Quality had been directed to work with this Department, the Army, other Federal agencies, and State and local governments on a comprehensive study of ocean dumping. That study, to be submitted to the President by September 1, will include effects of ocean dumping on the environment, adequacy of existing control authority, extent and effect of the toxic wastes now being discharged, availability of suitable sites for disposal on land, alternative methods of disposal, such as incineration and re-use, and innovative techniques for disposal at sea.

We strongly believe that it would be best to await the results of that study and such recommendations as the President may make before proceeding further with consideration of H.R. 17603, H.R. 18454, and similar legislation on the subject of ocean dumping.

The Office of Management and Budget has advised that there is no objection to the Presentation of this report from the standpoint of the Administration's program.

Sincerely yours,

FRED J. RUSSELL,
Under Secretary of the Interior.

EXECUTIVE OFFICE OF THE PRESIDENT,
NATIONAL COUNCIL ON MARINE RESOURCES
AND ENGINEERING DEVELOPMENT,
EXECUTIVE SECRETARY,
Washington, D.C., July 24, 1970.

HON. EDWARD A. GARMATZ,
Chairman, Committee on Merchant Marine and Fisheries, U.S. House of Representatives, Washington, D.C.

DEAR MR. GARMATZ: This is in response to your Committee's request for our comments on H.R. 17603, a bill "To Amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by requiring the designation of certain water and submerged land areas where the depositing of certain waste materials will be permitted, to authorize the establishment of standards with respect to such deposits and for other purposes."

This is also our response to your request for our comments on H.R. 18454, a related bill, which proposes "To Amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by providing for the orderly regulation of dumping in the coastal waters of the United States."

We recommend that the Council on Environmental Quality be the spokesman for the Executive Office; and we prefer to defer to their appearance before your Committee on these bills, if agreeable to you.

Our recommendation is based on the President's message to Congress on April 15th and by the President's action in this area. In that document the President urged that we direct our attention to ocean dumping with hope of avoiding "the same ecological damages that we have inflicted on our lands and inland waters." (H. Doc. 91-308).

When the President issued that message, he also announced that the Chairman of the Council on Environmental Quality had been directed to work with the Department of the Interior, the Army, other Federal agencies, and State and local governments on a comprehensive study of ocean dumping. That study, to be submitted to the President by September 1st, will include the effects of ocean dumping on the environment, the adequacy of existing control authority, the extent and effect of the toxic wastes now being discharged, the availability of suitable sites for disposal on land, the alternative methods of disposal, such as incineration and re-use, and the innovative techniques for disposal at sea.

Therefore, we also recommend that no action be taken on H.R. 17603 and H.R. 18454 until the Council on Environmental Quality completes its task.

Our Council is presently sponsoring a study by the Massachusetts Institute of Technology on the economic aspects of selected ocean related activities and a small part of that study will address itself to ocean dumping. The C.E.Q. has been following the progress of this aspect of the study. This study will be completed in August and we will submit copies to the Committee for their information. The study, of course, will represent the views of the contractor and not necessarily of the Government.

The Office of Management and Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

E. L. DILLON,
Acting Executive Secretary.

TENNESSEE VALLEY AUTHORITY,
OFFICE OF THE BOARD OF DIRECTORS,
Knoxville, Tenn., July 24, 1970.

HON. EDWARD A. GARMATZ,
Chairman, Committee on Merchant Marine and Fisheries, The House of Representatives, Washington, D.C.

DEAR MR. GARMATZ: This is in response to your letter of May 21 requesting our views with respect to H.R. 17603, to amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology.

The bill would add a new section to the Coordination Act to authorize the Secretary of the Interior, acting through the Fish and Wildlife Service, to designate those portions of the navigable waters of the United States and the submerged lands underneath into and onto which sewage, sludge, spoil, or other waste could be safely discharged. In making such designation the Secretary would consider all ecological and environmental factors, including the effect of such discharges on the marine and wildlife ecology. For the areas designated for such discharges, the Secretary would establish standards for the discharges which are designed to insure that no damage to or loss of wildlife resources or pollution of the navigable waters will result therefrom. The states may establish their own standards for such discharges and if the Secretary finds that the state standards are equal to or more stringent than the federal standards, the state standards would then apply to such discharge activities within their jurisdiction. Discharges of sewage, sludge, spoil, or other waste into areas other than those designated by the Secretary would be prohibited. Violation of these requirements would subject violators to civil penalties of up to \$10,000 for each offense.

TVA recommends that action on the bill be deferred pending the outcome of the study of ocean dumping which the President directed the Council on Environmental Quality to make in consultation with other Federal agencies. While our main interest is in the inland waters which H.R. 17603 covers along with ocean

waters, the study in question should provide relevant information for determining whether any changes in existing law covering inland waters are needed. Also in our view, the kind of responsibility provided for in H.R. 17603 should be exercised by an agency with a broader mission than the Fish and Wildlife Service whose interest is confined essentially to the preservation of fish and wildlife resources.

The Office of Management and Budget advises that it has no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,

AUBREY J. WAGNER, *Chairman.*

TENNESSEE VALLEY AUTHORITY,
OFFICE OF THE BOARD OF DIRECTORS,
Knoxville, Tenn., July 23, 1970.

Hon. EDWARD A. GARMATZ,
Chairman, Committee on Merchant Marine and Fisheries, the House of Representatives, Washington, D.C.

DEAR MR. GARMATZ: This is in response to your letter of July 15 requesting our views with respect to H.R. 18454, to amend the Fish and Wildlife Coordination Act.

Since the proposed amendment of the Coordination Act relates only to discharges into the coastal waters of the United States and thus would not affect TVA's operations, we do not believe that it would be appropriate for us to comment on the bill.

The Office of Management and Budget advises that it has no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,

AUBREY J. WAGNER, *Chairman.*

Mr. DINGELL. Our first witness this morning is the distinguished friend of the present occupant of the Chair, a Member of Congress from the State of New York, a member of this committee, and also a member of the Interstate and Foreign Commerce Committee where he also serves with distinction and ability, our friend and colleague, the Honorable John M. Murphy.

We are pleased to welcome you before the committee for any statement you may wish to give to the committee. The Chair is happy to invite you to have such members of your staff as you choose to join you at the witness table.

STATEMENT OF HON. JOHN M. MURPHY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. MURPHY. Thank you, Mr. Chairman.

I certainly appreciate the nice introduction and also the opportunity to appear before this distinguished subcommittee and also appreciate the fact that the chairman of the subcommittee has accelerated in time the hearings on this legislation that we meet on this morning and I don't think there is any issue in the country as pressing as that to which we address ourselves this morning.

Congressman R. O. Tiernan of Rhode Island, Congressman William D. Hathaway of Maine, and Congressman Spark M. Matsunaga of Hawaii are joining with me in my statement this morning.

At the outset, I would like to thank Dr. William Aron, who will testify this morning and who is Director of Oceanography at the

Smithsonian Institution for his assistance in the drafting of the legislation as well as much of the background material involved, and also General Groves, of the Corps of Engineers, for his assistance.

The problem that occasioned the bill is very critical to millions of New Yorkers; but it is also of fundamental importance to every American, because it involves protection of our most vital resource: our marine environment, our water.

There exists in New York Harbor a severe pollution problem that is clearly paralleled in each of the major harbors of the United States. The principal sources of this pollution are sewer and industrial outfalls, ocean disposal of sewage sludge and dredge spoil, river discharge and land runoff, wastes from vessels, accidental spills, and harbor debris.

The depths of our environmental dilemma, of course, are best stated through facts:

In the United States, all manufacturing dumps an estimated 16,400 billion gallons of waste water into our rivers, lakes, and coastal waters each year. This waste contains 27,500 million pounds of oxygen-demanding matter and some 22,500 million pounds of solid matter.

From the 138 million people served by sewers comes above 7,300 billion gallons of waste water containing over 10 billion pounds of oxygen-demanding matter and over 12 billion pounds of solids.

In 1965, livestock was estimated to have produced 1,138.6 million tons of solid wastes and 435.4 million tons of liquid wastes, a large part of which found its way into our waters.

Over 3 million tons of debris and filth are poured every day into the moribund Lake Erie. This invaluable body of water is estimated to have aged 15,000 years in the last 50 as nutrients and sediments have poured in from Detroit, Cleveland, Toledo, Buffalo, and other cities, from heavy concentrations of industry and from agricultural runoff. Lake Michigan is showing signs of following Erie's demise, only far more irrevocably so since its flushing time is roughly 17 times as long as that of Erie.

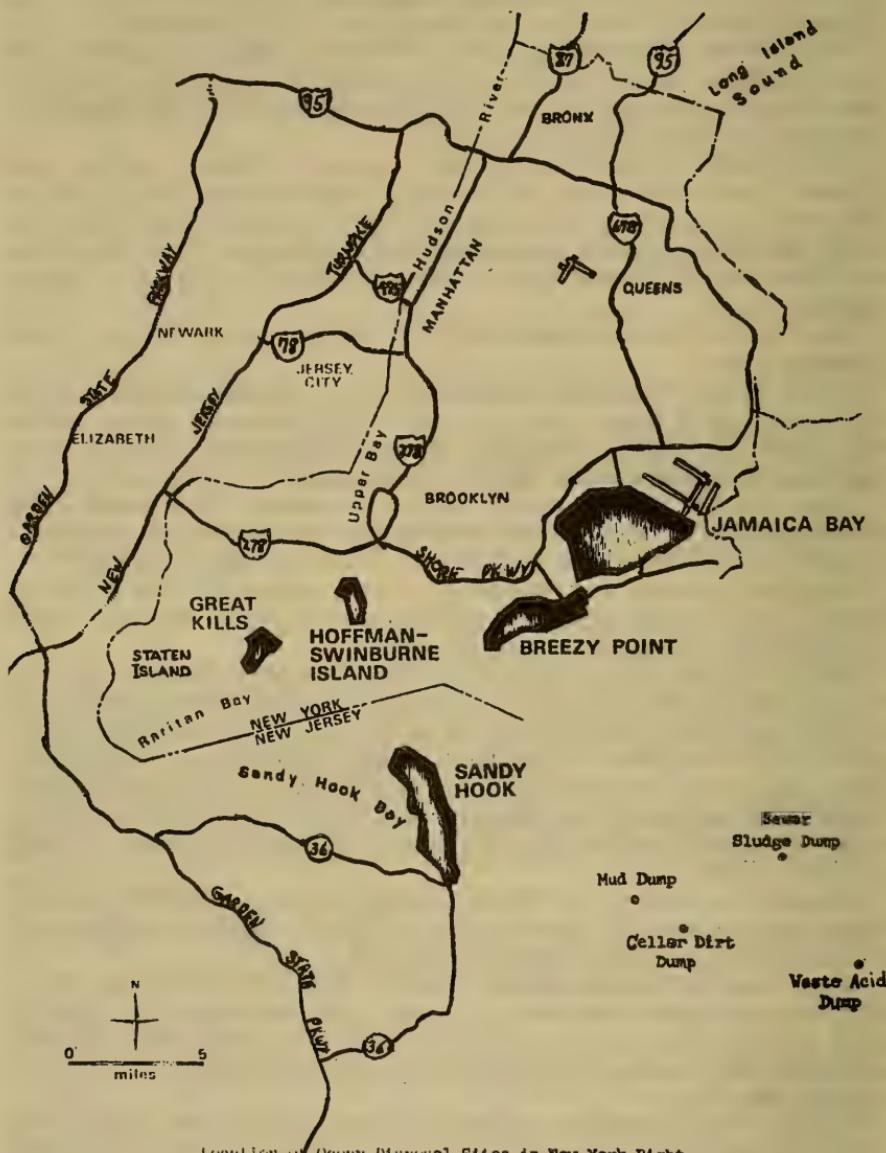
Despite the work of the Public Health Service, a recent study indicates that perhaps 30 percent of the Nation's public drinking and water systems fall below Federal standards.

More than 1,300 communities discharge their wastes into our waters with no treatment whatsoever. An equal number manage to provide only primary treatment, which does little more than skim off and settle out the grossest pollutants and chlorinate the rest to kill disease-causing bacteria.

In New York, pollution is greatest in an area known as the New York Bight, an indentation along the coast that has been used as a waste disposal area for more than 40 years. A map and a detailed description of the New York Bight are attached to my written statement as appendix 1 and 2, and I would like to include them at this point in the record.

Mr. DINGELL. Without objection, it is so ordered.

(App. 1 and 2 follow:)



Location of Ocean Disposal Sites in New York Bight

APPENDIX II

REPRESENTATIVE JOHN M. MURPHY ON THE NEW YORK BIGHT

The New York Bight is a slight indentation of the Atlantic coast, extending northeasterly from Cape May Inlet, New Jersey, for some 200 miles to the eastern end of Long Island, New York at Montauk Point. Its coastline is generally a moderately sloping sand beach shore, broken by indentations of the sea into the land. Among these are a number of small inlets along the New Jersey coast, Lower Bay of New York Harbor, East Rockaway Inlet, Jones Inlet, Fire Island Inlet, Moriches Inlet, and Shinnecock Inlet.

Depths in the Bight generally exceed 100 feet about 50 miles off shore but are substantially less than that in most inshore areas. The bottom is mostly sandy and is subject to shifts due to tidal actions or storm surges. Consequently, channels have been dredged and maintained by the U.S. Engineers to accommodate the large volume of sea commerce into the industrial and commercial complex of Greater New York. Sandy Hook Channel leads into Sandy Hook Bay and Raritan Channel branches off into Raritan Bay. Ambrose Channel is the principal entrance into New York Harbor leading to Upper Bay and New York City. The inlets to the east (East Rockaway, Jones, and Fire Island) are also subject to shifting sands from time to time.

The New York Bight is a contrast in extremes. It contains the only remaining strip of virgin barrier beach between Cape Cod and Cape Hatteras (Island Beach State Park, New Jersey) and supports the most heavily populated and industrialized complex in the country—between Sandy Hook, New Jersey, and Jamaica Bay, New York. The Bight supports some of the most heavily utilized and valuable recreation areas in the country. For example, New Jersey's four-county coastal waterway supports a two-billion dollar recreation industry annually and New York's Coney Island beach recorded 22 million visitors in 1968. The Bight area also supports excellent sport and commercial fishing resources. Some of the finest oyster grounds are found in this area; approved shellfish harvesting operations for inshore and offshore clams continue within sight of the New York skyline. Both New York and New Jersey contemplate removal of inadequately treated sewage effluent from condemned inshore shellfish waters that will assure even greater shellfish production in this area.

Mr. MURPHY. Each member of the subcommittee has received copies of these materials.

Pollution is greatest in the Bight because, for 40 years, the dumping grounds in this area have been used by the Federal Government, local political subdivisions, and private industry in varying degrees for the dumping of sewage sludge, industrial wastes, dredging spoils, and other harmful litter.

The issue of permitting the dumping of wastes in the Bight has become mired in confusion and misinformation every bit as murky as the waters in question. Antipollution has become a "warm puppy" issue, assuring happiness to anyone opposing a fouled environment. Over night we have created a group of instant ecologists.

But curbing pollution, in this particular case the blight of our waters, takes more than tons of adjectives and good wishes. Pollution has been going on for so long that suddenly putting the brakes on is more an act of alarm than actually stopping.

Quite simply, there are no simple solutions. In this Congress there have been more than 470 environmental bills introduced, of which 205 deal with water pollution. Only a few, however, offer effective long range solutions.

Operation of the dumping grounds in the New York Bight is under the jurisdiction of the Army Corps of Engineers, which draws its authority from the act of Congress of June 29, 1888 (33 U.S.C. 441), and the River and Harbor Act of 1905 (33 U.S.C. 419). Over the years, considerable concern has developed over the effects of this waste disposal on the balance of the marine environment in the dumping area, and in the harbor itself. This concern has been amply justified.

In 1866 and 1967, the Public Health Service studied the dumping operation to determine if any changes in the operation seemed to be in order. The report found that the dump area was "badly fouled," but made no specific recommendations for remedy. It did, however, unequivocally state that moving the dumping areas to other locations

would be counterproductive. It would not solve any problems, but rather create additional ones. And I think that is one of the important points of my testimony today.

In November, 1967, the Coastal Engineering Research Center of the Corps of Engineers was directed to undertake a comprehensive study to monitor the offshore waste disposal areas to determine the immediate and residual effects on water quality and water chemistry. Effects on water quality, safety, use, ecology, and fish and wildlife conservation, and recreation in the dump area and contiguous waters would be weighed.

The Smithsonian Institution was asked to propose the outline for study, which was awarded to the Sandy Hook Marine Laboratory of the Department of the Interior for 2½ years at a cost of \$280,000. The laboratory began work in the fall of 1968.

In late 1969, the laboratory submitted an interim report of the progress of the study which confirmed that severe ecological damage existed in the New York Bight. At this point in the record I would like to include the introduction and discussion portions of the Sandy Hook report, which are also attached to my written testimony as appendix 3.

Mr. DINGELL. Without objection, the document referred to will be inserted at this point in the record.

(App. 3 follows:)

APPENDIX III

REPRESENTATIVE JOHN M. MURPHY ON THE EFFECTS OF WASTE DISPOSAL IN THE NEW YORK BIGHT—INTERIM REPORT FOR JANUARY 1, 1970

(Prepared by The Sandy Hook Marine Laboratory, U.S. Bureau of Sport Fisheries and Wildlife, Sandy Hook, Highlands, N.J., December 3, 1969)

INTRODUCTION

In March, 1968, a working committee comprised of invited scientists, staff members of the Corps of Engineers, and representatives of the Smithsonian Institution met to delineate the problem areas and to design studies which would elucidate the effects of waste disposal practices in the New York Bight.

The committee suggested that a two-year program of study could be developed which would answer at least some of the questions posed (Gross and Wallen, 1968, p. 4) it was also recognized that many questions could not be answered except through a much longer period of study, perhaps up to five years. An interim report was to be made available on or before 1 January 1970 with a final report due in September 1970.

The areas deemed to require investigation included: 1) biological characteristics of the New York Bight, 2) physical and chemical properties of bottom sediments and water-borne particles, 3) physical and chemical properties of the marine environment, New York Bight, and 4) sources, dispersal, and movement of waste materials (Gross and Wallen, 1968, pp. 6-17). Each of the subject areas to be investigated was further broken down into subheadings including appropriate literature surveys, field activities, and laboratory studies. Those items of research which were considered essential for the basic (two-year) study were indicated by an asterisk.

In response to the recommendations made by the Smithsonian Institution, Sandy Hook Marine Laboratory prepared and submitted to the Smithsonian Institution a proposal, "The effects of waste disposal in the coastal waters of New York Harbor." Based on this proposal the Laboratory was awarded a contract by the Corps of Engineers (CERC) to conduct a study within the guidelines set by the Smithsonian Institution's recommendations and our proposal. As was suggested in page 6, paragraph 3 of the recommendations (Gross and Wallen, 1968), we initially concentrated our biological studies on the benthic communities of the New York Bight. Following these recommendations (item C, p. 17) we

concentrated our efforts on the investigation of the sewage sludge and acid waste disposal areas. Our preliminary work soon indicated, however, that to understand the effects of the various wastes, we would have to study the pelagic and planktonic populations as well as the benthos.

We also found it necessary to initiate preliminary work in the dredge spoil dumping area to learn how the spoil dumping might be affecting our other results. The data from this preliminary survey indicated that dredge spoil is having an adverse effect on benthic communities equal to or greater than that resulting from the sewage sludges. It is important to note that these wastes are being dumped much closer to the shore line (Sandy Hook) than are the sewage sludges and industrial wastes.

Finally, although circulation-diffusion studies were suggested but not required in the recommendations for the basic study (Gross and Wallen, 1968, p. 14), we have initiated an extensive hydrographic program designed to give us information on the movements of water masses. The results of these studies are consistent with the distribution of organic matter and heavy metals as well as with other phenomena.

The following report is arranged according to activities rather than research sites or individual disposal areas. Where data from one activity or method of analysis complement, substantiate, or contradict other lines of evidence, a cross reference is made.

Where the understanding of a methodology is essential to the interpretation of data, the methods of collection and/or analyses are presented to interpret accurately the results. The sum of our total data is, however, too great to be given in this interim report. Therefore, the inclusion of extensive species lists, tabular data, etc., will be deferred until our final published report.

The following colleagues were responsible for major segments of the work: Charles Gibson, pelagic planktonic studies; Robert Wicklund, hydrography; Andrew Draxler, chemistry.

JACK B. PEARCE.

DECEMBER 2, 1969.

DISCUSSION

This is a preliminary report on the results of 15 months of studies in the New York Bight to chart the dispersal of various pollutants which are dumped at sea, and to measure their biological effects.

Our program has included a biweekly survey to determine hydrographic patterns and the composition and relative number of species in the benthos, plankton and, to a limited extent the ichthyofauna over the study area.

The weight of our evidence to date shows that sewage sludge (which in the first year has been the principal subject of our attention) has spread out in a northerly direction from the designated sewage dumping grounds over an area of 14 square miles. Here the benthic macrofauna has become severely impoverished in contrast to that of the surrounding area. Several species which usually tolerate polluted conditions such as nematodes and the rhynchocoelan rubber worm, were absent from the impoverished area.

The center of the designated dumping ground for dredge spoil is about four miles from that of the sewage sludge. The dredge spoil, much heavier than the sewer sludge evidently does not move far from the dumping site, so that the dispersal area is only about 7 square miles. According to our studies to date, the impoverishing effect of the dredge spoil is even more severe than that of the sewage sludge.

A large area east of the sewage sludge grounds is covered with organic matter whose origin we have not yet determined. Judging from our hydrographic studies, it may have originated from the sewage sludge. This will be the subject of further investigation.

The impoverishing effect of these pollutants may result from a multiplicity of factors. These include low dissolved oxygen during the summer, heavy metals which are toxic to marine organisms, and a variety of microorganisms which can invade the tissues of invertebrates and fishes resulting in debilitating disease. Furthermore water contaminated with sewage sludge inhibits cell division of phytoplankters.

The results of our investigation also indicate that materials having their derivation in the sewage disposal area are moved mostly to the northeast towards the shores of Long Island. Distribution patterns of organic materials associated

with bottom sediments, organic matter in the water, and heavy metals, all corroborate the dominant northeast movement of water indicated by our hydrographic studies.

We have not yet found any major effects resulting from the disposal of industrial acid wastes. Our preliminary investigation does indicate, however, that certain species of zooplankters contain heavy metals, the origin of which we have not yet determined. We plan to pursue these studies further during the early part of 1970. In particular we would like to sample more intensively the benthic environment underlying the acid waste disposal area. This would involve both laboratory and field studies of the animals living there.

We plan now to conduct additional field and laboratory studies to fill in gaps indicated by our work to date; and to integrate and interpret the mass of our hydrographic, meterological and biological data.

Mr. MURPHY. A good deal of controversy developed following disclosure of the interim report, and many legislative and other solutions were offered to remedy the critical situation in the Bight. It is necessary, at this point, to put into perspective the fact that the report of the Sandy Hook Laboratory was of an interim nature. Its findings cannot be considered final.

However, at this point, the report does confirm that, at the very least, some critical damage exists in the Bight. Coupled with the findings of the 1967 Public Health Service Study, there can be no reasonable argument to dissuade prompt governmental action in responding to the environmental emergency that exists.

Arguments about the degree of the damage will persist for some time, and all concerned are anxious to see the final Sandy Hook report. But let us not quibble over the degree of damage while the pollution continues unchecked. Rather, let us begin to look for effective, long-range solutions to this and similar problems in virtually every coastal area of the United States.

It should be noted, also, that one further report confirms that damage exists in the bight. In February 1970, the Assistant Secretary of Interior for Fish and Wildlife, Parks, and Marine Resources formed an ad hoc committee to review the practice of ocean disposal in the Bight and to make appropriate recommendations. The committee found that the "New York Harbor complex must rank as one of the largest grossly polluted areas in the United States."

I have this report with me, and I would like to include it at this point in the record. I am sorry that I was unable to bring more than one copy.

Mr. DINGELL. Without objection, the document referred to will be included in the record at this point, subject only to review by the staff to ascertain whether or not it will involve undue printing costs.

(The information follows:)

EVALUATION OF INFLUENCE OF DUMPING IN THE NEW YORK BIGHT

with

A Brief Review of General Ocean Pollution Problems

A REPORT

submitted to

The Secretary of the Interior

U.S. Department of the Interior
Washington, D. C.

June 24, 1970

(21)

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Appendices

1. A Partial Listing of Reports Concerning Disposal of Wastes and Water Circulation in the New York Bight
2. Civil Regulatory Functions - Supervisor of New York Harbor (A Copy of U.S. Army Corps of Engineers Regulation No. 1145-2-1, dated April 23, 1969)
3. Estimates and Projections of Population in the Estuarine Economic Region and Individual Areas
4. Interrelationships of Federal Agencies in Ocean Dumping and Ocean Pollution

EVALUATION OF INFLUENCE OF DUMPING IN THE NEW YORK BIGHT**with****A Brief Review of General Ocean Pollution Problems.****Preface**

In a memorandum of February 17, 1970, to appropriate Federal officials, Dr. Leslie L. Glasgow, Assistant Secretary for Fish and Wildlife, Parks, and Marine Resources of the Department of the Interior, appointed an Ad Hoc Committee to review the practice of ocean disposal in the New York Bight and to make appropriate recommendations. The purpose of this Committee was not to pre-judge ongoing and indepth studies now being conducted by various agencies. Rather, it was to bring together pertinent information and opinions to permit a preliminary assessment of the problem and to consider the need for any Federal action that might set the future pattern throughout our coastal areas.

After meeting with the Assistant Secretary, the Committee developed a series of specific objectives for review of the problem in the New York Bight, plus several other objectives that related to the general problem of ocean disposal nationwide. These were, as follows:

I. Pollution in the New York Bight

1. Summarize major sources of pollution
2. Summarize current Federal and non-Federal activities related to pollution control and abatement
3. Evaluate potential threats from pollution to the proposed Gateway National Recreation Area.
4. Summarize other problems associated with pollution in the New York Bight
5. List alternatives to dumping at present sites and associated problems
6. Propose interim recommendations

II. Ocean Pollution USA -- The Broad Picture

1. Review Federal responsibilities and activities regarding ocean pollution and abatement
2. Summarize State and local authorities, responsibilities, and actions to control ocean dumping
3. Consider critical problems and conditions around other urban centers
4. Prepare interim guidelines for Corps of Engineers

Shortly after its establishment, the Council on Environmental Quality was assigned the task of considering the problem of ocean pollution. President Nixon's message to Congress, dated April 15, 1970, on the problems of the Great Lakes and ocean pollution, specifically requested the Chairman of the Council on Environmental Quality to initiate a study of the ocean dumping and disposal problem: to recommend research needs and legislative changes, if necessary; and to propose a comprehensive approach to the problems of ocean dumping, including evaluation of all possible alternatives. Subsequently, the Ad Hoc Committee worked closely with the Council on Environmental Quality task force in the completion of the CEQ Report.

Opportunity to comment on a draft of this report was extended to appropriate New York and New Jersey State and Interstate agencies. Comments were received from the New York Health Department, New York Conservation Department, the Port of New York Authority, the Interstate Sanitation Commission, and the New Jersey Department of Environmental Protection. However, the views expressed in this report do not necessarily reflect opinions of these agencies.

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COMMITTEE FINDINGS

A. Summary -- Part I

1. The New York Harbor Complex must rank as one of the largest grossly polluted areas in the United States.
2. The major sources of pollution in the New York Bight (see page 24 for definition) are (1) sewer and industrial outfalls, (2) ocean disposal of sewage sludge and dredge spoil, (3) river discharge and land runoff, (4) wastes from vessels, (5) accidental spills, and (6) harbor debris.
3. No significant improvement in the water quality in the New York Bight can be expected until the mid-70's. Complete secondary treatment is not scheduled for New York City and Passaic Valley Sanitation Commission until 1976. Additional pollution treatment facilities in up-river and shoreline communities will not be completed until the mid-70's. Vessel pollution should be significantly reduced under the provisions of the Water Quality Improvement Act of 1970.
4. Even with completion of all currently proposed pollution abatement programs, conditions in the New York Bight will fall short of what must be the ultimate goal of protecting coastal ocean environments from serious degradation.
5. There will be increased pressure for more ocean disposal of sewage sludge and dredge materials in the New York Bight. This will raise to a potentially critical level the threat of pollution to land and surrounding ocean.
6. The projected increase in pollution from ocean disposal practices calls for stricter control of future ocean disposal practices in the New York Bight.
7. The major threat to full enjoyment of the proposed Gateway National Recreation Area and other beaches in the New York Bight is pollution. To date, however, there has not been demonstrated any connection between present ocean dumping practices and water pollution at any of the proposed Gateway sites.
8. The present ocean disposal of sewage sludge and dredge fill may be a serious threat to the sanitary quality of local populations of ocean quahogs and surf clams (4-10 mile radius).
9. Accumulation by fish and shellfish of heavy metals and other persistent toxic compounds is another potential health hazard in the New York Bight. This threat appears to be most serious from the sludge disposal areas.

10. Ocean disposal of sludge and dredge spoil materials, along with pollution from other sources, offer a potential threat to local fish populations.

11. There is a need for one agency to accumulate all pertinent water pollution data in the New York Bight.

12. The fundamental problems associated with pollution abatement and control are institutional--economic, legal, social, etc. The fact of the matter is that technology is available for cleaning up the New York Bight.

13. Known alternatives to present ocean disposal practices will cost substantially more. Further studies are needed to detail more clearly the relative advantages, operational costs, and potential environmental problems for each alternative. Substantial alterations in consumer habits and existing institutions also will be required.

B. Summary -- Part II

1. Ocean pollution is the unfavorable alteration of the marine environment, wholly or largely as a by-product of man's actions, through direct or indirect effects of changes in energy patterns, radiation levels, chemical and physical constitution, and distribution, abundance, and quality of organisms. These changes may affect man directly or indirectly through his supplies of food and other products, his physical objects or possessions, and his opportunities for recreation and appreciation of nature.

2. The problem of ocean pollution is part of the total problem of waste disposal with all its social, political, economic, and legal constraints. Any workable solution to controlling ocean pollution must consider the total problem.

3. Controlled ocean disposal of wastes is a legitimate use of the sea. However, the effects of various types of ocean disposal must be carefully considered.

4. The high seas have a limited capacity to assimilate certain biologically active waste products; coastal areas have a limited capacity to receive any waste material.

5. The ultimate goal of disposal programs must be to allow into the ocean only that which can contribute to improving the ocean environment, that which is essentially inert, or that which can be assimilated without adverse effects.

6. The disposal of all types of wastes into the ocean is projected to increase substantially in this decade unless adequate controls are initiated.

7. Unless reversed, this trend portends serious health hazards and threatens fishery resources and the marine environment in a number of localities. Unfortunately, the extent and magnitude of these dangers are not well understood nor adequately documented.

8. The extent of specific Federal authority to enforce waste disposal regulations and ocean pollution beyond the territorial sea (generally 3 miles) needs to be clarified.

9. At present, no Federal agency has authority to develop water quality standards beyond the territorial sea.

10. Action by regional, State, and local governmental bodies to control ocean disposal of wastes is not generally adequate, stressing the need for more appropriate support and guidelines at the Federal level.

11. Present and projected demands upon our natural resources call for substantial emphasis on ways of reusing, recycling, and reclaiming materials which are now considered waste. Legislation to encourage this is needed.

12. Without proper consideration of legal, economic, and other institutional constraints, pollution and deterioration of coastal waters and even the high seas can be expected to increase.

13. Aside from physical and aesthetic aspects of pollution, most other major deleterious effects are toxicological. These present an array of complex environmental problems affecting man and marine organisms and operating essentially at the cellular level.

14. Opportunities for interagency cooperative programs are not being exploited adequately. Substantial data and expertise existing in any given agency are, for a variety of reasons, not always used by another agency.

15. Research by Federal agencies on problems of ocean disposal and ocean pollution is not generally duplicative; on the contrary, there are many areas which are not receiving enough attention, or are receiving no attention at all. They include

- a. Detailed knowledge of coastal circulation and ecology
- b. Understanding of economic and social aspects of ocean pollution
- c. Ecological and oceanographic data bases
- d. Inventory of what is being, and what has been, dumped and their effects
- e. A knowledge of extractable materials in the wastes that can benefit fish and shellfish production
- f. The fate of pathogenic organisms in marine waters

16. The Committee developed interim guidelines for the Corps of Engineers. These are given on pages 19 and 20.

C. Recommendations

Recommendations do not solve problems. They can serve as a starting point for planning and organization for agencies at all levels of government; also they can serve as a basis for moving ahead with action programs and policies. As a general recommendation, the Committee urges that the Federal Government establish appropriate coordinating and other action programs to accomplish the recommendations that follow.

Some members of the Committee had the opportunity to review briefly a draft report "Waste Management Concepts for the Coastal Zone--requirements for research and investigation" prepared jointly under the auspices of the National Academy of Sciences Committee on Oceanography and the National Academy of Engineering Committee on Ocean Engineering. The report was prepared at the request of the Federal Water Quality Administration. This is an excellent document; its recommendations on research, monitoring, and data management are more complete than those listed below. Thus, another general recommendation is made that when released, the above-mentioned report should be carefully reviewed for additional and more comprehensive recommendations.

The recommendations are broken down into broad categories that cover most of the problem areas associated with ocean pollution; recommendations specifically for New York Bight begin on page 17.

Policy

The policy of the Federal Government should be an aggressive and total condemnation of ocean pollution from all sources. It should provide the necessary guidelines for agencies at all levels of government to limit or prevent ocean disposal of all materials that would unfavorably alter the marine environment through direct or indirect effects of changes in energy patterns; radiation levels; chemical and physical constitution; and distribution, abundance, and quality of organisms. The policy should incorporate the following specific recommendations:

1. The dumping of any waste materials which could create hazardous conditions, toxic or otherwise, in ocean waters should cease. In some specific cases, until suitable alternative methods can be put into practice, ocean disposal of certain toxic substances may be the least objectionable solution. Where this can be demonstrated, disposal methods and sites must be approved by the Departments of Health, Education, and Welfare; Interior; State if beyond the territorial sea; and other appropriate Federal agencies.

2. Ocean disposal of polluted dredge spoil, undigested sludge, and improperly treated sewage effluent must be terminated. Continuation of these practices can create serious human health hazards and cause significant deterioration to coastal marine environments and marine living resources. They must be terminated as rapidly as alternate solutions will permit.

3. Disposal of unpolluted dredge spoil, rubble, and similar wastes, which have been demonstrated to be inert and non-toxic, should be evaluated on a case-by-case basis. Evaluation should assure prevention of damage to shellfish beds, fish farming areas, or any other marine resource; disposal should not unduly inhibit legitimate uses such as recreation and transportation.

4. Municipal or industrial refuse, such as garbage, should not be dumped into the sea. Proposals to transport and dispose such baled refuse or other plans to utilize the ocean as a repository for municipal or industrial refuse should be opposed.

5. Ocean dumping of digested or other stabilized sludge should be discontinued as soon as feasible. Even treated sludge will usually contain toxic heavy metals in substantial concentrations. Where communities have, either in existence or in advanced development, substantial investment in sludge transportation facilities in connection with ocean dumping of digested sludge, it may be necessary to continue ocean dumping as an interim measure. Planning for implementation of alternate measures should begin immediately. Schedules for elimination of this practice should be developed on an individual basis and should be implemented through decisions governing future expansion, modification, or replacement of facilities.

6. Develop legislation to encourage reuse, recycling, and reclamation of waste products. Such legislation would provide incentives to industry and communities and provide funds for research in this area.

7. Strengthen Federal Aid programs of demonstration and development grants to State, county, municipal authorities, and industry to fund promising interim and longer range solutions to present ocean disposal practices. Existing programs might also be modified to achieve these goals.

Enforcement Activities

8. Review existing authorities and legislation to clarify responsibilities of Federal agencies pertaining to enforcement and abatement of pollution and disposal operations in the contiguous zones. Before additional legislation is developed to cover this area, a comprehensive review of what enforcement agencies can do and should do is needed.

9. Surveillance of ocean disposal activities needs to be expanded and refined. This is a phase of ocean disposal that has not been given enough attention either in terms of adequate funding or in the refining or development of sophisticated surveillance techniques.

Abatement Activities

10. The proposed "Interim Guidelines for the Corps of Engineers" (page 19) should be implemented as soon as possible by the Corps.

11. Encourage development of innovations in the design of terminals and marine pipelines which will provide inherent detection of leaks and retention and retrieval of spills; locate terminals so as to minimize the potential for collisions or groundings which could result in massive oil or chemical spills.

12. Define requirements for vessel compliance with applicable pollution regulations, such as the Water Quality Improvement Act of 1970. The Maritime Administration should undertake an indepth survey of vessels using the U.S. ports in an attempt to quantify and qualify vessel pollution. The results of such a survey will contribute to the development of effective ship systems to prevent pollutant discharge in all navigable waters.

13. Water quality criteria in the territorial seas need to be reviewed and clarified. With a strong clear-cut policy on ocean disposal practices, it may be appropriate to begin a detailed review of existing water quality standards in territorial waters.

14. The Federal Government should move forward with an immediate program of setting water quality standards for the contiguous zone within the scope of Article 24 of the Convention of the Territorial Sea and the Contiguous Zone. The concurrence of the Secretary of State should be sought on matters affecting waters beyond the territorial sea or the foreign policy of the United States.

15. Adopt more advanced processing, disposal, and control techniques as alternatives to present primitive ocean disposal practices. These would include incineration or other rapid oxidation; farming, with or without composting; recycling techniques; and various types of "offsite" disposal operations, such as special landfills and mine disposal.

Data Management

16. Operations research and systems analysis techniques need to be applied to the entire area of waste management. Greater use of existing techniques of data management, along with a more sophisticated systems analysis of waste management problems would help to simplify some ocean disposal problems and reveal possible alternatives not yet fully explored.

17. Responsibility for assembling and maintaining, on a current basis, all water pollution data should be assigned to one agency. This would include information on kind and quantity of material now being discharged. Greater use should be made of existing data management systems for storage and retrieval of environmental data in territorial and international waters.

18. Establish a marine monitoring program to obtain baseline and "real time" data on

- a. meteorological conditions
- b. physical and chemical oceanographic conditions
- c. biomass data on indicator organisms
- d. source, type, and quantity of effluents

Before any monitoring program is developed, however, we need to know precisely what we are monitoring and what such data will contribute to any given problem area.

Supporting Activities

19. Develop and maintain an inventory of agencies, institutions, and laboratories with responsibilities and capabilities in solving ocean pollution problems. Nowhere is there such an inventory available to provide managers with a perspective of who is involved and who might provide assistance.

20. Prepare a listing of all Federal Aid programs available to help fund ocean pollution research and abatement programs. This would be of substantial aid to coastal communities and States. Consideration might also be given to permitting one proposal to cover two or more sources of Federal funding.

21. Assemble a panel of experts to help communities. The Department of the Interior should compile a list of experts to be made available on short notice to State and local communities upon request; their purpose would be to "brainstorm" both short- and long-term solutions to ocean pollution problems. Such a panel would be multidisciplinary and should include systems analysts, economists, and social scientists.

Research and Development

22. Support more research on marine toxicology. This must include studies on the total effects of industrial and domestic pollutants on marine organisms throughout the complex array of food chains. Consideration should be given to establishing a National Institute for Marine Toxicology. Research on marine toxicology should include:

- a. toxicity assessments
- b. biostimulation by wastes
- c. human health risks from pathogens, including viability in marine waters
- d. quantitative measures of biotic community health
- e. improved models of toxicity
- f. sub-lethal responses to pollutants

23. More economic research is needed. A variety of economic problems associated with ocean pollution and disposal needs to be investigated, such as, direct and indirect costs of pollution and pollution control, procedures for evaluating alternatives in disposal and abatement practices, types of economic incentives, and direct and indirect benefits from environmental enhancement.

24. Institutional and social political research needs substantially more emphasis. The legal aspects of pollution as it affects our economic, social, and political structures are complex and

inconsistent. Studies are needed on governmental responsibilities, long-range planning programs, development of model legislation, conflicting legislation, and river basin and other water management authorities and commissions.

25. Better instruments need to be developed for monitoring pollution. An expanded and adequate monitoring system must depend on an array of sophisticated automatic instruments.

26. Support and encourage more work in coastal oceanography. Although there has been considerable emphasis in oceanography of the high seas, relatively little work has been done on the oceanography of estuarine and coastal areas. We know substantially less about these areas, yet they are most subject to pollution. Little is known about the prevalence, nature, and fate of pollutants occurring as floatables in the surface film of the ocean. Considerably more needs to be known about circulation patterns and turbulent diffusion processes of nearshore coastal waters, and more work needs to be done on the physical movement and dispersion in estuaries.

27. Undertake more broad-based ecological studies. Critical needs include:

- a. establishment of ecological baselines in marine coastal areas
- b. inventory of coastal living resources
- c. bioassay data on major groups of pollutants
- d. food chain relationships of pollutants

28. Develop models that will describe and predict circulatory and diffusion patterns in estuarine and coastal waters. Most coastal waters, especially those adjacent to urban centers, have a limited capacity to receive wastes. The determination of this capacity is an essential part of any long-range abatement program.

New York Bight

The following recommendations apply specifically to the New York Bight. The broader recommendations covering ocean disposal in general, beginning on page 11, are meant to apply to this area as well.

1. A regional committee consisting of all interested agencies should be organized to coordinate Federal research and development ocean disposal programs conducted in the Bight area. Such a committee should also establish active liaison with all appropriate State and interstate agencies.

2. Existing monitoring programs should be reviewed and expanded where necessary and to the extent possible. It is essential to know a great deal about the pollution that is now taking place and to document changes as they occur so their effects can be evaluated. Effects on the environment and aquatic resources must be carefully described and quantified.

3. A directory should be prepared for the New York metropolitan and surrounding areas listing all of the agencies and officials concerned with collecting, processing, handling, or disposing of wastes. There is a multiplicity of organizations involved in the discharge or control of waste in the New York area. Often their activities, responsibilities, and capabilities are not known to another agency. All pollution programs; i.e., disposal, R and D, enforcement, etc., should be listed and described.

4. More surveillance of ocean disposal operations is required. Measures necessary to assure that dumping vessels observe the conditions of the permit as issued should be taken.

5. Develop an input-out (or throughput) model of the New York metropolitan area. Instead of attacking the waste problem at the output in bits and pieces, the entire system should be examined by competent systems analysts. Estimates of materials shipped into the area, less the losses in heat and amounts going into construction, should give an estimate of the amounts to be removed. Knowing the kinds of materials entering the area, and the uses to which they are put, should make it possible to design a better system for output (such as, recycling glass bottles).

6. The present sampling of marine organisms, including quahogs and surf clams, should be expanded to assess the potential health hazard from bacteria, viruses, toxic metals, or other toxic compounds. Preliminary measurements by the Sandy Hook Marine Laboratory indicate coliform contamination in the range of 60,000 MPN in surf clams being

harvested for sale. (The New York Conservation Department has embarked on an expanded program of sampling surf clams located within the 3-mile limit of State jurisdiction.)

7. The Federal Government should provide immediately more liberal research, demonstration, and construction loan and grant programs to encourage rapid solution of pollution problems in the Bight. This could be part of a comprehensive program to make the New York Bight an area for developing and testing pollution abatement techniques and concepts.

8. Organize a program for the systematic measurement and cataloging of physical, biological, geological, and geophysical properties at existing or potential marine disposal sites. Subsequent to the completion of the initial descriptive phase, a real-time monitoring program should be inaugurated to assist various concerned agencies in proper pollution control practices. The selection of an optimum ocean disposal procedure for the New York Bight or other locations involves the detailed consideration and analysis of various alternative methods. A major factor essential to the analytical mechanism if it is to adequately assess the alternatives, is the availability of basic descriptive data on the marine environment. Such information is required to answer fundamental questions concerning circulatory and diffusion characteristics of the water mass and their interdependence on physical processes.

9. Plan and initiate accelerated programs to substitute alternative recycling and disposal practices offering the optimum mix of ecological, public health, and aesthetic acceptability. Alternatives to present ocean disposal practices in the New York Bight have never been given a comprehensive study and review. A small group of outstanding specialists in a variety of disciplines--sanitary engineers, public health experts, ecologists, economists, systems analysts, oceanographers, fishery scientists, etc., should be assembled to "brainstorm" all possible alternatives and to come up with appropriate recommendations for short-term and long-term solutions.

10. Discontinue use of the Waste Chemical Dumping Ground unless disposal recommendations conform with Recommendation #1, page 11.

D. Interim Guidelines for the Corps of Engineers

At the first meeting of the Ad Hoc Committee, General Richard H. Groves observed that the Corps receives many applications for ocean disposal of a variety of industrial and domestic wastes. He indicated that it would be extremely helpful if there were a national policy which the Corps could apply in evaluating applications. Dr. Glasgow indicated that development of such a policy is a responsibility of the Interior Department and instructed the Ad Hoc Committee to provide guidelines which might be applicable to ocean dumping permit applications.

The authority of the Corps stems primarily from the Supervisory Harbors Act of 1888 and the River and Harbor Act of 1899, also known as the Refuse Act of 1899. This Act prohibits the discharge of refuse matter, other than that flowing from streets and sewers, into the navigable waters of the United States.

Section 4 of the River and Harbor Act, approved 3 March 1905, authorizes the Secretary of the Army to prescribe regulations to govern the transportation and dumping into any navigable water, or waters adjacent thereto, of dredgings and other refuse materials, whenever in his judgment such regulations are required in the interest of navigation. Although Section 13 of the Act of 1899 also allows this, the Corps apparently favors citing the Act of 1905 as authority for dumping permits.

Section 17 of the River and Harbor Act of 1899 provides that the Department of Justice shall conduct the legal proceedings necessary to enforce the provisions of Sections 9-16. The District Engineer has power and authority to swear out process and to arrest and take into custody, with or without process, any person or persons who may commit any of the acts or offenses prohibited by Sections 9-16.

The Corps of Engineers previously had authority over discharge of oil from vessels under the Oil Pollution Act of 1924. This authority was transferred to FWQA by the Clean Water Restoration Act of 1965, and the Water Quality Improvement Act of 1970. In the amendment, "discharge" was defined as "any grossly negligent, or willful spilling . . ." However, stricter authority is retained by the Secretary of the Army under Section 13 of the Act of 1899 which does not require any showing of fault. The New York District of the Corps has published a circular (Appendix 2) that sets forth the policy, authority, and responsibility of the Supervisor of New York Harbor in the enforcement of certain Federal statutes concerned with ocean disposal in the New York Bight.

Clearly, the authority of the Corps to control ocean dumping is limited and, in fact, in a strictly legal sense has assumed a broader role than is provided for in any specific authority. That this has been in the national interest, however, is undeniable.

The following must be construed only as interim guidelines to be used until such time as Federal policy has been clarified:

1. Permits will be granted for limited periods (not to exceed 12 months and, where possible, reduced to 3 months) and will be reviewed prior to renewal.
2. Each applicant will be required to explain why ocean disposal is required, what alternatives have been considered, and to furnish estimates of the quantities and analyses of the composition of each class of waste scheduled for disposal. A system of load sampling should be established.
3. Ocean disposal of any materials will be approved only after full consideration of the views of the Departments of Health, Education, and Welfare; Interior; and State if beyond the territorial sea.
4. Proposed permits for ocean disposal of wastes should be evaluated on a case-by-case basis. Materials should be disposed of in a manner to minimize damage to the ocean environment and to areas used for recreation and other important marine activities.
5. A system for review of existing and selection of new disposal sites should be developed by all interested parties including local and State interests, and the Departments of the Interior, of HEW, of Transportation, of the Army, and of State if beyond the territorial sea.
6. For liquid wastes, standards should be set for vessel speed and dumping rate so as to achieve maximum hydrolysis or dispersal.

PART I. POLLUTION IN THE NEW YORK BIGHT

A. Introduction

The New York Bight is a slight indentation of the Atlantic coast, extending northeasterly from Cape May Inlet, New Jersey, for some 200 miles to the eastern end of Long Island, New York, at Montauk Point. Its coastline is generally a moderately sloping sand beach shore, broken by indentations of the sea into the land. Among these are a number of small inlets along the New Jersey coast, Lower Bay of New York Harbor, East Rockaway Inlet, Jones Inlet, Fire Island Inlet, Moriches Inlet, and Shinnecock Inlet.

Depths in the Bight generally exceed 100 feet about 50 miles off shore but are substantially less than that in most inshore areas. The bottom is mostly sandy and is subject to shifts due to tidal actions or storm surges. Consequently, channels have been dredged and maintained by the U.S. Engineers to accommodate the large volume of sea commerce into the industrial and commercial complex of Greater New York. Sandy Hook Channel leads into Sandy Hook Bay and Raritan Channel branches off into Raritan Bay. Ambrose Channel is the principal entrance into New York Harbor leading to Upper Bay and New York City. The inlets to the east (East Rockaway, Jones, and Fire Island) are also subject to shifting sands from time to time.

The New York Bight is a contrast in extremes. It contains the only remaining strip of virgin barrier beach between Cape Cod and Cape Hatteras (Island Beach State Park, New Jersey) and supports the most heavily populated and industrialized complex in the country--between Sandy Hook, New Jersey, and Jamaica Bay, New York (Fig. 1). The Bight supports some of the most heavily utilized and valuable recreation areas in the country. For example, New Jersey's four-county coastal waterway supports a two-billion-dollar recreation industry annually and New York's Coney Island beach recorded 22 million visitors in 1968. The Bight area also supports excellent sport and commercial fishing resources. Some of the finest oyster grounds are found in this area; approved shellfish harvesting operations for inshore and offshore clams continue within sight of the New York skyline. Both New York and New Jersey contemplate removal of inadequately treated sewage effluent from condemned inshore shellfish waters that will assure even greater shellfish production in this area.

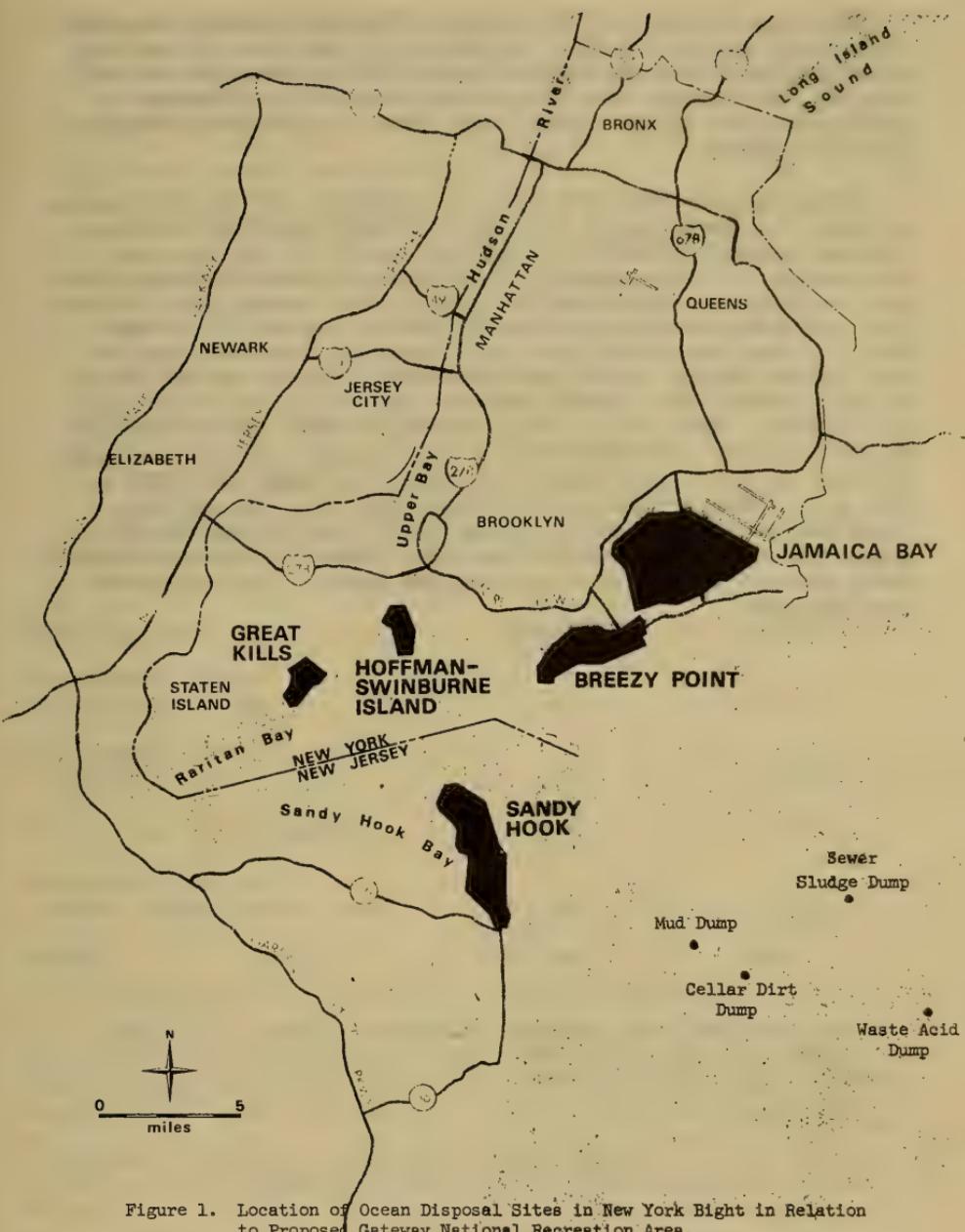


Figure 1. Location of Ocean Disposal Sites in New York Bight in Relation to Proposed Gateway National Recreation Area.

The Corps of Engineers has designated a total of eight disposal areas in the New York Bight. In addition to the five off New York Harbor, there is one off Monmouth County, New Jersey, and two off Cape May, New Jersey. The latter three are used for disposal of relatively inert dredge material and do not constitute any serious pollution threat.

Controversies associated with ocean disposal off New York Harbor are not new. Down through the years different segments of the public have opposed or criticized various aspects of this practice. For example, in 1931, disposal of garbage and other offensive floatable refuse at sea was halted following a U.S. Supreme Court injunction obtained by the State of New Jersey against the City of New York. In the late 1940's sport and commercial fishermen from New York and New Jersey fought long and bitterly against establishment of acid grounds where ferrous sulphite and other associated wastes are disposed. This led to rather detailed studies by the Fish and Wildlife Service and the Woods Hole Oceanographic Institution which provided the first substantial knowledge of currents and biota in this area. This and subsequent studies have also revealed that ocean disposal is not the only cause of pollution in the New York Bight, nor necessarily the most serious. Indeed, assessment of the ocean disposal problem must consider the impact of all pollution into the area.

B. Major Sources of Pollution

There are six major sources of pollution in the New York Bight:

1. Sewer outfalls
2. Ocean disposal operations
3. River discharge and land runoff
4. Accidental spills on land and at sea
5. Vessel discharge of trash, bilge wastes, and sewage
6. Mechanical pollution (Harbor debris)

Descriptions of these follow:

1. Sewer outfalls

There are a total of 130 municipal waste outfalls emptying into the New York Bight summarized as follows:

<u>Receiving Water</u>	<u>Number of Discharges</u>	<u>Total Flow (MGD)</u>
<u>1/</u> New York-New Jersey Metropolitan Area	57	1682.0
<u>2/</u> Intracoastal Waters of Nassau County	8	76.0
Atlantic Ocean (New Jersey)	31	39.0
<u>3/</u> Intracoastal Waters of New Jersey Coastal Area	34	46.0
TOTALS	130	1843.0

1/ Includes the municipal wastewater discharges from New York and New Jersey to the Hudson River from the New Jersey-New York State line, the Upper and Lower Bays of New York Harbor, the Raritan Bay, the Arthur Kill, the Kill Van Kull, the East River and Jamaica Bay

2/ Includes the municipal wastewater discharges from Nassau County, New York, to the intracoastal waters along the southern Long Island shore.

3/ Includes the municipal wastewater discharges from Monmouth, Ocean, Atlantic, and Cape May Counties to the intracoastal waters along the New Jersey eastern shore.

This discharge of nearly 2 billion gallons per day varies in quality from effluents with no treatment to those which receive something more than primary treatment. Although many communities have secondary treatment plants, these are often overloaded so that treatment can only be classed as "more than primary." In the New York Harbor area, 16 percent of the flow receives no treatment, 27 percent receives primary treatment, and the remaining 57 percent receives greater than primary treatment.

2. Ocean disposal areas (New York Harbor area only)

There are five dumping grounds in this portion of the New York Bight which are a potential source of pollution. Since their establishment, they have been used in varying degrees by the Federal Government, local political subdivisions, and private industry. A description of these dumping areas (see also Fig. 1) follows:

a. Mud Dumping Ground

Located not less than 4 nautical miles bearing 198° True from Ambrose Light in not less than 60 feet of water. Material dredged from vessel berths, anchorage grounds and channels, clean earth and steam ashes are dumped in this area. Most of this material is transported by the Corps of Engineers in specially designed giant hopper barges.

b. Cellar Dirt Dumping Ground

Located not less than 4.7 nautical miles bearing 170° True from Ambrose Light in not less than 90 feet of water. Material excavated from cellars, foundations consisting of broken concrete, blasted rock, and rubble are dumped in this area.

c. Sewer Sludge Dumping Ground

Located not less than 4.5 nautical miles 124° 30' True from Ambrose Light in not less than 72 feet of water. Sewage wastes in raw or treated state are disposed of on this ground by the City of New York; the cities of Glen Cove and Long Beach; the counties of Nassau and Westchester, New York; the Passaic Valley Sewerage Commission, the Linden-Roselle Sewerage Authority, the Joint Meeting Sewage Disposal Commission, and the Sewerage Authorities of Bergen and Middlesex Counties.

d. Wreck Dumping Ground

Located 14.3 nautical miles 168° 30' True from Ambrose Light in not less than 200 feet of water.

e. Waste Acid Dumping Ground

Located about 9.3 nautical miles 145° True from Ambrose Light. Contributors to this dumping ground include the National Lead Company, Sayreville, New Jersey; the General Chemical Company, Elizabeth, New Jersey; and several smaller industries in the vicinity of South Amboy, New Jersey.

In addition, there is the so-called "Waste Chemical Dumping Ground," located about 106 nautical miles southeast of Ambrose Light on the edge of the Continental Shelf. It is used for dumping toxic materials, mostly wastes from chemical plants. Due to the cost of transporting materials to this area, however, it has not been used extensively.

The location of these various grounds was determined in several ways. The Mud and Cellar Dumping Grounds were established many years ago in locations where they would not be detrimental to navigation. The Sewer Sludge Dumping Ground was established in 1924 following a stipulation reached by the U.S. Supreme Court in an action brought by the City of New York to prevent discharge of sewage wastes into New York Harbor by the Passaic Valley Sewerage Commission. Its location was selected, after discussion with New Jersey and New York State Conservation and Health Departments, to preclude interference with navigation and to avoid offensive discoloration or washing up of solids on the beaches.

During fiscal year 1968 disposal of materials in the dumping grounds amounted to 17,110,144 cubic yards as follows:

<u>Ground</u>	<u>Cubic Yards</u>
Mud Dumping	8,784,200
Cellar Dirt	318,875
Sewer Sludge	4,833,730*
Waste Acid	3,117,623*
Wreck	3,000
Chemical (Toxic)	<u>52,716*</u>
Total:	17,110,144

The character of this waste is quite variable consisting of inert materials (rocks, rubble, tires, shipwrecks, etc.), materials that are toxic (petro-chemical compounds), and materials that exert

*For purposes of general comparison it is estimated that each cubic yard of these materials contain 5 to 8 percent solids.

a high biological demand on the environment (dredge material and sewer sludge). Of the nearly 5 million cubic yards of sewer sludge deposited in fiscal year 1968, about 53 percent or 2 1/2 million cubic yards was undigested sludge.

3. River discharge and land runoff:

The industrial complex surrounding the New York Bight is one of the largest and most diversified in the world. All conceivable industrial wastes and chemicals still drain into the lower rivers and harbor complex; and while substantial improvement has occurred, pollution from this source still has a significant effect on the water quality in the New York Bight.

Three major rivers discharge into the New York Bight--the Hudson, Passaic, and Raritan--all of which carry substantial domestic and industrial pollution. An indication of the pollution load may be obtained from a breakdown of relative treatment on discharges into Hudson River between New York Harbor and Troy:

	<u>Based on Flows</u>	<u>Based on Number of Outfalls</u>	
	<u>Municipal</u>	<u>Industrial</u>	<u>Municipal</u>
No treatment	12%	80%	28%
Primary only	84%	10%	65%
More than primary	4%	10%	7%

The extent to which land runoff is becoming a significant source of pollution can be judged by recently completed studies of the U.S. Geological Survey in central Long Island. These studies revealed that runoff from Nassau County tripled in 25 years--920 acre feet in 1937 to about 3400 acre feet in 1962. Rapid urban development with its increase in paved roads, parking lots, driveways, and buildings is responsible. The accompanying increase in contaminants, such as petro-chemicals, is probably at least of the same order of magnitude. Also, the increase in storm drain volumes further complicates the problem of sewage treatment.

4. Accidental spills on land and sea:

Accidental spills are a constant threat in highly industrialized port complexes such as New York. Many oil spills from vessels go unrecorded. They occur during transfer operations, from the pumping of bilges, or from damaged tankers and barges;

such spills can cover large areas with oil, making the waters and shore unsuitable for recreation and often affecting some of the natural biota. New York and New Jersey are currently participating with Federal agencies in the Regional Contingency Plan for Oil and Other Hazardous Materials to combat the effects of these "oil spills." Spills of toxic or hazardous chemicals being transported by vessels may occasionally create extremely serious pollution problems. Similarly, spills from storage areas on land can also create serious problems.

While accidental spills from any given vessel or industry may be infrequent, the sum total of toxic materials entering the water from such incidents represents a significant source of pollution in the New York Bight. Better housekeeping practices, routine inspections, and the threat of legal action have substantially reduced pollution from this source but it is still a serious problem.

5. Vessel discharges:

Vessel pollution is, or potentially can be, a serious hazard in any harbor and coastal waterway. It may consist of sanitary waste discharges, litter, shipping accidents, and oil products, including outboard motor exhaust.

Sanitary wastes can represent the greatest health hazard from vessels particularly from the standpoint of pathogenic bacteria. Luxury liners in the New York Harbor complex are small floating cities discharging raw sewage into the water. Although enforcement of New York State regulations prohibiting the discharge of sanitary wastes into its waters will begin in the spring of 1970, no marked improvement is likely until adequate ship or shore facilities are fully operational.

Litter dumped overboard from commercial and recreational vessels also pollutes. Much of this material includes plastic food wrappings and glass, metal, and waxed liquid containers. These items have a long life and often float up on the beaches causing deterioration of the aesthetic quality of the environment.

Unconsumed fuel from outboard motors discharged directly into the water can represent a substantial contribution to water pollution. In Puget Sound, for example, the estimated oil ^{4/} pollution from this source in 1968 exceeded, by at least several thousand barrels, the sum total of reported oil spills--14,000 barrels. In estuarine areas and lakes with restricted circulation, concentration of hydrocarbon residues from outboard motors may reach levels detrimental to the natural biota.

^{4/} Robert C. Clark, Bureau of Commercial Fisheries Biological Laboratory, Seattle, Washington

6. Mechanical pollution (Harbor debris)

Pollution from physical or mechanical sources can cause serious aesthetic deterioration of the environment and create hazardous conditions in a variety of ways. In the New York Harbor area, perhaps the most critical types of mechanical pollution are floating debris, wrecks, and other stationary objects or structures. The problem is so pronounced and serious that the Corps of Engineers has proposed a Federal-State solution to remove 1,972 sunken wrecks and 331 run-down shore structures and to prevent a recurrence of this condition. This report, known as the "New York Harbor Drift Study," is being considered in the office of the Secretary of the Army as part of their development of legislation to cover the problem on a nationwide scope. While floating debris may not have a directly harmful effect on fish and wildlife, it destroys beaches and waterfront areas and makes recreational boating and water sports dangerous, even in otherwise non-polluted waters. It is unsightly, attracts rats and other pests, is a fire hazard, and the carrier or containment vehicle for other pollutants.

C. Federal Activities Related to Pollution Control and Abatement in the New York Bight

Federal agency interests and responsibilities broadly relating to ocean pollution and disposal problems are given in Part II, beginning on page 50. Specific activities and interests concerned with the New York Bight are summarized below:

1. Corps of Engineers:

The Corps has statutory authority to regulate ocean disposal of wastes in specific areas, such as New York Harbor (pages 19 and 50 and Appendix 2) in cooperation with State agencies and interstate authorities. Dumping permits are issued for 3-month periods. Logs and fathometer charts are required of tugboat operators as a check on their operations and the areas are patrolled infrequently by vessels and aircraft. The operation involves

a. Application, by potential users, for permission to dump in the area designated for the particular type of waste;

b. Issuance or rejection of permit by the Corps after review of application;

c. Monitoring of disposal operations by the Corps, as the applicant transports waste materials from inland to dumping ground. Compliance with the above disposal procedures is largely a matter of cooperation; fines are occasionally levied for infraction of rules and the permit could be revoked.

2. Coast Guard:

As noted on page 53, the Coast Guard enforces Federal maritime laws, including those related to pollution control. As an emergency measure, the Coast Guard has towed disposal barges during a barge operators' strike.

3. Health, Education, and Welfare:

Interests of the Bureau of Solid Waste Management and the Food and Drug Administration in the New York Bight are noted in Part II, pages 54, 55, and 56.

4. Interior:

The Department, through its various bureaus, has specific interests in the New York Bight. Section 5 of Public Law 89-603 requires all Federal departments, agencies, and instrumentalities

to consult with the Secretary of the Interior concerning plans, programs, projects, and grants under their jurisdiction within or affecting the Hudson Riverway. The section also requires the above Federal entities to notify the Secretary of license applications pending before them which might affect the Riverway's resources, and to give the Secretary 90 days to comment on such applications before final action is taken on them. By delegation of the Secretary, the Bureau of Outdoor Recreation is charged with coordinating these review responsibilities. The Bureau develops its comments with the help of information and advice presented by the Federal Water Quality Administration (FWQA), the Bureau of Sport Fisheries and Wildlife (BSFW), and other affected agencies.

The National Park Service and the Bureau of Outdoor Recreation have a joint interest relating to development of the proposed Gateway National Recreation Area (see page 38).

The Federal Water Quality Administration has a major interest and responsibility for elimination of pollution in the New York Bight. The regional office and laboratory located at Edison, New Jersey, are the center for its activities in the Hudson and Delaware River Basins. Many problems of the New York Bight have been routinely studied by personnel from this laboratory. The results of these surveys are not published but are available at the Edison office.

During the past few years, three areas in the New York Bight have been the subject of Enforcement Conferences. They are

- a. Raritan Bay
- b. Hudson River
- c. Moriches Bay and the Eastern Section of Great South Bay
(Long Island)

Reports concerning the water quality of these Enforcement areas have been published.

FWQA's national water quality monitoring network includes numerous locations in the New York Bight area. Five of these are automatic monitoring devices, while 25 locations are manually sampled routinely. This system distinguishes water quality trends as well as shock loads.

The Fish and Wildlife Service has a continuing interest in all fish and wildlife in the area. As with most other Federal agencies, investigations underway in various parts of the country on water quality and marine organisms often can be related to pollution in the New York Bight:

The Bureau of Sport Fisheries and Wildlife is conducting a two-year investigation of sludge dumping financed by the Corps of Engineers Coastal Engineering Research Center. This study covers the hydrology of the Bight and effects of disposal of sludge and dredge spoil on the ecology of the New York Bight.

The Bureau of Commercial Fisheries has no action program in the New York Bight. However, upon request, the Bureau, in cooperation with the Bureau of Sport Fisheries and Wildlife, conducts evaluations for the Corps of Engineers of applications for dumping in the New York Bight under the Interior-Army agreement.

D. Non-Federal Activities Related to Pollution Control and Abatement in the New York Bight

There are many State, local, and interstate groups concerned with various aspects of pollution abatement and control in the New York Bight. Some of these work actively with counterpart Federal agencies. Viewpoints, recommendations, and policies may conflict with those of another local agency, or with those of the Federal Government.

The States of New York and New Jersey and most of the local governments are proceeding on active programs of pollution control and the implementation of previously set water quality standards; the Enforcement Conferences called by FWQA have added incentive to provide secondary treatment.

The two largest dischargers in the area are the City of New York and the Passaic Valley Sanitation Commission in New Jersey. The City of New York is under State order to provide complete secondary treatment by the end of 1972. It is engaged in a very extensive program of water pollution abatement. This has been divided into some 21 major projects, covering such items as new treatment plants; upgrading of existing plants; installation of pump stations, force mains, and interceptors to bring raw sewage to various plants for treatment before discharge. Completion dates are staggered from now through 1975. In addition, the City of New York has been looking into the matter of alternate methods of sludge disposal.

The Nassau County Department of Public Works has a master plan for sewerage the entire county. Emphasis currently is being placed on the plans for Sewer District #3 and final details relative to plans and specifications are being worked out. Because of reported conditions in the New York Bight, the county has been evaluating alternate methods of sludge disposal.

To handle the waste disposal problems in Westchester County, a program calling for additional treatment and upgrading of existing plants has been developed. In connection with this program, the county has been looking into alternate methods of sludge disposal to dumping at the present site.

The voters of New York State approved a billion dollar bond issue to assist communities in the construction of sewage treatment plants. This will provide a State contribution of 30% of

the cost of each plant. An additional \$750 million was appropriated by the 1970 State Legislature which will permit the State to continue to prefinance authorized Federal grants up to another 30% of the cost.

New York State also has a program for reimbursement of communities for one-third of the cost of operating and maintaining sewage treatment plants.

New York as well as New Jersey have water quality monitoring networks. New York has the more advanced, but New Jersey is in the process of greatly expanding its efforts.

The Interstate Sanitation Commission, formed by Compact between the States of New York, New Jersey, and Connecticut in 1936, has the mission of pollution control in the tidal waters of the New York Metropolitan Area. It regularly samples municipal and industrial plants discharging into its waters. Analyses are conducted not only for the traditional parameters such as BOD, solids, and coliform bacteria, but for other pollutants such as heavy metals. The Commission cooperates with States and Federal agencies. For example, the Commission supplies analytical services to the Corps of Engineers for samples sent to it by the Corps.

At the present time, the Commission is conducting a training program for treatment plant operators (using the Commission's mobile laboratory) to upgrade treatment plant operations.

Since its inception, the Commission has issued 62 orders for upgrading of treatment plants and has gone to court 12 times when the Commission orders were not accepted. All of the court cases were favorable to the Commission.

New Jersey citizens recently passed a \$271 million Conservation Bond issue that provides \$242 million to assist communities in constructing waste treatment facilities. Other funds have also been increased for enforcement and monitoring. On February 15, 1970, Governor William T. Cahill released a strong statement opposing present ocean disposal practices in the New York Bight and elsewhere off the New Jersey coast. The statement also called for ultimate cessation of ocean disposal of sewage sludge and toxic industrial materials.

The Passaic Valley Sanitation Commission is under State order to provide secondary treatment. Their State-imposed schedule was

Preliminary Plans	April 1968
Final Plans	March 1969
Start Construction	June 1969
Completion Construction	October 1970

The Commission did not accept the jurisdiction of the State to act and challenged the schedule in court. State authority was upheld but it does not appear that construction will be completed until 1976.

E. A Partial Assessment of Problems Associated with Pollution in the Inner Bight (Base of Sandy Hook to Jamaica Bay)

New York Harbor and its contiguous areas (Lower Bay, Arthur Kill, Raritan Bay, etc.) must rank as one of the largest grossly polluted areas in the United States. The variety of pollutants entering daily into this area is not fully documented and can only be broadly categorized as to types of sources. Thus, the relative effects of the major sources of pollution is difficult to assess, even grossly, not only because of inadequacy of data on type and quantity of pollutants, but lack of knowledge about synergistic effects and on general environmental impact.

Table 1 presents a calculation of relative BOD loads for (1) municipal sewage discharged into New York Harbor, (2) sewage sludge dumped into the dumping ground, and (3) municipal sewage discharged by the upriver areas. The data indicate that the municipal sewage discharged into the Harbor contributes about 11 times more BOD to the Bight than the upriver discharges and twice as much as the sludge dumping. They further suggest that sewage sludge dumping contributes about five and one-half times more BOD than the upriver discharges. However, these calculations may not reflect the relative impact of these sources of pollution on the environment, but can only provide an approach to assessing orders of magnitude. Sewage discharges are quite dispersed and are spread out across the entire area while the sewage sludge dumping is concentrated in only one place. The possible effects from toxic waste and relative effects of diffusion and concentration of materials cannot be evaluated and worked into these relationships. Also, no attempt was made to calculate the BOD contributions from dredge spoil. This is an extremely variable value but probably quite high for dredge spoil in New York Harbor.

Table 1. -- BOD Contributions to the New York Bight

1. Municipal Discharge to Harbor	206,000 Tons/Year
2. Sewage Sludge to Dumping Ground	106,000 Tons/Year
3. Upriver Discharges	19,000 Tons/Year

Nos. 1 and 3 from Proceedings of the Third Session of the Enforcement Conference on the Hudson River and its tributaries, June 18-19, 1969.

No. 2 based on 5,000,000 cubic yards per year at 25,000 mg/l. BOD's.

On the basis of such a preliminary assessment, the relative impact from the major sources of pollution in New York Bight would appear to be as follows: (1) sewage and industrial wastes from outfalls, (2) ocean disposal of sludge materials, (3) river discharges and land runoff, (4) accidental spills, (5) vessel wastes, and (6) Harbor debris.

This is necessarily a value judgment. There are many factors which have not yet been investigated sufficiently to justify firm conclusions. Then, too, the relative importance of health, aesthetics, or recreation considerations varies with the individual rater.

A major problem caused by pollution from ocean disposal of sludge is the threat to marine life. Ongoing studies in the Bight and elsewhere indicate the undesirable consequences from disposal of excessive amounts of sewage sludge and polluted dredge spoil on marine life; the ultimate effects of this damage have yet to be fully documented. In the Bight sludge disposal areas, the sewage sludge has spread out in a northerly direction from the designated sewage dumping grounds over an area of 14 square miles. Throughout this area, bottom fauna have become severely reduced or have been eliminated.

The center of the designated dumping ground for dredge spoil (Mud Dumping Ground) is about four miles from that of the sewage sludge. The dredge spoil, much heavier than the sewage sludge, evidently does not move far from the dumping site so that the dispersal area is only about seven square miles. To date, it appears that the impoverishing effect of the dredge spoil is at least as serious as the sewage sludge, reflecting heavy contamination of the harbor sediments with petro-chemicals and other toxic compounds.

A large area east of the sewage grounds is covered with organic matter whose origin has not yet been determined. Judging from hydrographic studies, it may have originated from the sewage sludge.

Contamination of surf clam and sea quahog grounds in the vicinity of these disposal sites may render them unfit for human consumption. This problem has yet to be evaluated fully, though several preliminary measurements indicate coliform contamination in the range of 60,000 MPN in clams being harvested for sale. These clams were collected at several stations between the sludge disposal grounds and the Long Island shore. Another potential health hazard is the accumulation of heavy metals by fish and shellfish. Finally, there is the suggestion of fin rot and other diseases or undesirable conditions associated with fish that frequent polluted areas.

Despite the significant increase in funds and programs to reduce pollution in the New York Bight, no significant improvement in water quality can be expected until the mid-70's. Complete secondary treatment for New York City and the Passaic Valley Sanitation Commission is not likely to be fully operable until 1976. Additional pollution treatment facilities in other communities tributary to the Bight also will not be ready until the mid-70's. Further, even with completion of currently proposed pollution abatement programs, conditions in the inner Bight are not likely to be satisfactory from a water quality standard viewpoint and are not likely to satisfy the general public. Clearly, the problem needs substantially more study.

Proposed Gateway National Recreation Area: An objective of the Ad Hoc Committee was to evaluate any potential threat to the proposed Gateway National Recreation Area and other beaches in the inner Bight from the sludge disposal sites. The proposed Gateway National Recreation Area is a first step in a major new national conservation effort to bring parks to the people.

Gateway would consist of five units totaling nearly 20,000 acres of land and water. These include Sandy Hook in New Jersey and Jamaica Bay, Great Kills, Hoffman-Swinburne Islands, and Breezy Point in New York. When completely developed, Gateway would be capable of serving nearly 50 million visitors annually. Only by visiting these waterfront expanses can one catch their true appeal and appreciate their great recreation potential. The chief characteristics of the five units are

Breezy Point - a sea-washed peninsula with $4\frac{1}{2}$ miles of ocean beach. Its 1,350 land acres are presently shared by two city parks, Fort Tilden and a privately owned residential community. When completed, this site would provide swimming, fishing, picnicking, and play space as well as cultural and educational complexes for up to 280,000 people a day.

Sandy Hook - an historic peninsula with six miles of ocean beach. Almost all of its 1,700 land acres is Department of Defense property, 745 of which are leased to New Jersey for Sandy Hook State Park. A NIKE site and Fort Hancock comprise most of the Hook north of the park. Excellent surf fishing and rolling waters for surfing and swimming characterize the area. The unit ultimately could accommodate 180,000 visitors a day in facilities similar to, but less intensive than, those proposed for Breezy Point.

Jamaica Bay - the last large undeveloped natural area in New York City. While not appropriate for mass recreation, the bay is, despite pollution, an ecological treasure. Its value for biological research, environmental education study, and just enjoying wildlife can scarcely be overestimated. The Rand Corporation has undertaken a three-year study on the effects of pollution on the bay environment and the National Academy of Sciences is beginning a study on the effects of expansion of Kennedy Airport on the bay environment.

Great Kills - located on Staten Island, this underdeveloped city park contains 4 miles of beach and a boat basin. This unit, when developed, would be able to serve 54,000 swimmers, campers, picnickers, fishermen, and other pleasure seekers.

Hoffman-Swinburne - two small islands off Staten Island at the entrance to Upper New York Harbor. These will be converted by sanitary landfill to a single island that would be an inviting stopover for Gateway ferries. Equipped with cafes, snackbars, picnic grounds, and promenades, this unit would provide an exceptional vantage point of viewing the lights and seagoing ships of one of the world's busiest harbors.

The National Park Service-Bureau of Outdoor Recreation feasibility study ^{5/} on establishing the Gateway National Recreation Area took into consideration pollution threats in the New York Bight. A summary of the conclusions in the report follows:

1. To date no connection between ocean disposal of sewage sludge and water pollution at the sites of the proposed Gateway National Recreation Area or at any other beaches surrounding the New York Bight has been demonstrated. However, much more study would be required before any firm conclusion would be warranted.
2. Other sources of pollution have, without question, affected the quality of some of the beaches in the area of the proposed Gateway National Recreation Area. Some beaches in New York and New Jersey, not part of the proposed Gateway Area, are closed to swimming and others are considered marginal.

^{5/} Gateway National Recreation Area--A proposal. U.S. Department of the Interior, 1968

3. Unless these other sources of pollution are eliminated, many of the proposed Recreation Area beaches and other surrounding beaches will be closed to swimmers. Breezy Point has the only unpolluted ocean beaches, while Sandy Hook's seafront is marginally polluted, as is the beach at Great Kills. Jamaica Bay, Rockaway Inlet, and Raritan Bay are heavily polluted with waste discharge, and New York Harbor is largely a cesspool of industrial and human waste.

Preliminary studies by the Bureau of Sport Fisheries and Wildlife, under contract to the Corps of Engineers, ^{6/} suggest a potential threat to beaches along the southern tip of Long Island from dredge and sludge disposal sites. However, routine sampling by local public health officials does not yet indicate a serious condition and the Jamaica beaches have never been closed because of pollution. Pollutants that have been detected may have originated from recreational craft, sewer outfalls, and river discharges, though pollution from these sources might mask the presence of pollutants originating in the offshore disposal grounds.

^{6/} Sandy Hook Marine Laboratory, 1970. The effects of waste disposal in the New York Bight--Interim Report, U.S. Bureau of Sport Fisheries and Wildlife, Sandy Hook, Highlands, New Jersey.

F. Alternatives to Present Disposal Practices

The obvious problem in the New York Bight (especially the inner Bight) is that (1) improperly treated sewage is being dumped in excessive quantities and (2) wastes entering the area contain excessive amounts of toxic biologically active compounds. Society now finds this situation intolerable and demands relief. The goal is obvious: prevention of further contamination while working toward elimination of existing pollution. Finding acceptable solutions to achieve this goal is, in the final analysis, perhaps the real problem. It is not unique to the New York Metropolitan Area.

An optimal combination of pollution control methods is a very complex affair. Industries which release toxic wastes, such as, plating factories and photographic processing laboratories, should process their waste waters before discharging them into domestic sewage systems. No untreated industrial wastes of any type should be discharged directly into the aquatic environment. Domestic wastes need at least secondary treatment. As a minimum, storm sewers which carry petrochemical and other toxic materials should be completely separated from systems handling domestic wastes. Without such separate systems it will be difficult, if not impossible, to recycle wastes in an ecologically acceptable manner.

Dredged spoil from polluted harbors and channels is becoming an increasingly difficult disposal problem. Generally, it is not adequate for use as fill or construction; and because of its contamination by metals, petrochemicals, insecticides, and other debilitating substances, it has an adverse effect on marine life and should not be dumped into the sea. In the meantime, however, disposal alternatives that do not damage the marine environment need to be worked out. In the Great Lakes, for instance, the President has proposed a program of disposing of polluted harbor dredgings in diked areas. He has also requested the Corps of Engineers to devise other alternatives for use in other areas of the country.

Behind these essentially technological problems lie an assortment of social, political, legal, and economic constraints. It is these institutional factors that will ultimately control the degree of success, if any, of a given pollution abatement or control activity. The fact of the matter is that technology is available for cleaning up pollution in the New York Bight. The deterrents are institutional. Few communities or regions have ever explored the solution to the problem of waste management

and control in terms of removing institutional constraints and adopting economic incentives. Indeed, there is increasing support for the view that pollution is essentially an economic problem. ^{7/}

Table 2 presents a preliminary analysis of possible alternatives, none of which offers an immediate solution. Known alternatives to present ocean disposal practices in the New York Bight will be more expensive than present operations. Research and development are needed to detail more clearly the relative advantages, operational requirements, and potential environmental problems for each alternative. Research is also needed on development of economic incentives, determination of the total pollution costs, and on other institutional constraints that impede effective pollution abatement and control programs.

Alternative methods of sludge disposal, and probable ranges of costs, are based on current practices and ongoing research. Alternatives not listed in the table include shipborne incineration, which would combine both the costs and potential problems of transportation and of burning. The fusion torch, a theoretically attractive method of applying nuclear reactions to environmental problems, is another possibility. Still another approach would be the establishment of some type of assessment or tax that would force the polluter or consumer to pay a greater share of the cost of polluting.

^{7/} The Economic Common Sense to Pollution. Larry E. Ruff. "The Public Interest" Spring Issue No. 19, 1970. National Affairs, Inc., 404 Park Avenue South, New York

Table 2. Alternatives to dumping sewage sludge and dredge spoils at present site in New York Bight

<u>Estimated costs \$/ton</u>	<u>Environmental effects</u>	<u>R&D Time Tag</u>	<u>Quality control and surveillance needs</u>	<u>Potential problem areas</u>
Sewage Sludge				
Composting and recycling through the soil	Essentially None	None	L	Need to control industrial discharges so as to avoid toxic effects
Sludge farming	20-50	L	M	Political jurisdictions; nitrate pollution of ground-water; need to control industrial discharges so as to avoid toxic effects
Filling abandoned mines	20-60	M ?	L	Political jurisdictions; odors; water pollution
Incineration	25-50	L ?	H	Ash disposal; critical operating procedures to prevent environmental problems
Wet oxidation	50-80	M ?	H	Solid and liquid residue disposal; process reliability
Deep-sea disposal	30-50	H ?	M	Food-chain toxicants; research needed to determine location and extent of discharges. Terminal storage required for storm periods.

Table 2. Continued.

	<u>Estimated Cost \$/ton</u>	<u>Environment Effects</u>	<u>R&D Time Tax</u>	<u>Quality control and surveillance needs</u>	<u>Potential problem areas</u>
Shallow water dumping	20-30	H	M	H	Food-chain toxicants; research needed to determine location and extent of discharges. Present practices result in serious ecological impact. Terminal storage needed for storm periods.
Dredge spoil	15-30	L	L		Political jurisdictions; toxic industrial sludges may be mixed with harbor muds.
Dredge spoil farming	15-30	L	L		
Multiple purpose islands (deep water ports, recreation, power stations)	10-30	L	M	M	Much material might not be suitable
Landfill (either above or below grade)	?	L	M	M	Water pollution; structural properties; scarcity of available sites
Reduce dredging activities	?	L	M	L	Could follow (1) improved erosion control in drainage basin and (2) reduction and eventual elimination of industrial sludge discharges.

Note: Costs are per ton dry solids

Legend: L - Low
M - Moderate
H - High

PART II. OCEAN POLLUTION USA - The Broad Picture

A. Introduction

Ocean pollution^{8/} is the unfavorable alteration of the marine environment, wholly or largely as a by-product of man's actions, through direct or indirect effects of changes in energy patterns, radiation levels, chemical and physical constitution, and distribution, abundance, and quality of organisms. These changes may affect man directly or indirectly through his supplies of food and other products, his physical objects or possessions, and his opportunities for recreation and appreciation of nature.

The ultimate goal must be to allow into the oceans only that which can contribute to improving the ocean environment, such as recycling nutrients to deliberately increase productivity, or that which will not result in any unacceptable alteration of the environment. Too much nutrient-rich material can, as in the case of the New York Bight, be severely damaging. On the other hand, some materials can, with adequate treatment or precaution be disposed of at sea safely.

In the broader aspects of ocean pollution, two additional major sources of contamination, not discussed in Part I, loom as potentially significant contributors.

Radiation pollution, except near nuclear bomb sites, has not yet been of sufficient magnitude to warrant concern. However, because of expanding uses in industry and for power, the potential effects of radiation wastes need to be explored.

Contaminants from the atmosphere are another potentially serious source of ocean pollution. It has been estimated that over 200 million tons of smoke and fumes fall to the earth annually--much of it enters the ocean directly, or indirectly through runoff and river discharge. This material contains lead, cyanide, and other toxic biologically active materials. The extent to which atmospheric pollution may deleteriously affect the marine environment is not known, but the quantity of at least some atmospheric pollutants can be compared to that which may enter the sea

^{8/} Adapted from definition of pollution developed in Report of the Environmental Pollution Panel - "Restoring the Quality of our Environment" 1965.

from major drainage systems. For example, a recent study ^{9/} revealed that about 1300 pounds of pesticides (DDT metabolites and dieldrin) entered equatorial Atlantic waters from the atmosphere, as compared to the 4300 pounds that have been calculated to enter San Francisco Bay annually, or the estimated 225,000 pounds that annually empty into the Gulf of Mexico from the Mississippi River. Possibly a significantly greater proportion of pollutants from land drainage become bound in coastal bottom sediments than pollutants which enter marine environments directly from the atmosphere. Thus, contribution from at least some atmospheric contaminants in a given area may be comparable to their contribution from the land.

The amount of waste materials deliberately released into the ocean annually in the next decade is expected to be significantly greater than what was dumped in 1968 (see Appendix 3). Increasingly stringent regulations as they relate to air and water pollution make sea disposal more and more attractive to cities and industries. The scarcity of available land for disposal sites adds further incentive for looking to the sea as an easy and relatively inexpensive solution. That the ocean environment will be further affected no one can deny. The uncertainty is only in the magnitude and nature of the effects and their long-term consequences.

The assimilative capacity of the ocean is great but it is becoming apparent that the mechanisms of these assimilative processes are being threatened. Coastal environments have a limited capacity to receive wastes, a capacity that has already been exceeded in many areas. Gradually we are beginning to recognize the awesome and terrible consequences of biological amplification of DDT and other biologically active hydrocarbons, heavy metals, radioisotopes, and other industrial wastes. Many of these substances already occur in substantially greater concentrations in the upper layer of the ocean than in the total ocean. Thus, calculations of the capacity of the ocean to assimilate wastes need to consider the infinitely slow mixing process between the upper and deeper layers.

The fate of pathogenic organisms in marine waters has not been studied extensively, though their possible routes are identifiable and include water movement as well as concentration and retention in food organisms. For example, laboratory studies have shown that oysters can accumulate polio virus to at least 60 times ambient concentrations in water. Experimental evidence shows further that water is a very poor indicator of viral concentrations, that the coliform counts in water and oysters are inadequate indicators

^{9/} Riseborough, R. W., et al., SCIENCE V 159 3820, March 15, 1968, pp. 1233-35, "Pesticides Trans-Atlantic Movement in the Northeast Trade."

of viral concentrations, and that self-purification does occur but occurs rather slowly. The most striking and disturbing point is that oysters that fully meet coliform standards may contain isolatable quantities of virus which, under present procedures, would not be detected.

Another piece of information about human pathogens in marine organisms has apparently received very little attention. Specific antibodies to bacteria that cause human pseudo-tuberculosis, paratyphoid fever, bacillary dysentery, and a variety of chronic infections have been obtained from the blood of white perch in estuarine waters. This suggests the possibility that these fish may become actively infected with human pathogens by exposure to contaminated water and may transmit these pathogens over considerable distances. This work was limited to the detection of the antibody reaction and merely called attention to an extremely important possibility which should be fully explored. It is obviously important if fish were to be attracted to a waste disposal site and exposed to fresh sewage, sludge, or other sources of contamination.

To better predict future effects we should document how specific populations of marine organisms are now being affected by chronic levels of pollution. We have evidence of genetic changes and adaptations among some organisms from certain pesticides; there is increasingly strong association of deformities, cancer, and other diseases among marine organisms in polluted waters; we know that the presence of certain nutrients in excess can result in an increase in undesirable algae and, perhaps, some animals. Beyond this we can only speculate. Such speculation has already made headlines for some of the "doomsday" ecologists.

The need, then, is for research on the acute and chronic toxicological effects of pollutants on a broad spectrum of biological and ecological systems. Such studies must involve not only ecological and organ systems, but they must get down to the cellular level.

At present, no Federal or academic institution is capable of undertaking such a comprehensive program. The clinical approach in HEW, while satisfactory for directly related human toxicological problems, does not begin to fill serious gaps in marine toxicology. In this area we have yet to address ourselves to the total effects of industrial and domestic pollution on plants and animals throughout the complex array of food chains. For example, not only do we lack knowledge of the precise chemical constituents of

materials entering the New York Bight, but we cannot anticipate possible synergistic effects between pollutants or between pollutants and the array of dissolved ocean salts.

International aspects of ocean pollution have been mentioned elsewhere. One further point here, however, is the fact that with this country responsible for one-half to one-third of the world's pollution input into the sea, we must be concerned about our moral and legal responsibilities to the international community.

The broad institutional aspects of ocean pollution, indeed, all waste management problems, need to be given greater attention. The rapid rate at which we are depleting many valuable resources--land, water, wood, soil nutrients, minerals, and fuels--requires a reversal of present attitudes and concepts about waste disposal. Dumps do not occur in nature. They are a relatively new concept, substantially expanded in this Age of Technology, that condones indiscriminate disposal of materials that might be recycled, reused, or reclaimed in a variety of ways. For example, recycling of all paper would solve about 80 percent, by volume, of the country's trash disposal problem, place less strain on forest resources, and curtail need for critical electric power.^{10/} In fact, we do not have a waste disposal problem; we have a waste use problem. Yet our economic, social, and political institutions tend to favor a disposal philosophy as opposed to one that would encourage reuse and recycling.

With increased national and worldwide concerns for the total environment, along with increasing shortages of critical resources, there is bound to be a greater emphasis on developing the technology, eliminating institutional constraints, and creating more incentives for complete recycling or reuse of wastes. Present trends in marine disposal of sewage sludge and industrial sludges should ultimately reverse so that, for many wastes, ocean disposal could well be an interim operation that will begin to decline in the 1980's.

It was noted on page 41 that economic, social, legal, and political constraints may be the strongest deterrents to a cleaner New York Bight. The fact, of course, is that such institutional constraints stand as a barrier to effective environmental quality programs throughout the country. This fact is being recognized more and more. The ability to calculate the total costs of pollution and to assess these accurately and effectively at their source is perhaps one of our greatest institutional problems.

^{10/} Environment, 12(2):8.

With such a mechanism, the public attitude toward disposable containers and widespread use of private automobiles may undergo a drastic change. Inland communities may find it economically beneficial to accept a coastal city's wastes for landfill or underground disposal; more use may be made of domestic wastes as a substitute for inorganic fertilizers and of sewage effluent for drinking water after recycling. There is a critical need, however, for comprehensive research on such institutional changes, and other institutional barriers. Perhaps a pilot program in a selected region could be set up to explore how economic incentives and other institutional innovations could be properly applied in controlling ocean pollution.

In short, the most immediate problems associated with ocean pollution and ocean disposal appear to be (1) establishment of a national policy to permit setting of goals and planning effective programs, (2) clarification of Federal agency roles and determination of need for additional legislation in the light of Federal policy, (3) a better understanding of institutional deterrents and the evolving of economic, social, and political concepts more conducive to effective waste management, and (4) international programs, treaties, and other arrangements to effectively resolve the problem worldwide.

B. Federal Interests and Responsibilities

The initial effects of environmental deterioration are being felt along coastal areas particularly those adjacent to large urban centers. Efforts to halt and reverse this degradation are largely a Federal initiative. The question remains as to whether or not the Federal Government has sufficient authority and is taking effective leadership.

Regulation of ocean disposal practices in territorial waters is accomplished under the Refuse Act of 1899, the 1888 Supervisory Act, the 1905 River and Harbor Act, and the Federal Water Pollution Control Act, as amended. The first three Acts are administered by the Corps of Engineers, the last by the Federal Water Quality Administration.

The water quality standards mandated by the Water Quality Act of 1965 provide the principal criteria for controlling ocean disposal practices within territorial waters. Such water quality standards have been established by the States subject to review and approval by the Secretary of the Interior. Approved standards are both State and Federal standards, enforceable under the State water pollution control statutes and the Federal Water Pollution Control Act, as amended (Section 10). They provide limits on floating, suspended, and settled solids, bacterial quality, pH, toxicants, and other pollutants and these limits dictate the degree of treatment and nature of disposal necessary to protect water users and quality in the territorial waters.

Beyond the territorial sea, authority to enforce pollution laws applicable to U.S. nationals is assigned to the Coast Guard (see pages 52 and 53). The authority apparently applies only to vessels carrying oil. No Federal agency has authority to completely regulate or control waste disposal operations beyond the territorial sea. Indeed, as the Table in Appendix 4 shows, some of the Federal roles, as presently understood, are overlapping with no clear-cut idea as to lead agency responsibility. As noted elsewhere, the Corps of Engineers, on occasion, accepted responsibility for processing applications for disposal of wastes at sea. These applications are reviewed and commented upon by other interested Federal, State, and local agencies. However, there are no specific guidelines and water quality criteria beyond the territorial sea to serve as a basis for any substantive review. Occasionally, a review may lead to relocation of a proposed disposal site, or alternative procedures. Few applications are ever denied beyond the 3-mile limit even though public health or conservation groups may oppose them, simply because of lack of explicit regulations and guidelines.

Whether or not there are adequate means to control ocean pollution necessitates, first, a clarification and greater exercise of existing authorities. The recent enactment of the National Environmental Policy Act (P.L. 91-190) and the activities of the Council on Environmental Quality may provide this needed incentive to more fully test existing authorities. However, before these existing authorities can be fully tested, interim guidelines and water quality standards need to be reviewed, or established where needed.

Unfortunately, data on which to establish water quality criteria and standards are meager; further, it is questionable as to which agency, if any, has authority to develop them. There are also other institutional problems to be resolved.

A recent study conducted for the Bureau of Solid Waste Management ^{11/} revealed serious gaps in communication between Federal and State agencies concerned with pollution and ocean disposal. The report concluded,

"Although there are many Federal, State, and local agencies involved in one way or another with the disposal of wastes from barges and ships in any one city, rarely did more than one of these agencies have a comprehensive picture of the total activities of this city. This lack of effective data management appears to be due primarily to both a lack of communication between agencies involved and the concentration of interest in a given agency in only specific types of waste."

Additionally, in too many instances, the expertise in one agency is not made available to another because its availability is not known and occasionally too sophisticated or too expensive to be used by another agency.

There is also a corresponding breakdown in obtaining and processing of environmental data essential for assessing future waste disposal activities. Continuous effective monitoring and surveillance of disposal activities is non-existent. Few, if any, adequate follow-up studies have ever been made.

11/

Marine Disposal of Solid Wastes - An Interim Survey. Robert P. Brown and David D. Smith. A staff report of the Oceanographic Engineering Division, Dillingham Corporation, La Jolla, Calif.

Control of pollution by other nationals in contiguous waters is even more haphazard.

Article 24 of the Convention of the Territorial Sea and the Contiguous Zone of 1958 states, in part:

"1. In a zone of the high seas, contiguous to its territorial sea, the coastal state may exercise the control necessary to:

- a. Prevent infringement of its customs, fiscal, immigration, or sanitary regulations within its territory or territorial sea
- b. Punish infringement of the regulations committed within its territory or territorial sea."

"2. The contiguous zone may not extend beyond 12 miles from the base line from which the breadth of the territorial sea is measured."

Neither the United States nor - we believe - any other nation has adopted legislation implementing Article 24. In any case, such legislation would be limited to those violations of sanitary standards which would have an effect within the territorial sea or the territory of the coastal state.

Beyond the contiguous zone, except pursuant to the Supervisory Act of 1888, as amended, as it affects U.S. vessels, the only reasonably effective controls are in regard to oil pollution by the cosigners of the International Convention for the Prevention of Pollution of the Seas with Oil, 1954, amended April 1962, and further amended November 1969 (in London). Two other conventions relating to oil pollution on the high seas were adopted in 1969 and have been sent to the Senate for ratification. A number of international organizations are sponsoring conferences and research programs on ocean pollution (see page 60).

Thus, for the present, the problem of ocean disposal beyond the contiguous zone is left to individual countries to deal with as they wish provided always that they maintain a reasonable regard for the rights of other states. However, prevention of further deterioration of the ocean environment will require much more comprehensive and aggressive international cooperation and, possibly, establishment

of a new international organization. Kennan^{12/} suggests such an international effort centered in four functional areas: (1) collection, storage, retrieval, and dissemination of research information; (2) coordination of research; (3) establishment of international environmental standards; and (4) establishment and enforcement of rules for human activities on the high seas, stratosphere, outer space, and perhaps the polar regions.

A summary of specific Federal agency interests and responsibilities follow:

1. Corps of Engineers:

Through long-continued administrative practices stemming from the River and Harbor Act of 1899 (Refuse Act), the Corps has exercised certain rights to regulate dumping beyond the 3 miles in major metropolitan shipping areas. An example of how this agency operates is reviewed under Part I, page 19 and in Appendix 2. Through its Coastal Engineering Research Center, the Corps of Engineers conducts limited studies in coastal ecology to identify effects of waste disposal and other engineering activities on the ecology of surrounding areas. These studies are conducted under contract with universities or other Federal agencies, such as the present Bureau of Sport Fisheries and Wildlife study on the effects of sludge disposal in the New York Bight.

2. Coast Guard:

Responsibility for enforcement of Federal maritime laws has been given to the Coast Guard. Its authority comes from the Refuse and Pollution Acts of 1899, the Oil Pollution Convention of 1954, the Oil Pollution Act of 1961, as amended, along with the Tanker Act, the Hazardous Cargo Act, and the Water Quality Improvement Act of 1970, and the Merchant Marine Safety Program. All of these are directly related to measures to prevent inter alia the spillage of oil, discharge of sewage, and other dangerous or hazardous commodities. However, there is some doubt as to Coast Guard Authority beyond control of oil pollution.) Further, the Magnuson Act provides broad authority for the Coast Guard to undertake necessary measures to protect the security of a port. A major problem would seem to be adequate water quality criteria to guide the Coast Guard in its enforcement and surveillance activities. In addition, the Coast Guard

^{12/} To Prevent a World Wasteland: A Proposal. George F. Kennan, Foreign Affairs, 48(3):401-413, April 1970.

has a system for reporting violations, conducts some oceanographic work that leads to understanding of coastal currents, and includes methods of detecting pollutants and containment techniques. In view of the fact that the Coast Guard acquires and transmits to the appropriate users the bulk of the synoptic environmental data now being gathered in the coastal maritime regions of the United States and the high seas, the agency is in a very good position to contribute meaningfully to expanded programs in monitoring and surveillance.

3. Health, Education, and Welfare:

The Food and Drug Administration's Shellfish Sanitation Branch has interest in the ocean disposal of sewage and other sludges as this practice adversely affects surf clam resources in close proximity to the dumping areas. FDA has been consulting with FWQA regarding policies of ocean disposal of sewage sludges as they relate to this problem.

The Solid Waste Disposal Act of 1965, P.L. 89-272, directs the Secretary of the Department of Health, Education, and Welfare to inter alia conduct, encourage, cooperate with, and render assistance to public and private agencies, institutions, and individuals in the conduct of research, investigations, experiments, training, demonstrations, surveys, and studies relating to (1) the operation of solid waste disposal programs and (2) the development and application of new and improved methods of solid waste collection, storage, treatment, utilization, processing, or final disposal. These responsibilities were specifically assigned to the Bureau of Solid Waste Management, organized in 1965.

Under the Act, the term "solid waste" means garbage, refuse, and other discarded solid waste materials from industry, commerce, agriculture, and communities, but does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as, silt, dissolved or suspended solids in industrial waste water effluents, dissolved materials in irrigation return flows or other common water pollutants.

In practice, solid waste refers more to the method of handling or treating waste materials than the physical state of the wastes. Consequently, containerized liquids, semi-liquids, gases, or aerosols which are disposed of along with, and in the same manner as, conventionally defined refuse (garbage, rubbish, or trash) or solid industrial wastes are included within this Bureau's interests.

The Bureau's activities to date have produced several important reports with additional studies soon to be released:

a. "System Analysis for Shipborne Municipal Incineration." Research Grant (UI-557) to Harvard School of Public Health. March 1, 1965, to December 31, 1969. Final report in preparation.

b. "An Appraisal of the Oceanic Disposal of Industrial Sludge from U.S. Coastal Cities." Contract PH-86-68-203; May 28, 1968, to April 15, 1970. Final report in preparation.

"Marine Disposal of Solid Wastes--An Interim Summary," by R. P. Brown and D. D. Smith, October 1969.

c. "An Investigation of the Use of Scrap Tires for Artificial Reefs." Interagency agreement with Bureau of Sport Fisheries and Wildlife. October 1, 1968, to June 30, 1970.

d. "Data Management for Marine Disposal of Solid Wastes." Interagency agreement with the National Oceanographic Data Center. March 1, 1969, to June 30, 1970.

"Report to the Bureau of Solid Waste Management - Pilot Project - Continental Margin Data Collection." September 1969 (in press).

e. "Marine Disposal of Fine-grained Waste Solids." Research Grant (EC-388) to State University of New York, Stony Brook, New York. February 1, 1970, to January 13, 1972.

In addition to the above, limited feasibility, laboratory, and pilot-scale studies of preparation and behavior of baled municipal refuse are under consideration. These are planned as interagency efforts involving the U.S. Naval Ship Research and Development Center, the Smithsonian Institution, and the Bureau of Sport Fisheries and Wildlife.

The "Public Health Service Act" (P.L. 78-410, as amended) together with the "Interdepartmental Agreement Concerning Consultation Between Departments of Health, Education, and Welfare, and the Interior," September 2, 1968, gives the Public Health Service responsibility for determining the health significance of water pollution and of consulting with the FWQA on the public health aspects of water pollution. This responsibility lies primarily with the Food and Drug Administration when pollution affects marine foods.

The "Federal Food, Drug, and Cosmetic Act" (Sec. 402(a)4USC, as amended) gives the Food and Drug Administration regulatory action against any food which has been prepared, packed, or held under insanitary conditions whereby it may have become contaminated with filth or whereby it may have been rendered injurious to health. This authority is exercised over all sea foods originating, being processed, or held in international (beyond the 3-mile limit) or foreign waters.

4. Department of the Interior

As the Executive Department with primary responsibility for preservation, use, and development of natural resources, the Department of the Interior has a broad interest in ocean pollution problems. Many Interior agencies are involved.

The National Park Service has an environmental interest where ocean pollution could adversely affect use of proposed or existing parks. It is especially concerned with pollution problems in those large coastal metropolitan areas that have urban recreation potential such as the proposed Gateway National Recreation Area in New York Harbor.

The basic authority for the Bureau of Outdoor Recreation's responsibility and interest in ocean and coastal pollution is in P.L. 88-29 which gives the Bureau authority to prepare a National Outdoor Recreation Plan. The Plan is to ". . . identify critical outdoor recreation problems, recommend solutions, and recommend desirable actions . . ." Secretary Order 2908 of October 18, 1968, outlined additional responsibilities in carrying out the Estuary Protection Act and Estuarine Studies (P.L. 90-454). The Bureau is interested in any pollution that prevents effective use of waters for present or potential recreation. Offshore sewage outfalls, debris, oil, and other types of pollution reduce the participation and suitability of beaches, estuaries, underwater areas, and the like for boating, swimming, scuba, and skin diving, surfing, water-skiing, fishing, and other activities.

There are many authorizations available to the Bureau of Sport Fisheries and Wildlife, and the Bureau of Commercial Fisheries, that provide these two Bureaus of the Fish and Wildlife Service with authority, responsibility, and interest in pollution and pollution within and outside of the 3-mile limit. These go back to the Act of March 3, 1887. Others are

Public Law 73-121, as amended (48 Stat. 401)
The Fish and Wildlife Coordination Act

Public Resolution 79, 76th Congress. (54 Stat. 261)
The Atlantic States Marine Fisheries Commission Act

Public Law 50-329 (61 Stat. 726)
The Farrington Act of 1947

Public Law 81-66 (63 Stat. 70)
The Gulf States Marine Fisheries Commission Compact

Public Law 81-730 (64 Stat. 474)
The Atlantic Coast Fish Study Act

Public Law 90-420 (82 Stat. 419)
Northwest Atlantic Fisheries Act of 1950

Public Law 84-1024 (70 Stat. 1124)
Saltonstall-Kennedy Act

Public Law 85-114 (71 Stat. 310)
North Pacific Fisheries Act of 1954

Public Law 85-582, as amended (72 Stat. 479)
Study of Effects of Insecticides on Fish and Wildlife

Public Law 86-339 (73 Stat. 642)
Marine Game Fish Act

Public Law 84-1034 (70 Stat. 1119)
Fish and Wildlife Act

Public Law 81-681 (64 Stat. 430)
Federal Aid in Fish Restoration

Public Law 90-454
The Estuary Protection Act

Public Law 91-190
The National Environmental Policy Act 1969

The Geological Survey has an elaborate stream monitoring network which can provide valuable pollution data. In addition, their studies of unsteady flows and salinity intrusion, thermal characteristics and coastal sedimentation provide valuable background data. The Survey also supervises mining, oil, and gas leases on the Outer Continental Shelf.

The Bureau of Mines is concerned with evaluation and development of ways to minimize adverse environmental effects of non-living resource extraction.

The Office of Water Resources Research supports broad-base research on water quality and supply problems with emphasis in the coastal zone and research which integrates social and behavioral sciences with natural sciences and engineering. Supported research includes studies of physical and chemical aspects of water, water quality management and protection, and impact of pollution.

The Office of Saline Waters supports studies of seawater intrusion in estuaries and environmental effects of the disposal of brine wastes.

The Interior agency with the greatest specific authority regarding pollution abatement and control is the Federal Water Quality Administration. As mentioned earlier, the Federal Water Pollution Control Act of 1965, as amended, gives FWQA authority to operate out to the 3-mile limit, as follows:

- a. Directs the Secretary of the Interior to prepare comprehensive programs for control and prevention of water pollution as it affects all legitimate water users, including flow regulation.
- b. Encourages enactment of uniform State legislation and promotes interstate compacts for control of pollution.
- c. Authorizes the establishment of research fellowships, provides for technical training of staff personnel and other qualified persons, authorizes extramural research, provides for demonstrations, and provides for technical assistance to other Federal agencies, States, communities, and industries.
- d. Directs the establishment of a broad program of research, including provisions for seven field laboratories for research purposes and two water quality criteria laboratories.
- e. Requires that basic data on chemical, physical, and biological water quality and other information relating to water pollution prevention and

control be collected and disseminated. (FWQA has organized a data bank, STORET, for storage and retrieval of pollution-related data.)

- f. Authorizes grants to States and interstate agencies to assist them in improving and expanding their water pollution control programs.
- g. Authorizes grants to communities to assist in construction of waste treatment facilities.
- h. Requires that water quality standards be adopted for all interstate waters and that implementation schedules be established for achieving the standards adopted.
- i. Directs that enforcement action be taken when necessary to abate pollution or to achieve conformity with the water quality standards implementation schedule. 13/
- j. Directs Federal departments and agencies to provide adequate treatment of wastes discharged by any installation of the Federal Government.

In addition, administration of the Oil Pollution Act of 1924, is assigned to FWQA, as is responsibility for control of pollution caused by vessels.

The Federal Water Quality Administration has established a National Coastal Pollution Research Program, headquartered in Corvallis, Oregon. This program has the lead responsibility for all research and development work in ocean pollution. It has established as its number one priority the study of the discharge of wastes from barges. Some of the studies completed or nearly so by this or other FWQA programs are

- a. Waste Management in Coastal Waters - Prepared by the National Academy of Sciences and Engineering under contract to FWQA

13/ Enforcement proceedings are conducted (1) to abate the pollution of coastal waters, and (2) when there are violations of water quality standards. Included are activities where pollution has damaged shellfish and economic injury has resulted.

- b. Literature Review of Barge Dumping - FWQA
- c. Design of Ocean Outfalls and Performance Monitoring - FWQA
- d. Chemical Analysis of Sludges - FWQA
- e. Bulk Transfer of Waste Slurries to Inland and Ocean Sites - Prepared by Bechtel Corporation under contract to FWQA

5. Department of State (International Activities)

On the international scene, there is a growing awareness among nations to the general problem of pollution of the marine environment. Various governments are endeavoring to seek remedies through joint efforts through bilateral and multilateral channels. International agencies, including the United Nations, Inter-Governmental Maritime Consultative Organization (IMCO), International Labor Organization (ILO), Food and Agriculture Organization (FAO), World Health Organization (WHO), World Meteorological Organization (WMO), United Nations Educational, Scientific, and Cultural Organization (UNESCO), Economic Commission for Europe (ECE), International Atomic Energy Agency (IAEA), and Organization for Economic Cooperation and Development (OECD), are engaged in various programs dealing with specific problems of the environment.

During the past two years or so, the following actions were taken:

The UNESCO Conference on the Biosphere was held in September 1968. The ECE meeting of a preparatory group on problems relating to the environment took place in February 1969. The decision to convene a United Nations Conference on the Human Environment was reached in December 1968 and the establishment of the International Council of Scientific Unions (ICSU) of an "Ad Hoc Committee on Problems of the Human Environment" occurred in the fall of 1968. The General Assembly, on December 21, 1968, adopted a resolution introduced by Iceland and co-sponsored by the United States and 40 other nations which inter alia welcomed the adoption by States of appropriate safeguards against the dangers of pollution and other hazardous effects that might arise from the exploration and exploitation of the resources of the seabed. The U.S. Government proposed to the United Nations Ad Hoc Committee on the Seabeds on June 28, 1968, a principle applicable to the development of a regime for the deep ocean floor which provides inter alia:

"In the exploration and use of the deep ocean floor
States and their nationals:

- a. Shall have reasonable regard for the interests of other States and their nationals;
- b. Shall avoid unjustifiable interference with the exercise of the freedom of the high seas by other States and their nationals, or with the conservation of the living resources of the seas, and any interference with fundamental scientific research carried out with the intention of open publication;
- c. Shall adopt appropriate safeguards so as to minimize pollution of the seas and disturbance of the existing biological, chemical, and physical process and balance; each State shall provide timely announcement and any necessary amplifying information of any marine activity or experiment planned by it or its nationals in the exploration and use of the deep ocean floor. A State which has reason to believe that a marine activity or experiment planned by another State or its nationals could harmfully interfere with its activities or those of its nationals in the exploration and use of the deep ocean floor may request consultation concerning the activity or experiment;"

The United Nations General Assembly Resolution 2566 (XXIV) on "Promoting Effective Measures for the Prevention and Control of Marine Pollution," dated 12 January 1970, requests the Secretary-General inter alia to complement reports on review of national activities and of activities of specialized agencies and inter-governmental organizations dealing with prevention and control of marine pollution.

The increasing concern about the problems of ocean pollution among nations is also indicated by the number of international meetings:

October 1970. NATO (CCMS), a conference on ocean pollution, mainly on oil spills. Lead U.S. role: FWQA

November 10-15, 1970. An international congress with exhibits for marine research and marine exploration, INTEROCEAN '70. A conference in Dusseldorf, Germany;

theme, "Keeping the Ocean." Lead U.S. role: Interior Assistant Secretary for Fish and Wildlife and Parks

December 9-18, 1970. FAO conference, Rome. Marine pollution and its effect on living resources and fishing. Lead U.S. role: Bureau of Commercial Fisheries

1971. ECE meeting on environment will deal with marine pollution. Lead U.S. role: State Department

1972. UN Conference on Human Environment will include marine solid waste disposal. Lead U.S. role: State Department

1973. IMCO Conference on Maritime Oil Pollution.
Lead U.S. role: FWQA

6. Other Federal Agencies:

Many other Federal agencies have interests in the problem of ocean pollution; some can contribute substantially to solution of the problems.

The National Oceanographic Data Center (NODC), for example, is the central repository for oceanographic data. It can be the source of valuable background data on the marine environment to study potential effects of ocean pollution.

The Environmental Science Services Administration (ESSA) conducts oceanographic and hydrographic surveys, compiles and publishes nautical charts, bathymetric and marine geophysical maps of coastal and offshore waters, issues tidal and current data and predictions. These products are basic aids in the control and study of oceanographic-related pollution. ESSA provides continuous monitoring of meteorological and certain related oceanographic conditions and disseminates hydrologic and marine environmental predictions on a routine basis. The ESSA satellite system acquires data which have a potential application in studying the movement of water masses and detecting large-scale pollution.

The National Aeronautics and Space Administration (NASA) has capabilities in space photography and remote sensing that is potentially valuable in studying movement of water masses and dispersal of pollutants. NIMBUS satellite data may also be useful in studying movement of water masses.

The Smithsonian Institution has a broad interest in ocean pollution. It is the contractor for the Bureau of Sport Fisheries and Wildlife study of the effects of sludge disposal in the New York Bight. The Institution has experts with capabilities of studying environmental effects of various ocean pollutants throughout the world.

The National Science Foundation has funded many basic studies applicable to or directly related to ocean pollution problems.

The Department of Defense, in addition to the Corps of Engineers, supports studies in ocean pollution and is directly concerned with problems of waste disposal from shore facilities, vessels, and disposal of obsolete gas munitions.

The Atomic Energy Commission has active research and development programs concerned with radiation pollution in the ocean and supports other studies related to understanding the marine environment.

The Maritime Administration and the Department of Transportation are actively concerned with vessel pollution and planning for deep-harbor ports. Since 1961, the Maritime Administration has been engaged in the development of practical and economic shipboard systems for preventing the discharge of oil during the normal course of ship operations. A more recent research and development policy supports and encourages industry in the development of conceptual ship systems for preventing oil and sewage effluents and stack gas emissions from commercial ships. A two-year study on pollution from American Flag vessels is scheduled for completion in June 1972. The Maritime Administration has contributed to the Coast Guard's development of shipboard anti-pollution equipment specifications and test standards through participation, as advisors, to the IMCO Subcommittee on Marine Pollution.

The National Council on Marine Resources and Engineering Development in carrying out its assigned role for developing Federal oceanographic programs has an active interest in problems associated with ocean pollution. A major portion of the U.S. contribution to the International Decade of Ocean Exploration is concerned with ocean pollution.

The recently established Council on Environmental Quality will be taking an active role in ocean pollution problems, as provided for by the National Environmental Policy Act of 1969, Executive Order 11514, and through the Council on Environmental Quality Task Force Report on Ocean Pollution.

Finally, in a further attempt to coordinate the public and private sectors of our economy to overcome environmental problems of the type which affect the New York Bight, the President recently established the National Industrial Pollution Control Council, which will report to the President and to the Chairman of the Council on Environmental Quality.

C. Interstate, State, and Local Authorities, Responsibilities, and Actions to Control Ocean Dumping and Pollution

Throughout the country there have been few actions to control ocean disposal by interstate, State, or local agencies. In a few States ocean outfalls are permitted. These States usually prescribe certain design criteria for outfalls. They may also require minimum levels of treatment before discharge. Some State and local actions to control ocean pollution are

Oregon and Washington - Permit discharge of certain industrial wastes but require minimum levels of treatment. No disposal of wastes by barge transport.

California - Permits discharge of domestic waste after treatment. Some sludge discharged through outfalls. No disposal by barge of sludge.

Four counties in Southern California: Ventura, Los Angeles, Orange, and San Diego, are jointly engaged in a study of the effects of ocean disposal.

Florida - Permits discharge of domestic waste into Gulf Stream. Some is untreated but most receives primary treatment before discharge. There is no sludge disposal by barging.

Puerto Rico - Has proposed that cities of San Juan and Ponce use ocean outfalls after primary treatment.

Maryland - Baltimore has under consideration a plan to discharge sludge by barging to sea.

Pennsylvania - Philadelphia disposes of sludge by barging to sea.

Massachusetts - After digestion, sludge is disposed of at sea by use of a pipeline.

East Coast - Proposals are under study to dispose of baled municipal refuse by ocean dumping.

Appendix 1

A partial listing of reports concerning disposal of wastes and water circulation in the New York Bight

1. Ketchum, H. A., Redfield, A. C. and Ayers, J. C., 1951. The oceanography of the New York Bight: Papers Phys. Oceanog. Meteorol. Mass. Inst. of Tech. and Woods Hole Oceanog. Inst. XII(1): 1-46.
2. Redfield, A. C. and Walford, L. A., 1951. A study of the disposal of chemical waste at sea: U.S. Natl. Research Council of the Natl. Acad. of Sci., Publ. 201, 49 p.
3. Owen, D. M., 1957. Report on the bottom sampling and self containing diving survey in the New York Bight: Woods Hole Oceanog. Inst. Reference No. 57-5, 22 p. (Unpublished Manuscript).
4. U.S. Public Health Service, 1958. Public meeting on waste disposal in the New York Bight: U.S. Public Health Service, Region II, N.Y., N.Y., 92 p.
5. Bumpus, D. F., 1965. Residual drift along the bottom on the Continental Shelf in the Middle Atlantic Bight Area: Limnol. and Oceanog., Vol. 10, p. R50-R53.
6. Bumpus, D. F. and Lauzier, L. M., 1965. Surface circulation on the Continental Shelf off eastern North America between Newfoundland and Florida, Serial Atlas of the Marine Environment, Folio 7, p. 7, American Geographical Society, N. Y., N.Y.
7. Buelow, R. W., 1968. Ocean disposal of waste material: Transactions of the National symposium on ocean sciences and engineering of the Atlantic Shelf, p. 311-337, Marine Technology Soc., Wash., D.C.
8. Bumpus, D. F., 1969. Surface drift on the Atlantic Continental Shelf of the United States, 1960-1967: Woods Hole Oceanog. Inst. Reference No. 69-18 (Unpublished Manuscript).
9. Sandy Hook Marine Laboratory, 1970. The effects of waste disposal in the New York Bight: Interim Report, U.S. Bureau of Sport Fisheries and Wildlife, Sandy Hook Highlands, N.J.
10. Gross, Grant M., 1964. New York Metropolitan Area - A major source of marine sediment. Tech. Report Series No. 2; Marine Sciences Research Center, State Univ. of N.Y., Stony Brook, N.Y.

Appendix 2

Copy

DEPARTMENT OF THE ARMY NANDR 1145-2-1
NEW YORK DISTRICT, CORPS OF ENGINEERS
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10007

NANOP

Regulation
No. 1145-2-1

23 April 1969

CIVIL REGULATORY FUNCTIONSSUPERVISOR OF NEW YORK HARBOR

1. Purpose. Policy, authority and responsibility of the Supervisor of New York Harbor in the enforcement of certain Federal statutes.
2. Scope. Prevention of obstructive and injurious deposits in New York Harbor, its adjacent and tributary waters, and Long Island Sound.
3. Applicability. U.S. Army Engineer District, New York.
4. References.
 - a. United States Code, Title 33, Navigation and Navigable Waters.
 - b. Code of Federal Regulations, Title 33, Navigation and Navigable Waters.
 - c. ER 1145-2-301, Civil Regulatory Functions - Use of Navigable Waters - Policy, Practice, and Procedure.
 - d. ER 1165-2-302, Water Resource Policies and Authorities - Definition of Navigability Policy, Practice and Procedure.
5. Policy. The Corps of Engineers has police powers under certain Acts of Congress for the protection and preservation of navigable waters. It has been the long standing policy of the Corps to secure compliance with the law short of legal proceedings. Prosecution is recommended on flagrant violations, such as oil spills. Action toward correcting the condition when possible is a primary objective. Letters of warning are issued when the violation of law is trivial, apparently unpremeditated, results in no material public injury, and where available proof will not support prosecution.

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Appendix 2

6. Definitions.

a. Refuse. Foreign substances and pollutants other than that flowing from streets and sewers (sewage) and passing therefrom in a liquid state into the watercourse. The U.S. Supreme Court has held that oil is refuse within the scope of the River and Harbor Acts of 1888 and 1899 cited below.

b. Navigable Waters. A waterway is considered navigable if in its natural or improved state it affords a continued highway over which commerce may be carried on with other states or foreign countries in the customary modes in which such commerce is conducted by water.

7. Statutory Authority. The District Engineer, U.S. Army Engineer District, New York, has been designated by the Secretary of the Army as Supervisor of New York Harbor under the provisions of the River and Harbor Act of 29 June 1888 (33 U.S.C. 441-451), as amended 12 July 1952. (This Act was amended on 28 August 1958 to extend the application to the harbors of Hampton Roads, Virginia, and Baltimore, Maryland. The District Engineers of U.S. Army Engineer Districts, Norfolk and Baltimore have been designated Supervisors of the respective harbors).

a. The Act of 1888, as amended, forbids the placing, discharging, or depositing, by any process or in any manner, of refuse, dirt, ashes, cinders, mud, sand, dredgings, sludge, acid, or any other matter of any kind, other than sewage in a liquid state, in the tidal waters of the harbor of New York, its adjacent and tributary waters, and those of Long Island Sound, within the limits prescribed by the Supervisor of the Harbor. Under authority conferred by the Act of 1888, the Supervisor of the Harbor has established dumping grounds in the Atlantic Ocean, Hudson River, and Long Island Sound for disposal of certain types of material. A permit issued by the Supervisor of the Harbor is required for dumping material in the waterways.

b. The River and Harbor Act of 18 August 1894 (33 U.S.C. 452) makes it unlawful for any person or persons to engage in fishing or dredging for shellfish in any of the channels leading to and from the Harbor of New York, or to interfere in any way with the safe navigation of those channels by ocean steamships and ships of deep draft.

c. Section 13 of the River and Harbor Act of 1899 (33 U.S.C. 407), known as the Refuse Act, applies to all navigable waters of the United States. This Act prohibits the deposit or discharge from vessels or from shore of any kind, other than that flowing from sewers in a liquid state, into any tributary of any navigable water from which it may float or be washed into such navigable water. It also prohibits the deposit of material of any kind in

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any place on the bank of any navigable water or its tributary where the material shall be liable to be washed into such navigable water whereby navigation shall or may be impeded or obstructed.

d. Section 10 of the 1899 Act (33 U.S.C. 403) makes it unlawful to build any structure outside of established harbor lines or where no harbor lines have been established, or to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of any navigable water of the United States without authorization from the Secretary of the Army (usually in form of permit issued by the District Engineer).

e. Section 15 makes it unlawful to tie up or anchor any craft in navigable channels in such a manner as to prevent or obstruct the passage of other craft, or to voluntarily or carelessly sink, or permit or cause to be sunk, any craft in navigable channels in such a manner as to obstruct, impede, or endanger navigation.

f. Oil Pollution Act, 1924. This Act (33 U.S.C. 431, et. seq.) prohibits the discharge of oil from vessels into the coastal navigable waters of the United States. The primary enforcement of this Act rests with the Federal Water Pollution Control Administration acting under the Secretary of the Interior under the Clean Water Restoration Act of 1966. The Oil Pollution Act, as amended, requires proof that an oil discharge was due to "gross negligence" or "willful spilling." These conditions are difficult of proof and nullify the effectiveness of the Act. Consequently, oil discharges from vessels as well as from shore establishments will be investigated by the staff of the Supervisor of New York Harbor and District Engineer under the provisions of the 1888 Act when the discharge occurs in the waters under the jurisdiction of the Supervisor and under the provisions of the 1899 Act when the discharge occurs elsewhere within the District area of jurisdiction. Reports of oil violations received from the U.S. Coast Guard will be treated under the applicable Act, as indicated in ER 1145-2-301.

g. Oil Pollution Act of 1961. This Act, as amended, implements the provisions of the International Convention for the Prevention of Pollution of the Sea by oil, 1954, as amended in 1967, and prohibits the discharge of oil, except under certain specified conditions, in all sea areas within 50 miles from the nearest land of those countries to which the International Convention applies. Public Law 89-670 transferred administration of this Act from the Secretary of the Army to the Secretary of Transportation who delegated the responsibility for administration of the Act to the Coast Guard effective 31 March 1967.

h. The Oil Pollution Act of 1961, as amended, does not change or modify the Oil Pollution Act of 1924. The Act of 1924, as amended, is in addition to other laws for the preservation and protection of navigable waters of the United States and does not repeal, modify, or in any manner affect the provisions of such laws.

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Appendix 2

8. Area of Jurisdiction. The waters under the jurisdiction of the Supervisor of New York Harbor include New York Harbor and its tributaries, Raritan River, Arthur Kill, Newark Bay, Hackensack and Passaic Rivers, Kill Van Kull, Hudson River and its tidal tributaries to the Federal Lock and Dam at Troy, New York, the East River and its tributaries, Harlem River and Long Island Sound. While the tidal tributaries of New York Harbor come under the jurisdiction of the Supervisor of New York Harbor, those of Long Island Sound do not. The enforcement of the Supervisors' Act in Long Island Sound is limited to the Sound itself, ending at lines drawn between the headlands of the many inlets and harbors along its shores. However, the Supervisor of the Harbor, in his capacity as District Engineer, may apprehend violators of anti-pollution laws under authority of the River and Harbor Act of 3 March 1899 when violations occur in the inland tributary waters of Long Island Sound. The navigable waters in the Hudson River extending north from Troy, New York to the boundary line of the New York District are under the jurisdiction of the District Engineer.

9. Responsibilities.

a. Chief, Operations Division, as Deputy Supervisor of New York Harbor, is responsible for the implementation of laws and regulations, and the discharge of duties and functions necessary to accomplish the mission of the Supervisor of New York Harbor.

b. District Counsel. Review reports of investigations for legal sufficiency prior to transmittal to respective U.S. Attorneys for institution of legal proceedings against violators of Federal statutes.

c. Comptroller. Obtain reimbursement costs from contractors for services of inspectors assigned to accompany tows to established dumping grounds.

FOR THE DISTRICT ENGINEER:

Sgd. Earl B. Fauber

DISTRIBUTION:
Code 1

EARL B. FAUBER
Executive Assistant

Appendix 3

Estimates and Projections of Population in the
Estuarine Economic Region and Individual Areas
(Thousands) 14/

Estuarine Economic

Region Total

Population --

<u>Individual Estuary Economic Areas</u>	1970	1980	2000
	68,396.9	76,606.7	106,900.3
1. Maine Coast	531.5	576.7	688.2
2. Massachusetts-Rhode Island Coast	5,194.3	5,729.2	7,958.2
3. Connecticut Coast	1,057.0	1,184.8	1,492.2
4. New York-Northeast New Jersey	17,376.5	19,114.4	23,022.3
5. Philadelphia-N.J.-Delaware	5,939.9	6,661.5	8,505.8
6. Maryland-Virginia Coast	6,812.8	8,023.3	11,172.1
7. North Carolina Coast	529.0	546.1	623.0
8. South Carolina Coast	503.2	539.0	662.2
9. Georgia-Eastern Fla Coast	3,698.7	4,699.3	6,941.1
10. Southern Florida Gulf Coast	1,369.0	1,663.1	2,302.7
11. Central Florida Gulf Coast	134.2	150.2	198.1
12. Miss.-Ala.-W.Fla Coast	977.0	1,135.3	1,603.2
13. Louisiana Coast	1,814.7	1,974.4	2,930.0
14. Texas North Gulf Coast	1,206.7	2,710.4	4,026.1
15. Texas South Gulf Coast	635.6	704.1	878.2
16. Southern Calif. Coast	10,826.2	13,586.9	20,381.0
17. Central Calif. Coast	5,084.6	6,280.3	9,150.2
18. Northern Calif. Coast	151.0	188.1	273.8
19. Oregon Coast	1,389.3	1,602.7	2,087.7
20. Washington Coast	2,165.5	2,536.8	3,444.1

The above table shows population projections for 20 estuarine economic regions. The estimated total population in the estuarine economic regions for 1970, 68,396,900 persons, is expected to increase to about 107 million by the year 2000. A current estimate shows that each person in the U.S. generates 5 pounds of trash per day. Therefore, there must be at least 70 thousand tons of household trash to be disposed of daily in the coastal area and more than 255 million tons annually. By 1980, the coastal population is expected to exceed 76 million; assuming no change in trash production, this region alone will generate an estimated 91 thousand tons daily and approximately 330 million annually. Perhaps no more than 5 percent of the 255 million tons of trash produced in 1970 will be dumped directly into the ocean. The rest will have been incinerated, used for land fill, with a very small proportion reclaimed. However, most incineration and land fill practices, as employed in 1970, will either be impossible or illegal by 1980. Thus, pressures for ocean disposal are certain to accelerate.

14/ Source: The National Estuarine Pollution Study, U.S. Department of the Interior, VII, pages IV-272 and IV-275. November 3, 1969.

Interrelationships of Federal Agencies in Ocean Dumping and Ocean Pollution 1/ 2/

	<u>Agri-culture</u>	<u>Commerce</u>	<u>Defense</u>	<u>HEW</u>	<u>HUD</u>	<u>Interior</u>	<u>State</u>	<u>Transpor-tation</u>	<u>AEC</u>	<u>NASA</u>	<u>NODC</u>	<u>Smithsonian</u>	<u>NSP</u>
<u>Abatement</u>													
Enforcement Hearings (within 3 miles)		X					X	X C D		X			
Within 3-mile							C	C D	L				
3-12 mile							C	C D	L				
Beyond 12-mile							C	C D	L				
<u>Enforcement 3/</u>													
Control		X(g)					L	X(g)	I	X	X	C	
Construction		X(g)	I D		C		X	X(h)(g)	I	X	X	C	
Planning		X(g)	C D	X				L		X	X	C	
Surveillance (for enforcement)													
Monitoring (wastes)		X		X		X		X		X	X	C	
Ocean disposal permits (including hearings)					L	I	X	X		I			
Undersea leases					I				L				
Sewer outfalls		X(1)	D	I	I	I		L			D		
Ocean disposal			I D	I	I	I		X	I	X	D	D	
Munitions disposal			D	I	I	I		I	I	I	I	D	

	<u>Agric-</u> <u>culture</u>	<u>Commerce</u>	<u>Defense</u>	<u>HED</u>	<u>HUD</u>	<u>Interior</u>	<u>State</u>	<u>Trans-</u> <u>portation</u>	<u>AEC</u>	<u>NASA</u>	<u>NOFC</u>	<u>Smithsonian</u>	<u>NSF</u>
<u>Control (Cont'd)</u>													
Pesticides	L	D		X			X	I					D
Nuclear waste		D		I			I	I					
Erosion	X	D	X		X		X						
Vessel wastes	X	X	X	X			X	I	X				
Seafood safety	C				L								
Spill cleanup		D	C	C			C						
Water quality criteria													
< 3 mile	D	D	X				L						
3-12 mile	D	D	I	I			I						
<u>Data Storage</u>													
Public Health				L			C						
Biological	I		C	C			L		D	D			D
Chemical-Physical	CX						C		X	D			D
Pollution	I		X				X						
Hydrological	X	CX	X				L		D	D			D

<u>Research</u>	<u>Agric-culture</u>	<u>Commerce</u>	<u>Defense</u>	<u>H&W</u>	<u>HUD</u>	<u>Interior</u>	<u>State</u>	<u>Trans-portation</u>	<u>AEC</u>	<u>NASA</u>	<u>NODC</u>	<u>Smithsonian</u>	<u>NSF</u>
1. Oceanography		X(h)	X(h)(g)(c)				X(h)	X(c)		D	D	C D	C(g) D
2. Hydrology	X	X(h)(c)	X				L(g)(g)				D		
3. Methods of disposal													
- solid wastes													
- liquid wastes													
- shipboard													
4. Pesticides	X				I								
5. Spills		X		X		X		X				D	C
6. Effects on:													
- water quality		D(h)	D(h)(c)	I			L(h)(g)(c)		D(h)	D(c)			
- marine sediments		D(h)	X(h)(c)	I			X(h)(g)					C	C
- intertidal areas		D(h)	X(h)(c)	I	I		X(h)(g)					C(g)	C(g)
- living aquatic resources					I		L(h)(g)					I(c)	C(g)
- human health and welfare					L	I	I(h)(g)					I(c)	
- recreation					I	I	I(h)(g)				I		
- esthetics					I	I	I	I(h)(g)					
- socio-economic factors	X	X	X	X	X	X	X	X			X		

	<u>Agric. culture</u>	<u>Commerce</u>	<u>Defense</u>	<u>H&W</u>	<u>HUD</u>	<u>Interior</u>	<u>State</u>	<u>Trans- portation</u>	<u>AEC</u>	<u>NASA</u>	<u>NODC</u>	<u>Smithsonian</u>	<u>NSF</u>
<u>International</u>													
Agreements	C	C	C	I	C	L	I	C				C	
Info. exchange	C	C	C	I	C	L	I	C	I				
Coop. research	C	I	C	I	C	L	I	C	I	C		C	

1/ The Environmental Quality Council has an interest and review authority over the entire spectrum of ocean pollution and environmental quality.

2/ The following agencies have an interest, supply data, or cooperate on special projects or activities:

NAS/NAE/NRC
Marine Council
Water Resource Council
OST

3/ The Department of Justice prosecutes for other Federal agencies.

KEYS

To agency activities:

I - lead agency

C - cooperating

I - agency interest

D - supplies data

F - Federal aid (grants, loans)

(L) - loans

To types of research and Control:

(h) - in-house

(g) - grants

(c) - contracts

(I) - loans

X - shared responsibilities, or one of several

Departments and Their Subordinate Agencies, Executive Offices,
and Independent Agencies With Interests in Ocean Pollution

Agriculture	Housing and Urban Development	Transportation	Independent Agencies	Health, Education and Welfare	State	Commerce	Interior	Coast Guard	Transportation
Agricultural Research Service			Atomic Energy Commission	Public Health Service		Economic Development Administration	Bureau of Commercial Fisheries	Federal Aviation Administration	
Economic Research Service			National Academy of Science /	Food and Drug Administration		Environmental Science	Bureau of Land Management	Bureau of Solid Waste Management	
Forest Service			National Academy of Engineering			Service Administration	Bureau of Mines	Bureau of Radiological Health	
Farm Home Administration			National Aeronautics and Space			Maritime Administration	Bureau of Outdoor Recreation	Bureau of Water Resources	
Marketing and Food Services			Administration			Naval Oceanographic Office	Bureau of Reclamation	Bureau of Water Resources Research	
Soil Conservation Service			National Science Foundation			Corps of Engineers	Bureau of Sport Fisheries and Wildlife	Office of Water Resources Research	
Commerce			Smithsonian Institution			Naval Ship Systems Command	Bureau of Geological Survey	Office of Saline Water	
Economic Development Administration			National Oceanographic Data Center			Naval Oceanographic Office	National Park Service	Office of Water Resources	
Environmental Science			Geological Survey			Defense	Office of Marine Resources	Office of Water Resources Research	
Service Administration			National Park Service						
Maritime Administration			Office of Marine Resources						
Defense			Office of Saline Water						
Corps of Engineers			Office of Water Resources Research						
Naval Ship Systems Command									
Naval Oceanographic Office									
Executive Offices									
Environmental Quality Council									
Water Resources Council									
National Council on Marine Resources									
and Engineering									
Office of Emergency Preparedness									
Office of Science and Technology									
Federal Power Commission									

Mr. MURPHY. As you can see, Mr. Chairman, there is little room for doubt that New York Harbor is severely damaged. While scientists may argue about the degree of the damage, it must fall to us to get on with the vital business of preventing further damage and finding solutions.

Several remedies have been advanced, and a number of them are the subject of amendments to the Fish and Wildlife Coordination Act. Similar proposals have also found their way to the Public Works Committee.

Among those solutions which immediately followed publication of the Sandy Hook report were many which simply provided for moving dumping areas further out to sea. We must reject these proposals as patently unacceptable, and entirely too narrow in their approach.

Prior to the use of the New York Bight, dumping was permitted in Raritan Bay, further up in the harbor. We are still suffering the ill effects of that dumping, and now we have damaged the bight. Let us not "solve" this latest disaster by simply moving the problem elsewhere. In this shrinking world, we are running out of carpet to sweep problems under. "Elsewhere" is all-too-often right next door.

H.R. 17603, offers a comprehensive program for the ultimate solution of the water pollution problem in New York Harbor and throughout the country wherever wastes are disposed of in our waters. In a nation in which 85 percent of the population lives in the coastal environment, and in which 100 percent of the people depend on that environment, the problem is truly national in scope and deserving of a national solution.

I have introduced H.R. 17603, on four occasions, with 30 cosponsors. The bill amends the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by requiring the designation and regulation of certain water and submerged land areas where the depositing of any waste material will be permitted. The bill establishes a mechanism for developing effective disposed standards within these areas, and provides that all other marine areas will be maintained in a "no-dumping" status, and preserved and protected as marine sanctuaries.

The guiding principle is to require the Secretary of Interior or the new Environmental Protection Administration to identify and designate those areas in which certain dumping can be safely accomplished.

For example, some quantities of cellar dirt may be safely dumped off the Continental Shelf without damaging the ecology of the marine environment, if carefully controlled and regulated. Elsewhere the bottom configuration and other factors may permit disposal of certain chemicals or other wastes that are absorbed into the water without causing imbalance.

There has never been a comprehensive program to determine what kinds of wastes can be safely disposed of in which waters. Previously, factors such as effects on navigation and distance from population centers were considered, but specific ecological effects were generally ignored.

My bill tasks the Secretary of Interior (or EPA) with studying the national marine environment with a view to identifying each river, harbor, and costal area and designating which of these areas can ac-

cept certain types of waste disposal. Standards for the types and amount of dumping would follow, in cooperation with the States, and the vast majority of our marine environment would be maintained as disposal-free marine sanctuaries where wildlife and fish could exist without the threat of foreign introduction of harmful materials.

The bill includes justifiably stiff penalties for dumping in nondesignated areas, and for illegal dumping in designated areas: \$10,000 per day, per violation, with each day of violation constituting a separate offense.

This is the same fee per violation that the Clean Air Act recently passed by the House Commerce Committee embodied.

Two years are permitted for completion of the study and identification and designation of disposed areas, and the Secretary of Interior (or EPA) is required to cooperate with the Secretary of the Army in the execution of the study of potential water and submerged land areas.

Following formal designation by Interior (or EPA), all existing licenses will be revoked and suspended, and the Army Corps of Engineers will receive new applications for controlled disposal in designated areas.

Enforcement of dumping standards—standards based on the capacity of a specific marine area to absorb wastes harmlessly—shall be undertaken by the Coast Guard.

The foregoing represents an innovative approach to the problem of waste disposal in our harbor, river, and coastal waters, and has application to every type of waste disposal throughout the Nation. I strongly urge your prompt approval of this approach, and hope that we may see House action on this proposal before the close of the current session.

The degree of the emergency facing us in New York and throughout the Nation will not permit us to move slowly or indecisively. We must act now.

In early June, I convened a meeting in New York of Federal, State, and local officials involved in the fight to save our water. The all-day conference was well attended, and a list of participants is included here as appendix 4.

Several conclusions were reached at that meeting, and all related to the very difficult problem of coordination between the several agencies of the Federal, State, and local governments. It was clear we have still not achieved a cohesive national policy for success in preventing further destruction of our waters and reclaiming our damaged waters.

The problem of dumping sewage sludge and other wastes in the New York Bight was explored, and all agreed that the approach embodied in H.R. 17603 had merit. But the conference ranged well beyond the problem of the bight, and covered the harbor in general, and all the sources of pollution.

It was abundantly clear that the Passaic River Valley, for example, dumped millions of gallons of raw wastes—sanitary and otherwise—into the harbor every day. Any mechanism developed in New York State for preventing pollution was doomed to failure so long as the neighboring State of New Jersey permitted the narrowminded Commission responsible for pollution control in the Passaic Valley to spew waste down the river and into New York Harbor.

H.R. 17603 contains language that would apply to all sources of pollution in any given area, regardless of State lines or other political boundaries. In my area, sources of pollution in New Jersey, and north of the city along the Hudson, would be brought under the control of a federally enforceable statute.

Mr. Chairman, no consideration of legislation of this magnitude would be complete without a discussion of costs.

We know that it will take somewhere between \$30 and \$50 billion in public funds to effectively fight water pollution in this decade. The Federal authorization for the current fiscal year is \$1.25 billion, and we had to fight a tight-fisted administration for that figure.

The study called for in H.R. 17603 will cost about \$10 million to identify those marine areas in which we will permit waste disposal, and this estimate is probably conservative. The money would be well spent.

Beyond this, additional studies are needed, and new techniques for study are required. Certainly a comprehensive study of each major harbor and Great Lakes area is needed to study the effects of polluted water on people. Past studies have explored effects on fish and wildlife, but, unbelievably, we know relatively little about effects on human beings.

Pinpointing and tracing sources of pollution continues to be a serious and time-consuming problem. However, the application of space technology may provide an answer. I refer, of course, to the earth resources aircraft program of the National Aeronautics and Space Administration (NASA), which has undertaken an aerial photographic study of selected areas in support of agriculture, geography, hydrology, and oceanography studies.

I have viewed the high-altitude aerial photos of New York Harbor and Long Island Sound, and was deeply impressed by the excellent resolution of the photography, and the clear evidence of currents, sediment, and other indicators of water movement. The photos obtained will permit study of dissolved and suspended material in our polluted waters.

Mr. Chairman, the seventies are being called the "Environmental Decade." This sobriquet expresses the fervent hope of increasing millions of Americans that we save our environment, and it falls to the principal representative body in the Nation to develop those mechanisms whereby we can succeed.

I believe that H.R. 17603 is a sound approach to a very difficult problem. During the course of these hearings you will hear from other Members, and from experts in the field of science and related disciplines germane to the problem of water pollution. Our collective plea—though we may differ on detail—is to develop and pass a workable program for the protection of our most vital resource—our water.

Mr. DINGELL. Mr. Murphy, you have given this committee a very carefully thought out and thorough statement apparently based on a deep and careful consideration of the problems and of the effects of dumping in the area referred to.

I believe it will be very helpful to this committee.

The Chair recognizes Congressman Frey.

Mr. FREY. Thank you.

I would like to second the statement by the Chairman. I agree 100 percent. I grew up along the banks of the Passaic River and I remember one time we used to be able to swim in it, and now you go back and can almost walk across it without being in the water.

As I understand the bill, the study would be 2 years to identify the areas suitable for discharges. Does that mean within the 2-year period there would not be any discharges whatsoever or dumping whatsoever?

Mr. MURPHY. No. One of the problems of dumping, or course, is that it is a daily problem, and it would take 2 years to identify these areas, and the present machinery have probably in the main the Corps of Engineers' approval, with Interior concurrence in some areas, would continue to prevail.

However, after 2 years the identification of those areas would be complete. I would think that the Department of Interior and the Corps of Engineers, both in determining where to approve dumping permits or where to revoke permits, authority which they presently have, would be updated as data was collected during that 2-year period.

And it would be a progressive move to prevent dumping in areas where it was obvious that it was harmful to marine life.

Mr. FREY. How does this dovetail or does it dovetail with the Federal Water Pollution Control Act introduced some time in February?

Mr. MURPHY. The end result is in concert with that act. However, that act does not address itself to the specific problems of dumping in areas that are vital to marine life, that is spawning areas, estuarine areas where the young fish have to go in order to complete a necessary part of their growth prior to the time they go back out and become fair game as part of the commercial fishery area.

Mr. FREY. Then you think it has to be both?

Mr. MURPHY. Yes.

Mr. FREY. I notice in looking through some of the reports that Interior is asking this be held off for a study to be submitted to the President, September 1, which will include effects of ocean dumping on the environment.

What is your feeling on that?

Mr. MURPHY. We have had administrations asking for more time, and I will use as an example my harbor once again.

In 1963, about 80 members of this body introduced legislation to clean up New York Harbor. It was supposed to be a 2-year study. That study lasted over six years and the Corps of Engineers finally made its recommendations and the latest outgrowth of those studies, of course, was a \$28 million budget request to get on with the job of cleaning up the debris in New York Harbor, but the Administration came right back this year saying it wanted a further study of the harbor.

In other words, we can just continually have study upon study and no end results. That is the way I think I would address myself to that.

Mr. FREY. Thank you, Mr. Chairman.

Mr. DINGELL. Thank you, Mr. Frey.

Mr. Goodling.

Mr. GOODLING. Mr. Murphy, to whom does the Secretary of the Army issue these permits to dump?

Mr. MURPHY. The permits are issued to applicants who are either private people or municipalities or the States. In areas where the city of New York operates barges that take the effluent from the primary treatment plants and use their own equipment to go out to sea to dump in our Bight area the permit is issued to the city.

To private contractors that perform this service for industries and industries that perform it for themselves, those permits are issued to those industries on application and approval.

Mr. GOODLING. I assume under existing law the Secretary of the Army has legal authority to do this, is that correct?

Mr. MURPHY. Yes, he does.

Mr. GOODLING. That is all, Mr. Chairman.

Mr. DINGELL. Thank you, Mr. Goodling.

Mr. Murphy, the Chair observes that your statement mentions the bill would provide stiff penalties for dumping in nondesignated areas and for illegal dumping in designated areas, amounting to \$10,000 per day per violation with each day of violation constituting a separate offense.

The question that comes to my mind is that this would obviously function well against a private citizen. How would it affect, let us say, Government agencies, municipalities or States or employees of the States or municipalities?

Mr. MURPHY. I would think that a State or a municipality, once the violation had been brought to their attention, would cease and desist.

However, if they willfully continue to violate the law the penalty would apply to them.

Mr. DINGELL. It is my experience that States and municipalities do not stop dumping. This is based on considerable observation with regard to polluters in the Great Lakes area and elsewhere around the country. It requires a tremendous amount of pressure to have them cease and also to arrange their affairs in order so that they can meet timetables and time schedules.

We are now finding State after State and municipality after municipality across the country in the situation where they are now not able to meet the Federal Water Quality Standards by the appointed date and complete cleanup as ordered by conference held pursuant to the Federal Water Quality Act.

I am curious whether this is going to be enough of a device to assure they will comply with the law and whether or not you might not give considerable thought to including in the bill the possibility of having injunction provisions for this. Are there injunction provisions in the legislation?

Mr. MURPHY. Mr. Chairman, I think that the Congress is going to have to deliver the message clearly that no one, whether it is a State, a municipality, or private industry or an individual, has the right to violate the air, the sea or the land of America.

Mr. DINGELL. Counsel just brought to my attention that the bill on page 4, line 15, under item (g) says, "The District Courts of the United States shall have jurisdiction to restrain violations of this section.".

So you do have the policy?

Mr. MURPHY. It is there. But as I said, we have to deliver the message that no one has the right to foul the air, sea, or land of America, and the sooner that message is delivered clearly and succinctly to everyone, then we are going to stop, let us say, the put-off-again-business that I think we just witnessed in this country over the past three or four decades.

Mr. DINGELL. Mr. Murphy, we are in entire agreement.

Counsel.

Mr. EVERETT. One question.

As Mr. Frey pointed out, the Interior report recommends a deferral on consideration of your bill since the President has already expressed concern over ocean dumping and plans to come forward with the results of a study now underway. I believe it said there is pending in the Public Works Committee another bill that would also concern itself with dumping in the ocean.

Mr. Murphy, I notice your bill covers navigable waters as well as coastal waters and the Continental Shelf. I am wondering if you had any comment to make with respect to the recommendations of the Interior Department that seem to be leaning toward ocean dumping as the solution to this problem.

Mr. MURPHY. I think we have seen clear evidence that this administration through budgetary considerations has asked delays and setbacks on many programs, and that basically is the reason for it and that is why I say it is time we get on with this, particularly in the areas of New York.

Some reports—we don't know whether we can substantiate them—is that as much as 90 percent of the commercial and sport fishing has disappeared from the area of this bight. We are probably coming to the point where to delay a year or two years or longer periods of time in our marine ecology and our marine environmental areas could be disastrous.

That is why I would not delay this legislation waiting for another study that was not designed to meet the problem of marine ecology.

Mr. EVERETT. Thank you, Mr. Chairman.

Mr. DINGELL. One more question, Mr. Murphy.

I have observed a number of articles in the press about finless fish, being fish without fins, deformed in strange ways, being taken now in this New York bight area. Can you give the committee any information on whether it relates to the dumping of waste products?

Mr. MURPHY. I visited the Sandy Hook Laboratory with several people, the Corps of Engineers, Colonel Barnett, who is the District Engineer in New York, Dr. Colosi, head of the Interstate Sanitation Commission, and the question of finless fish came up, and the very stark photos that were so widely publicized in this country were brought out:

And Dr. Colosi asked for the bacteria and virus involved so that he could study to substantiate a claim that seemed to exist that that fin deterioration took place in those fish because of the bight, the so-called dead sea area outside of New York.

No definitive answer has been given to that question yet. The viruses and the bacteria that he got from the laboratory didn't give him an opportunity to make a definite determination and he asked for some others and he is going through that process right now.

We do know that fins and tails can deteriorate in a fishbowl, this could be an evolution in the life of a fish; but then again it could be caused by the serious pollution in that area. These are the answers to questions we have got to have.

I think that is the answer to that question, and the sooner we get those answers the better we are going to be.

Mr. FREY. I agree about not putting it off. It has been put off too long, a great number of years. Only the last few years we find we are getting some progress.

Explain again for me the difference between your bill and the Federal Water Pollution Control Act introduced on February 10, which I introduced and a number of people have introduced.

As I understand it, this bill also goes to the dumping problem although it does refer to the contiguous zone. If any of the material comes from the territory of the United States that affects any of these areas, I think there is a provision in there where it can be abated.

I want to know, is there any difference in effect between your bill and this bill?

Mr. MURPHY. Yes, but we address ourselves to the marine environment of the marine wildlife and the estuarine areas necessary to the development of our marine environment.

Mr. FREY. I think they are both good. I am not quibbling about that. I am trying to see where the overlap is because the bill itself goes to pollution of interstate waters, navigable waters, waters in contiguous zones, and waters of the high seas.

So I think really both bills cover the same thing. As far as I am concerned I don't care how it is passed as long as we get it passed. But I, for the record, wanted to point out that I believe they are pretty much the same, the one in the Public Works Committee and this bill itself.

Section 10 covers the pollution of the interstate and navigable waters.

Mr. MURPHY. When we come to dumping off the Continental Shelf, we have the problem of going 100 miles at sea which can be as costly as requiring dumping on the moon. If that was the required law today, I doubt if any harbor in this country could comply with it because the Coast Guard wouldn't authorize the present dumping equipment to go much more than, let us say, 15 to 20 miles at sea.

It just wouldn't meet the marine requirements for it and insurance could not be issued for it. Of course, if we are going to clean our environment, the dollars to clean it are important. Therefore, we are requiring EPA or the Secretary to designate those areas specifically where dumping can take place, of course, to exclude it from the marine environment areas.

Mr. FREY. I point that out in all fairness because I have been impatient myself, but I don't think they have been sitting on their hands.

Mr. GOODLING. One more question, please.

Mr. DINGELL. Mr. Goodling.

Mr. GOODLING. I have not been able to determine who made this statement, Mr. Murphy, in looking through your statement—"We have not yet found any measured effect resulting from the disposal of industrial acid waste."

In my State of Pennsylvania, one of our greatest problems in certain sections of the State is acid mine drainage. I don't know how you can associate this statement with what I find in my own State.

Mr. MURPHY. Mr. Goodling, I think the Corps of Engineers will give you the water volumes that flow back and forth in the flume area of the New York bight. Acid wastes are dumped in one place, cellar waste in another and others in different designated areas.

The volume of water that flows in this area may well purify the acid waste. In fact for years the acid pit, as it was known, was used as almost a converging point for sport fishing boats and some commercial fishing boats of New York Harbor.

So the effect of acid dumping, let us say, in the area of limited flow-off such as interior areas in Pennsylvania, may well have a different effect—and those effects are what are necessary to be studied and understood—than we do out in the bight area.

Mr. GOODLING. We have periodic fish kills from acid mine drainage. That is all, Mr. Chairman.

Mr. EVERETT. Mr. Chairman, with respect to your concern over the finless fish problem, I might point out that the appropriations bill for the House Interior and Related Agencies that just passed the Congress last week would add another \$100,000 earmarked for a study of this very problem.

Mr. DINGELL. Thank you very much.

Mr. Murphy, the committee is grateful to you for your presence and for your very helpful and interpretive statement.

Mr. DINGELL. Our next witness is Dr. L. Glasgow, Assistant Secretary of Interior for Fish and Wildlife, Parks and Marine Resources.

The Chair knows you have several members of your staff with you. If you wish to have them join you at the committee table, the Chair believes it would be most appropriate and proper.

STATEMENT OF DR. LESLIE L. GLASGOW, ASSISTANT SECRETARY, FISH AND WILDLIFE, AND PARKS, DEPARTMENT OF THE INTERIOR, ACCCOMPANIED BY DR. FRED SINGER, DEPUTY ASSISTANT SECRETARY, WATER QUALITY AND RESEARCH; DR. ROLAND SMITH, ASSISTANT DIRECTOR, MARINE RESOURCES, BUREAU OF COMMERCIAL FISHERIES; AND DR. RAY JOHNSON, ASSISTANT DIRECTOR, RESEARCH, BUREAU OF SPORT FISHERIES AND WILDLIFE

Dr. GLASGOW. Thank you, Mr. Chairman.

I do have some expert assistance with me this morning.

Mr. DINGELL. Would you please identify the gentlemen with you.

Dr. GLASGOW. The person sitting to my left is Dr. Fred Singer, Deputy Assistant Secretary for Water Quality and Research. On my right is Dr. Roland Smith, who is the Assistant Director for Marine Resources in the Bureau of Commercial Fisheries. And to his right is Dr. Ray Johnson, who is Assistant Director for Research in the Bureau of Sport Fisheries and Wildlife.

I have a prepared statement I would like to read.

Mr. DINGELL. Very well.

May I please ask this question of you first. Your statement is on behalf of the Department of Interior and you speak then not only as Assistant Secretary of Interior for Fish and Wildlife, and Parks, but am I to infer you speak also with regard to the Federal Water Quality Administration and related matters?

Dr. GLASGOW. Yes.

Mr. DINGELL. And that is the reason Dr. Singer is with you?

Dr. GLASGOW. Yes, sir, that is one reason. He is also an expert in this area and he is here to assist with respect to his area of competence.

Mr. DINGELL. May I ask Dr. Singer, do you have a statement of your own that you would like to give to the committee?

Dr. SINGER. No, sir, I do not.

Mr. DINGELL. Very well.

Dr. Glasgow, you may proceed.

Dr. GLASGOW. Thank you, Mr. Chairman, for the privilege of being here to discuss with you and members of your subcommittee several bills dealing with the disposition of certain waste materials in our coastal waters and in the ocean.

At the outset, Mr. Chairman, let me emphasize as strongly as I can that, in my opinion, disposal of waste in our waters, not only those waters under consideration today but all waters, is one of our most crucial and demanding environmental problems. Without doubt, we have reached that point where effective action to control such pollution is absolutely essential.

We once deluded ourselves into thinking that the ocean was big enough to absorb all our wastes without regard to quantity or time. We now know that this is not true. The New York Bight is proof enough, but one could also cite the contamination of the Baltic Sea, and other important water areas of the world.

We have been heading toward the creation of a worldwide cesspool. If man is to avoid literally drowning in his own effluent, we must act now. For example:

We have begun to recognize the awesome and terrible consequences of biological amplification of DDT and other biological active hydrocarbons, mercury and other heavy metals, and radioactive and other industrial wastes.

We are concerned about the high incidences of disease, cancer, malformation, emaciation, and genetic changes among fish and shellfish found in the vicinity of disposal areas and sewer outfalls.

We are frightened about increasing outbreaks of human poisoning and illnesses associated with eating fish and shellfish from a polluted marine environment, and with increasing outbreaks of red tide organisms, sea nettles, and other obnoxious plants and animals.

We know now, too, that we are responsible for perhaps as much as one-half of the world's pollution input into the sea. This raises grave questions about our moral and legal responsibilities to the international community.

In short, Mr. Chairman, we have ourselves in a mess of our own making and it is high time we did something to get out of it.

The bills which we are considering today recognize this urgent fact. I applaud the intent of these proposals because they aim directly at many of the things which must be done to regulate the ever-growing disposal of all kinds of wastes and pollutants into our waters.

Our problems are further complicated by poorly coordinated approaches to rational use of our coastal and adjacent waters, by jurisdictional jealousies, by inadequate planning, and by the belated realization that we must face, and quickly, an environmental threat of major proportions.

The gravity of this situation prompted President Nixon to advise Congress, in April of this year, that he had requested the Chairman of the Council on Environmental Quality, Russell Train, to initiate a study on ocean dumping and disposal problems that would recommend research needs, legislative changes, if needed, and a comprehensive approach to the problems.

This study is not intended as an in-depth analysis of the complex problems associated with ocean pollution. There are many excellent reports that have attacked this problem. What the Council's panel—and I am privileged to be a member of that group—proposes to do is to formulate a Federal policy and appropriate recommendations, and to develop guidelines for governmental agencies to begin to move immediately towards solutions which have been too long delayed.

As we pointed out in our report to the committee on this proposed legislation, the panel is scheduled to present a final report to the President by September 1. Various subgroups of the Government-wide panel have held a dozen or so meetings as of this date.

The final report will include the effects of ocean dumping on the environment, adequacy of existing control authority, extent and development of the toxic wastes now being discharged, availability of sites for suitable disposal on land, alternative methods of disposal, such as incineration and reuse, and innovative techniques for disposal at sea. These matters bear directly on the proposals which we are considering today.

There is an additional recent development which relates to the bills before us and which also reflects the concern of this administration for the ecological effects of ocean dumping. On February 10, we sent to the Congress a legislative proposal which, if enacted, would direct the Secretary to establish water quality standards for the waters of the contiguous zone.

That proposal, to amend the Federal Water Pollution Control Act, is pending before the House as H.R. 15905. In addition to its requirement of water quality standards, the bill would also make subject to abatement water pollution activities in the waters of the contiguous zone which adversely affect water quality in the territorial sea, and pollution of the seas resulting beyond the contiguous zone from discharge of material transported from U.S. territory.

In view of these two significant actions which are pending, one in the Legislative Branch and the other in the Executive, we respectfully recommend that the committee defer action on the several bills under discussion.

Further, the problems associated with the cessation of ocean dumping are very complex. Therefore, we must proceed only after thorough study and adequate caution.

My colleagues and I will be pleased to attempt to answer any questions.

Mr. DINGELL. Dr. Glasgow, the committee is grateful to you for your very helpful statement.

Dr. Singer, Dr. Smith, Dr. Johnson, do you have any comments you would like to add to the statement made by the Secretary?

Dr. SINGER. No, sir. I do not.

Dr. JOHNSON. No.

Mr. DINGELL. Mr. Keith?

Mr. KEITH. Thank you, Mr. Chairman.

This committee is familiar with suggestions to defer action until further study. However, your study is so close to being completed that a deferment makes some sense. But you may recall that several years ago I filed legislation calling for marine sanctuaries. We deferred action on that. Then the Catalina Channel oil spill came along while we were postponing action.

We had the *Ocean Eagle* spill and we had on the average 500 or 600 other spills per year.

Now the Government Operations Committee has special subcommittees dealing with oil pollution in estuarine areas, I urge you to follow closely these developments.

Representing an area whose economy is in large measure dependent upon these estuary areas, I am particularly worried about the spawning grounds for fish we market through our ports.

Just last night a fisherman told me that he felt things were looking up because the State had taken action on chemical effluents, which had improved the spawning grounds.

In yesterday's Boston Globe there was an article which took a positive point of view, pointing out that some countries, by controlling these effluents, were able to stimulate the spawning and feeding of fish by the use of baffles in the case of thermal pollution, and by the use of sewage. Some countries were actually getting tremendous improvements in fish yields. Your testimony does not speak to this.

I would be interested to know if there is any positive benefit to be gained from this study?

Dr. GLASGOW. Certainly, the ocean, generally speaking, is a rather sterile area, except for the immediate coast line. The addition of fertility in these sterile areas would increase production if it was the right type of fertility. There could be some benefits.

In recommendations which we would make, we would recommend that you not only study the sites and choose them according to the disposition that could be made there, but also the type of material that was to be dumped.

So in each case I think you would have to study them individually to determine what the environmental impact would be, both as to the site and to the material you are dumping. In some cases you could gain some benefits. Generally speaking, though, it would be detrimental.

Mr. KEITH. Do you feel that the end results of thermal pollution are essentially detrimental?

Dr. GLASGOW. I think again you have to look at each individual case of thermal pollution. It may very well be that in some areas where the waters are extremely cool, heating might be of benefit.

In other areas, however, where the high temperature is the controlling factor, and you add more heat, then it is certainly detrimental.

Mr. KEITH. Will this study which the administration is undertaking treat marine sanctuaries?

Dr. GLASGOW. This has not been brought up as of this date, Mr. Keith. I am sure we could include it as part of this study.

Mr. KEITH. I do not want to delay the action on the main thrust here, which has great significance to many parts of my constituency. But I wish that you would make certain that some input is made in that respect.

I have no further questions at the moment, Mr. Chairman.

Mr. DINGELL. Thank you, Mr. Keith.

Mr. Goodling?

Mr. GOODLING. Thank you, Mr. Chairman.

Just this one observation. I want the record to show that I do not completely agree with the statement made by Dr. Glasgow at the top of page 2, which says this:

We have begun to recognize the awesome and terrible consequences of biological amplification of DDT and other biologically active hydrocarbons.

I am afraid, Doctor, that we have become far more emotional over DDT than we have scientifically.

Just yesterday I was reading an article written by very responsible people who refute a lot of the things that have been said about DDT recently. It seems all of a sudden, practically overnight, we have developed a lot of pseudoscientists.

Right now, this very moment, gypsy moths are eating us up in Pennsylvania, New Jersey, and New York. We have no known substitute for the gypsy moth.

Mr. DINGELL. Will the gentleman yield?

You mean no known substitute for DDT in controlling the gypsy moth?

I am sure the gentleman did not mean substitute for gypsy moth.

Mr. GOODLING. I stand corrected. I wish we could substitute the gypsy moth. But we have no known substitute to combat the gypsy moth other than DDT. While it is not specifically banned in Pennsylvania, these so-called scientists that have become so emotional, have caused so much trouble, my people in Pennsylvania are simply afraid to use it. Originally we were using 3 gallons to the acre to control the gypsy moth. We know now we can do it with 1 gallon per acre. Nobody has discovered any real negative results that have occurred by using it. But as I say, my people and I just spoke to my entomologist a week ago in Pennsylvania—he said they were simply afraid to use it. This article I read hurriedly yesterday refutes a lot of the things that are being said about DDT.

All I would like to do is, go slow until we have more information about DDT.

I have said this over and over again and I am sure the chairman is getting tired of hearing me say this, but if DDT was half as bad as you people insinuate, I would not be sitting here today questioning you and your statements that you have made because I personally have used tons of it and the doctors tell me I am still in pretty good shape physically.

That is all, Mr. Chairman.

Mr. DINGELL. Thank you, Mr. Goodling.

Mr. Frey?

Mr. FREY. If the gentleman will yield, I will agree with that testimonial. I have a basic question that bothers me in this whole area.

Is any of this legislation really broad enough or adequate? The legislation we are considering today touches one part of it, the dumping part. H.R. 15905, which is the water pollution bill, adds standards to the abatement of pollution activities in the contiguous zone, and so forth.

In your opinion, really, have we looked at this whole thing and got legislation adequate to cover the complete problem?

Dr. GLASGOW. I do not think so. No, we don't.

The last statement I made was that the problems associated with the cessation of ocean dumping—and this is not in my written statement because I added it after I sat down here—are very complex. Therefore, we must proceed after a thorough study and with great caution because this is a complex matter. If we go too fast, I think we are apt to cause more problems than we cure.

Mr. FREY. I certainly recognize the fact that you have done a fine job and that the administration has taken some strong steps in the short time that they have had a chance to do something. But I think it has also been pointed out, have we not been studying this complex problem for a good deal of time now?

Dr. GLASGOW. I do not think so, because I served as a director of the wildlife and fisheries commission in Louisiana, and one of my big concerns was the barging of ocean wastes down the Mississippi River from all the internal areas of the country, right on top of Louisiana and the gulf. I was fighting it down there. At that time there really had not been any study. I could not even find out who was responsible for issuing permits or how much authority any governmental agency had. It was very difficult. That has only been 3 or 4 years ago.

Mr. FREY. We can agree from your statement, one, that this is an urgent matter? It is something we do not have a great deal of time to come to a conclusion about?

Dr. GLASGOW. Yes, I will agree 100 percent on that.

Mr. FREY. And two, that probably the legislation that we have before us and other legislation is good legislation and is tending in its intent at least to go somewhat in the right direction?

Dr. GLASGOW. Yes, sir. There are many good aspects to the legislation proposed.

Mr. FREY. Three, from what you say, probably after looking at the problem a little deeper, we do need more comprehensive legislation regarding this problem than we presently have.

Dr. GLASGOW. Yes. If we should stop all ocean dumping right now, I do not know how New York City and the other areas there would dispose of their waste materials. They are not prepared to take care of it. It will be several years before they are.

Mr. FREY. This might be someplace down the line, but I am somewhat surprised to see our colleagues from New York putting in a good word about our space program regarding the taking of pictures in space. Of course we will have the earth resources satellite in 1972

which will help a little bit. But one other area that has been of interest to me is the recycling of wastes through the air which have resulted from the space program. Is this a possibility down the line, do you think, in the big cities?

Dr. GLASGOW. May I call on Dr. Singer to respond, please?

Mr. FREY. Yes.

Dr. SINGER. The recycling of wastes in the space program was designed to do a very specific job.

Mr. FREY. On a small scale?

Dr. SINGER. Yes. And expense of course was no object there, because it would be more expensive to carry the extra weight than to do the recycling.

I think recycling in the real world, when you are dealing with hundreds of tons or thousands of tons of material is a more complex job and has to be attacked by the most economical methods. I agree with you completely, however, that recycling and reuse is the right answer, ecologically the right ultimate answer. Our answer through the Federal Water Quality Administration is to develop more economical methods of doing this, those which would be competitive with the current techniques or even better.

Mr. FREY. How close are you to this?

Dr. SINGER. Sir, there are two aspects to this problem. One is the recycling and reuse of water, that is turning sewage into water that can be reused again for various purposes, not just for irrigation and not just for industrial use, but even for domestic use if necessary.

Mr. FREY. Can you comment on that as to where we are?

Dr. SINGER. Be glad to.

We have now reached the stage where we can clean up water to a state where it is fit to drink. One of my colleagues who testified before Congress here, to a different committee, actually drank reclaimed waste water while he delivered his testimony, to demonstrate this fact.

The point, however, is that it is economically within reach. That is to say that the cost of cleaning up sewage is now almost within reach of the normal cleanup of water, plus the cost it takes to prepare let's say river water for drinking purposes. It also has to be monitored of course and chlorinated.

In fact, there are some countries overseas that have already gone to complete water reuse. What comes to mind is South Africa, which, because of water shortages, had to put one of its major cities, the city of Windhoek, on complete reuse of waste water. It is simply recycled and reused again.

Other countries such as Israel are moving in that direction, again because of extreme water shortages.

Mr. FREY. The second phase?

Dr. SINGER. The second phase has to do with the reuse and recycling of sewage sludge. Sewage sludge ought to have some value. It is, after all, composed of nutrients, fertilizer-type materials.

The problem seems to be partly the cost of transport, that is, taking it from the sewage treatment plant to where it can do some good; also, conditioning it so it can be introduced into the soil. We have an active research program in Cincinnati which is trying to tackle this problem and set up right at this time some demonstration proj-

ects to show that this is in fact a feasible way of dealing with sewage sludge.

Mr. FREY. I think from the inflection of your remarks that you are a lot further along in the water thing in the terms of economics and everything than we are in the waste sludge.

Dr. SINGER. That is correct, yes.

Mr. FREY. That certainly is encouraging news.

I do not have any other questions, Mr. Chairman.

Dr. SINGER. But I completely back Secretary Glasgow's statement that we should not move precipitously on this matter because the coastal cities will be faced with an awful problem if suddenly regulations were to spring up that they could not fulfill.

Mr. FREY. Such as regulations that they could not dump, you mean?

Dr. SINGER. If we prohibit dumping, period, without providing alternatives or sufficient time to develop alternatives, I think we would be falling short of our responsibilities.

Mr. FREY. Let me ask you on that dumping, in your opinion, just from what you know about it, where should they be able to dump? Can you just by rule-of-thumb say there should be no dumping in the territorial seas or it should be 50 miles out, up in that area?

Dr. SINGER. Let me answer this in two ways.

As a matter of principle, I think we would say we are against dumping in the ocean. If alternatives can be developed, that is.

We would, however, on an interim basis allow the type of dumping of materials that we feel reasonably certain are not causing any immediate and demonstrated adverse effects. We of course are against dumping of anything that causes adverse effects immediately.

As far as the location is concerned, you mentioned the bill H.R. 15905 and S. 3471. These are amendments to the Water Pollution Control Act. These bills would give the U.S. Government the broad authority which we do not have now to deal with this problem beyond the territorial sea.

Dr. GLASGOW. I would like for Dr. Smith to comment on that same question if you do not mind.

Mr. FREY. I would appreciate it.

Mr. SMITH. Yes. I would be essentially in agreement with Dr. Singer here.

It would be, I think; our recommendation that we should permit dumping of materials into the sea that can actually help the environment, as Dr. Glasgow mentioned, by providing more nutrition or improving the habitat. Other than that, we would be basically opposed to the dumping of material that would even disturb or alter a small portion of the environment.

I would like to also elaborate and point out that actually ocean pollution or ocean dumping is part of a broader problem, it is part of a problem of waste management. If we properly recycle or reuse our waste products, perhaps we do not have to think about disposing of a great many of the materials that we are now thinking about having to get rid of in the ocean. So we have to look at this in terms of a broad waste management problem, not just ocean disposal or sewer outfalls, this or that.

Mr. FREY. Thank you.

Thank you, Mr. Chairman.

Mr. DINGELL. Mr. Everett?

Mr. EVERETT. Thank you, Mr. Chairman.

Dr. SINGER. I was wondering if you could indicate how the Federal Water Quality Improvement Act or the Federal Water Pollution Control Act would compare with the legislation we are considering today with respect to overlap and also with respect to areas that would be covered by the legislation, but may be included in the Federal Water Pollution Control Act?

Dr. SINGER. The intention, and the proposed amendments to the Federal Water Pollution Control Act are as follows: It is to extend the authority of the U.S. Government to various bodies of water which are not now covered by this act. This includes boundary waters, ground waters, and of course certain parts of the ocean. It includes, specifically, the contiguous zone, that is the zone from beyond the territorial sea, that is from 3 to 12 miles, where pollution of that contiguous zone might affect and would affect the territorial sea.

It also includes on the high seas beyond the contiguous zone, any pollution produced by materials which originate within the United States.

You recognize of course that the high seas do not belong to us. Our jurisdiction there is limited. However, we would through this act extend our jurisdiction to keep adverse effects from occurring there, but we can only do this for wastes or pollutants which originate within the United States. It is a very broad authority. It does not specify where dumping may be carried on, it does not mention anything concerning dumping specifically.

Mr. EVERETT. This is with respect to the legislation you referred to?

Dr. SINGER. I am speaking now about the legislation introduced last February to amend the Water Pollution Control Act.

Mr. EVERETT. What action has been taken in the House or Senate on that legislation, if any?

Dr. SINGER. I am not familiar with the situation as it is right now.

Mr. EVERETT. Can any of you gentlemen indicate whether any action is contemplated at this time on either side with respect to this legislation?

Dr. GLASGOW. I do not know.

Dr. JOHNSON. If that is H.R. 15095, my latest information is that it is still pending in the House and I have no knowledge of exactly at what point it may be.

Mr. EVERETT. Does existing law cover the dedication of areas where dumping can take place?

Dr. SINGER. Existing law does not say anything about specific areas for dumping. In fact, we have no legislative authorities concerning the region beyond the territorial sea at all. This is the purpose for the amendment to the Federal Water Pollution Control Act.

Mr. KEITH. What is the State's area of responsibility and what action has it taken?

Dr. Glasgow should comment on that. In Massachusetts there are some towns that have an outfall of sewage. I think the Department of Public Health feels that the towns have the authority to permit or to deny such practices.

Dr. GLASGOW. I think any time that waste is disposed of in navigable waters or interstate water, the Federal Government can enter the picture.

Mr. KEITH. The State has parallel responsibility and authority, does it not?

Dr. GLASGOW. Yes.

The Federal water quality standards that have been accepted by the State, have also been accepted by the Federal Government. So each shares the responsibility.

Mr. KEITH. With reference to the New York Harbor situation, could the State exercise jurisdiction over the harbor area?

Dr. GLASGOW. I think the State could control the dumping of its own citizens.

I think the Federal Government, though, would have to control beyond the 3-mile limit. Inside that limit I believe the states can control the dumping of their own citizens based on standards approved by the Federal Government. Outside I think the Federal Government would have to assume responsibility.

Mr. KEITH. As long as the outfall must pass through the 3-mile limit, can the State exercise authority over outfall beyond this limit?

Dr. GLASGOW. Yes. Certainly we would prefer the States control it themselves and not require the Federal Government to step in. But if the States do not, then there is not much recourse except for the Federal Government to enter it.

Dr. SINGER. If I may break at this point, I believe the authorities that exist nowadays are not very clear cut in the sense that they are not based on water quality; that is, the effects that adverse water quality have on people and the benefits. The authority that exists now is based on hazards to navigation. That is what is being invoked now to control dumping in certain areas. We would prefer to have clear-cut authority for the Federal Government to act in the contiguous zone and beyond, and this is the purpose of the amendment to the Federal Water Pollution Control Act.

Mr. KEITH. In my view the Government has the authority to act on public health as well as navigation.

Dr. SINGER. Yes; and also injury to shellfish.

Mr. DINGELL. Mr. Everett?

Mr. EVERETT. Dr. Singer, Congressman Murphy's bill covers the discharge of sewage, sludge, spoil, or other wastes. Are all of these items covered by the Federal Water Pollution Control Act?

Dr. SINGER. The act is not specific; the act is broad. It then leaves it to the component Government agency, in this case the Federal Water Quality Administration, to set regulations which would fulfill the intent of the act. The intent of the act is to protect and enhance water quality. It leaves it to the Federal Water Quality Administration then to decide what kinds of discharges would deteriorate water quality and what kind of discharges would be okay.

Mr. DINGELL. That is a very good answer, but you have not told Mr. Everett in response to his question whether or not the Federal Water Quality Act would control the situation referred to in H.R. 17603, Mr. Murphy's bill, or whether that statute would prohibit the kind of dumping to which H.R. 17603 addresses itself.

Dr. SINGER. I have not seen Mr. Murphy's bill before, nor have I had a chance to study it.

Mr. DINGELL. It is the desire of the Chair to be fair to you.

Now you good gentlemen are here to testify on this legislation. We did not designate who would come to speak on behalf of the Interior Department. But we have requested that Interior Department does have witnesses who are able to discuss with this committee and advise this committee in enlightened fashion. The Chair will then request you to review with care H.R. 17603 and other proposals pending before the committee and listed in the committee notices and advise the committee what portions of those bills are covered by the Federal Water Quality Act, and also what portions of those bills are covered by H.R. 15905.

Dr. SINGER. Would it be satisfactory to give you a written answer to this?

Mr. DINGELL. Yes; this is quite appropriate. We will keep the record open for you to do so. I do not expect it right now because, as I say, I do wish to be fair to you.

Dr. SINGER. Thank you.

Mr. EVERETT. I notice both Departments, Army and Interior, recommend a deferral of action on the legislation pending completion of several studies. But in view of the fact that the committee may report one or even both of these bills, I would appreciate it if you would analyze the legislation with this possibility in mind and, if so, what amendments would the Department of Interior suggest?

Mr. DINGELL. If you would yield, Mr. Everett, the Chair does wish to advise you gentlemen that it is the intention of the Chair to move on this legislation and to see to it that this legislation is presented to the House for consideration. So the Chair does advise the administration, and you gentlemen speaking on behalf of it, that we would like to have amendments of either a technical or substantive nature which you believe would appropriately and properly relate this legislation to the administration's policy, and also to other existing legislation, so that we can come forward with a piece of legislation with which you might not necessarily agree but with which you can work.

Mr. Secretary, I would like to have that at as early a time as you decently and comfortably could make it available to the committee.

Mr. GOODLING. Mr. Chairman, one further question of Dr. Glasgow.

Mr. Murphy raised the matter of solid waste produced by livestock. I am not concerned with livestock on the range and I question whether you are. But I am greatly concerned about the new method we are using in producing livestock today, where we are concentrating cattle in feed lots, where we have 100,000 or more cattle that remain in one spot for 180 days and they keep replacing them all the time. Whose responsibility is it to study this problem so that we do not pollute everything in the area where practiced. Is that your responsibility or your department's responsibility?

Dr. GLASGOW. May I ask Dr. Singer to comment, please?

Dr. SINGER. I am afraid this again is a responsibility of the Federal Water Quality Administration. We are attempting to find economical ways of dealing with the feed lot waste problem. The feed lot waste problem is a very serious one in the Central United States, in areas

quite far away from the ocean. So I do not think it has any very direct effect on water quality in the ocean, but it certainly has a very strong effect on water quality in rivers.

It puts a lot of material into rivers which use up the oxygen. After the oxygen is used up, these rivers turn septic and begin to smell. It is a problem that has to be taken very seriously because of its consequences.

Mr. GOODLING. The problem then is being studied?

Dr. SINGER. More than that, we are acting in a positive direction.

The difficulty, of course, again, is cost. You cannot afford to build exactly the kinds of waste treatment plants we build for cities. We have to find cheaper ways of dealing with this problem. We take advantage of the fact that feed lots are often located in areas where land is cheap, at least cheaper than it is in the cities, so you can use treatment ponds. By building treatment ponds adequately designed and learning how to design them properly, these wastes can be handled.

Mr. GOODLING. That is all.

Mr. DINGELL. Mr. Everett?

Mr. EVERETT. Dr. Glasgow, when you are submitting the other information for the record, we would also like for you to submit the cost of the legislation to the Federal Government in case Congressman Murphy's bill or Congressman Ottinger's bill or Congressman Harrington's bill would be ordered reported by the committee.

Dr. GLASGOW. This would be extremely difficult, but we will do our best.

Mr. EVERETT. You mentioned that you are on the panel, under Chairman Train, which is now conducting a study on ocean dumping scheduled to be presented by September 1. Do you feel that this report is going to be submitted on time?

Dr. GLASGOW. It is questionable at this time whether we can complete the work or not by that date.

Mr. EVERETT. Do you have an indication as to when it will be presented to the President?

Dr. GLASGOW. No, but I am sure it will be as promptly after that date as possible, if not by that date.

Mr. EVERETT. Will this report include any legislative recommendations?

Dr. GLASGOW. I would think so.

Mr. DINGELL. If the gentleman would yield, I would observe with some sadness, Mr. Secretary, that there has never been a report that this committee has directed the Department of Interior or the executive department to submit to us that has been submitted in timely fashion. This committee, as you recall, submitted to the executive branch legislation requiring the Executive to come forward with recommendations for legislation for the preservation of the estuarine areas.

Mr. Secretary, I am sure you read that, as has the occupant of the chair. I am equally satisfied that you observed, as did I, and I must confess with great distress, that although the statute that required the submission of that report stated clearly that there be a panel of legislative recommendations appended, and although that report

cost approximately a quarter of a million dollars, there was not a single legislative recommendation submitted to the Congress, as required by law.

Now I have great faith in you and great respect for you and I am well aware that many of the problems that I am discussing at this particular time do not relate to your agency, but relate to the Bureau of the Budget. Yet nevertheless, Mr. Secretary, I must observe with some sadness that when this committee has waited for reports, we have invariably been disappointed. I am sure you know this.

Dr. GLASGOW. I do, sir.

Mr. DINGELL. I also would observe, Mr. Secretary, that most of the conservation legislation reported out of this subcommittee over the last couple of years has also come out over the objections not of just this administration but of the previous administration. So again, Mr. Secretary, I must sadly observe that although we seek the advice of the departments, it is our hope that we will get some inspiration, some guidance, some help, some cooperation, involving legislative policy. The observations that we have received on legislation from your agency and other agencies of the Federal Government have invariably directed or invariably requested this committee to reserve judgment until some future action by the administration.

I would refer to the National Environmental Policy Act, legislation dealing with fishery loans to commercial fisheries; to legislation dealing with water pollution; to legislation that would make available the hand-gun tax for hunter safety program, and legislation of this kind. Yet not infrequently, when this legislation is signed by the President, it is signed with great approval. I must advise you that it is the intention of the Chair to proceed in an expeditious fashion to present this legislation to the House, and I must inform you that it is our hope that you will be able to submit to us appropriate amendments to the legislation at a very early date.

Mr. EVERETT. As you know, the Congress is taking a recess in early August. Could you indicate at this time as to whether Congress would be entitled to a copy of the ocean dumping report once it has been completed and presented to the President?

Dr. GLASGOW. Mr. Everett, I cannot answer your question, because I am just a member of this committee and it is beyond my control.

Mr. EVERETT. I would appreciate it if you would see that this committee gets a copy of this report as soon as it is available for distribution to the Members of the Congress.

Dr. GLASGOW. I will make that recommendation.

Mr. EVERETT. Thank you, sir.

That is all, Mr. Chairman.

Mr. DINGELL. Mr. Secretary, the Chair would like to ask you if you are familiar with the report submitted to the Secretary of the Interior entitled "Evaluation of Influence of Dumping in the New York Bight"?

Dr. GLASGOW. By our Sandy Hook laboratory?

Mr. DINGELL. Yes, sir.

Actually, there were a large number of persons involved in that. The Chairman was Dr. Smith.

Dr. GLASGOW. Excuse me, I did not recognize it by that name.

Yes, this is a study I directed be carried out, myself.

Mr. DINGELL. Have any of the recommendations of that particular study been implemented?

Dr. GLASGOW. This report is a very recent one. In fact it was just made an official report of Interior, probably last Thursday or Friday, I believe.

Mr. DINGELL. It was submitted the 24th of June?

Dr. GLASGOW. Yes. It was officially accepted by the Secretary, I believe, last Thursday.

Mr. DINGELL. It then does constitute an official report of the Interior Department?

Dr. GLASGOW. Yes, sir. I have made recommendations to the Secretary that we implement all of the parts of this report that we can that do not require legislative action. I have made that recommendation to the Secretary.

Mr. DINGELL. All right. Then, Mr. Secretary, I want you to tell us what portions of this report will require legislative action.

Dr. GLASGOW. Yes.

May we submit that for the record?

Mr. DINGELL. Yes, sir. It is obviously too detailed a request for you to submit just sitting there, I understand.

Dr. GLASGOW. Yes.

Mr. DINGELL. Now, I note the policy statement here says:

The policy of the Federal Government should be an aggressive and total condemnation of ocean pollution from all sources. It should provide the necessary guidelines for agencies at all levels of government to limit or prevent ocean disposal of all materials that would unfavorably alter the marine environment through direct or indirect effects of changes in energy patterns; radiation levels; chemical and physical constitution, and distribution, abundance, and quality of organisms. The policy should incorporate the following specific recommendations:

1. The dumping of any waste materials which could create hazardous conditions, toxic or otherwise, in ocean waters should cease. In some specific cases, until suitable alternative methods can be put into practice, ocean disposal of certain toxic substances may be the least objectionable solution. Where this can be demonstrated, disposal methods and sites must be approved by the Departments of Health, Education, and Welfare; Interior, State if beyond the territorial sea, and other appropriate federal agencies.

2. Ocean disposal of polluted dredge spoil, undigested sludge, and improperly treated sewage effluent must be terminated. Continuation of these practices can create serious human health hazards and cause significant deterioration to coastal marine environments and marine living resources. They must be terminated as rapidly as alternate solutions will permit.

3. Disposal of unpolluted dredge spoil, rubble, and similar wastes, which have been demonstrated to be inert and non-toxic, should be evaluated on a case-by-case basis.

That is an official statement then of the Interior Department.

Dr. GLASGOW. This is our recommendation for policy, Mr. Chairman.

Mr. DINGELL. Mr. Secretary, would not H.R. 17603 carry out the recommendations of that particular study?

Dr. GLASGOW. Mr. Chairman, I am sure it would cover parts of it and possibly all of it. I am not sure about how completely it would cover it.

Mr. DINGELL. Mr. Secretary, then I will ask you, if you please, to inform us what portion of the report that we are now discussing is not included in H.R. 17603.

I would also request that you give this committee the benefit of appropriate amendatory language to bring H.R. 17603 into conformity with the language of your suggestions.

Mr. EVERETT. No further questions.

Mr. DINGELL. Mr. Secretary, in spite of the differences that you and I occasionally have of a professional character, I want you to know it is always a privilege for me to have you before the committee and to renew the friendship of which I am very proud.

Dr. GLASGOW. Thank you, Mr. Chairman.

If I could, I would like to have one other discussion put into the record here this morning.

Mr. DINGELL. Certainly, Mr. Secretary.

Dr. GLASGOW. I have brought with me Dr. Ray Johnson and he has hardly earned his keep this morning because he has said very little, so I am going to ask him to comment on a question that was raised earlier in relation to diseased fish, about sewer outfalls, and the New York Bight. I would like for him to comment on that.

Mr. DINGELL. I think that would be very, very helpful.

Doctor, if you please.

Dr. JOHNSON. In very few words, Mr. Chairman, the presence of finless fishes that have corroded scales and are showing erosion of their gills and other symptoms of unhappy conditions is often associated with deteriorating environment. The only problem is that we are not quite sure which elements of the deterioration are responsible for the reactions we are seeing in many of these fish species.

It is possible, in the case of pulp wastes, for example, to know what effects they will have on fish species, possible in the case of some heavy-weight metal wastes. But in the New York Bight situation, we have a mixture of situations. We know something is wrong, but we have not quite put our finger on the exact culprit yet.

Mr. DINGELL. Do yo have reason to identify any particular cause for the phenomenon that you observed with regard to fish?

Dr. JOHNSON. No, sir, not yet. It is quite apparent that some general cause, such as reduced oxygen conditions over a long period of time, could be at fault. But then, what is causing the oxygen depletion?

There may be two or three things causing that which may be corrected to bring up the oxygen levels. That is just one example.

Mr. DINGELL. Have there been any studies prepared with regard to these matters?

Dr. JOHNSON. Yes, sir.

A study is underway and studies proposed. They can be related to you in greater detail, I am sure, when Dr. Jack Pierce arrives for your meetings tomorrow morning. He is the man in charge of those and can relate the progress of both the proposed ones and the present ones.

Mr. DINGELL. I see.

The Chair will direct counsel, then, to review these matters with you in greater detail, I am sure, when Dr. Jack Pierce arrives for your hearing. The information gleaned from these studies can be included in the hearing records as appropriate and at the appropriate place.

Doctor, the Chair does wish to thank you for your presence this morning and for your most helpful testimony. It is a privilege to have you with us.

Dr. JOHNSON. Thank you.

Mr. DINGELL. Our next witness is the gentleman from Colorado, the Honorable Donald G. Brotzman. We are happy to have you with us this morning.

**STATEMENT OF HON. DONALD G. BROTMAN, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF COLORADO**

Mr. BROTMAN. Mr. Chairman, I welcome the opportunity to appear before this distinguished committee and to speak in favor of legislation which would make illegal the dumping of the agents, byproducts and wastes of chemical, biological, and radiological warfare into the oceans.

Following the disposal, by the Army, of nerve gas rockets earlier in the year, I introduced legislation which would establish criminal penalties for persons engaged in the sea disposal of chemical and biological weapons. My bill, H.R. 19014, because of the criminal sanctions, was referred to the Judiciary Committee, where it is now pending.

Although H.R. 19014 is not before this distinguished committee, I do wish to urge your favorable consideration of the legislation now under review. I believe my bill, with its criminal sanctions, would complement the legislation you are considering, but more importantly I feel that good legislation needs to be passed yet in the 91st Congress if we are to save our oceans from becoming a delayed time bomb.

President Nixon has recently asked Congress to enact tough, new legislation to prevent the pollution of the sea. I welcome his leadership in this effort, and I hope that his message will serve to encourage this committee in its work.

The people of the Second District of Colorado, who I have the privilege of representing in Congress, are intimately familiar with the difficulties involved in the disposal of surplus chemical and biological warfare weapons. They, and I, strongly opposed the efforts to move toxic materials from the Rocky Mountain Arsenal for ocean burial off the coast of New Jersey last year. As a result, facilities at the arsenal are now being developed to detoxify and destroy the weapons on location and in a safe manner.

Sea disposal may seem to be an attractive alternative at first glance. However, the reduced costs at the time of the disposal can in no way be matched against the possibility of killing the sea. We cannot allow this to happen. This is especially the case now that technology is rapidly becoming available to assure disposal in place in a safe manner, for a reasonable cost, and without danger to the quality of our environment.

In conclusion, Mr. Chairman, I call on the Merchant Marine and Fisheries Committee to report legislation to the floor of the House as expeditiously as possible.

Mr. DINGELL. Thank you Congressman, for an excellent statement.

Next I would like to call on our colleague from Florida, the Honorable J. Herbert Burke.

**STATEMENT OF HON. J. HERBERT BURKE, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF FLORIDA**

Mr. BURKE. Mr. Chairman, want to thank you and the members of this subcommittee for allowing me this opportunity to offer testi-

mony in support of the two bills before this subcommittee which I have cosponsored, H.R. 18913 and H.R. 18914.

These bills were introduced because of the problems which resulted from the disposal in the Atlantic Ocean of lethal nerve gas by the Department of the Army.

Although because of misleading statements by some which had the effect of creating near panic in some areas, the disposal pointed out the urgent need for a complete reappraisal of our policy in such matters and the need for reinforcing procedures for the future disposal of other gases and other possible pollutants into domestic and international waters.

Our Nation has at long last become crucially aware of its environment and it is necessary that we enact the strongest possible safety measures to prevent the need of such methods of disposal of biological, chemical, and radiological warfare agents in the future. Passage of these bills, H.R. 18913 and H.R. 18914, would require the Department of Defense to fully inventory such items and to determine safe disposal dates and the means, and to thereafter submit such data to the Council on Environmental Quality for certification.

These bills would also place in this same category of regulation the acquisition and ultimate disposal of munitions.

I sincerely hope that the subcommittee will consider these bills in the light and response to the need to authorize the Council on Environmental Quality to require the inventory and regulation by the Department of Defense of such dangerous and polluting items. Time for action by the Congress is, in my opinion, essential and urgent.

I am grateful to the members of this subcommittee for the expedient manner by you on your handling of these measures which, by the way, are cosponsored by 80 Members of the House from both sides of the aisle, in a bipartisan effort to secure our future generations from unnecessary contamination.

I wish to thank you for your favorable consideration.

Mr. DINGELL. Thank you Congressman, for a very enlightening statement.

I see the distinguished gentleman from Hawaii, the Honorable Spark Matsunaga, here today. Congressman, would you like to address the committee at this time?

STATEMENT BY HON. SPARK MATSUNAGA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF HAWAII

Mr. MATSUNAGA. Mr. Chairman and members of the subcommittee, I am grateful for this opportunity to appraise you of my views on H.R. 19018 and related bills, which would require the Council on Environmental Quality to investigate fully our national policy regarding the discharging of material into the oceans.

I congratulate the subcommittee on its expeditious scheduling of these hearings, while our memories are fresh of the dumping of nerve gas containers into the Atlantic in August. No one knows more accurately than the members of the Merchant Marine and Fisheries Committee how unsatisfactory were our alternatives at that time. The Army disposed of almost 70 tons of lethal GB nerve gas just

off the coast of Florida. No one denied the potential tragedy involved in this dumping, but there was no time for the development of feasible alternative disposal methods.

Our oceans, however, are menaced by more than nerve gas disposal.

It was estimated in 1968 that 48 million tons of sewage and solid waste were pumped into the seas off U.S. coastlines. Oil, gasoline, lead, DDT—ocean pollutants are many and farflung.

Perhaps no more tragic example of this exists than the recent ocean crossing by the reed boat *Ra II*. Thor Heyerdahl and his crew sailed through filthy water in the middle of the Atlantic, hundreds of miles out to sea.

Mr. Chairman and subcommittee members, my own State of Hawaii is particularly sensitive to pollution of the world's oceans. The island State coexists with and depends upon the Pacific. It is a major component of Hawaii's environment.

I believe that it is imperative that an assessment be made of our nation's policy toward disposal of waste into the oceans. Certainly, if Congress is to act rationally in this matter, we must know where we are and in what direction we are now going. H.R. 19018 and similar bills provide, I submit, an appropriate vehicle for such an accurate assessment.

I am confident that this distinguished subcommittee will act decisively to prevent our oceans from becoming international garbage dumps.

Mr. Chairman and members, I thank you for your courtesy.

Mr. DINGELL. I would like to thank my colleague from Hawaii for his appearance before us today.

I would like, at this time, to welcome another distinguished member from the State of Florida, the Honorable Sam Gibbons. Congressman, would you care to address the committee?

STATEMENT OF HON. SAM GIBBONS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. GIBBONS. May I speak briefly in behalf of two bills which are of a great deal of importance to the future welfare of the Nation, if not the world. They are concerned with the future condition of the ocean, which stores and releases water for the sustenance of life both in the sea and on the land. In the full cycle of life, water is drawn from and returned to the sea.

These bills are H.R. 18913 and H.R. 18914. They are brief, and simple in form and in intent, but their effects will surely be felt far and wide. If approved they will be a forward step to ensure the future presence of man on earth.

This is no exaggeration, for as we are beginning to realize man has been heedlessly destroying his home, which is the earth and all of its resources. As man's numbers have increased and his technology improved he has seized upon these resources, squeezed, hammered, boiled, fried, chopped, and otherwise altered them from their natural forms, into more utilitarian forms, *but* leaving a great deal of waste. This he has been carelessly leaving about or discharging into the nearest water course, whence it inevitably reaches the sea.

These wastes are of every conceivable nature, and in many areas their discharge has resulted in total destruction of the ecology of the immediate area of deposit. There are estuaries along the Nation's coasts which once supported thriving industries providing food and sustenance for many thousands. Wastes in the form of sewage, chemicals, metallic scrap and many, many other forms are beginning to fill up the margins of the sea. Anyone who has crossed the ocean in recent years has been able to determine with his own eyes, that waste products are beginning to spread over the entire sea.

It has been estimated that 4½ million tons of sludge is being dumped into the east coast waters every year, and in the future this will surely increase. How long can the ocean absorb it? The bottom of the marginal seas are becoming covered with a slimy sludge which is slowly destroying all forms of aquatic life. Water which nature draws from the seas to fall in the form of rain which supports all life on land is now being found to be corrosive, with traces of elements harmful to vegetation and to animal life and which is deposited on the land to be found in the food we eat. Think of it, the very food we eat is in danger of being contaminated by the presence of corrosive and radioactive elements which we must consume to sustain life.

We have been faced recently, and will I am sure be so confronted increasingly in the future, with an emergency in the form of the immediate need to discard dangerous chemicals, the end products of the chemical and biological warfare research efforts of the military. Their existence, of course, is a dangerous thing but their final disposal is of even greater importance.

The recent proposal to dump these substances into the ocean was and should have been objected to by many concerned people. The final disposition, made necessary by the critical stage in which they existed, means that these hazardous substances are now in the ocean. What effect they will have on their present environment is unknown. How far their effects will spread is in question. How long whatever effects they have will last is yet to be determined. But surely they constitute a present and probably future danger to the marine life of some considerable area.

This circumstance, repeated many times in the future, would represent to my mind a horrible prospect.

It is to avoid such situations that these two bills are addressed.

H.R. 18913 is directed specifically at military materials which might be disposed of in the sea or the navigable waters of the Nation. The purpose of military material is to destroy, and this characteristic is certainly not lost when it is no longer desired or serves any useful purpose. This bill would require a certificate to be issued by the Council on Environmental Quality before any such disposal. Discharge of any munition, or any chemical, biological, or radiological substance would be subject to regulation and any conditions or limitations which the Council may specify.

This means that there would be control at least to the extent that the best knowledge as to the effects of such substances will be utilized in determining the where and when of disposal or that alternative means of disposal will have been explored and perhaps hopefully adopted.

H.R. 18914 calls upon the Council of Environmental Quality to investigate and study all aspects of existing national policy with respect to the discharge of any material into the territorial waters of the United States, and to submit a report with recommendations for further action.

This is a grey area, where a great deal of confusion exists. How much control and how great an extent does each nation have control over its territorial waters? A great deal would depend upon the cooperation of other nations. Present treaties and other international agreements in this sphere are totally inadequate. Most are directed to restricted areas, and to specific concerns, such as the taking of fish, the dumping of oil, and the like. What is needed is a firm national policy to be implemented in concert with other nations to insure the well-being, health, and continuance of the sea as a dependable resource, the source of food, and a clean, reliable fountain to supply the lands of the earth with lifegiving moisture, not a downpour of harmful elements and a body of water empty of the many delightful and useful forms of life.

Mr. Chairman, I commend these two bill to your committee's favorable consideration. They are vital to the continuance of man on earth.

Mr. DINGELL. I thank the gentleman from Florida for his very poignant remarks on the preservation of our Nation's environment.

Another very able Representative from Florida will now give us his statement. Congressman Bennett, the subcommittee will be happy to hear from you.

STATEMENT OF HON. CHARLES E. BENNETT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. BENNETT. Mr. Chairman, I appreciate the opportunity to make this statement to the committee, in support of H.R. 19256, requiring a study with respect to the discharging of material into oceans; and H.R. 19258, to prohibit the discharge of any military material into navigable waters or into international waters without certification.

These two bills are companion measures to H.R. 18913 and H.R. 18914, sponsored by Congressman Dante B. Fascell of Florida. I am pleased to join with Congressman Fascell as a cosponsor of these bills, and I hope the committee will report them favorably to the House of Representatives, or similar legislation to help protect our environment.

The legislation proposed gives additional powers to the President's Council on Environmental Quality to halt the disposal of materials which may damage the environment and ecological balance of navigable waterways or oceans.

As one of the original sponsors of legislation to establish a high level policy agency to protect the American environment for ourselves and future generations, it is my feeling we must do everything we can to insure that any waterway or ocean dumping is safe to human beings and fish and animal life.

The Council on Environmental Quality is the vehicle to use in this respect, and the bills you are considering today will strengthen the Council's responsibilities in this field.

The environmental explosion in America has brought wide attention to the ways man is destroying and despoiling his air, water, and

land. This legislation will help protect our lives and the beauty around us, and I hope the committee will approve the bills. Thank you for the opportunity to appear.

Mr. DINGELL. Thank you for a fine statement.

Next, our friend and colleague from Maryland, the Honorable Sam Friedel.

STATEMENT OF HON. SAMUEL N. FRIEDEL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MARYLAND

Mr. FRIEDEL. Thank you, Mr. Chairman. It is a great pleasure for me to appear before your excellent subcommittee this morning and to provide you with my views on this terrible problem of water pollution and specifically how it relates to our coastal waters which are so important. H.R. 18593, which I have cosponsored, will go far in improving our ability to correct the current situation.

We from Maryland know and enjoy the God-given benefits of these waters. I am sure that many members of the subcommittee have taken the opportunity to enjoy Maryland's water wonder, the Chesapeake Bay, as well as our ocean beaches at Ocean City. Of all the estuaries of the world, the Chesapeake Bay is probably one of the richest. It is rich because it produces that marvelous delicacy known as the Maryland hard-shell crab. In addition, the fame and succulence of the Chesapeake Bay oyster is world renowned. Shellfish and finfish, the economic base for watermen in the Chesapeake Bay area, produces a \$65 million-a-year business for Marylanders. In addition, our bay also provides recreation for millions in the metropolitan area comprising the Baltimore, Washington, and Virginia corridor. The bay's total recreation value has been conservatively estimated at \$135 million.

Chesapeake Bay, 200 miles in length and with approximately 4,600 miles of tidal shoreline, is certainly an asset which any State would be most proud to have. But what has been happening recently? Scientists have estimated that the Chesapeake is 10,000 years old. It has only been within the last 100 years that there have been enough people using the bay to create the problem. In the last 25 years, or since World War II, we brought so many people to work and play and live near the bay that in some areas the effects of our people pollution are becoming serious. Many parts of the bay are severely polluted. There is fecal contamination, bacterial contamination of several thousand acres of oysterbeds; many of the creeks and rivers and some estuaries are affected in the same manner. Very high turbidity, very low fish production in some specific areas, are examples of this kind of pollution. We can't say, and I'm not saying, that the Chesapeake Bay is entirely polluted, but there are serious examples of pollution throughout the bay. While our excellent Water Resources Commission, acting through the Department of Water Resources, is making a massive effort to correct these situations under the Federal Water Pollution Control Act and other State laws, it simply does not seem to be enough.

H.R. 18593, which I have cosponsored, would require that the Secretary of Interior consult with the Army Engineers in establishing standards which would apply to the deposit or discharge in the coastal

waters of the United States of all industrial wastes, sludge, spoils, and other materials which might be harmful to the wildlife or wildlife resources of these waters. The purpose of these standards is to insure that no damage to the natural environment or ecology of these waters will occur as a result of this activity. I think most significant is section 5B(a) of the proposed bill which would require for the first time that the burden of proof in such situations would be on the person who seeks the permit to dump. In other words, the person requesting permission, under the legislation, to dump in the navigable waters of the United States would be required to prove that the material that he was going to dump would not endanger the natural environment of these waters. The bill does not preempt the authority of the States in this area. It provides for a real and meaningful partnership with the States in establishing and enforcing standards covering these activities within their jurisdiction. Under section 5B(d), the States could continue to have stricter standards than those provided in the Federal standards. We have recently adopted this system in the Federal rail safety legislation which passed the House last week.

The Corps of Engineers was authorized by the Rivers and Harbors Act of 1899 (the Refuse Act) to issue permits for all construction and dumping into the navigable waters. In the beginning, the issuing of permits under this authority was based solely on the effect of the proposed work on navigation. Only recently has the Corps of Engineers begun to upgrade its authority in this area administratively to condition the issuance of permits on such affects as conservation, pollution, and other factors affecting the environment. In other words, the Corps of Engineers now plan to use this statute as a powerful new tool in the Government's effort to fight water pollution. I further understand that the Department of Justice has currently authorized a number of U.S. attorneys throughout the country to bring actions in the Federal district courts to stop pollution in the navigable waters of the United States. I am most hopeful that we in Maryland will soon see some results of these new initiatives being taken under this law by the agencies that I've mentioned.

The Federal Water Pollution Control Acts now on the books permit action only in the case of interstate water pollution. It is apparently cumbersome and administratively difficult to obtain definitive action under this law. For example, it requires water quality standards only for interstate waters. Furthermore, it provides that discharges of wastes into interstate waters which reduce their quality below established water quality standards are subject to abatement only after notice and a waiting period of at least 180 days. The abatement proceedings may be instituted only upon the Governor's consent unless the pollution "is endangering the health or welfare of persons in a State other than that in which the discharge or discharges . . . originate." Moreover, the court in such abatement proceedings need not confine itself to examining the issues of law and facts, but is authorized to give "due consideration to the practicability and to the physical and economic feasibility of complying" with the established water quality standards as well as reviewing the standards themselves. Perhaps the Refuse Act can be used as an effective substitute until new legislation is enacted. In fact it seems to me that my bill,

H.R. 18593 takes its genesis from the Refuse Act and substantially improves upon it.

In the meantime and pending approval by the Congress of H.R. 18593, I believe that the Refuse Act should be used to a maximum. I've been long concerned with the hazards of water pollution, being from Maryland, and have supported every major pollution control bill that has come before the House since I have had the privilege of being in Congress. The Refuse Act seems to be the most practical and potentially useful measure that we have now on the books to prevent pollution and to control it.

A review by my office indicates that there are currently on file with the Corps of Engineers no permits for the discharge of industrial pollutants in Maryland. We all well know that this tragic and harmful activity is being carried out daily in Baltimore and along the bay at the severe detriment of millions of Marylanders. Moreover, in view of the fact that the Maryland State Department of Water Resources has the appropriate listings of violators, implementation of the Refuse Act, by action both by the Corps of Engineers and the U.S. attorney, should not be difficult and would greatly facilitate the fixing of responsibility on the parties that would pollute these God given assets.

Mr. Chairman, in conclusion, if we allow this continued misuse of our navigable waters we will not only seriously endanger our own generation but we will be providing a massive problem for future generations. We must have standards and we must have the means to see that these standards are complied with. Private industry as well as Federal and State Governments must be made responsible for maintaining the quality of our environment. Time is indeed short.

Mr. DINGELL. Thank you for a very informative statement.

The gentleman from Connecticut, the Hon. Emilio Q. Daddario will be our next witness. Congressman, will you kindly take the witness chair?

STATEMENT OF HON. EMILIO Q. DADDARIO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CONNECTICUT

Mr. DADDARIO. Mr. Chairman, I appreciate this opportunity to appear before your committee in support of H.R. 17603 and H.R. 18454, which would amend the Fish and Wildlife Coordination Act with regard to dumping waste materials in river, harbor, and coastal waters and the establishment of marine sanctuaries. I have cosponsored both these measures and urge favorable consideration by your committee.

Both in the United States and the world marine areas are faced with a crisis of grave proportions. This crisis stems from the excessive dumping of waste materials in rivers, harbors, and coastal waters and threatens the existence of marine wildlife.

Here in Washington, D.C., the marine life in the Potomac River is threatened by the excessive dumping of waste materials. Sludge deposits are destroying the aquatic life on which fish feed and substandard sewage treatment is serving to compound the crisis. For more than 30 years the District of Columbia, Virginia, and Maryland have

made little or no progress toward abatement of pollution in the Potomac.

Connecticut marine life has also been threatened, most recently by two oil spills in the harbor at Bridgeport. The most recent spill was the fifth leakage this summer into Long Island Sound or adjoining waters. There is increasing evidence that concentration of oil ingredients in the food chain of life can only result in disaster and that the end result of these spills may do far more damage than pollution of beaches and killing of marine life. Unfortunately, it will be some time before the full effects of the Bridgeport oil spills will be known.

In New York, the waters of the area known as the New York Bight are but another example of waters polluted by the dumping of waste materials. For nearly 40 years various types of wastes have been dumped into the bight without regard for the effect on the biota of the surrounding waters. Millions of cubic yards of sewage, sludge, and dredging spoil are dumped into this area yearly.

Control experiments at the Sandy Hook Marine Laboratory in New Jersey have shown that snails, lobsters, and crabs die in water not nearly as contaminated as the water of the New York Bight. This alarming report was the result of a study recently conducted by the Coastal Engineering Research Center of the Corps of Engineers. The study also shows that the presence of large amounts of human intestinal bacteria and excessive amounts of sludge from dumping in the bight area have resulted in high biological oxygen demands by the excessive wastes and the subsequent reduction of animal life in the area due to the lack of oxygen available for life support.

Of course I am sure you are aware of the recently discovered effects the dumping of mercury wastes into our waters has had on the fish which come in contact with water which has undergone chemical change through contact with the mercury. The fact that scientists at present have no way to reverse the mercury oxidation process makes the situation even more critical than initial evidence would have led us to believe.

The need for Federal legislation to protect our waters and marine wildlife has never been greater. Independent State action has proved inadequate. Both H.R. 17603 and H.R. 18454, will amend the Fish and Wildlife Coordination Act by establishing guidelines and strict fines concerning waste disposal in certain marine areas and providing additional protection to our water areas and marine wildlife.

Mr. Chairman, it is essential that the Congress of the United States take positive action to preserve our water resources. I believe that the measures before you provide such positive action and I urge swift acceptance of them.

Mr. DINGELL. Thank you for an excellent statement. Our next witness is Brig. Gen. Richard H. Groves.

General Groves, we are most pleased to have you with us this morning. The Chair observes that you probably have members of your staff present with you and the committee would be very happy to have them sit with you at the table. If you would identify them, please, for purposes of the record, we will be happy to receive such testimony as you choose to give.

STATEMENT OF BRIG. GEN. RICHARD H. GROVES, DEPUTY DIRECTOR OF CIVIL WORKS, OFFICE, CHIEF OF ENGINEERS, DEPARTMENT OF ARMY; ACCCOMPANIED BY MARK S. GURNEE, CHIEF, OPERATIONS DIVISION, CIVIL WORKS, AND JOSEPH M. CALDWELL, TECHNICAL DIRECTOR, COASTAL ENGINEERING RESEARCH CENTER

General Groves. I am Brig. Gen. Richard H. Groves, Deputy Director of Civil Works, Office, Chief of Engineers, Department of the Army. I am accompanied by Mr. Mark S. Gurnee, Chief, Operations Division, Civil Works, Office, Chief of Engineers, U.S. Army, and Mr. Joseph M. Caldwell, Technical Director, Coastal Engineering Research Center.

I appreciate having this opportunity to testify on H.R. 15828, 17603 and 18454, bills concerning the discharge of sewage, sludge, spoil, and other waste into navigable waters of the United States and waters above the Outer Continental Shelf.

H.R. 15828 relates to the area known as the New York Bight. It would require the Secretary of the Army, within 30 days after its enactment, to terminate any permit which he has issued authorizing the discharge of any sewage, sludge, spoil, or other waste into the waters of the New York Bight and waters within a 25-mile radius of the Ambrose Lighthouse.

The bill would also direct the Secretary of the Army, acting through the Chief of Engineers, to study the methods by which the waters referred to above could be restored to their condition prior to the discharges which have been permitted, and the costs of these methods, and to report to Congress, with recommendations, within 1 year after enactment.

H.R. 17603 is a much more comprehensive bill, which deals with the navigable waters of the United States, waters over the Outer Continental Shelf, and the underlying lands. The bill would direct the Secretary of the Interior, acting through the Fish and Wildlife Service, to designate those portions of these waters and underlying lands where he determines sewage, sludge, spoil, and other wastes can be safely discharged. In designating such areas, he would be directed to consider all ecological and environmental factors, including the effect of discharging waste upon the marine and wildlife ecology. No designation could be made of a discharge area until 2 years after enactment. In this 2-year period the Secretary of the Interior, in cooperation with the Secretary of the Army, would make a study of potential discharge areas and identify those which are most suitable to be designated as waste disposal areas.

Discharge of wastes in areas so designated would be subject to standards established by the Secretary of the Interior, to insure against pollution and damage to wildlife resources. The standards established would apply to the departments and agencies of the United States and of the States, including their licensees and permittees.

The bill would also terminate all permits for discharge of wastes upon designation of discharge areas, to the extent that the permits

authorize activities prohibited by the act; no such permits could be issued in the future.

H.R. 18454 would direct the Secretary of the Interior, acting through the Fish and Wildlife Service and in consultation with the Chief of Engineers, to establish standards concerning the discharge into the coastal waters of the United States of materials that might be harmful to the wildlife resources and the ecology of these waters. The standards would require that any person wishing to discharge materials into the coastal waters must sustain a burden of proof that the natural environment and the ecology of the waters will not be endangered. The standards would be required to be adopted by any department of the United States or of any State which issues permits for discharging in coastal waters, and would also apply to the activities of these departments.

Mr. Chairman, we in the corps are deeply concerned about the problems of attenuating adverse ecological and environmental effects associated with the discharge of wastes in navigable waters of the United States and at sea. However, I wish to emphasize, and at the same time caution, that while short-term responses to the problem may hold appeal, our real need is for an effective and workable long-term solution which considers all aspects of the problem in context.

As a first step to such a solution, in 1967 the Chief of Engineers requested the Director, Coastal Engineering Research Center, to undertake a study to monitor certain offshore areas to determine the immediate and residual effects of disposal activities on water quality, safety, water use, ecology, fish and wildlife, conservation and recreation in the disposal and contiguous areas. Since the sludge dumping ground in the New York Bight area receives so much use, it was chosen for the study.

The study was begun as a project of the Corps of Engineers by the Sandy Hook Marine Laboratory, Department of the Interior, in 1968. That laboratory has submitted to us an interim progress report on the results of the investigations so far conducted. This progress report is highly technical. We have arranged for the Smithsonian Institution, which had also participated in outlining the scope of the study, to assist us in analyzing the work which has been accomplished to date, with a view to identifying any modifications that may be needed in the further conduct of the study.

In August 1969 we initiated another study calculated to help us resolve the total problem. It is being conducted by the Marine Science Research Center, State University of New York, Stony Brook, N.Y., to determine the chemical composition of the waste solids from the New York region that are being deposited in the dumping grounds in the ocean. These two studies, although they are concerned primarily with the New York Bight area, are expected to have general applications. Nevertheless, there is a need for a comprehensive study on ocean dumping.

We are only beginning to identify the ecological effects of ocean dumping. Yet it is already apparent that current disposal technology is not adequate to handle the volumes of wastes now being produced. Comprehensive new approaches are necessary if we are to manage this problem expeditiously and wisely.

The President, on April 15 of this year, sent a message to the Congress announcing proposed legislation which would stop the dumping of polluted dredge spoil into the Great Lakes and authorize the Secretary of the Army, acting through the Chief of Engineers, to extend to all navigable and allied waters a program of research, study, and experimentation related to dredge spoil. In his message the President noted that while this legislation represented a major step forward in cleaning up the Great Lakes, it also underlined the need to begin the task of dealing with the broader problem of dumping in the oceans.

To accomplish this, the President has directed the Chairman of the Council on Environmental Quality to work with the Departments of the Interior, the Army, other Federal agencies, and State and local governments on a comprehensive study of ocean dumping to be submitted to him by September 1, 1970. That study will recommend further research needs and appropriate legislation and administrative action, and will include:

Effects of ocean dumping on the environment, including rates of spread and decomposition of the waste materials, effects on animal and plant life, and long-term ecological impacts.

Adequacy of all existing legislative authorities to control ocean dumping, with recommendations for changes where needed.

Amounts and areas of dumping of toxic wastes and their effects on the marine environment.

Availability of suitable sites for disposal on land.

Alternative methods of disposal such as incineration and reuse.

Ideas such as creation of artificial islands, incineration at sea, transporting material to fill in strip mines or to create artificial mountains, and baling wastes for possible safe disposal in the oceans.

The institutional problems in controlling ocean dumping.

The corps participation in this study includes studies related to the adequacy of existing legislative authorities to control ocean dumping, the extent of dumping and its impacts, and locations where dumping is taking place.

We expect our studies of the New York Bight, which I have mentioned, to facilitate our participation in the comprehensive study. And, of course, the comprehensive study will consider the New York Bight and will complement and augment our studies of that area.

In view of this interdepartmental comprehensive study which is now in process, and the recognizing the fact that it will include recommendations for legislation, where needed, to control ocean dumping, we recommend that consideration of the bills now before you be deferred pending completion of the study.

This completes my statement, Mr. Chairman. We will be pleased to answer any questions you may have.

Mr. DINGELL. General, the committee wishes to thank you for a most helpful statement.

The Chair recognizes counsel, Mr. Everett.

Mr. EVERETT. General Groves, I wonder if you could indicate for the record the part the Corps of Engineers plays with respect to dumping in navigable waters.

General GROVES. We have specific responsibility as they relate to Hampton Roads, New York, and Boston Harbors. There the district

engineer is also the supervisor of the harbor and he regulates the disposal of all waste that may be deposited in the harbor and in the contiguous area.

Mr. DINGELL. Don't you also under the 1899 Refuse Act have the power and the duty to issue permits with regard to any dumping which takes place within the navigable waters of the United States.

General GROVES. That is correct.

Mr. DINGELL. So you have much broader authority.

General GROVES. We have a very broad authority.

Mr. DINGELL. And that authority actually reaches all types of dumping. Indeed it is a crime under that particular statute for any individual to dump any substance other than liquid waste from municipal sewage or runoff from streets and highways into the navigable waters of the United States.

Isn't that so?

General GROVES. That is correct.

Mr. EVERETT. General Groves, I know you have several studies underway now. Has the corps in the past identified areas where dumping can take place without adversely affecting fish and wildlife?

General GROVES. Yes, sir. We have quite a number of designated areas, particularly in the case of the New York Bight, for instance, which has been brought out this morning.

Mr. EVERETT. I was wondering if you could submit that list for the record so that we could have some indication as to where the areas are that now allow the dumping of refuse?

General GROVES. We will be glad to.

Mr. EVERETT. Has the corps identified any areas beyond the contiguous zone or is this in your jurisdiction?

General GROVES. Beyond what?

Mr. EVERETT. The contiguous zone or the high seas or the Continental Shelf.

General GROVES. Yes; we have a number of them. Again in those three specified harbors I mentioned they actually go beyond the territorial limits. The jurisdiction of the supervisor of the harbor does.

Mr. EVERETT. Earlier in the year this committee expressed concern over the dumping of poisonous gases off our coastal waters. I assume that the corps played a part in identifying those areas where those dumping could take place.

General GROVES. I don't believe we did in that particular instance.

Mr. EVERETT. Will you provide for the record the location of all of the dumping areas within our inland and navigable waters and coastal and offshore waters where dumping is allowed?

General GROVES. Yes.

Mr. DINGELL. General, how far out does this permit requirement go? Does it go 3 miles, 12 miles, or does it cover high seas dumping by American citizens as well?

General GROVES. The general rule is 3 miles, with the exception of the three harbors I mentioned.

Mr. DINGELL. So you do not regard yourself as having authority to control dumping between the 3 and 12 miles?

General GROVES. Except in those cases I mentioned, and except where they constitute hazards to navigation. We have cases where we have exercised jurisdiction.

Mr. DINGELL. Will you tell me whether you require permits for any person to dump inside the 3-mile limit?

General GROVES. Our attitude, sir, is that they shouldn't do it without a permit.

Mr. DINGELL. The statute reads rather clear. Do you impose a requirement that any person have a permit to dump inside the 3-mile limit?

General GROVES. Yes, sir.

Mr. DINGELL. And if somebody dumps without a permit within the 3-mile limit, what is done?

General GROVES. When it comes to our attention, our first step would be to go to him and find out what the trouble is and if it violates the law and he persists in so doing, we would bring it to the attention of the Department of Justice for prosecution.

Mr. DINGELL. You say if he violates the law and persists in so doing. So this means that when it comes to your attention somebody has already been dumping for a long period of time and you do not proceed against him?

General GROVES. Yes, sir, we would proceed against him.

Mr. DINGELL. You would now?

General GROVES. Yes, sir.

Mr. DINGELL. Do you have a standard written procedure and direction to your district engineers with regard to this particular point?

General GROVES. Yes, sir.

Mr. DINGELL. You do?

General GROVES. We have quite a number that relate to it; yes, sir.

Mr. DINGELL. Does this instruction direct your district engineers as to how they should notify the U.S. Attorney and how they should proceed with regard to bringing criminal action against persons who dump inside the 3-mile limit?

General GROVES. Yes, sir.

Mr. DINGELL. Would you then please submit to this subcommittee copies of those instructions for review by the staff?

(The information follows:)

DEPARTMENT OF THE ARMY, NEW YORK DISTRICT,
CORPS OF ENGINEERS, NEW YORK, N.Y.,
April 23, 1969.

Regulation No. 1145-2-1

CIVIL REGULATORY FUNCTIONS—SUPERVISOR OF NEW YORK HARBOR

1. Purpose.—Policy, authority and responsibility of the Supervisor of New York Harbor in the enforcement of certain Federal statutes.
2. Scope.—Prevention of obstructive and injurious deposits in New York Harbor, its adjacent and tributary waters, and Long Island Sound.
3. Applicability.—U.S. Army Engineer District, New York.
4. References.
 - (a) United States Code, Title 33, Navigation and Navigable Waters.
 - (b) Code of Federal Regulations, Title 33, Navigation and Navigable Waters.
 - (c) ER 1145-2-301, Civil Regulatory Functions—Use of Navigable Waters—Policy, Practice and Procedure.
 - (d) ER 1165-2-302, Water Resource Policies and Authorities—Definition of Navigability Policy, Practice and Procedure.
5. Policy.—The Corps of Engineers has police powers under certain Acts of Congress for the protection and preservation of navigable waters. It has been the long standing policy of the Corps to secure compliance with the law short

of legal proceedings. Prosecution is recommended on flagrant violations, such as oil spills. Action toward correcting the condition when possible is a primary objective. Letters of warning are issued when the violation of law is trivial, apparently unpremeditated, results in no material public injury, and where available proof will not support prosecution.

6. Definitions.

(a) Refuse.—Foreign substances and pollutants other than that flowing from streets and sewers (sewage) and passing therefrom in a liquid state into the watercourse. The U.S. Supreme Court has held that oil is refuse within the scope of the River and Harbor Acts of 1888 and 1899 cited below.

(b) Navigable Waters.—A waterway is considered navigable if in its natural or improved state it affords a continued highway over which commerce may be carried on with other States or foreign countries in the customary modes in which such commerce is conducted by water.

7. Statutory Authority.—The District Engineer, U.S. Army Engineer District, New York has been designated by the Secretary of the Army as Supervisor of New York Harbor under the provisions of the River and Harbor Act of 29 June 1888 (33 U.S.C. 441-451), as amended 12 July 1952. (This Act was amended on 28 August 1958 to extend the application to the harbors of Hampton Roads, Virginia, and Baltimore, Maryland. The District Engineers of U.S. Army Engineer Districts, Norfolk and Baltimore have been designated Supervisors of the respective harbors).

(a) The Act of 1888, as amended, forbids the placing, discharging, or depositing, by any process or in any manner, of refuse, dirt, ashes, cinders, mud, sand, dredgings, sludge, acid, or any other matter of any kind, other than sewage in a liquid state, in the tidal waters of the harbor of New York, its adjacent and tributary waters, and those of Long Island Sound, within the limits prescribed by the Supervisor of the Harbor. Under authority conferred by the Act of 1888, the Supervisor of the Harbor has established dumping grounds in the Atlantic Ocean, Hudson River, and Long Island Sound for disposal of certain types of material. A permit issued by the Supervisor of the Harbor is required for dumping material in the waterways.

(b) The River and Harbor Act of 18 August 1894 (33 U.S.C. 452) makes it unlawful for any person or persons to engage in fishing or dredging for shellfish in any of the channels leading to and from the Harbor of New York, or to interfere in any way with the safe navigation of those channels by ocean steamships and ships of deep draft.

(c) Section 13 of the River and Harbor Act of 1899 (33 U.S.C. 407), known as the Refuse Act, applies to all navigable waters of the United States. This Act prohibits the deposit or discharge from vessels or from shore of any refuse matter of any kind, other than that flowing from sewers in a liquid state, into any navigable water of the United States, or into any tributary of any navigable water from which it may float or be washed into such navigable water. It also prohibits the deposit of material of any kind in any place on the bank of any navigable water or its tributary where the material shall be liable to be washed into such navigable water whereby navigation shall be impeded or obstructed.

(d) Section 10 of the 1899 Act (33 U.S.C. 403) makes it unlawful to build any structure outside of established harbor lines or where no harbor lines have been established, or to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of any navigable water of the United States without authorization from the Secretary of the Army (usually in form of permit issued by the District Engineer).

(e) Section 15 makes it unlawful to tie up or anchor any craft in navigable channels in such a manner as to prevent or obstruct the passage of other craft, or to voluntarily or carelessly sink, or permit or cause to be sunk, any craft in navigable channels in such a manner as to obstruct, impede, or endanger navigation.

(f) *Oil Pollution Act, 1924.* This act (33 U.S.C. 431, et seq.) prohibits the discharge of oil from vessels into the coastal navigable waters of the United States. The primary enforcement of this act rests with the Federal Water Pollution Control Administration acting under the Secretary of the Interior under the Clean Water Restoration Act of 1966. The Oil Pollution Act, as amended, requires proof that an oil discharge was due to "gross negligence" or "willful

spilling." These conditions are difficult of proof and nullify the effectiveness of the Act. Consequently, oil discharges from vessels as well as from shore establishments will be investigated by the staff of the Supervisor of New York Harbor and District Engineer under the provisions of the 1888 Act when the discharge occurs in the waters under the jurisdiction of the Supervisor and under the provisions of the 1899 Act when the discharge occurs elsewhere within the District area of jurisdiction. Reports of oil violations received from the U.S. Coast Guard will be treated under the applicable Act, as indicated in ER 1145-2-301.

(g) *Oil Pollution Act of 1961.* This Act, as amended, implements the provisions of the International Convention for the Prevention of Pollution of the Sea by oil, 1954, as amended in 1967, and prohibits the discharge of oil, except under certain specified conditions, in all sea areas within 50 miles from the nearest land of those countries to which the International Convention applies. Public Law 89-670 transferred administration of this Act from the Secretary of the Army to the Secretary of Transportation who delegated the responsibility for administration of the Act to the Coast Guard effective 31 March 1967.

(h) The Oil Pollution Act of 1961, as amended, does not change or modify the Oil Pollution Act of 1924. The Act of 1924, as amended, is in addition to other laws for the preservation and protection of navigable waters of the United States and does not repeal, modify, or in any manner affect the provisions of such laws.

8. Area of Jurisdiction.—The waters under the jurisdiction of the Supervisor of New York Harbor include New York Harbor and its tributaries, Raritan River, Arthur Kill, Newark Bay, Hackensack and Passaic Rivers, Kill Van Kull, Hudson River and its tidal tributaries to the Federal Lock and Dam at Troy, New York, the East River and its tributaries, Harlem River and Long Island Sound. While the tidal tributaries of New York Harbor come under the jurisdiction of the Supervisor of New York Harbor, those of Long Island Sound do not. The enforcement of the Supervisors' Act in Long Island Sound is limited to the Sound itself, ending at lines drawn between the headlands of the many inlets and harbors along its shores. However, the Supervisor of the Harbor, in his capacity as District Engineer, may apprehend violators of anti-pollution laws under authority of the River and Harbor Act of 3 March 1899 when violations occur in the inland tributary waters of Long Island Sound. The navigable waters in the Hudson River extending north from Troy, New York to the boundary line of the New York District are under the jurisdiction of the District Engineer.

9. Responsibilities

(a) Chief Operations Division, as Deputy Supervisor of New York Harbor, is responsible for the implementation of laws and regulations, and the discharge of duties and functions necessary to accomplish the mission of the Supervisor of New York Harbor.

(b) *District Counsel.* Review reports of investigations for legal sufficiency prior to transmittal to respective U.S. Attorneys for institution of legal proceedings against violators of Federal statutes.

(c) *Comptroller.* Obtain reimbursement costs from contractors for services of inspectors assigned to accompany tows to established dumping grounds.

For the district engineer:

EARL B. FAUBER,
Executive Assistant.

Distribution, Code 1.

DEPARTMENT OF THE ARMY
Office of the Chief of Engineers
Washington, D. C. 20315

ER 1145-2-301

ENGCW-ON

Regulation

No. 1145-2-301

1 July 1968

CIVIL REGULATORY FUNCTIONS
Use of Navigable Waters
Policy, Practice and Procedure

1. Purpose and Scope. This regulation refers to the laws and prescribes the policy, practice and procedure to be used by all Corps of Engineers installations and activities in connection with the use of navigable waters of the United States.

2. Navigation Regulations.

a. Section 7 of the River and Harbor Act approved 8 August 1917 (40 Stat. 266; 33 U.S.C. 1) authorizes the Secretary of the Army to prescribe such regulations for the use, administration, and navigation of the navigable waters of the United States as public necessity may require for the protection of life and property, or for operations of the United States in channel improvement, covering all matters not specifically delegated by law to some other executive department. The statute provides for the posting of regulations and punishment for violations and enforcement.

b. Regulations prescribed by the Secretary of the Army pursuant to Section 7 of the River and Harbor Act approved 8 August 1917 (40 Stat. 266; 33 U.S.C. 1) may be enforced as provided in section 17 of the River and Harbor Act approved 3 March 1899 (30 Stat. 1153; 33 U.S.C. 413).

c. District Engineers will take action with respect to regulations prescribed for waterways under their jurisdiction:-

(1) To insure that the regulations are brought to the attention of the public.

(2) To insure that the regulations are properly and fairly administered.

This Regulation rescinds ER 1145-2-301, 25 Mar 66

(3) To recommend any revisions necessary to permit full use of the waterway by the public.

3. Danger Zones.

a. The Secretary of the Army has authority to prescribe regulations for the use and navigation of any area of the navigable waters of the United States or waters under the jurisdiction of the United States likely to be endangered by Department of Defense operations. This authority is pursuant to the provisions of Chapter XIX of the Army Appropriations Act approved 9 July 1918 (40 Stat. 892, 893; 33 U.S.C. 3) or section 7 of the River and Harbor Act approved 8 August 1917 (40 Stat. 266; 33 U.S.C. 1).

b. On receipt of a request from any element of the Department of Defense or other agency for approval by the Secretary of the Army of regulations establishing danger zones under authority of either Act, the District Engineer will, prior to issuing any public notice, make certain that the applicant (1) has coordinated its proposed operations with any operations being conducted or contemplated by other agencies in the same area with a view to avoiding interagency conflicts, (2) has obtained clearance from the proper Regional Subcommittee on Airspace, Rules of the Air and Air Traffic Control (Air Coordinating Committee), where the use of airspace is involved, and (3) has conducted preliminary discussions with local interests when considered advisable. In the case of proposed danger zones off the Atlantic and Pacific Coasts, the coordination referred to in (1) above will include the Commander, Service Force, U. S. Atlantic Fleet, or the Commander, Western Sea Frontier.

c. The authority to prescribe danger zone regulations must be exercised so as not to interfere with or restrict unreasonably the food fishing industry. Whenever the establishment of a proposed danger zone or restricted area may affect fishing operations the District Engineer will consult with the Regional Director, U. S. Fish and Wildlife Service, Department of the Interior. Two copies of all notices of applications for the establishment of danger zones and restricted areas will be forwarded to the Chief of Staff, United States Air Force. In addition, notices of all applications relating to the establishment of aerial gunnery and bombing areas will be sent to local Army, Navy, and Federal Aviation Agency representatives.

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d. If the use of water areas is desired only for such temporary, occasional, or intermittent periods that operations can be conducted safely without imposing restrictions on navigation, applicants may be informed that formal regulations by the Secretary of the Army are not required. However, proper notices for mariners requesting that vessels avoid the areas will be issued by the District Engineer to all interested persons. Copies will be sent to the Commandant, U. S. Coast Guard, Washington, D. C. 20226 and the Commander, U. S. Naval Oceanographic Office, Washington, D. C. 20390.

4. Seaplane Restricted Areas.

a. Under section 7 of the River and Harbor Act of 8 August 1917 (40 Stat. 266; 33 U.S.C. 1), when required for the protection of life and property, certain areas may be set aside and reserved for the use of seaplanes and attendant craft. Reasonable regulations may be prescribed restricting or prohibiting the use of such areas by other craft.

b. Section 7 (a) of the Air Commerce Act of 1926, as amended, (44 Stat. 572; 49 U.S.C. 177 (a)) provides, with some exceptions, that the navigation laws of the United States shall not be construed to apply to seaplanes or other aircraft or to the navigation of vessels in relation thereto. The Civil Aeronautics Act of 1938 confers broad powers upon the Commerce Department (Civil Aeronautics Administration), now the Federal Aviation Agency, and the Civil Aeronautics Board in connection with the establishment of landing areas on land or water and other air navigation facilities and the prescribing of rules and regulations to govern the use thereof. Section 601(a)(7) of the Act (52 Stat. 1007; 49 U.S.C. 551 (a)(7)) directs the board to prescribe air traffic rules, including rules for the prevention of collisions between aircraft and land or water vehicles. In view of these acts, the Department of the Army does not attempt to regulate the movements of seaplanes and attendant craft within seaplane restricted areas.

c. In connection with any application or question relating to navigation regulations for the usual forms of water navigation, Division and District Engineers will consider fully the possibility of conflict with the use of the waters by seaplanes. Applicants for permission to utilize navigable waters for seaplane operations not involving action by the Department of the Army under section 7 of the River and Harbor Act of 8 August 1917 (40 Stat. 266; 33 U.S.C. 1) will be informed to communicate with the appropriate Regional Director of the Federal Aviation Agency.

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5. Dumping Grounds.

- a. Section 4 of the River and Harbor Act approved 3 March 1905 (33 Stat. 1147; 33 U.S.C. 419) authorizes the Secretary of the Army to prescribe regulations to govern the transportation and dumping into any navigable water, or waters adjacent thereto, of dredgings and other refuse materials whenever in his judgment such regulations are required in the interest of navigation.
- b. Section 13 of the River and Harbor Act approved 3 March 1899 (30 Stat. 1152; 33 U.S.C. 407) authorizes the Secretary of the Army to permit the deposit of refuse matter in navigable waters, whenever in the judgment of the Chief of Engineers anchorage and navigation will not be injured, within limits to be defined and under conditions to be prescribed by him. It is considered preferable, however, to act under section 4 of the River and Harbor Act approved 3 March 1905 (33 Stat. 1147; 33 U.S.C. 419) as indicated in paragraph 5a above. As a means of assisting the Chief of Engineers in determining the effect on anchorage of vessels, the views of the U. S. Coast Guard will be solicited by coordination with the Commander of the local Coast Guard District.
- c. Under the authority contained in an Act of Congress to prevent obstructive and injurious deposits within the harbor and adjacent waters of New York City approved 29 June 1888 (25 Stat. 209; 33 U.S.C. 441 - 451) the Supervisor of New York Harbor has established dumping areas in those waters and has prescribed regulations for their use. The provisions of the act are enforced by the Supervisor under the direction of the Secretary of the Army.
- d. In considering requests for the establishment of dumping grounds, Division and District Engineers will give careful consideration to the requirements of navigation and will take action to prevent unreasonable injury to fish and wildlife.

6. Fishing and Hunting Structures. Under Section 10 of the River and Harbor Act of 3 March 1899 (30 Stat. 1151; 33 U.S.C. 403) the Secretary of the Army may prescribe regulations designating water areas wherein fishing and hunting structures may be placed under permits issued by District Engineers. Cases not covered by such regulations must be submitted to the Chief of Engineers for approval.

7. Public Notice and Consultation with Interested Parties.

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a. When applications are received for the promulgation of regulations as outlined in paragraphs 2 - 6 preceding, inclusive, District Engineers will issue public notices to all parties deemed likely to be interested and specifically to the agencies referred to in these paragraphs. The notice should fix a limiting date within which comments will be received, normally a period not less than 30 days after the actual mailing of the notice. If time is an essential element when adequately explained by the applicant, the District Engineer is authorized to give interested parties a minimum of 10 days after receipt of the notice in which to present protests. A copy of every notice issued will be sent to the Chief of Engineers, Attention: ENGCW-ON.

b. Copies of the notices sent to interested parties, together with a list of parties to whom sent, will accompany reports on all applications for promulgation of regulations submitted to the Chief of Engineers for necessary action.

c. In all instances when response to a public notice has been received from a Member of Congress, the District Engineer will inform the Member of Congress of the final action taken on the application.

8. Public Hearings.

a. ER 1135-2-5 dated 14 April 1967 prescribes the policy on holding public hearings. It states why and when hearings shall be held and specifies the appropriations from which the expenses of public hearings shall be paid.

b. It is the policy of the Chief of Engineers to conduct his civil works activities in an atmosphere of public understanding, trust, and mutual cooperation and in a manner responsive to public needs and desires. To this end, public hearings are helpful and will be held whenever there appears to be sufficient public interest to justify such action. In case of doubt, a public hearing should be held.

c. Among the instances warranting public hearings are general public opposition to the promulgation of regulations governing the use and navigation of navigable waters. District Engineers will notify the Division Engineer of the need for a hearing, state the proposed arrangements therefor and obtain his concurrence therein. Public hearings will be held in any case when Congressional interests or responsible local authorities make an official and valid request therefor and such action will fulfill the above-stated policy and objectives.

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d. The format and issuance of notices of a public hearing, actions of the District Engineer prior thereto, conduct of the hearing, and actions of the District Engineer subsequent thereto will conform to the instructions contained in ER 1135-2-5 dated 14 April 1967.

9. Publication of Regulations.

a. Regulations prescribed by or under the direction of the Secretary of the Army to govern navigation and navigable waters, including general, danger zone, restricted area, dumping grounds, fishing and hunting, and navigation regulations, are contained in the Code of Federal Regulations, Title 33, Navigation and Navigable Waters, Chapter II.

b. District Engineers (or Division Engineers if considered preferable by the latter to avoid duplication in cases where the regulations involved apply to more than one district) will distribute copies of departmental regulations to all known interested parties as soon as their publication has been noted in the FEDERAL REGISTER. In the case of regulations applicable to more than one division, distribution will be handled as agreed upon by the Division Engineers concerned. Under section 4(c) of the Administrative Procedure Act approved 11 June 1946 (60 Stat. 238; 5 U.S.C. 1003 (c)), publication in the FEDERAL REGISTER shall be not less than 30 days prior to the effective date except as otherwise provided upon good cause found and published with the regulations. The following note will be included:

These rules and regulations will be in full force and effect on _____; public notices of their approval were sent to all known interested parties on _____; they have been posted at postoffices and other public places.

10. Structures or Other Work in Navigable Waters.

a. Section 9 of the River and Harbor Act approved 3 March 1899 (30 Stat. 1151; 33 U.S.C. 461) makes it unlawful to construct any bridge, dam, dike, or causeway over or in any navigable water of the United States until the proper legal authority has been obtained and until the location and plans have been approved by the Chief of Engineers and the Secretary of the Army. Section 6(g) of the Department of Transportation Act (80 Stat. 931) approved 15 October 1966 transferred to and vested in the Secretary of Transportation the authority to

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approve plans for bridges and causeways. When plans for any structure have been so approved, it is unlawful to modify the structure unless the modification has been approved by the responsible Federal agency.

b. Section 10 of the River and Harbor Act approved 3 March 1899 (30 Stat. 1151; 33 U.S.C. 403) makes it unlawful to build any structure riverward of established harbor lines or where no harbor lines have been established, or to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of any navigable water of the United States, unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army.

11. Wrecks and Similar Obstructions.

a. Section 15 of the River and Harbor Act approved 3 March 1899 (30 Stat. 1152; 33 U.S.C. 409) makes it unlawful to tie up or anchor any craft in navigable channels in such a manner as to prevent or obstruct the passage of other craft, or to voluntarily or carelessly sink, or permit or cause to be sunk, any craft in navigable channels, or to float loose timber and logs or sack rafts of timber and logs in streams or channels actually navigated by vessels in such manner as to obstruct, impede, or endanger navigation. An Act of Congress approved 9 May 1900 (31 Stat. 172; 33 U.S.C. 410) authorizes the Secretary of the Army to prescribe regulations to govern the floating of loose timber and logs and sack rafts and other methods of navigation on any navigable river or waterway of the United States or any part thereof whereon the floating of loose timber and logs and sack rafts is the principal method of navigation.

b. By the maritime law the owner of a vessel which is sunk without fault on his part may abandon the wreck, in which case he cannot be held responsible for removing it. That law has not been changed by the River and Harbor Act approved 3 March 1899 which fully recognizes the owner's right of abandonment. However, a person who willfully or negligently permits a vessel to sink in navigable waters of the United States may not relieve himself from all liability by merely abandoning the wreck. He may be found guilty of a misdemeanor and punished by fine, imprisonment, or both, and in addition may have his license revoked or suspended.

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12. Injuries to Government Works.

a. Section 14 of the River and Harbor Act approved 3 March 1899 (30 Stat. 1152; 33 U.S.C. 408) makes it unlawful for any person or persons to take possession of, or build upon, or obstruct by fastening vessels thereto or otherwise, or in any manner whatever impair the usefulness of any sea wall, bulkhead, or other work built by the United States, or any piece of plant, used in the construction of such work under the control of the United States, in whole or in part, for the preservation and improvement of any of its navigable waters or to prevent floods, or as boundary marks, tide gages, surveying stations, buoys, or other established marks, nor remove for ballast or other purposes any stone or other material composing such works. Permission may be granted for the temporary occupation or use of any of the aforementioned public works when such occupation or use will not be injurious to the public interest.

b. Decisions of the Comptroller General prohibit payment of damages to one Government department by another Government department in cases where the appropriations of the responsible departments are not available therefor. It is considered that such payments are prohibited by section 3678, Revised Statutes (15 Stat. 36; 31 U.S.C. 628), which requires appropriations to be applied solely to the objects for which they are respectively made. In any case involving injury to a federal structure or plant for which another Government department is responsible, the District Engineer will ascertain whether appropriations to that department are available for the payment of damage and, if not, no request for settlement will be made.

13. Injurious Deposits.

a. Section 13 of the River and Harbor Act approved 3 March 1899 (30 Stat. 1152; 33 U.S.C. 407) prohibits the discharge of refuse matter, other than that flowing from streets and sewers and passing therefrom in a liquid state, into the navigable waters of the United States. The courts have held that oil is "refuse matter" within the meaning of the said Section 13 (U.S. v. Alaska Southern Packing Co. (the La Merced Case) (84 Fed. (2d) 444)).

b. An Act of Congress approved 29 June 1888 (25 Stat. 209; 33 U.S.C. 441 - 451), as amended on 28 August 1958 (72 Stat. 970-971; 33 U.S.C. 441 - 451b) forbids the placing, discharging, or depositing

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of refuse, dirt, ashes, cinders, mud, sand, dredgings, sludge, acid, or any other matter of any kind, other than that flowing from streets, sewers, and passing therefrom in a liquid state, in the tidal waters of the harbors of New York, Hampton Roads, and Baltimore or its adjacent or tributary waters, within the limits which shall be prescribed by the Supervisor of the Harbor. The provisions of this act are enforced by the Supervisor under the direction of the Secretary of the Army.

c. Section 13 of the River and Harbor Act of 3 March 1899, the Act of 29 June 1888, as amended, and Section 3 of the Oil Pollution Act, 1924 covered in paragraph 14, following, were enacted by Congress primarily for the protection and preservation of navigable waters. They are administered therefore in the interests of navigation rather than of conservation, public health, or sanitation.

14. Oil Pollution.

a. Section 3 of the Oil Pollution Act, 1924, approved 7 June 1924 (43 Stat. 605; 33 U.S.C. 433) prohibits the discharge of oil from vessels into coastal navigable waters except in case of emergency imperiling life or property, or unavoidable accident, collision, or stranding, and except as otherwise permitted by regulations prescribed by the Secretary of the Army. The only regulations prescribed by the Secretary of the Army under this authority were issued 20 July 1943 to govern the discharge of water ballast into the coastal waters of the United States and were revoked 3 January 1947.

b. In the Clean Water Restoration Act of 1966 (P.L. 89-753) the Congress transferred to the Secretary of the Interior the authorities of the Secretary of the Army under the Oil Pollution Act, 1924 (43 Stat. 604; 33 U.S.C. 431 et seq), and amended that Act. The definition of the type of discharge prohibited was greatly narrowed in the course of amending the Oil Pollution Act. The 1924 Act had prohibited any discharge of oil, by whatever means, into the navigable waters of the United States, except in cases of emergency or unavoidable accident. In the 1966 amendment, "discharge" was defined as "any grossly negligent, or willful spilling ***" of oil. (Underscoring added). As a result of the requirement that gross negligence be shown, and inasmuch as such negligence is difficult of proof, the Justice Department has not filed a single case since the Act was amended. There are presently before the Congress bills which would remove the requirement that gross negligence be shown. In the meantime, there is no protection, under the Oil Pollution Act, 1924, against accidental or negligent discharge of oil

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into the navigable waters of the United States. However, such authority is possessed by the Secretary of the Army under Section 13 of the Act of 3 March 1899 (30 Stat. 1152; 33 U.S.C. 407), commonly referred to as the Refuse Act. A recent decision of the Supreme Court (United States v. Standard Oil Company, 384 U.S. 224) has held that oil is refuse within the scope of this Act. The Refuse Act is of a broad application, and does not require any showing of fault on the part of one who discharges refuse. The Refuse Act therefore constitutes an effective tool for the prevention of oil pollution.

c. District and Division Engineers will undertake a vigorous enforcement program, in cooperation with other appropriate Federal agencies, of oil pollution discharges from all sources. All discharges from vessels will be reported to the local U. S. Attorney for filing of a libel in rem against the vessel for collection of the penalties prescribed by Section 16 of the Act of 3 March 1899 (30 Stat. 1153; 33 U.S.C. 412). Discharges from shore installations and terminal facilities will be reported to the Chief of Engineers for referral to the Department of Justice for criminal prosecution.

d. District Engineers will advise the regional representatives of the Federal Water Pollution Control Administration of each instance of pollution of all navigable waters of the United States by oil and oil derivatives in violation of Section 13 of the Act of 3 March 1899 (30 Stat. 1152; 33 U.S.C. 407), the Refuse Act, and of each case referred to the Department of Justice for prosecution.

e. Instructions substantially as outlined in this subparagraph relative to enforcement of the Oil Pollution Act, 1924 have been issued by the Coast Guard to all District Coast Guard Officers. Upon the detection by the Coast Guard Captain of the Port or other officer that oil is being or has been discharged into or upon the coastal or navigable waters of the United States by any vessel, a complete investigation and report will be made of the incident, which will include the names of witnesses, samples, and all other pertinent details. This report will be forwarded immediately to the District Engineer in all cases for his action relative to subsequent prosecution procedure. If the vessel involved is of American registry, a duplicate report will be forwarded to the Office of the Chief of Marine Inspection. If the report indicates that the spill resulted from the incompetence, negligence, inattention to duty, or misconduct of any licensed or certificated personnel, the

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Office of the Chief of Marine Inspection will take action under the provisions of R.S. 4450, as amended, (36 Stat. 1167; 46 U.S.C. 239) for the revocation or suspension of the license or certificate. Any action taken in this connection is to be regarded as incidental to and independent of the statutory prosecution as decided upon by the District Engineer.

15. Penalties for Violations.

a. Section 12 of the River and Harbor Act approved 3 March 1899 (30 Stat. 1151; 33 U.S.C. 406), as amended, provides that every person and every corporation that shall violate any of the provisions of sections 9 and 10 of that Act shall be deemed guilty of a misdemeanor. On conviction thereof violators shall be punished by fine, imprisonment, or both, in the discretion of the court. The removal of any structures or parts of structures erected in violation of the provisions of the said sections may be enforced by the injunction of any district court exercising jurisdiction in any district in which such structures may exist. Proper proceedings to this end may be instituted under the direction of the Attorney General.

b. Section 16 of the River and Harbor Act approved 3 March 1899 (30 Stat. 1153; 33 U.S.C. 412) provides that every person and every corporation that shall violate, or that shall knowingly aid, abet, authorize, or instigate a violation of the provisions of sections 13, 14, and 15 of the Act shall be guilty of a misdemeanor. On conviction thereof violators shall be punished by a fine, imprisonment, or both, in the discretion of the court. Any master, pilot, and engineer, or person or persons acting in such capacity, respectively, on board of any boat or vessel who shall engage knowingly in towing any craft loaded with any material specified in section 13 of the above-mentioned Act to any point or place of deposit or discharge in any harbor or navigable water, elsewhere than within the limits defined and permitted by the Secretary of the Army, or who shall willfully injure or destroy any work of the United States contemplated in section 14 of the Act, or who shall willfully obstruct the channel of any waterway in the manner contemplated in section 15 of the Act, shall be deemed guilty of a violation of the Act. Upon conviction he shall be punished as provided in this section, and shall also have his license revoked or suspended for a term to be fixed by the judge before whom tried and convicted. Any craft used or employed in violating any of the provisions of sections 13, 14, and 15 shall be liable for the pecuniary penalties

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specified in this section, and in addition for the amount of the damages done by said craft. The latter sum shall be placed to the credit of the appropriation for the improvement of the harbor or waterway in which the damage occurred, and said craft may be proceeded against summarily by way of libel in any district court of the United States having jurisdiction thereof.

c. Section 4 of the Oil Pollution Act, 1924 (43 Stat. 605; 33 U.S.C. 434) provides that any person who violates section 3 of the Act is guilty of a misdemeanor. Upon conviction he shall be punished by fine, imprisonment, or both. Any vessel (other than a vessel owned and operated by the United States) from which oil is discharged in violation of section 3 of the Act shall be liable for the pecuniary penalty specified. Clearance of such vessel from a port of the United States may be withheld until the penalty is paid, and said penalty shall constitute a lien on such vessel which may be recovered in proceedings by libel in rem in the district court of the United States for any district within which the vessel may be. Section 5 of the Act (43 Stat. 605; 33 U.S.C. 435) provides that a board of local inspectors of vessels may suspend or revoke a license issued by any such board to the master or other licensed officer of any vessel found violating the provisions of section 3 of the Act.

16. Enforcement.

a. Section 17 of the River and Harbor Act approved 3 March 1899 (30 Stat. 1153; 33 U.S.C. 413) provides that the Department of Justice shall conduct the legal proceedings necessary to enforce the provisions of sections 9 to 16, inclusive, of the Act. It shall be the duty of district attorneys of the United States to prosecute vigorously all offenders against the same whenever requested to do so by the Secretary of the Army or by any of his designated representatives.

b. Under the provisions of Section 17 of the Act District Engineers and the United States collectors of customs and other revenue officers have power and authority to swear out process and to arrest and take into custody, with or without process, any person or persons who may commit any of the acts or offenses prohibited by sections 9 to 16, inclusive, of the Act, or who may violate any of the provisions of the same. No person shall be arrested without process for any offense not committed in the presence of some one of the aforesaid officials.

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Whenever any arrest is made under the provisions of the Act, the person so arrested shall be brought before a commissioner, judge, or court of the United States for examination of the offenses alleged against him. Such commissioner, judge, or court shall proceed as authorized by law in case of crimes against the United States. Similar authority is provided by section 7 of the Oil Pollution Act, 1924 (43 Stat. 605; 33 U.S.C. 436), except that the words "officers of the Customs and Coast Guard of the United States" are substituted for the words "the United States collectors of customs and other revenue officers."

c. Each District Engineer will take notice of any violation of the laws for the protection of navigable waters and the works of improvement therein that may occur in his district and will take the necessary steps to secure enforcement of the law. Whenever any violation of any of these provisions of law comes to his attention he will investigate carefully the circumstances of the case and will determine the amount of the damages for which the parties committing the violation are responsible under section 16 of the Act. He will advise the responsible parties to remove the illegal structure or deposit or to repair the damage at their own expense within a time specified by him. When there is reasonable doubt as to legal liability or the facts do not appear to warrant legal action, the District Engineer will report the case to the Chief of Engineers for decision before communicating with the responsible parties. When the damage must be repaired within a reasonable time, if the responsible parties so request in writing and if, when considered advisable by the District Engineer to protect the interests of the United States, they furnish a satisfactory bond or other guaranty, he may cause the repairs to be made by employees of the United States and then call upon the responsible parties to pay over to him the cost of the damages when finally ascertained. Where the damage is not to be repaired within a reasonable time, the District Engineer will make final settlement with the responsible parties as promptly as possible by collecting the estimated amount of the damages. All sums so received will be deposited promptly to the credit of the Treasurer of the United States for recredit to the appropriation affected and will be accounted for in the District Engineer's money accounts by proper vouchers. With reference to the method of ascertaining the amount of the damages under section 16 of the Act, a distinction should be made between cases involving property that should be repaired and those involving property that should be abandoned. In the former cases the amount of the damages should be the total cost of repairs, less any salvage value and any enhanced value. In the latter cases,

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the amount of the damages should be the fair value of the property, less any salvage value. Whether or not there has been any enhanced value (i.e., whether the fair value of the structure immediately after the repairs is greater than its fair value immediately before the damage occurred) is a matter to be determined from an actual survey of the structure and knowledge of its age and condition. Where maintenance has equalled depreciation there probably would be no enhanced value.

d. If the parties deny their responsibility, or if they refuse or neglect to remove any unlawful structure or deposit or to repair the damages within the time specified by the District Engineer, the matter will be reported to the Chief of Engineers with such evidence as the District Engineer may be able to obtain and his recommended action under section 17 of the Act. In a situation requiring immediate action, the District Engineer may report the case directly to the United States Attorney for the district. The Chief of Engineers will be advised of such action by a written report. Although the Corps of Engineers has certain police powers under this Act it has been the long-standing policy to secure compliance with its provisions short of legal proceedings. Accordingly, every effort will be made to accomplish corrective measures prior to initiation of action leading to such proceedings. As a general rule, while minor and unintentional or accidental violations of the provisions of the Act need not be reported to the Chief of Engineers, all willful or intentional violations and all cases in which the parties responsible refuse or neglect to remove the unlawful structure or deposit or to make good the damages suffered should be reported promptly to the Chief of Engineers in accordance with the above. It is the policy not to recommend prosecution when the violation of law is trivial, apparently unpremeditated, and results in no material public injury. Each report recommending prosecution should be accompanied by a full statement of the case and copies of related correspondence.

e. The procedure in cases involving injurious deposits and oil pollution should be similar to that described for other violations of law except that as the damage caused thereby cannot be repaired readily there will be no reason for serving any notice on the parties responsible for the violations further than to bring to their attention the consequences thereof. Violations of the Oil Pollution Act, 1924 by vessels of American registry should be brought also to the attention of the District Coast Guard Officer for possible action under the provisions of 36 Stat. 1167; 46 U.S.C. 239.

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f. Section 6 of the River and Harbor Act approved 3 March 1905 (33 Stat. 1148; 33 U.S.C. 417) provides that expenses incurred by the Corps of Engineers in all investigations, inspections, hearings, reports, service of notice, or other action incidental to examinations into alleged violations of laws for protection and preservation of navigable waters shall be payable from any funds which may be available for the improvement, maintenance, operation, or care of the waterways or harbors affected. If such funds are not available in sums judged by the Chief of Engineers to be adequate, they shall be payable from any funds available for examinations, surveys, and contingencies of rivers and harbors.

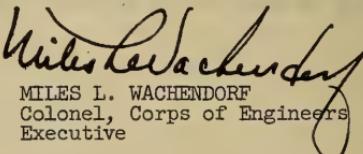
17. Temporary Closure of Waterway to Navigation.

a. When an application is received for the temporary closure of a waterway for the construction of a structure or the performance of other work in the waterway, the District Engineer will assure himself of the necessity for the closure and arrange after informal communication with any important navigation interests concerned the time and duration of the closure which will enable the operations to be completed with the least interference with navigation. If there is no question as to the necessity and propriety of the closure, the District Engineer is authorized to inform the applicant as follows. The Department of the Army will interpose no objection to the closure for a stated period beginning at a specified date: Provided, that prior thereto the applicant will notify navigation interests by an advertisement in the press or otherwise as the District Engineer may approve and on the understanding that the waiver of objection does not affect the liability of the applicant for any damages that may arise by reason of the closure. The letter to the applicant will be signed "BY AUTHORITY OF THE SECRETARY OF THE ARMY" and distribution made as prescribed for permits.

b. District Engineers will give careful consideration to the effect of any closure on through navigation. Should coordination with other districts be necessary the case will be forwarded to the Division Engineer for such coordination.

c. Cases not falling within the authority above conferred will be forwarded to the Chief of Engineers with the recommendations of the Division and District Engineers.

FOR THE CHIEF OF ENGINEERS:


MILES L. WACHENDORF
Colonel, Corps of Engineers
Executive

INFORMATION ON DUMPING PERMITS CURRENTLY IN FORCE FOR PERIOD 1 JANUARY 1971 FOR DEPOSIT OF MATERIAL IN NEW YORK BIGHT

A. Mud dump. Permittees: Moran Towing & Transp. Company, 6,000 C.Y. Great Lakes Dredge & Dock Company, 2,365,000 C.Y.

B. Cellar Dirt Dump. Permittee: Moran Towing & Transp. Co. 12,000 C.Y.

C. Sludge Dump. Permittees: New York City Dept. of Water Resources, 750,000 C.Y. General Marine Transport Corp., 85,000 C.Y. A & S Transportation Co., 20,000 C.Y. Modern Transportation Co., 127,100 C.Y. McAllister Bros., 2,300 C.Y. Weeks Dredging & Contracting, 5,000 C.Y.

D. Waste Acid (non-toxic) Dump. Permittees: Moran Towing & Transportation Co., 600,000 C.Y., Allied Chemical Corp., 2,000 C.Y., Spentonbush Transport Service, 5,000 C.Y.

E. Chemical Waste (toxic) 106 Mile Dump*: ; Permittee : Spentonbush Transport Service, 5,000 C.Y.

2. Dumping activities are monitored by a 65-foot patrol vessel that operates 24 hours a day, 6 days a week, and one 8-hour tour on Sunday. During storms or rough sea conditions, the vessel is not on station because of its size. Inspectors are assigned to ride contractors' tows to the 106 mile dump.

COST OF DREDGE

The hopper dredge McFarland, which is the most recently constructed Corps of Engineers Dredge, has a capacity of 3,000 cubic yards and cost approximately \$17,000,000 in 1968. It is estimated that a hopper dredge with a capacity of 6,000 cubic yards, constructed to the same standards as the McFarland, would cost at least \$30,000,000 in todays market.

General GROVES. Certainly.

Mr. DINGELL. With regard to between the 3- and 12-mile limit, will you tell us, please, General, whether or not you require permits for American citizens to dump in that area?

General GROVES. As a general rule, sir, we do not. In the three harbors that I mentioned, Hampton Roads, New York, and Boston, we do.

Mr. DINGELL. You do require a permit for American citizens to dump outside the 3-mile but not inside the 12-mile limit?

General GROVES. That is correct.

Mr. DINGELL. You do have general instructions that are issued to your district engineers in those areas?

General GROVES. Yes, sir.

Mr. DINGELL. Would you please submit to this committee for review by the counsel those instructions?

General GROVES. Yes, sir.

Sir, I might point out there is one other case beyond those three harbors, and that is where an artificial island is created in that zone that might interfere with navigation. In that case, we would require a permit.

Mr. DINGELL. I see.

Mr. Everett.

Mr. EVERETT. Can you tell us what other department, if any, would have jurisdiction over dumping by American citizens beyond the area you indicated over which you had jurisdiction?

General GROVES. I don't know of any that would have jurisdiction in a legal sense. However, any time we issue a permit, we coordinate it fully throughout the Federal Government, including the Department of State in those cases.

Mr. EVERETT. The Corps of Engineers is the lead agency in coordinating the dumping?

General GROVES. The permit is issued in the name of the Secretary of the Army; yes, sir.

Mr. EVERETT. General Groves, I make the same request of you we made of Dr. Glasgow: After you have had time to reflect on the bill would you provide the committee with suggested amendments that would be in keeping with the concern of the Corps of Engineers in order to make the bills workable should the committee report one or any of the three versions of the bill we have before us today.

General GROVES. We will try, sir.

Mr. EVERETT. Mr. Chairman, that is all the questions I have.

Mr. DINGELL. Mr. Murphy.

Mr. MURPHY. General Groves, would you describe for the committee the effect that the flow down the Hudson River outside the Hudson River cut has on the bight and whether it is the pollution that comes down the Hudson River or the bight that has caused the problems in the fish area?

General GROVES. I might just make a very general comment, sir, and then pass to Mr. Caldwell here.

But the specific cause of this is not yet known, that is why we are studying it. As we identify the problem, it appears to us, probably, the principal source of pollution is the Hudson River, and beyond that I ask Mr. Caldwell to comment in more detail on what it might be.

Mr. CALDWELL. I think, sir, we should include the Hudson River plus the immediate area of what we call New York Harbor. This includes also New York Bay because there is quite a lot of waste disposal that is not dumped into what might be called the Hudson River itself, but in the lower waters of the bay but not in what we call the bight which is the area lying outside Sandy Hook and Coney Island area.

Actually, I think, if you run it down we would find, and can identify, the fact there is much more pollutant dumped into the Hudson River plus the lower bay area than there is dumped offshore into the bight itself.

In fact, there are a number of outfalls that come out into the bight area which are not identified with the dumping area. It is going to be very difficult to separate the effects of these two because the coastal waters in the lower bay and the waters in the bight are intermixed by the passage of the tide, back and forth, so that we have certain degrees of intermixing which make it as I say very difficult to separate these effects.

But certainly the removal of the material from the dumping area will not solve the whole problem because of all of these other pollutants that are coming into the area.

Mr. MURPHY. What sewer lines are they, from what municipalities?

Mr. CALDWELL. Sir, I think you will find that New York City has quite a number of sewage disposal pipes or conduits, or whatever you choose to call them, in which a lot of the sewage comes right into the bay with not more than primary or secondary treatment.

Mr. MURPHY. Sanitary lines?

Mr. CALDWELL. Yes. Some of these are mixed with the flood runoffs from the streets themselves. They are combined sewers which makes

complete treatment somewhat difficult, particularly during the storm time.

Then, of course, we have a lot of the material coming out of Passaic Valley and the other areas that come down into the lower bay area. I am not familiar with that completely, sir. That could be entered into the record for you. I believe those figures are available but I am not that familiar with what goes on in the bay area.

Mr. MURPHY. But, General, can we have an answer to the cause of fin and gill and tail deterioration without knowing just what does cause pollution in this area outside of New York Harbor, whether it is the Hudson, whether it is the sewer lines, or the bight dumping?

General GROVES. We have always felt we wouldn't know the answer until we study the whole area and that is why we initially are embarked upon the study which you saw last winter as a total comprehensive study of that area to determine what is going on, what is wrong, and what ought to be fixed.

That is what we are trying to do.

Mr. MURPHY. How much did that study cost?

General GROVES. To date on the New York Bight study under Sandy Hook, \$280,000. On the New York University is about \$50,000. As we move on down the line we will identify other things that need to be studied. It is very difficult to say at this time what the total cost would be.

Mr. MURPHY. At the meeting I had in New York, in June, where the corps was represented by Col. James Barnett, the commissioner of sewage of the city of New York stated that he felt a complete computerized study of not just New York Harbor but Jamaica Bay and those river areas such as the Passaic River, Hackensack River, the Raritan River that contribute to this problem would have to be included in this comprehensive study for any of them to put their finger on, let us say, the totality of the problem.

General GROVES. We would certainly agree with that.

Mr. MURPHY. It would be certainly a multidivisional study.

General GROVES. I am speaking purely from recollection, but as I recall we were talking in terms of \$2 million, \$4 million in that range, probably for the total problem as we see it now. Of course, as we move into it we become more familiar with the problem and at that point the estimate will be very much refined.

Mr. MURPHY. Is the fact that you require permits only from Boston, New York, and Hampton Roads a recognition of the fact that these harbors and these harbor areas are of such size that they create a pollution problem because of the size of the area they serve and that other estuarine areas don't pose the same problem and, therefore, don't need the regulation these do.

General GROVES. First, let me say we don't require the permits in Boston. I think to answer your question, the sense of it, historically people became concerned in those areas at an earlier date. These date from the previous century. In New York it was 1888. Today I think the problem is much more universal.

Today if we were starting over we would probably treat all harbors about the same.

Mr. MURPHY. General, what would constitute a safe area to dump?

General GROVES. I don't want to beg the question, but we would have to say, safe with respect to what? Every action we take changes something, for better in some instances, for worse in others.

From a purely ecological standpoint, purely environmental standpoint, you probably would do damage wherever you dumped anything. On the other hand, we recognize that economics, developmental considerations, considerations for the welfare of the total people demand that we do these things and we put them some place.

And our problem is to find the place to put them where it will do the least damage. I think in absolute terms there isn't any place you could put it without doing damage.

Mr. MURPHY. General, we have some evidence that you issued permits to municipalities and to private industry to dump in the bight area, and yet there is evidence that these dumping operations take place from the starting point where the facility or barges have been loaded all the way out to the bight area.

It may be the Coast Guard or the corps should be charged with the responsibility for picketing those areas on a more than just a check basis. Actually the bight is a little bit more extended right back into the harbor and much of the dumping we think takes place outside the harbor is done inside the harbor.

Mr. DINGELL. Would the gentleman yield?

Mr. MURPHY. Yes.

Mr. DINGELL. This is closely related.

Would you submit to us, if you please, General, a list of permits for persons to dump in this New York Bight area?

General GROVES. Certainly, sir.

Mr. DINGELL. Which are presently outstanding.

And also submit to this committee a list of the controls which you impose to see to it that the dumpers comply with the law with regard to the area in which they dump.

Am I correct that you do state that they may dump in certain areas but may not dump in other areas?

General GROVES. That is correct.

Mr. DINGELL. What do you do about a fellow who has a permit to dump in one area and dumps in another?

General GROVES. We become aware of it, sir, depending on the seriousness of the offense, and it would be difficult to think of any that isn't serious, under our present policy we would probably take it up with the Justice Department.

Mr. DINGELL. I am going to ask you, then to submit a response to that question by letter appropriately cleared by your superiors, because I think this committee ought to have your policy on that matter.

General GROVES. I will be glad to.

Mr. DINGELL. Incidentally, I do wish to know with great precision what your department proposes to do because I recognize sometimes questions of this kind can be very helpful to your agency in arriving at an appropriate method of handling recalcitrants.

Mr. MURPHY. General, I would like to thank you for the cooperation of your office and Colonel Barnett for the help he has extended to me. He has made available facilities to permit me and many other governmental people to go in depth into this problem.

The cooperation I have received has just been remarkable. I want to thank you and Colonel Barnett for that cooperation.

I would like to also commend to you for your help in evaluation of the influence of dumping in New York Bight this report because it contains recommendations contrary to the recommendations in your statement today. I think it would be well that the differences—I will point out one or two of them.

One is the problem of using compacted fill, compacted garbage treated as land fill, and several of these other newer type of proposals for solid waste disposal in these two reports.

General GROVES. If you could clarify that it would be very helpful to us. I might point out that the recommendations in the report you have in your hand, as they pertain to us, have been brought to the attention of the Chief himself and he has issued instructions that as a matter of policy they will be adopted now as they apply to the corps.

If we are in conflict with ourselves, I would be grateful in knowing where.

Mr. MURPHY. We have had problems such as transporting material to fill in strip mines. Pennsylvania wouldn't take it. We have tried to do that. The bailing of waste for possible safe disposal in the ocean. That has also been addressed in the report in a different light, I think, than you propose.

You might work on those proposed areas with possible solutions.

General GROVES. We will certainly check those out because we accept wholeheartedly the spirit of this report and want to translate it into action as soon as we can.

Mr. MURPHY. That is all.

Mr. DINGELL. The Chair would like to direct to you a couple of questions with regard to the issuance of the permits and the laws subject to the jurisdiction of this subcommittee.

The Chair would like to have you submit at a time later, answers to the following questions:

1. What steps are being taken by your agency to bring the issuance of these permits into conformity with the Environmental Policy Act of 1969?

2. What steps are being taken to evaluate fish and wildlife hazards and perils from this dumping in conformity with the Fish and Wildlife Coordination Act?

3. What recommendations will your agency make after review of these two matters?

4. If you please, General, advise the Chair what requirements your agency is imposing with regard to this open water dumping pursuant to the requirement of the Fish and Wildlife Coordination Act which does impose upon you requirements that you do coordinate with agencies concerned with fish and wildlife values to ascertain not only what will be the effect of actions of agencies dealing with water problems on fish and wildlife but also how fish and wildlife values may be enhanced.

Of course, it is pretty obvious to me it is very difficult to enhance fish and wildlife values by dumping garbage and sewage.

The Chair would like a statement on that point because I am sure a careful review by your agency of what you are doing in these areas would not be only helpful to the Corps of Engineers but to fish and wildlife values in the area.

General, the committee wishes to thank you for your presence and very helpful testimony. It is assumed you will submit those answers in writing at your earliest convenience for inclusion in the record.

General GROVES. Thank you.

Mr. DINGELL. Our last witness this morning is Dr. William Aron, Director of Oceanography, of the Smithsonian Institution.

We are grateful to you for your presence and particularly appreciative of your presence.

STATEMENT OF DR. WILLIAM ARON, DIRECTOR OF OCEANOGRAPHY, SMITHSONIAN INSTITUTION

Dr. ARON. Mr. Chairman, as a fisheries biologist, it is particularly an honor for me to be testifying before you.

Mr. DINGELL. We are privileged to have you, Doctor. You have a distinguished report in this area.

May the Chair ask, do you have any associates or members of your staff you would like to have present with you at the table?

Dr. ARON. No, sir.

Mr. DINGELL. If you do, you certainly have the permission of the Chair so to do.

Dr. ARON. I am William Aron, Director, Oceanography and Limnology Program, Office of Environmental Sciences, Smithsonian Institution.

Mr. Chairman and members of the Subcommittee on Fisheries and Wildlife Conservation, I am pleased to be here today to discuss several bills that have been referred to the Committee on Merchant Marine and Fisheries.

These bills, H.R. 15827 (introduced by Mr. Ottinger), H.R. 17603 (introduced by Mr. Murphy and Mr. Casey) and H.R. 18454 (introduced by Mr. Harrington) have an objective in common—the improvement of our coastal environment.

The three bills clearly reflect the Congress' significant concern about environmental quality. As a marine scientist, I am particularly gratified to see this attention paid to an area that has been used, and abused, both consciously and oftentimes without awareness (particularly in the case of those people whose waste products enter rivers a great distance from the sea) by the majority of our population without realization of the full impact of their actions. The oceans are an important resource from an economic, recreational and esthetic point of view. No area of the ocean is more valuable, however, than the coastal zone.

As chairman of a scientific advisory committee, established by the Smithsonian Institution at the request of the Corps of Engineers to provide the corps with advice on the problem of coastal disposal, I have become acutely aware of the existing and growing problem of near shore pollution.

For example, the Sandy Hook laboratory of the Bureau of Sport Fisheries and Wildlife, in a Corps of Engineers sponsored study, well demonstrated the severe damage to the biology of sites used for solid wastes disposal in the New York Bight.

The advisory committee concurred, that even at the interim stage of the Sandy Hook study, the data were convincing that an approximately 14 square mile sewage dumping area and a 7 square mile dredge spoil site were severely impoverished.

A more significant contribution to the pollution of New York Bight than ocean disposal operations is the discharge from sewer outfalls in the area. This discharge averages nearly 2 billion gallons per day and varies in quality from effluents receiving no treatment to those which receive something more than primary treatment.

In New York Harbor, for example, 16 percent of the flow receives no treatment, 27 percent primary treatment and the remaining 57 percent something more than primary treatment.

When comparing the biological oxygen demands, BOD (a very rough index of ecological impact), of the sewer discharge to the sludge dumping in the New York Harbor area it appears that the BOD of the former is approximately twice the value of the BOD contributed by sludge dumping.

I must point out that biological oxygen demand is only a crude measure and in no sense reflects potential problems caused by toxic wastes nor does it provide any indication of possible synergistic effects resulting from the mixture of wastes from different sources.

What is inescapably clear, however, is that fact that an enormous amount of waste material is entering the ocean every day, not only from New York and its environs, but from every portion of our coast line. Population projections we have all seen point to the conclusion that this already serious problem will grow even more critical in the near future unless action is taken promptly.

The problem of pollution of our coastal areas largely results from our increased technical capacity and our growing affluence. It is my personal belief that these same factors can be turned toward solving the problems they have created.

We do have the technical capability to handle the continued degradation of our environment, however, solving the pollution problem requires more than engineering capacity alone.

The environmental system is sufficiently complex so that oftentimes solutions developed for the pollution problem in one part of the system, results in unexpected damage elsewhere. A typical example of this was provided by the rules and regulations against the open burning of trash and debris in the city and county of Baltimore which went into effect about a year ago.

The intent of the ban was to improve the quality of the air in the area, and as such the ban was applauded by virtually everyone concerned with the problem of environmental degradation.

Now, a major marine industry of Baltimore is marine commerce. About 5,000 ships a year enter the harbor, many of them bring cargo which is held in place by lumber. When the cargo is unloaded, the lumber is put ashore. Before the open burning ban, there were companies that picked up this lumber and it was burnt. After the ban, there were no companies who would take the lumber, which is just scrap. There is no solid waste disposal facility available, no place to burn it and hence the lumber is simply thrown overboard and has presented a grave problem of floating debris in Baltimore Harbor.

This is a different kind of pollution and a safety hazard, resulting from an honest effort to ameliorate another condition.

The above example was provided by my colleague, Dr. Donald Pritchard of Johns Hopkins University, the leading authority on the physical oceanography of Chesapeake Bay, in an open forum at the Smithsonian several months ago. At this same session Dr. Pritchard provides another example of complexity of environmental problems and their solution.

Dr. Pritchard commented about the sewage treatment plant on Back Creek which processes over 200 million gallons of sewage per day for the metropolitan region of Baltimore. One would normally expect that the nutrients released into the bay from this operation would stimulate the growth of aquatic plants and the area would become an undesirable jungle from the resulting high productivity—the condition of eutrophication which you are familiar with in Lake Erie, for example. This did not occur, however. Dr. Pritchard provided two reasons:

1. About a third of the water from the sewage treatment plant is released into Back River—and this happens to be a very poor flushing area and thus acts like a treatment pond assimilating entering nutrients without allowing them to enter the bay.

2. The other two-thirds of the effluent is sold to an industry in Baltimore where it is used as cooling water and in the process is combined with other wastes that are rich in sulphuric acid and ferrous sulfate—both being somewhat undesirable wastes in themselves, but it so happens that they combine with the phosphates from the effluents and settle to the bottom, preventing the expected eutrophication from occurring. A lady in the audience commented that this process was like having criminals kill one another.

A third and highly publicized illustration is the negative environmental consequences of persistent pesticides such as DDT. The solution of an agricultural problem resulted in some new problems, whose full impact is only partially understood at best. We have, however, seen the failure of this year's hatch of the California brown pelican, a failure definitely attributable to DDT. Likewise, the condemnation of a number of cases of California jack mackerel, because they contained concentrations of DDT exceeding the amounts allowed by FDA, dealt a severe blow to the regional fishermen.

The importance of the above illustrations, however, is that they reveal something of the complexity of the overall problem and the fact that we cannot treat one part of the environmental system without examining all of the parts.

Because of the above complexity, I would like to point out my approval of a study period of the kind suggested in H.R. 17603 prior to enforcement of regulations.

A delay, albeit perhaps implying a lack of seriousness of the pollution problem, could prevent precipitous action which could result in more harmful consequences to the environment than the condition which is to be corrected. Although I agree with the general objectives of H.R. 15827, the possibility of causing serious damage by dumping farther out to sea, prior to careful study of the possible consequences, is of grave concern.

The sea does have a limited capacity to assimilate certain biologically active wastes and I feel using the sea for this purpose is legitimate. To do this effectively and without environmental degradation, however, requires the development of an ecological balance sheet so that the rate of supply of the pollutant does not exceed the rate of its decomposition. If the rate of supply exceeds the normal processes of recovery, the environmental conditions will inevitably get worse. The balance sheet must be worked out prior to disposal at new sites.

My personal view is that disposal programs must allow into the ocean only that which can contribute to improving the ocean environment, that which is essentially inert, or that which can be assimilated without adverse effects.

In a sense this last comment really represents only a fallback position. The critical issue was well-phrased by another colleague, Dr. Bostwick Ketchum, associate director of Woods Hole Oceanographic Institute:

"The only philosophy that mankind can adopt and continue to survive on earth is the philosophy of recycling and reuse of as much of our waste materials as is humanly possible. This is the only real solution to our problem. With our growing population and technology, all other means of disposal of waste materials merely delays the time when this philosophy has to be adopted."

Mr. Chairman, this concludes my testimony. I would be happy to answer any of your questions.

Mr. DINGEL. Doctor, you have given this committee a most helpful statement. The committee is indeed grateful to you.

Mr. Everett?

Mr. EVERETT. Just one question.

I notice you say that H.R. 17603 has your approval with respect to the kind of study authorized. Do I take this to mean you recommend passage of H.R. 17603?

Dr. ARON. I would think so, yes, sir.

Mr. EVERETT. Are you speaking today on behalf of the Smithsonian Institution?

Dr. ARON. I think I would like primarily to speak on my own behalf. I would point out the Bureau of the Budget has indeed seen my comments.

Mr. EVERETT. They have seen them?

Dr. ARON. Yes, they have.

Mr. EVERETT. Your statement has been cleared by the Bureau of the Budget?

Dr. ARON. It has been cleared by the Bureau of the Budget.

Mr. EVERETT. Thank you, Mr. Chairman.

Mr. DINGELL. Mr. Murphy?

Mr. MURPHY. I want to thank Dr. Aron for his statement.

Doctor, you say the sea does have a limited capacity to assimilate certain biologically active waste products. You also say you feel using the sea for this purpose is legitimate. I guess through time we have always felt that water and air have a certain purifying influence on things. Of course, the amounts of, let's say, dumping that can take place, however, are certainly those which must be subject to careful scientific scrutiny.

Dr. ARON. That is correct.

Mr. DINGELL. What agency is there that can say the dumping of several tons an hour in such an area is safe?

Dr. ARON. Hopefully, sir, in the new environmental protection administration we will see the creation of such an agency. I think for now a large part of the responsibility falls between the boards. I think some of the responsibility is clearly tied into the Federal Water Quality Administration and other parts of the Department of Interior, but I think one would be hard pressed to examine the situation in the open ocean as opposed to the near-shore regions, which also involve State agencies.

Mr. MURPHY. Mr. Chairman, I would like to address a question back to the Corps of Engineers and find out what the cost of one oceangoing dredge is.

As we get into this tremendous cost program of how much can we pay and how much is available for the control of the environment, we would like to get that, just to get into the cost of some plans that some people propose for cleaning up the environment.

Mr. DINGELL. The Chair will explore that with counsel.

Dr. ARON. I would comment also, for certain materials such as radioactive wastes, clearly the Atomic Energy Commission has authority and responsibility.

I would like to provide an example of a kind of waste product that has received a great deal of public attention in the past and to show you a little bit about how the ocean operates.

Strontium-90 is regarded as a severe hazard, particularly when it ends up in the terrestrial environment, where, because of its similarity to calcium, and because of the great shortage of calcium on land, is incorporated by animals as part of their skeletal structure. Terrestrial animals are calcium-hungry and, as a result, they will pick up elements which look like calcium, and Strontium-90 looks like calcium. Therefore you end up, with a source of radiation in the bones which could indeed be a hazard.

On the other hand, the sea has a rich supply of calcium. Strontium-90 can be released into the sea where it undergoes the phenomenon of isotope dilution and is basically rendered harmless in the sea in quantities which would be very dangerous if they returned to the land.

I think this kind of question and many questions like this have to be critically reviewed, recognizing that what may be very hazardous on land may be safe for disposal at sea, and vice versa.

Mr. DINGELL. Doctor, we are grateful to you for your very helpful testimony. The committee wishes to express its thanks to you for your presence and the time and thought that you put into your presentation this morning.

Dr. ARON. Thank you, Mr. Chairman.

Mr. DINGELL. If there is no further business to be conducted by the committee this morning, the subcommittee will stand adjourned until 10:00 a.m., tomorrow morning.

(Whereupon, at 12:40 p.m., the subcommittee adjourned, to reconvene at 10 a.m., Tuesday, July 28, 1970.)

DUMPING OF WASTE MATERIAL

TUESDAY, JULY 28, 1970

HOUSE OF REPRESENTATIVES,

SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION

OF THE COMMITTEE ON MERCHANT MARINE AND FISHERIES,

Washington, D.C.

The subcommittee met, pursuant to adjournment, at 10:10 a.m., in room 1334, Longworth House Office Building, Hon. John D. Dingell (chairman of the subcommittee) presiding.

Mr. DINGELL. The subcommittee will please come to order.

This morning the Subcommittee on Fisheries and Wildlife Conservation will continue its hearings on a series of bills designed to afford additional protection to fish and wildlife resources.

One group of bills to be heard this morning includes H.R. 15827 by Mr. Ottinger, and identical bills, H.R. 15828, H.R. 15829, and H.R. 16229 by Mr. Ottinger and 33 other Members of the House. These bills would amend the National Environmental Policy Act of 1969 to require, within 30 days after passage of the legislation, the revocation of all permits or licenses that authorize the discharge of any sewage, sludge, spoil, or other waste into the waters of the New York Bight or into any other waters within a 25-mile radius of the Ambrose Lighthouse.

Another group of bills to be heard this morning includes H.R. 17603 and identical bills, H.R. 17843, H.R. 17879, and H.R. 18043, introduced by a distinguished and valuable member of this committee, Mr. Murphy, together with 28 other Members of the House. These bills would amend the Fish and Wildlife Coordination Act to require the Secretary of the Interior, in cooperation with the Secretary of the Army, to carry out a 2-year study for the purpose of identifying areas in our navigable, coastal, and off-shore waters where discharge of sewage, sludge, spoil, and other waste could be safely made, after taking into consideration all ecological and environmental factors, including marine and wildlife ecology.

Also to be heard this morning is another group of bills very similar to those above. They are H.R. 18454, H.R. 18592, H.R. 18593, and H.R. 18621. These bills were introduced by Mr. Harrington and 31 other Members of this body.

The Chair is happy to recognize for our first witness a very able Member of this body, a Member of the Congress who is extremely interested in conservation and preservation of natural resources, our friend and colleague, the Honorable Richard L. Ottinger. We are certainly privileged to have you with us this morning and are pleased

that you can be present today. We are happy to recognize you for such statement as you choose to give. If you have any members of your staff that you would like to have sit with you at the committee table, it would be quite appropriate.

STATEMENT OF HON. RICHARD L. OTTINGER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK; ACCCOMPANIED BY JACK PEARCE, RESEARCH BIOLOGIST

Mr. OTTINGER. I want to thank you very much.

Mr. Chairman, I want to preface my remarks by expressing my gratitude to this distinguished committee for its leadership in meeting the very serious environmental challenges we face today. Time and time again this committee, and particularly its chairman, have shown unusual foresight and courage in exposing environmental abuses and proposing sound and effective programs for resolving them.

All of us concerned with preserving the quality of life are in your debt.

I am particularly pleased that this committee has taken up the issue of the appalling pollution of New York Bight. This is a problem of the utmost importance and one which existing governmental mechanisms have failed utterly to resolve.

On February 8, more than 6 months ago, I released a report prepared by the U.S. Marine Laboratory at Sandy Hook, N.J., which exposed the existence of a genuine ecological catastrophe in the coastal waters of the United States. The report, based upon an 18-month study conducted by the Marine Laboratory described a 21-square-mile area at the mouth of New York Harbor less than 12 miles from the New York and New Jersey beaches which was, and I quote, "devoid of significant marine life." In short, a virtual "dead sea."

The cause of this condition was and is clear. For more than 40 years, the area approximately 5 miles southwest of Ambrose Light has been used for dumping dredge spoil, sewage sludge and chemical waste. Over the years the volume of noxious material dumped in this area has been so great that it has exceeded the abilities of the ocean waters to cleanse themselves.

One of my first actions when I presented this problem was to bring it to the attention of President Nixon.

Mr. KEITH. Mr. Chairman.

Mr. DINGELL. Mr. Keith.

Mr. KEITH. Did you amend your prepared statement and have a phrase following "sewage sludge"?

Mr. OTTINGER. Yes, I did.

Mr. KEITH. Would you tell me what it was? I want to get it.

Mr. OTTINGER. Chemical waste.

Mr. KEITH. Thank you, because I think this is a subject that has more recently come to our attention, and is probably a principal factor that has been overlooked.

Mr. OTTINGER. I think one of the principal threats to human life from this coastal dumping comes from the heavy metals and other toxic

and noxious chemicals that are being poured into the area. Several of the heavy metals are known to be cancer-producing. This contamination within a short distance of the metropolitan areas' beaches is a matter for very real concern.

Mr. KEITH. Do you anticipate making other changes in your prepared text as you go along?

Mr. OTTINGER. I do.

Mr. KEITH. Mr. Chairman, my problem is that I am not going to be able to stay. As you know, I have an executive session on mutual funds.

Mr. DINGELL. As we both do.

Mr. OTTINGER. This statement contains the burden of my testimony. I do have some additions and some places where I would like to elaborate on it.

Mr. KEITH. Very well.

Mr. OTTINGER. As I say, I presented this problem to President Nixon 6 months ago. In view of his strong message on environmental preservation I urged the President to take immediate executive action to halt the dumping in New York Bight and to initiate steps to correct the dumping that has been done.

You may remember that in his message Mr. Nixon warned that it is, and I quote from the President's message, "literally now or never" for environmental protection. I regret to say that in the case of New York Bight Mr. Nixon apparently opted for "never."

It has now been nearly 6 months since this problem was brought to the President's attention. During this time, legislators, governors, Federal and State officials of both political parties, and scientists have expressed alarm and called for action.

In late February no less an authority than the Assistant Secretary of Interior for Fish and Wildlife, Leslie L. Glasgow, who visited the "Dead Sea" with me on February 13, expressed his belief that the dumping should cease. It is rather remarkable to me, therefore, that in his testimony yesterday he should opt for further study.

The Governor of New Jersey, William Cahill, acted promptly and properly to protect the interests of the people of the New York Metropolitan area by announcing that all dumping in the Bight be halted immediately. In response to my communications the Governors of Maine, Massachusetts, Delaware, Pennsylvania, and Maryland expressed their support for efforts to halt all offshore dumping. In fact, of all the governors who have responded to Governor Cahill and myself, only one, New York's Governor Nelson Rockefeller, has expressed reluctance to act.

I would like to file for the record the responses that I have received from these governors in connection with this problem. I will be glad to submit them to the committee.

Mr. KEITH. Do you have them here with you?

Mr. OTTINGER. Yes. I do.

Mr. KEITH. Mr. Chairman, without objection, I would like to have them entered in the record.

Mr. DINGELL. Without objection, the documents referred to will be inserted in the record at this point.

(The documents follow:)

STATE OF NEW JERSEY,
OFFICE OF THE GOVERNOR,
Trenton, February 24, 1970.

Hon. RICHARD OTTINGER,
U.S. Representative, U.S. Congress, Washington, D.C.

DEAR DICK: Thanks so much for your recent telegram. I need not tell you how much I appreciate hearing from you in this regard and I hope our efforts will bring about an end to this most vexing problem.

With all good wishes.

Sincerely,

WILLIAM T. CAHILL, *Governor.*

U.S. DEPARTMENT OF THE INTERIOR,
FISH AND WILDLIFE SERVICE,
BUREAU OF SPORT FISHERIES AND WILDLIFE,
Washington, D.C., February 11, 1970.

Hon. RICHARD L. OTTINGER,
*House of Representatives,
Washington, D.C.*

DEAR MR. OTTINGER: On behalf of Secretary Hickel, we acknowledge your February 9 telegram in which you inquire whether the Corps of Engineers ever consulted with the Secretary of the Interior with regard to the dumping of sewage sludge and dredge spoil in the New York Bight.

We appreciate your concern and shall reply as quickly as possible.

Sincerely yours,

A. V. TUNISON, *Deputy Director.*

COMMONWEALTH OF PENNSYLVANIA,
Harrisburg, March 31, 1970.

Hon. RICHARD L. OTTINGER,
*Member, U.S. House of Representatives, House Office Building,
Washington, D.C.*

DEAR MR. OTTINGER: Thank you for your telegram concerning dumping of sewage sludges and petro-chemical wastes in Atlantic coastal waters. We are equally concerned, but do not directly control dumping of wastes in these waters since the Atlantic coastal waters are outside of the jurisdiction of Pennsylvania's water pollution control laws.

We will support efforts to control this type of pollution through the Delaware River Basin Commission.

Sincerely,

RAYMOND P. SHAFER, *Governor.*

GOVERNOR,
Dover, Del., March 3, 1970.

Hon. RICHARD L. OTTINGER,
*Member of Congress,
Washington, D.C.*

DEAR CONGRESSMAN OTTINGER: In reply to your telegram of February 16, I hereby concur in non-partisan action to avert continuance of practices which may lead to an ecological catastrophe affecting vital Atlantic coastal fisheries and recreation resources.

The State of Delaware is currently undertaking the development of a Master Plan for the Delaware Estuary and related coastal zones, the primary objective of which is an orderly and balanced development and preservation of these areas. Delaware is also continuing to upgrade its standards in the continuing fight against water pollution.

Sincerely,

RUSSELL W. PETERSON.

STATE OF MARYLAND,
DEPARTMENT OF NATURAL RESOURCES,
Annapolis, February 20, 1970.

Hon. RICHARD L. OTTINGER,
House of Representatives,
House Office Building, Washington, D.C.

DEAR CONGRESSMAN OTTINGER: Governor Mandel asked me to give immediate attention to your telegram of February 16, 1970, addressing the Governor's attention to problems created by dumping waste in the Atlantic Coastal waters. Thank you for alerting us to the New York problem and the action that Governor Cahill has taken.

For a number of years I have followed with sympathy and deep interest some of your efforts to prevent pollution and preserve the natural resources of the Hudson River and adjacent areas in New York. We have problems in Maryland common to those of the other East coast states and we welcome every opportunity to work in concert with dedicated officials and elected representatives of other states.

It seems to me that the overwhelming portion of our effort has been devoted to piecemeal fights to prevent or eliminate undesirable sources of pollution. While such actions are a necessary part of the battle, it would be more productive for us to develop longrange workable solutions for the management of waste materials. It seems to me that we should be searching for ways of using waste energy and castoff substances for the benefit of our natural resources. In the long run, this may be the only efficient way of preventing pollution.

No matter how hard we try, it will be impossible to eliminate all waste products. In the final analysis, waste residuals must be distributed to the land, the air, or into water. Non-toxic sludges from sewage treatment plants could be dispersed in the ocean with beneficial effects.

I agree with the actions taken by you, Governor Cahill, and the others to eliminate the 20-square mile "Dead Sea" which you described at the mouth of New York Harbor. With that accomplished, the next step would seem to be for the States to band together with the Federal government and find an acceptable method of sludge disposal.

Sincerely yours,

JAMES B. COULTER, *Deputy Secretary.*

STATE OF MAINE,
Augusta, Maine, February 19, 1970.

Hon. RICHARD L. OTTINGER,
Member of Congress,
U.S. House of Representatives, Washington, D.C.

DEAR REPRESENTATIVE OTTINGER: I would be glad to join Governor Cahill of New Jersey in cooperative action regarding the dumping of sewage sludge and petro-chemical waste off our shores. I would appreciate more information as to how this might affect Maine, so that I can take appropriate action, both as Governor of Maine and as Chairman of the New England Governor's Conference.

I trust that you have been in touch with Governor Sargent of Massachusetts, since you mention Boston Harbor as a location for such dumping.

Please forward all pertinent information, and I will be happy to undertake whatever action is possible to avert this environmental threat.

Sincerely,

KENNETH M. CURTIS, *Governor.*

COMMONWEALTH OF MASSACHUSETTS,
EXECUTIVE DEPARTMENT,
Boston, March 12, 1970.

Hon. RICHARD L. OTTINGER,
Member of Congress,
House of Representatives, Washington, D.C.

DEAR CONGRESSMAN OTTINGER: Thank you for your recent telegram pertaining to the disposal of chemical wastes in our coastal waters.

For several years I have been personally concerned with both the procedures of disposal and the dangers from these particular wastes. Member of my staff have been meeting with the Department of Natural Resources to devise means of protecting the marine environment.

In the near future, I will hold a conference with representatives of the state and federal agencies involved. A determined effort will be made to adopt a uniform policy on this crucial matter.

Sincerely,

FRANCIS W. SARGENT, Governor.

THE WHITE HOUSE,
Washington, February 10, 1970.

Hon. RICHARD L. OTTINGER,
House of Representatives,
Washington, D.C.

DEAR MR. OTTINGER: This will acknowledge and thank you for your telegram of February 9 to the President concerning disposal of dredge oil and sewage sludge in the New York bight under permit from the Corps of Engineers. You may be assured that your message will be brought to the President's early attention.

With cordial regard.

Sincerely,

WILLIAM E. TIMMONS,
Assistant to the President.

Mr. KEITH. I would like to see them.

Mr. OTTINGER. As recently as June 24th a special committee of 12 experts from various Federal agencies convened by the Secretary of Interior and assisted by 16 experts from other various Federal agencies confirmed the seriousness of the problem and urged quick action to resolve it.

Yet, today, 6 months and at least three Federal studies later, we know that the only change that has taken place is that the disaster is growing—and the Administration's only proposal is more study.

It is now clear that unless Congress acts, the Administration's indecision and inaction is leading us inevitably towards an environmental Pearl Harbor at New York Bight.

Mr. Chairman, I now have and will present to this committee new scientific testimony collected at the U.S. Marine Laboratory at Sandy Hook proving that this 21-square mile "dead sea" at the mouth of New York Harbor has been spreading at the rate of approximately 1 mile per year.

Mr. DINGELL. Is that 1 square mile or 1 mile out from the center?

Mr. OTTINGER. One mile out from the center.

Mr. DINGELL. In each direction?

Mr. OTTINGER. Yes. Approximately 1 mile north and 1 mile southwest. During the past 6 months of silence and inaction it has grown by at least a half a mile at each end. I will have with me and will present to you Dr. Jack Pearce who is the marine biologist who has been making this study. He will be far more qualified than I to give you the scientific details.

I also have and will present to this committee scientific testimony from the Marine Laboratory confirming earlier fears as to the grave damage that this "dead sea" is doing to important marine food resources.

Six months ago it was clear that contamination from the "dead sea" was destroying oyster beds and was causing serious—and per-

haps epidemic—fin rot in fish. Now it is clear that it is responsible for serious gill damage in lobsters and crabs.

In addition, the evidence that has been collected on this indicates that there are, as I mentioned earlier, substances in the sewage sludge and in the wastes that are being dumped that would be very harmful to human beings. We simply can't afford to do what was done in Santa Barbara, California or in the Gulf of Mexico, wait until disaster strikes, and then try to move in with the mop afterwards to minimize that damage. This area is of tremendous importance to the New York Metropolitan area. If the beaches on Long Island and Brooklyn were closed down, it would cause an economic catastrophe in the areas, since the recreational industries are their principal source of revenue.

Furthermore, the social damage that would be done would be just incalculable. New York is a very crowded city. The cities of New Jersey that border on this area are very crowded. The one real release that these people have in the summertime is the ability to go to the beaches. I would shudder at the consequences of having to close down all of these recreation areas in the New York Metropolitan area.

One of the most annoying and difficult aspects of the "Dead Sea" problem has been the difficulty in getting accurate informed scientific data. It's not that the data isn't available. It is. But the issue has been obscured by bureaucratic obfuscation. A good example is the comment by Locke Mouton, Deputy Chief of Public Affairs for the Corps, which was reported in the New York Times on February 20. He said, and I quote, "I imagine lots of fish that haven't read such newspapers as the New York Times have swum through the polluted waters and I understand that they're getting along just fine."

This, from a responsible official of the agency charged with protecting our coastal waters, might lead us to believe that the problem was not so serious after all. In fact, as you will discover from the scientific testimony that I will make available today, this is simply not true. Fish and other marine food resources are gravely threatened by the "Dead Sea."

The situation is too serious for the committee to be deprived of factual hard data. For that reason I requested that Interior Secretary Walter Hickel make available to the committee this morning the scientist who has actually been conducting the Sandy Hook studies. He is here with me this morning ready and able to answer any and all questions that the committee may have regarding the very grave situation in New York Bight.

I am pleased to introduce Dr. Jack Pearce, research biologist. He will testify.

Mr. DINGELL. Dr. Pearce, the committee is very happy to welcome you, and we are anxious to hear your comments. The Chair does note that we do have several of our colleagues here whom we will have to hear. If there is no objection, we will defer hearing your testimony until after we have heard from Mr. Mikva and Mr. Howard.

Mr. OTTINGER. Mr. Chairman, if I may, I would like to complete my statement, and then have Dr. Pearce here with me to help answer any questions that you may have.

Mr. DINGELL. That will be entirely appropriate.

Mr. KEITH. I would point out, Mr. Chairman, that there are other Members of Congress in addition to Mr. Mikva and Mr. Howard who hope to be heard and hope to run for reelection to this body.

Mr. DINGELL. We intend to hear all of our colleagues.

Mr. OTTINGER. In consideration of that problem, Dr. Pearce doesn't have any direct testimony to give at all, but he is here available to answer your questions.

Mr. KEITH. I don't mean to give him any plugs, but I must admit that I never heard a more hopeful introduction. He is ready, willing, and able to answer any and all questions, and I suspect that it is a gross misstatement of the fact, because there are so many questions that can't be answered that he shouldn't be expected to have that competency.

Mr. DINGELL. The Chair observes that Dr. Pearce is from Woods Hole.

Mr. KEITH. I noticed that years ago. I just think it is too much to expect to have all the answers.

Mr. OTTINGER. If I may proceed, Mr. Chairman.

Mr. DINGELL. You may indeed.

Mr. OTTINGER. It is my conviction that the scientific data collected by Dr. Pearce more than justifies immediate action to halt further dumping operations in New York Bight, and I urge this committee to act as quickly as possible to accomplish this goal. In addition, I would point out that the problem of coastal pollution from dumping operations is by no means limited to the New York Bight. Since I first described the conditions at the mouth of New York Harbor, I have learned that similar situations are being created throughout all of our coastal waters.

There are 210 dumping sites being used in our coastal waters under the permit authority of the U.S. Army Corps of Engineers. Of the total, 61 are located off the east coast, 26 in the Gulf of Mexico, 17 off the west coast, and 95 in the Great Lakes area. Insofar as I can determine, the total amount of dumping is not known. But we may get some indication of the damage that is being done to coastal waters from what we do know about the dumping in New York Harbor.

Last year at the six sites in New York Bight, a total of 17.5 million cubic yards of dredge spoil, sewage sludge, cellar dirt, and industrial waste was dumped; and experts estimate that this is increasing at a rate of about 4 percent a year.

Obviously the problem is national—and even international—in scope, and it demands immediate action.

I urge that this committee report favorably legislation forbidding the dumping of environmentally damaging material in the coastal waters of the United States. To give effective teeth, I suggest that fines of up to \$10,000 be assessed for each violation. In addition, I urged that the responsibility for coastal waters be withdrawn from the Corps of Engineers and vested either in the Fish and Wildlife Service or, if the proposed reorganization goes into effect, the Environmental Protection Agency. Having the Corps of Engineers do this job is very much like setting the fox to mind the chickens, the Corps of Engineers being one of the largest dredging outfits in the entire world.

Mr. Chairman, before Dr. Pearce starts to answer questions you may have about the problem of the Bight, I would like to clear up two final points.

A number of the bureaucrats who have testified on the subject of the Bight at this and other hearings have urged that we do nothing until we have had a chance to conduct further studies. I submit, Mr. Chairman, that we know enough now. Further studies will only prove once again that the disaster is, in fact, spreading. We can and we must stop dumping in coastal waters now. Then it will be important that we study the conditions further to determine how best to correct the damage that has already been done.

A second point has been made by the Corps of Engineers and by some other Federal officials. They have said that dealing with the waste materials in other ways than dumping would be too costly or too difficult. Some have even said that we don't know what the alternatives are. I submit that this is not true. The report of July 24 stresses that we do have the technology necessary to deal with these wastes in other ways. Let me suggest a few.

First, for dredge spoil and industrial waste, one obvious solution is high heat incineration. Incineration at 3,000 degrees will destroy practically anything except earth and firebrick. It will reduce most wastes by between 94 and 96 percent. In the case of dredge spoil, the result will be quite clean earth that can be used as fill and a harmless "frit" that can be used in building blocks, as fireproofing for shingles and as road surfacing material. I have here a sample of that frit, which I will submit to the committee.

For sewage sludge, the long range answer is to recapture its valuable nutrients for use in agriculture. In the not too distant future, we will be very much in need of its important fertilizing agents. In the interim while we construct the necessary facilities for processing the sludge, most scientific opinion holds that it can be safely dumped at greater distances at sea. In fact, properly defused over the surface, it may well be a useful nutrient to enrich the relatively poor marine environment further out on the continental shelf.

Let me close by stressing that in my opinion, every day of continued dumping poses great threats not only to our marine resources but to public health and vitally important urban recreation areas. We cannot afford the cost imposed by such wanton destruction. We cannot afford the loss of the valuable materials that are now being dumped. And we can, and must, afford the cost of other forms of disposal and recycling.

Following the pattern so frequently followed in government of waiting for disaster to strike, and then hoping to correct the situation, would produce a real catastrophe in the New York Metropolitan area. I urge that this committee take strong, affirmative action on the legislation before you, I would also urge that it be broadened to cover other coastal waters and the Great Lakes areas as well. I want to thank you again for your courtesy in permitting us to testify. Dr. Pearce and I are available to answer any questions that the committee may have.

Mr. DINGELL. Mr. Ottinger, we are privileged to have you with us this morning.

Mr. Keith?

Mr. KEITH. Thank you, Mr. Chairman. I reflect that I do have to leave almost immediately, but I think what you have said here is a very good statement of the situation that exists, and one with which all of the public is concerned, and one with which the administration has indicated its concern, but I think that a parallel might be drawn here. Precipitous withdrawal from Vietnam has a cost, and it must be

recognized in determining our course of action. Doing as you have suggested immediately has a cost. We are not ready yet to accommodate the cause of action that you recommend be adopted immediately.

The Federal Government is moving, perhaps not fast enough, and certainly not fast enough for you, but they are cognizant of these very problems, and they recognize the need to move as expeditiously as possible.

I know this firm, American Thermogen. It is in my constituency. They are working hard to come up with some of the solutions to the problems which you have recognized here and which this committee has recognized, but we are not ready now to just stockpile this stuff. You would have us immediately cease the dumping of all of this wastage in the New York Bight and adjacent areas.

Supposing that Governor Rockefeller said today, "There will be no more dumping of waste into New York Harbor."

Mr. OTTINGER. He hasn't got the power. Governor Cahill asked that that be done.

Mr. KEITH. Suppose he did have the power and supposing he did do it. What would happen to that cesspool that is suddenly stopped? What would happen to the situation—

Mr. OTTINGER. For years the Governor has been giving lip service.

Mr. KEITH. Wouldn't the situation be comparable to what happened when they halted garbage collection in New York?

Mr. OTTINGER. No. The suggestion we are making is that the New York area and the other units of government that are involved in the dumping of sewage sludge and chemical waste into coastal waters move to build high temperature incineration to handle the industrial waste and to remove the toxic substances and harmful substances from sewage sludge in use for agricultural purposes. In the interim these materials be dumped further out into the ocean—

Mr. KEITH. Can they do that now?

Mr. OTTINGER. (continuing). Where they will be less harmful. There is a price. There is no question about that, but the public has shown consistently that they are far ahead of officials in willingness to pay that price.

Mr. KEITH. Have you any idea what that price would be?

Mr. OTTINGER. There is also a price in failing to act, and the price can be catastrophic, as it was in the Gulf of Mexico and as it was in Santa Barbara, where they had to close down the recreational areas. That is the price that I think the public will really be unwilling to pay. I can't give you a dollars and cents figure.

Mr. KEITH. May I say with reference to the Santa Barbara Channel that I filed legislation several years ago to clear that area and other area sanctuaries, with the wilderness concept applied to the sea, and the price then was considered too great for the administration, which was by your party.

Mr. OTTINGER. This certainly is not a partisan matter. The Johnson administration, under Secretary Udall, licensed the drilling of oil off of Santa Barbara, knowing full well the risks that they were taking, and I was just as critical then.

Mr. KEITH. Even as the Johnson administration found it impossible or did not choose to act in granting the authority which you ask for in this legislation, the Nixon administration is now concerning itself

with this problem. Admittedly the public is much more alert than they had been, but I don't yet know what the cost would be to implement the plan which you suggest. If you were the Governor from New York what would you do about it?

Mr. OTTINGER. We Democrats have learned from you Republicans, at long last, the importance of the balance of powers between Congress and the Executive. They have reached the conclusion which you once pronounced very strongly, and which I think, facetiousness aside, still do, that the Congress has a real responsibility in these areas. It isn't just the Administration's option to act or not act as catastrophe faces the Nation in any particular field. The Congress has a responsibility which I think in recent years it has failed adequately to exercise, and which I hope that we, working together, can exercise at least in this respect here today.

Mr. KEITH. This is a bipartisan bill and it has bipartisan support.

Mr. OTTINGER. It has a majority of the Members of Congress from both the State of New York and the State of New Jersey on a bipartisan basis.

Mr. KEITH. Thank you, Mr. Chairman.

Mr. DINGELL. Mr. Karth.

Mr KARTH. Mr. Chairman, I have no questions. I just want to congratulate the gentleman, irrespective of whose fault it is and who is doing most of the polluting and where it started, for having focused attention on this problem, and as a result of his initiative and that of others causing these hearings to be held, hopefully we will be able to do something about it.

Mr. OTTINGER. Thank you very much.

Mr. DINGELL. Mr. Grover.

Mr. GROVER. Mr. Chairman.

Mr. Ottinger, I notice here you say that we have in the past 6 years dumped 17.5 million cubic yards of spoil and sludge and so forth. Probably even 1 cubic yard is too much, disturbing the ecology, soiling our beautiful Atlantic beaches and our Atlantic fishing grounds. But you would go beyond the thrust of the bill, which I have cosponsored, the bill which provides a crash study very badly needed. You go beyond that to say that we must stop immediately.

Noting the time that it takes to put in, to construct sewage systems and incinerators and large public works projects, what is the alternative method of disposition? It would seem to me that we are looking at a couple of years, even assuming the cost is tremendous and it must be done, to put in disposal facilities. What happens to the millions of tons of waste which will be piling up some place in the interim?

Mr. OTTINGER. What we have suggested, with the advice of Dr. Pearce, who may want to comment on this, really are two things. One is a real crack down on industries that are pouring heavy metals and highly toxic chemicals into the public sewer system. We must require them to make the investment necessary. The customer is going to pay for it. There is no sense kidding yourself, there is a price to pay as Mr. Keith pointed out but it seems to me this is so dangerous that we just have to make them extract from their dangerous materials these substances.

Mr. GROVER. You are not referring to those who are despoiling the Hudson but those who are dumping the chemicals.

Mr. OTTINGER. No, I am talking about the industries. Take for instance the photographic industries which discharge silver in their waste. That silver is a highly dangerous material which stays in the sludge when it is dumped into the ocean. The photographic companies ought to be required to remove it. In many cases we have found that it becomes economical or near economical to remove it. I have a number of examples where companies that have been required to recover such materials as sulphur and chlorine from their waste actually find the reclaimed material to be as valuable as or, in some cases, more valuable than the original product. Even where this is not true, companies must be required to take such materials out of the waste before they dump into public waste disposal systems. It is absolutely essential because the danger to public health and the environment is so great.

Mr. GROVER. That is not within the purview of the bill.

Mr. OTTINGER. That is not within the purview of this bill, but it is an action which should be taken. Then this will remove a serious threat from the wastes, but it won't solve the problem of what you do with tremendous volumes of sludge and spoil during the interim time while you build high temperature incinerators or build the processes necessary to convert sewage sludge into agricultural fertilizer. The best suggestion that we can give, after consultation with Dr. Pearce and other marine biologists, is that the matter be dumped further out beyond the Continental Shelf. There is a substantial body of scientific opinion that holds that the sewage may be beneficial, if it is spread on the top of the water in certain areas further out on the continental shelf. It contains nutrients that that particular area of the ocean badly needs. At any rate, it will be of minimal ecological harm, as compared to the very great damage and threat of damage that is occurring by dumping it so close to New York Harbor and into other coastal waters. It may well cost more, but the municipalities involved in the dumping will have to pay the extra price.

Mr. GROVER. The price is going to have to be paid if the water is going to survive. I am thinking of the time to build the facilities.

Mr. OTTINGER. In the interim period our suggestion is that the Corps of Engineers, Congress, the Government acting through whatever body it chooses ought to require the dumping of these materials out far enough so that they won't threaten the beaches, and so that they won't threaten the marine resources that provide one of the chief sources of revenue and occupation to the people of the city of New York.

Mr. GROVER. I would think that having figured out it be dumped into the Continental Shelf you may be running into the Gulf Stream.

Mr. OTTINGER. Not necessarily. The new dumping area will have to be chosen with great care and after intensive scientific study. Here I think Dr. Pearce would be helpful.

Mr. GROVER. I want to make one other point. We are talking about the problem of dumping this sludge into the Bight, which again I

am opposed to, but am looking for a solution to it. I am under the impression that the city of New York puts a very large percentage, 40 or 50 percent of its raw sewage, right into the harbor, notwithstanding the fact that the other 50 percent goes from its sewage disposal system on to the beaches and out into the Bight.

Mr. OTTINGER. It is about 400 billion gallons of raw sewage yearly.

Mr. GROVER. Wouldn't you think that we would be only accomplishing half the problem then, by dumping out, if we are, dumping out on the Continental Shelf? We still have this tremendous problem of New York City.

Mr. OTTINGER. I don't believe that you can determine which does more damage, but the effect of the sewage sludge and dredge spoil is more serious in that it is concentrated in one area and attaches the benthic resource directly. The raw sewage that is dumped by the city of New York is also extremely serious but you do have to start some place.

The fact that New York City continues to pour raw sewage into the harbor area is no justification for allowing the sewage sludge and chemical waste to be dumped in this 21-mile area, to spread until it closes the beaches further up on Long Island and in New Jersey. I think that both problems have to be attacked immediately. I would be 100 percent in favor of the Federal Government undertaking the entire cost of building the sewage treatment plants that are necessary in the area.

Mr. GROVER. If you are ready to direct the barge companies, take away their licenses or, in the alternative, say you go out 100 miles to sea, this takes care of one-half of the sewage disposition.

Mr. OTTINGER. Then let's do it now and dump further out.

Mr. GROVER. But are we ready to say to New York City, "Okay, you stop dumping raw sewage tomorrow also." I don't think that is practical, as desirable as it might be.

Mr. OTTINGER. No, I think the proposal for the sludge is practicable. My own personal preference for the sewage problem would be to give the Corps of Engineers something useful to do for a change. I would like to see the Corps of Engineers commissioned to build the sewage treatment plants that are needed all over this country. Instead of seeing that agency continue to muck up our environment in one area after another. I think that such a project would create a great deal of employment that is badly needed at the present time. Why not have the Corps of Engineers put to the constructive work of building the sewage treatment plants that are needed all over this country and that municipalities just can't afford to build?

Mr. GROVER. Have you explored the international law aspects, the treaty aspects of our dumping in the sea waters that far out? Has that been explored, whether there are any treaties involved?

Mr. OTTINGER. There are none that I know of, but I can't say that I have made any indepth study. There are no treaties involved that we know of except treaties with Canada with respect to the Great Lakes and Lake Champlain.

Mr. GROVER. I may say that I am in agreement with you that the Federal Government should expand its activities in the area of assist-

ing communities in the construction of sewage systems. At the present time our programs are geared to assist in up to 55 percent of the sewage plant. From my experience further out on Long Island, the great cost to the homeowner is the hook-up, the tie in and the cost of paying off the bonds on these sewer lines and their outflow. I think this has had a retardant effect on the construction of sewers.

Mr. OTTINGER. Absolutely. Every municipality, large and small, is at the point of bankruptcy. The property tax has been strained as far as it can possibly be strained. When we in the Federal Government and in the State Government continually mandate programs on matching fund basis requiring the local government to put up 30 or 40 percent of multi-million dollar projects we are asking them to do something they simply can't do. They can't at the present time support decent schools and pick up their garbage and support adequate police forces. It is just unrealistic to mandate further costs on them. I think if this job is going to be done, the Federal Government is going to have to undertake the lion's share of the financing, be it by way of funding or by way of having the Corps of Engineers undertake a part of this problem.

Mr. GROVER. Thank you.

Mr. DINGELL. Mr. Rogers.

Mr. ROGERS. Thank you, Mr. Chairman.

I have found your testimony very interesting and helpful. I know of your concern and your work in this area, and I commend you for it.

I too agree we have got to start putting some deadlines, because I think if we don't, then we will never get to the problem. For instance, one that we have had to put some pressure on just recently is mercury. Finally we got the Secretary to begin to move, and now we are taking some action, but I think this is the same type of problem that has got to be handled in that way, and I am hopeful that the committee can take action and will begin to bring about some solutions to the matters that you have pointed out. Thank you.

Mr. OTTINGER. Thank you very much.

Mr. DINGELL. Mr. Ottinger, the committee wishes to thank you for some very helpful testimony. Would you be able to stand by so that when Dr. Pearce is heard we may also have the benefit of your further testimony.

Mr. OTTINGER. I will be glad to.

Mr. DINGELL. We do have two of our colleagues that the committee hopes to hear, and as soon as we have done so, we would like to have Dr. Pearce back.

Mr. OTTINGER. Very good. Thank you.

Mr. DINGELL. Our next witness is our good friend and colleague, the Honorable James J. Howard from New Jersey, a distinguished member of the Committee on Public Works, a very able Member of this body, long interested in environmental and conservation matters. The Chair wishes to note that he is the author of a similar piece of legislation pending before another committee, H.R. 15915. We certainly are privileged to have you with us, Mr. Howard. The committee is always pleased to see you and note the distinguished work you have done in the field of conservation and environment.

STATEMENT OF HON. JAMES J. HOWARD, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY; ACCCOMPANIED BY THOMAS MALONEY, RESEARCH ASSISTANT

Mr. HOWARD. Thank you very much. I wish to state my gratitude to the committee for conducting these hearings, and to commend the gentleman from Michigan and his colleagues for their continued interest in our environment. I do have a brief statement that I would like to read. With me is Mr. Maloney from my staff who has been working in this area.

Mr. Chairman, I am pleased to have the opportunity to testify today on the three bills which your committee is considering. This legislation is vitally important, as becomes clearer every day as the waters on the coast of the United States become increasingly fouled with pollution.

I have the honor to represent the Third Congressional District of New Jersey, which borders on the Atlantic Ocean. This area contains some of the finest beaches on the east coast—beaches that are now endangered because a mere 10 miles offshore the Army Corps of Engineers maintains an area used for dumping sewage sludge and dredging spoils.

In February I introduced H.R. 15915, to amend the act of June 29, 1888, relating to the prevention of obstructive and injurious deposits in the harbor of New York. This bill is substantively identical to H.R. 15827 which is before your committee today. My bill was referred to the Committee on Public Works, Subcommittee on Rivers and Harbors, and I chaired hearings on it on February 23 at Sandy Hook, N.J. For the information of your committee I would be pleased to offer the report of those hearings for the record or for your files.

Mr. DINGELL. Without objection the hearings referred to will be reviewed by the staff and if it is possible to insert them we will insert them in their entirety, and if not, we will have counsel discuss with you such portions of those hearings as you desire to have appended hereto.

Mr. HOWARD. Thank you, Mr. Chairman.

This report includes an interim progress report on the study of the effects of waste disposal in the New York Bight area by the Sandy Hook Marine Laboratory of the Department of the Interior. This document shows very clearly that dumping wastes in the coastal waters of the United States is an acute danger to marine life and human health, to say nothing of the economic peril it poses to resort communities.

In the New York Bight area, the Corps of Engineers has regulated dumping since 1888. The current dumping grounds have been used for the past 40 years. Between 11 and 33 million cubic yards of sewage sludge and dredging spoils are dumped annually. Yet despite the issuance of permits, the area has become literally a "Dead Sea," a polluted doldrum devoid of any life. We have in effect allowed the creation of a cesspool within 10 miles of the fine resort beaches adjacent to the metropolitan area.

Moving the dumping ground 25 miles farther out to sea is only a stop-gap measure and cannot solve the real problem of what to do with waste materials. However, it is vitally needed now to halt the damage that is being done to the rich productive fragile coastal environment that extends in a narrow band along the shore, the area within 30 miles of shore which the former director of the Sandy Hook Marine Lab has called "our most precious marine resource."

The second half of H.R. 15827, providing for research into the possibilities of reclaiming the current dumping grounds, is at least as important as the first half. We cannot allow this area to stagnate, nor should we sit idly back and hope that the ocean currents and tides will dilute or carry off the accumulated wastes.

The only difference I have with H.R. 15827 is minor and technical. I believe the law should amend the most specific existing law which is the 1888 act relative to New York Harbor, 33 U.S.C. 443-448. Adding the proposed bill to the Environmental Policy Act detracts from that act as a general statement as well as adding confusion to the laws. The Environmental Policy Act declares that the policy of the United States is to assure every American a safe and healthful environment. What we are doing in this bill is simply moving a noxious area farther from shore, rather than eradicating all polluted coastal waters which would be more consistent with the act. I think the proposal bill would be more proper if appended to the laws affecting matters in and around New York Harbor, although the problem certainly is not restricted to the New York Harbor area,

There can be no question of the need for the enactment of this legislation. It coordinates well with the approach suggested by the other two bills being considered today. I strongly support this bill, H.R. 18527.

These other bills, H.R. 17603 and H.R. 18454 offer an approach to the solution of the problem. I am cosponsor of H.R. 18454, but this is not to say that H.R. 17603 is without merit. I would urge that the final bill reported by this committee combine aspects of both bills.

I would stay with the basic approach of H.R. 18454, establishing ecologically sound standards for dumping, but I believe that the final bill should also instruct the Secretary of the Interior to designate areas within which wastes may be dumped, as H.R. 17603 advocates.

Mr. DINGELL. At this point, Mr. Howard, the Chair would like to interrupt and ask this:

You have made suggestions which I believe will be quite helpful. Would you submit to us the suggested language at a time that is convenient, through the counsel? We would like to have the benefit of your guidance and assistance on this particular matter.

Mr. HOWARD. Thank you. I would be very happy to, Mr. Chairman.
(The information follows:)

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., August 6, 1970.

Mr. NED EVERETT,
General Counsel, Subcommittee on Fisheries and Wildlife Conservation, Committee on Merchant Marine and Fisheries, 1334 Longworth House Office Building, Washington, D.C.

DEAR SIR: Pursuant to Mr. Dingell's request at the hearings on July 28, I am submitting my draft of a "clean" bill, incorporating the suggestions I made to the subcommittee.

Since my general remarks indicated that the final bill should include provisions of the three bills, H.R. 15827, 17603, and 18454, I have joined these bills into one, and added my specific suggestions.

An explanatory analysis and a section summary are included with the bill. If you have any further questions, please feel free to contact me or Tom Maloney of my staff.

With best wishes, I am
Sincerely yours,

JAMES J. HOWARD,
Member of Congress.

SECTION SUMMARIES

Section (a) causes the Secretary of the Interior to designate areas wherein it shall be safe to discharge wastes, provided these areas are beyond the 20 fathom line and consideration has been given to environmental factors.

Section (b) causes the Secretary in conjunction with the Chief of Engineers to conduct a study of the possibility of reclaiming current dumping areas.

Section (c) causes the Secretary in conjunction with the Chief of Engineers to establish ecologically sound standards to regulate dumping and puts the burden of proof on the dumper to show that such deposits will not endanger the environment.

Section (d) provides for adoption and enforcement by all governmental agencies of these standards.

Section (e) provides for universal applicability of these standards.

Section (f) allows State standards to apply provided they are more stringent than federal standards.

Section (g) provides for annual review of the State standards.

Section (h) allows the Secretary to amend the federal standards.

Section (i) causes the Secretary to conduct a continuing review and evaluation of the standards to assure the effectuation of the purposes of the bill—to protect the environment.

Section (j) is the record-keeping provision.

Section (k) is the federal district court jurisdictional section.

Section (l) (1) provides penalties for violating the dumping area section.

Section (l) (2) provides civil penalties for violating the standards.

Section (l) (3) provides a civil penalty to cover the cost of remedying the violation of either provision.

Section (m) terminates existing permits on the effective date of this law.

EXPLANATION TO ACCOMPANY DUMPING BILL AS REWRITTEN

Amending 16 U.S.C. 661 by adding new Section 5B with the following subsections:

(a) begins the same as section (a) of HR 17603. At line 16 a provision is included to prohibit dumping within the 20 fathom line, as per Mr. Howard's testimony. This basically takes the first section of HR 15827, but makes it applicable on a nationwide basis.

At line 1, page 2, the section continues as per HR 17603.

(b) incorporates the reclamation studies provision of the second half of HR 15827, but transfers the function from the Secretary of the Army to the Secretary of the Interior.

(c) is section (a) of HR 18454 with "navigable or" language inserted with "coastal waters" in keeping with new section (a).

A potential problem with this language is a conflict with the responsibilities and powers of the Secretary of the Army under the River and Harbor Act of 1899, 33 U.S.C. at S407 et seq. (Refuse Act)

(d) is section (b) of HR 18454 with the "navigable or" language.

(f) is section (d) of HR 18454 with "more stringent than" language carried through.

(g) is section (e) of HR 17603 with "more stringent than" language carried through

(h) is section (f) of HR 17603

(i) provides for a continuing review and evaluation of the standards applicable under sections (c) & (f) as per Mr. Howard's suggestion at the hearings.

(j) is section (h) of HR 17603 including the trade secrets provision

(k) is section (f) of HR 18454 and (g) of HR 17603—identical sections conferring federal district court jurisdiction.

(1) (1) is section (i) (1) of HR 17603 with the minimum fine and continuing violation language of HR 18454 but without the language authorizing the Secretary to comprise the fine.

(1) (2) is section (i) (2) of HR 17603 with the minimum fine language of HR 18454 but without the compromise language.

(1) (3) adds a provision to cover the costs of remedying a violation of the section. This new section provides for the law to be truly effective in preventing environmental or ecological damage.

(m) is section (h) of HR 18454

A BILL To amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by providing for the orderly regulation of dumping in the navigable waters and in the coastal waters of the United States

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) is amended by inserting immediately following section 5A thereof the following new section:

"SEC. 5B. (a) The Secretary of the Interior, acting through the United States Fish and Wildlife Service, shall designate those portions of the navigable waters of the United States and those portions of the waters above the Outer Continental Shelf as defined in the Outer Continental Shelf Lands Act, and those portions of the submerged lands beneath the navigable waters and beneath the waters above the Outer Continental Shelf into and onto which he determines sewage, sludge, spoil, or other waste can be safely discharged, *Provided that no such area shall be located within thirty nautical miles of the shoreline if such area has a depth of twenty fathoms or less.* In making such designation he shall consider all ecological and environmental factors, including, but not limited to, the effect of such discharging on the marine and wildlife ecology.

"(b) The Secretary of the Interior acting in conjunction with the Chief of Engineers shall make a complete investigation and study of the methods by which, and the cost of, restoring the waters of any area into which wastes have been discharged under any license, permit, or authorization issued pursuant to any law of the United States to their condition prior to the start of such discharges. Such Secretary shall report to Congress the results of such investigation and study, together with his recommendations, no later than one year after the date of enactment of this section.

"(c) The Secretary of the Interior, acting through the United States Fish and Wildlife Service, and in consultation with the Chief of Engineers of the United States Army, shall establish standards which apply to the deposit or discharge into the navigable or coastal waters of the United States of all industrial wastes, sludge, spoil, and all other materials that might be harmful to the wildlife or wildlife resources or to the ecology of these waters. Such standards shall be for the purpose of insuring that no damage to the natural environment and ecology, including but not limited to marine and wildlife ecology, of the navigable or coastal waters of the United States will result from any such activity. Such standards shall require, in part, that any person before depositing or discharging of such materials into the coastal or navigable waters of the United States must present sufficient evidence to sustain a burden of proof that such materials in the location in which they are to be deposited will not endanger the natural environment and ecology of these waters, and to meet such additional requirements as the Secretary of the Interior may deem necessary for the orderly regulation of such activity.

"(d) Such standards shall be adopted and enforced by any department, agency, or instrumentality of the Federal Government or any State department, agency, or instrumentality that issues any license, permit, or other authorization for any such activity with respect to any of such coastal or navigable waters.

"(e) Such standards shall be applicable to all of the departments, agencies, and instrumentalities of the Federal Government, to the States and their agencies, including any person having any license, permit, or other authorization from such State or agency for any such activity with respect to any of such coastal or navigable waters.

"(f) After the date that a Federal standard is established under this section, a State may establish its own standard with respect to the activity covered by such Federal standard, except that the State standard must be more stringent than the Federal standard and must provide adequate procedures for enforcement. Such a State standard shall apply to such activity within the State's jurisdiction.

tion and the Federal standard shall not apply. If the Secretary of the Interior determines that such State standard is not more stringent than the Federal standard, or is not being enforced, then the Federal standard shall apply.

"(g) Whenever a State's standard is applicable within the jurisdiction of that State it shall continue to be applicable until the Secretary, after public hearing, determines that it is not more stringent than the comparable Federal standard. He shall review all of the standards of each State for this purpose at least once each calendar year.

"(h) The Secretary is authorized to issue new standards and to amend existing standards from time to time as he determines necessary, and such new or amended standards shall be considered as initial standards issued under subsection (c) of this section for the purpose of their application to the States under this section.

"(i) The Secretary shall conduct a continuing review and evaluation of all standards applicable under subsections (c) and (f) of this section to assure the continued effectiveness of such standards in preventing damage to the natural environment and ecology of the navigable and coastal waters of the United States.

"(j) Every department, agency, and instrumentality of the Federal Government and of the States, and every person applying for a license, permit, or other authorization from the United States or from any State to discharge or otherwise dispose of any material in an area designated under subsection (a) of this section shall establish and maintain such records, make such reports, and provide such information as the Secretary may reasonably require to assist him in establishing standards under this section and in determining whether such department, agency, instrumentality, or person has acted or is acting in compliance with this section and shall, upon request by the Secretary, permit him at reasonable times to have access to and to copy such records. All information reported to, or otherwise obtained by, such Secretary or his representative pursuant to this subsection which contains or relates to a trade secret or other matter referred to in section 1905 of title 18 of the United States Code shall be considered confidential for the purpose of that section, except that such information may be disclosed to other officers or employees concerned with carrying out the provisions of this section.

"(k) The district courts of the United States shall have jurisdiction to restrain violations of this section. Actions to restrain such violations shall be brought by, and in the name of, the United States. In case of contumacy or refusal to obey a subpoena upon any person under this subsection, the district court of the United States for any district in which such person is found or resides or transacts business, upon application by the United States and after notice to such person, shall have jurisdiction to issue an order requiring such person to appear and give testimony or to appear and produce documents, and any failure to obey such order of the courts may be punished by such court as a contempt thereof.

"(l) Whoever discharges (including, but not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping) any sewage, sludge, spoil, or other waste into or upon any waters or submerged lands within the jurisdiction of the United States and not within an area designated under subsection (a) of this section shall be subject to a civil penalty of not more than \$10,000 nor less than \$5,000 for each violation. In the case of a continuing violation, each day of violation shall be considered a separate offense for the purpose of this section.

"(m) Whoever violates any standard established under subsection (c) of this section shall be liable to a civil penalty of not more than \$10,000 nor less than \$5,000 for each such violation. In the case of a continuing violation of such a standard, each day of violation shall be considered a separate offense for purpose of this section.

"(n) In addition to the penalties above mentioned, any person found guilty under subsection (1) or (2) above shall be assessed the costs of any cleaning or recovery operation necessary to prevent damage to the natural environment or ecology of the area in which such violation occurred.

"(o) Upon the effective date of this section, all licenses, permits, or authorizations which have been issued by any officers, or employee of the United States under authority of any other provision of law shall be terminated.

Mr. HOWARD. Also, as in H.R. 17603, some provision for yearly review of whatever State standards apply under section (d) should be included.

I would add a requirement for a continuing evaluation of the actual effects of any dumping on the ecology of the designated areas. The experience so far, as brought out by the hearings at Sandy Hook, demonstrates that such a review is vital to insure that the regulations and standards adopted fulfill their intended purpose.

Innovative and necessary as these bills are, I do not believe that they will solve the problem of waste disposal. Simply stated, dumping wastes in the ocean is dangerous to human and marine health. But depositing these wastes on land is even more hazardous. We are left in a quandary and no one has yet devised an acceptable solution to the question of what to do with these wastes. We are moving now in the direction of tertiary treatment systems in sewage plants, but even with such systems, some sludge remains and must be removed.

What we need in order to overcome the staggering technical challenge is a coordinated and concentrated scientific and engineering research effort to devise a workable alternative to dumping. This is going to cost quite a bit of money, but it will be worth every penny of it. We must find a solution, preferably one involving detoxification of these wastes and their conversion into beneficial products. We need to find this solution soon. Such a program can conveniently be included in the legislation you are considering today and I urge you to do so. It is one thing to say that some standards must be created and enforced, but quite another to assure that those standards are realistically aimed at eliminating the problem.

Enactment of the legislation you are considering today would be a significant step in the difficult and costly national endeavor to eliminate all pollution of our coastal waters and to devise and implement safe, healthful methods for the disposal of human and industrial wastes. I urge your favorable consideration.

Mr. Chairman, it has been stated previously, the gentleman from New York, Mr. Grover, stated the real problem we have, and that is what can we do with the wastes. We can urge that we move it farther off shore, to get it out of the very dangerous area that it is today, but this will eventually contaminate that area, and we can expect that it will contaminate back to the shore in a certain number of years.

We can't state that there will be no dumping at sea from now on, because we have the sludge. It is in tremendous amounts, and we have to determine what we will do with it.

Right now, it is filled with bacteria. It is dangerous, so we can't just pump it somewhere on land. We must devise—and this is a real problem in the pollution field. In most areas of water pollution control we know what the solution is. We know that if we provide enough money to help the towns to build proper sewage treatment plants, we can clear up a lot of the polluted waters we have, but we do have the scientific knowledge of what must be done, but in this area of the sludge, we do not have the technical knowledge. We need a scientific, technological breakthrough, as to how we can convert this.

Perhaps there are a lot of land areas in the United States, down South mainly, where the land has been worn out, and had been worn out by cotton crops before we learned rotation of crops and such things. Perhaps something may be devised where a low grade fertilizer from a composting idea might be used, so that this could be spread in

an area where we are going to have to, in the future, reclaim agricultural areas. We have agricultural surpluses now, but we can look to the future and find that we are going to need more land for agriculture. Maybe that is the solution, I don't know, but we must look toward it.

It is very imperative that we do not permit continued dumping this close to shore. The scientists at Sandy Hook have stated that there is an area which reaches out from the shores along our coast to a depth of about 20 fathoms or 120 feet. This is roughly 30 miles offshore. These marine ecologists believe that the area inside that 20 fathom mark must be what they call a no tolerance zone. This is where almost all of the marine ecology takes place, and there should be no pollution of any kind tolerated in that area, so as a minimum, we should assure that this shoreline, up to a depth of approximately 20 fathoms, should be clear of any contamination, if we expect to have a healthful marine ecology.

Last Friday, I had the privilege of speaking for some time with Thor Hyerdahl, the Norwegian explorer, who has just crossed the Atlantic Ocean, and was able to go into depth with some statements which I am sure all of us were aware of last week about the tremendous pollution out in the middle of the ocean, not near the shore at all, but several mornings his crew found that it was impossible to bathe out in the middle of the Atlantic Ocean because of the tremendous amount of pollution, oil, tar, general pollution that they found. They were many times afraid to wash out their tooth brushes in the waters of the Atlantic Ocean, and he is concerned about that, as many of us are.

I have introduced recently, and plan to reintroduce tomorrow, a bill calling upon the President to initiate the formation of an international environmental agency, so that all of the countries around the world, especially the large industrial and shipping nations, will be able to join together to devise standards and enforcement procedures to assure that we will not contaminate the high seas beyond our borders.

I am happy that the gentleman from Michigan is cosponsoring this legislation. I certainly hope that it does get off the ground, and I may seem to be a bit inconsistent in saying we ought to, at this time, move the sludge out toward the international waters, and at the same time introduce legislation to prevent the contamination of the international waters, but I think this points out the dilemma that we, as citizens of the United States and citizens of this planet, face in the pollution field. We can no longer think of it as just our own area, our own country, or own coastline. We have to look at the planet as a whole in helping to solve our environmental problems.

I thank you very much for your time, Mr. Chairman.

Mr. DINGELL. Mr. Howard, the committee is grateful to you for a very helpful and a very vigorous statement. It is obvious to the Chair that you have given considerable thought to the matters. Your suggestions to this committee are most helpful. The Chair does wish to observe with pleasure that you have taken the leadership in the area of international pollution of the waters of the ocean, and the Chair expresses his appreciation in being able to join you and follow your leadership in that very important matter.

Mr. Grover?

Mr. GROVER. Thank you, Mr. Chairman.

I only wish to compliment the gentleman for his activities in this area of ecology and solid and liquid waste disposal. The Chair may not know it but the gentleman and I are very fond of Sandy Hook. I think I spent more time on Sandy Hook than any other Congressman having been stationed there with the Coast Artillery for a while, and I spent a good deal of time on the beaches of Long Island when the southwesterly winds would bring all the garbage up on the beach with the seaweed, and I had to rake it off as a lifeguard.

It has been very, very distressing to me at times, on a clear day to fly from Long Island to Washington, and to see the very large area of yellow ochre discoloration of the blue Atlantic off the Jersey shore. It is a rather ugly stain on a very, very beautiful stretch of ocean, but of course much more serious than even the appearance, as the gentleman has stated and the gentleman preceding him, I do, Mr. Chairman, hope that we will give this bill action which it needs so badly.

Mr. DINGELL. It is the intention of the Chair to move on this legislation. Mr. KARTH?

Mr. KARTH. Mr. Chairman, thank you very much.

I want to commend the gentleman, too, not only for his testimony today, but for having held hearings and having written a report for the Committee on Public Works. I think this indicates a very serious interest in the problem.

The preceding witness, Mr. Ottinger, told the committee about a process which has been developed by a company which resulted from the high heat regeneration of sludge and other solid matters that had been dumped into the area, and called our attention to the fact this is a process that not only is being thought of but actually used, and suggested that this might be a permanent solution to the problem. This could be used in building blocks and road materials and solid fill material. I wonder if the gentleman could comment on that.

Mr. HOWARD. I am not familiar with that particular one, but we need a scientific and technological breakthrough. Many organizations have developed what we believe is the answer to this, and I have had them in. I probably have had more buckets of sludge in my office being treated with various things than any Member of Congress.

I believe it is through this kind of effort and the congressional attention to this kind of effort that we will find the scientific breakthrough which will make sludge a productive commodity.

Mr. KARTH. During the hearings at Sandy Hook, were any of the companies involved in this kind of process or a similar process heard as witnesses, according to your recollection?

Mr. HOWARD. The hearings that we held merely confirm the fact that we do have to go into this kind of problem. As you read through the hearings, you will see that we just put on record the kind of problem that we have. The scientists involved discussed what the sludge was doing to the area. We did not get to this next important step.

If we move it out, that is only a temporary, stopgap measure. The hearings which you have before you do not deal with this very important aspect of the problem.

Mr. KARTH. Thank you very much. I want to thank the witness. I would like to suggest, however, that maybe it would be worth our while

to call in several companies who are involved in developing these processes and get their testimony as to what they think can be done in a realistic and practical way with the sludge, now the center of controversy.

Mr. FREY. I believe yesterday a witness from Texas told us of some experiments which have been made.

Mr. DINGELL. I do not recall the particular matter the gentleman is referring to.

Mr. FREY. Dr. Glasgow testified at some length about experiments that were being done. Possibly we could hear some of that at the same time. Apparently these are large-scale experiments that are being carried on right now.

Mr. KARTH. I think if we had one or two of the industrial firms that apparently have done considerable research in this area and have some kind of workable process going, to give us testimony with respect to what they think the cost of doing this might be, it would give us an opportunity to give a final judgment on the bill.

Mr. HOWARD. If I may comment, I feel very strongly that Mr. Karth's suggestion is what the Public Works Committee or this committee must do next, to call in the scientists who are working in the field and other scientists to get this information. I feel that cannot be overlooked in merely trying to find how far out we should put the sludge at the present time.

Mr. DINGELL. Mr. Dellenback?

Mr. DELLENBACK. I was particularly struck, Mr. Howard, not only by your prepared testimony, but by your additional comments, because if it has gotten to the point where, out in the middle of the ocean we do not have pure, clean water, as you indicated this man who just came through there finds it polluted, then this adds another dimension to the problem.

Mr. HOWARD. He did mention the difference between this trip and the trip on the Kon Tiki which he took in 1947, in the Pacific, where he marveled day after day at the absolute purity of the ocean, and he observed the change that had taken place since that time.

Mr. DELLENBACK. It does emphasize, it seems to me, the absolute imperative not only of moving nationally, but internationally, because we can set up all the standards we want for New York and it does not take care of the rest of the east coast. We can set up all the standards we want in the United States and that does not take care of all of the other nations and shorelines that are on the very same ocean.

I feel it very important, Mr. Chairman, that what we do should be broad in scope, broad enough to cover not just the area off New York and New Jersey, not just the United States, but we certainly should be urging that we sit down with the nations of the world and be looking at the total, overall problem. It is one small world.

Mr. DELLENBACK. I appreciate very much the valuable testimony you have given us.

Mr. HOWARD. I thank you, Mr. Dellenback, and I will be happy to send you a copy of my resolution calling for an international environmental agency which I will resubmit tomorrow.

Mr. DINGELL. I agree with the gentleman from Oregon.

Mr. Frey?

Mr. FREY. Thank you, Mr. Chairman.

I can well appreciate the problem up along the New Jersey shore. You hit on one thing that bothers me. Your bill, H.R. 18454, says we should establish standards of damage to the natural environment and ecology. The problem we face is how can you get there from here? I think from what we seem to know about it and what we seem to learn, we are going to do damage.

We face a two-step process, as you so ably pointed out. One, we are going to do damage which cannot be minimized at the moment. I was struck by the thing you and Mr. Dellenback were talking about. It is apparent if we go outside 30 miles, no matter where we go, there just isn't enough ocean left.

Secondly, the thrust of your statement, I think, is that what we can do remains to be resolved. As you so ably point out, we are in a dilemma.

Let me ask you one question about the 30-mile limit you were discussing. Have any of the research people you have talked to been able to estimate the extent of the damage that will be caused by dumping somewhere outside 30 miles?

Mr. HOWARD. Other than it will be farther from the shore and it will be out beyond where almost all of the marine reproduction goes on. It will take it out of the active marine ecological area.

Mr. FREY. How about the currents and tides? Have you any idea where it will end up?

Mr. HOWARD. I would presume it will go north and east of there. It will cause trouble. There is no doubt about it. It is now right in the heart of the area, not just close to the beaches, but where all of the marine life and reproduction goes on. Until we find the answer to the problem we discussed before, the first thing is to move it to an area it will do less damage at the present time.

Mr. GROVER. Has there been any study or contact with the towing companies to determine whether they are equipped and whether their facilities meet Coast Guard standards and are suitable for the longer trip?

Mr. HOWARD. There was discussion about the question which the Governor of New Jersey urged, that it go out 100 miles. Without the figures which I presume the Corps of Engineers or some people could give to you, there would be a tremendous cost because of the higher swells and waves, and they would need additional and larger equipment. They might be out there for 2 or 3 days at a time making this long trip, so they would need double crews to handle the problem.

It would seem to me that if we were to feel this 100-mile limit would be the solution, we would be spending an awful lot of money on new equipment and on more crews, and very possibly spending money which could be well used in sewage treatment plants and toward control of pollution.

It is almost a diminishing return type of thing.

As for the 30-mile limit, there would not be that big a problem, but there would be quite substantial additional expense.

Mr. GROVER. Has the fishing agreement which we have entered into with the Russians been taken into consideration? There are several

areas that are off limits at certain times of the year for purposes of replenishing the herd of various commercial fish. Has that been taken into consideration? You refer to the ecological breeding grounds.

Mr. HOWARD. I believe the area in the fishing agreement which will not be fished is a fairly large area, something like 52 square miles, in the new agreement that was signed last year, farther south in New Jersey away from the New York Bight area. It had been more squared off before and farther north. This would not be in that area. I do not think that would be a problem.

We should assure, if we do move it out, that we do not move it to that area. That is farther south.

Mr. GROVER. I agree with the gentleman, and I think we are all in agreement, that one cubic yard of waste is too much in the waters. I do not know how far we can go. If we go far enough to make it relatively secure, we face the problem of perhaps waiting a year until the towing companies can get the equipment to take it out there, and then come a cropper on the frustrating problem of getting international agreement.

If we go out only 30 miles, as you say, we are just putting the problem off for a little while longer.

Mr. HOWARD. Until we get some answers that we just do not have now, for the use of sludge on land.

Mr. FREY. I just wonder if the penalty provided by the bill is sufficient. It provides a penalty of \$10,000. Maybe it should be increased somewhat.

Mr. HOWARD. This is not a firm figure. I am sure when the committee goes into this and discusses dollar amounts, It could be revised.

Mr. KARTH. I think what the witness is talking about is \$10,000 per incident. It would be a daily incident, I assume. A \$10,000-per-day fine is something no industrial firm could stand from the financial standpoint.

Mr. FREY. You have the trouble of consolidating the trial on separate incidents. As a practical matter, if you were prosecuting it, you probably would go for one. I think these \$10,000-a-day things in practice have not worked out as well as they look on paper.

Mr. KARTH. Would \$10,000 per day satisfy the point the gentleman raises?

Mr. FREY. No.

Mr. KARTH. Then I suggest along with it, perhaps the committee can agree to a revision of the penalty.

Mr. FREY. I guess you do not have any problem with State river valley authorities that are acting independently.

Mr. HOWARD. I believe there are authorities in New Jersey that could have control over the operations. I think we delude ourselves somewhat in continually harping on industry as the polluters. I am sure a great amount of this pollution, of this sludge, is brought about by municipal wastes following sewage treatment plants. So it is the towns, the cities, and the people who are doing the polluting, not some faraway wealthy company that we can throw a big fine on and become indignant about, which points out we really have to find a solution, because it is the people who are polluting more than industry.

Mr. FREY. Thank you, Mr. Chairman.

Mr. DINGELL. Thank you very much, Mr. Howard. We are certainly grateful to you for your very helpful testimony this morning.

Mr. HOWARD. Thank you, Mr. Chairman.

**STATEMENT OF HON. GEORGE P. MILLER, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF CALIFORNIA**

Mr. DINGELL. Our next witness is a very distinguished Member of this body, the chairman of the Committee on Science and Astronautics, a distinguished friend of the present occupant of the chair. The Chair might observe also a mentor of the present occupant of the chair. The Chair is proud to say the distinguished gentleman from California at one time was not only chairman of the Subcommittee on Oceanography of this particular committee, but also the chairman of the Subcommittee on Fisheries and Wildlife Conservation. But for the very happy circumstance that he has moved on to the Committee on Science and Astronautics, he presently would be occupying the chair the gentleman from Michigan now occupies.

It is a particular pleasure for me to welcome an old and valued and distinguished friend back to this committee for whatever testimony he wishes to present. The gentleman from California, our good friend, Mr. Miller.

The Chair does observe with some sorrow that I am called to testify at 11:30 before the Government Operations Committee. I have asked my good friend and one of your subcommittee chairmen to preside in my absence.

Mr. MILLER. I was in hopes you might remain for 5 minutes, because I have no prepared testimony, and I am going to talk off the top of my head.

You are talking of disposal of wastes off the coasts, going out 30 miles. It was said it would be too far to go.

If you are going to dispose of wastes off the coasts, you do not figure the horizontal distance out. You figure the depth of the ocean. Off the coast of New Jersey or New York or nearly anyplace off the east coast, the shelf goes out well over 30 miles.

If you should go back and look at some testimony that was given to the Committee on Oceanography 12 or 14 years ago when the Atomic Energy Commission filed a report on the disposal of atomic wastes on the east coast and gulf coast, it would be quite illuminating, because this very problem came up. This waste was to be put into containers. They were to have so much concrete around them. In this case they were to be deposited in at least 1,000 fathoms of water. You have to go well out beyond 30 miles to find 1,000 fathoms of water off the east coast.

One fisherman fouled his net off the coast of New Jersey, and when he got it freed he found he had one of these containers in it. This is all in the record.

Having had some experience, putting in 4 years as the executive officer of the California Division of Fish and Game, charged with pollution control, I thought I might understand the attitude of some

of the people charged with taking the containers out to sea. Going out to 1,000 fathoms of water did require going a long way and could require being out overnight. But if you get out there and the weather is down, and it costs money to run the tug out, so you unload the stuff and come on in. The waves took hold of this stuff and worked it in shore.

Further, the California Division of Fish and Game, not being satisfied with the specifications of these barrels, made some of them up and instrumented them and took them off the coast of California and sunk them, and they found that they imploded at about 400 fathoms. The stuff in the containers was very low-level waste, with a half-life of only a matter of maybe a month or so. If they had been high-level wastes—some of the high-level wastes may have a half-life of many years or 100 years—this stuff would have been put into the ocean.

Someone asked, what about the tides? I assume that you all recognize the fact that the Gulf Stream rises down in the Gulf of Mexico and runs north by beautiful Florida—I have to be very nice to Mr. Frey and Mr. Karth because they are on the Committee on Science and Astronautics—it rises down there and, as we all learned when we were in school, comes up along the coast of the United States and then goes over to the North Sea. The heat of the Gulf Stream makes England, Ireland, and Scotland, and the Scandinavian countries, habitable.

But it was not until a comparatively short time ago, maybe 30 or 35 years ago, that they discovered there was a counterstream under the Gulf Stream that came back over the same route, only below it.

One of the things that has always worried me and should worry you is that in England they are using a great deal of atomic energy because you do not have to depend on oil and a lot of things, but they are pumping in some cases fairly high-level atomic wastes into the North Sea. I have asked people on the Atomic Energy Commission and other people, is there any chance of that being caught up in the counter-current and brought over as it comes over the great banks of New England, ruining all the fisheries and doing more damage than the detergents coming down the Mississippi are now doing to the Gulf of Mexico? No one will give you an answer.

I have studied the oceans and bottoms of the oceans. I have some relief maps in my office which were given to me when I was chairman of the Committee on Oceanography. Perhaps I should have deposited them with this committee, but I have held on to them. They show water depths of the ocean. For instance, the North Sea as a rule is less than 100 fathoms deep, only about 50 fathoms deep, about 300 feet of water off the British Isles. It is a great plateau, just as a plateau forms the shelf off this country. The deep parts of the ocean are out to sea and in certain trenches. They are not so deep in the Atlantic as they are in the Pacific Ocean.

I am concerned with what they might have found out coming across the ocean about pollution of the water. I do not think this is particularly new.

You have the Sargasso Sea, which we have all learned about, which is the breeding ground for a lot of fish. This is the place where they gathered a lot of marine life and a lot of seaweed and marine plants.

The early explorers found this very hard to get through. So, they used to go south of it. This has been in the ocean since the memory of man runneth not to the contrary. It is still there.

I am not so concerned about some of the stuff that goes into the ocean. I am concerned about most things that go into the ocean that are lethal.

One of the reasons I have come here to testify, is a bill that is being put in to control the deposit of mercury products in the ocean. This is lethal. I am also concerned with the deposit of atomic wastes in the ocean.

It may be interesting, Mr. Dellenback, to know that by the time the Committee on Oceanography—I think you, Mr. Chairman, were on it at that time—got through hearing the Atomic Energy Commission's position on disposal of atomic wastes on the Atlantic and gulf coasts, they were going to file one on the disposal of wastes on the Pacific coast. You had nine or 12 States interested in the Atlantic and gulf, some of which are great fishing States and some of which are not. There was not very much concern. But when we broke into some of the things that had taken place on the Pacific coast where we had only three States, all of which were pretty well established as fishing States, they got together and interposed objections to the filing of a report on the disposal of atomic wastes in the Pacific Ocean, and to this day the Atomic Energy Commission has never filed a plan or report for doing it. They have taken another tack.

Mr. DINGELL. That is one of the few times the Atomic Energy Commission has backed off, to the best of my recollection.

Mr. MILLER. They have backed off. What do they do now? They take this stuff on the Pacific coast into Death Valley and bury it in an area where there has been no seismic history for years, and make a great graveyard to bury it. This is perhaps where it should be. Yet at Hanford, in Washington, it poses a great problem because you have hot wastes in tanks, some of them 8 feet thick, concrete tanks, in which this stuff is being stored, and we have not found out yet how we are to get rid of it. Somebody said pour it out on the desert and let the sun evaporate it, but you deposit everything that is in it on the desert and then where are you? Or you put it into an old mine. The first thing you know, you find evidences of it maybe hundreds of miles away in underground water. So, you are caught in a trap.

The whole waste disposal problem is one which is of prime importance. I agree that it should be handled on an international basis. We should have a lot of other things on the international basis where it comes to the ocean, but we have never succeeded in getting cooperation.

As a member of this committee I was sent as an observer to the last conventional in Geneva on the Law of the Sea. We lost out by one vote. There is no law of the sea today. Up to that time, everyone accepted the 3-mile limit. The 3-mile limit had no real basis to it. It was as far as a muzzle-loading cannon could shoot offshore. So, when you got beyond that range, you established the 3-mile limit.

We made compromises as to the 12-mile limit. To apply the 12-mile limit to the Pacific Northwest would shut off and make some of the finest salmon fishing grounds, inland lakes controllable by Canada.

Iceland was one of the first to establish the 12-mile limit. The British accepted it because they did not want to have any trouble with it. It affected them a great deal. You have these local things that come up.

Who owns the seabed? Who owns what is on the bottom of the sea? This is again being agitated. Heretofore, we have said if it is attached to the bottom of the sea, the nation that is alongside of it controls it. So, sponges are not subject to some of this, but you could not go into the fishing ground.

We had trouble in the Pacific Northwest with the salmon fishing. The United States and Canada entered into a very fine and firm treaty to protect the salmon that come out of the Pacific Northwest rivers. They got along very well until, all of a sudden, we limited the take of all this. Japanese fishing ships would show up off the coast and keep out 3 miles. They put canneries on their ships and took the salmon. We got the Japanese to agree not to fish east of the 140th meridian. Then, all of a sudden, Russian ships with half a dozen trawlers would come in.

Before World War II, the Japanese fishing vessels used to show up off the coast of California and send in small boats to take abalone off the shore. They would come in in the fog. Our vessels would go out there, but what could they do? They could not shoot at them. You were not certain whether they were boats from our country. We protested, but all the protesting in the world did not do any good.

The Japanese are now quite conscious of pollution. When they talk of disposing of atomic wastes off the shores of Japan, the Japanese, not having the technicians to do it, hired the Piccards, the French company, Piccard being one of the great oceanographers of the day. They found up-wellings caused by sea mounts that brought the bottom water to the surface. The Japanese were no longer interested in disposing of atomic waste off their shores.

You have a tremendous problem before you. I am very happy to see that you are working on it. I think we should have been working on it long before this.

I must confess that perhaps I should have had some bills in. It is a big problem, and I wish you well in it, and I hope you keep after it until you begin to get some work done on it. I urge that you continue to press the State Department and the United Nations for action in this field. You have some very competent people on your staff who know how to get some of these things done.

Years ago, Mr. Casey was a consultant to the committee when I was on it. He is quite knowledgeable and competent in this field.

I thank you.

Mr. DINGELL. Mr. Chairman, it has been a happy experience for me to have the privilege of having you back here again, even if it is to sit on the other side of the witness table. I want you to know for me, at least, it brings back some particularly warm and happy memories of the long and pleasant association you and I shared here when we served together on this committee.

We thank you for your testimony. We look to you for help when this matter is presented by the committee to the floor for consideration.

Mr. Karth?

Mr. KARTH. Thank you, Mr. Chairman.

I merely want to join you in welcoming one of our most distinguished colleagues in the Congress. As you know better than I, he possesses a wealth of knowledge, not only on this matter, but science in general. While I am tempted to take advantage of him, since he is the chairman of my other committee, now that he is at the witness table, because of his knowledge I am afraid I could not win the battle, whatever it might be, so I will join you in welcoming the distinguished gentleman from California, for whom I have such high regard.

Mr. DINGELL. Mr. Frey?

Mr. FREY. Mr. Chairman, it is a real pleasure. I have served on the Science and Astronautics Committee and have learned from the vast store of knowledge you have. I did not realize the background in oceanography which you obviously have. I am not about even to think of trying to put any questions to you. I welcome you. It is a real pleasure to hear you.

(Off the record.)

Mr. GROVER. Mr. Miller, I join with my chairman in expressing appreciation for your appearance today.

I think Mr. Miller has pointed out something very important. We have been directing our concern toward improving the prospect of our marine ecology, and I think the chairman has pointed to something extremely important, the needed effort and action involving the sea to preserve the human ecology. I think that is so terribly important. I think your testimony has been most helpful.

Mr. DINGELL. We certainly thank you for your testimony.

Mr. MILLER. Thank you.

STATEMENT OF HON. ABNER J. MIKVA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. DINGELL. Our next witness is our good friend and colleague from Illinois, Mr. Mikva.

We are happy to welcome you, Mr. Mikva.

Mr. MIKVA. I want to thank you and the members of the subcommittee for your interest in this matter, Mr. Chairman. I share the same amount of the coastline that you do, Mr. Chairman, only an indirect one, but a very important one.

I think the little bit of knowledge I might have on the subject comes from the fact that I saw what happened to a body of water that was neglected for too long. I remember, as a boy growing up in Milwaukee, swimming at all the beaches which are now closed, drinking lake water, of which is now deemed questionable as far as health is concerned, and fishing off the pier for fish that have long since appeared.

That was some 30 years ago, not very long when you think how long that lake was there before we started messing it up.

With your leave, rather than read my entire statement, I would like to ask to put it in the record and summarize it very briefly.

Mr. DINGELL. Without objection, the statement referred to will appear at this point in the record as if given in its entirety.

(The statement follows:)

STATEMENT OF HON. ABNER J. MIKVA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. Dingell, members of this distinguished subcommittee, I am grateful for this opportunity to testify before you. Let me get right to the point.

Recent studies indicate that man may be well on the way toward irreversibly destroying all ocean life. We now use as dumps for sewage, dredging, contaminated food, toxic chemicals, chemical warfare agents, sulphuric acid, arsenic, and countless other articles, one hundred and twenty-three areas off of our Atlantic, Gulf, and Pacific Coasts. Of the forty-nine dumps off the populous East Coast, eleven are used for dredge spoils, nine for industrial wastes, two for sewage, eleven for radioactive wastes, and sixteen for explosives. Already, one area has been so badly misused that all oxygen in the water has been exhausted and the thick pollutants prevent light from penetrating to renourish the plants which could have rectified the situation.

Perhaps the most infamous example of this hideous destruction of our environment is the New York Bight. A fifteen month intensive study of the New York Bight conducted by the United States Marine Laboratory at Sandy Hook, indicates that the cumulative result of forty years of dumping has been to severely unbalance the marine ecology of the area and to make many parts of the bay absolutely uninhabitable for marine life. Devoid of significant marine life, the New York Bight is accurately referred to by many as "The Dead Sea."

The prevalence of disease and contamination, which not only threatens the Atlantic coastal fisheries, but also gravely endangers public health, was indicated by studies made on this area. More than a dozen species of fish captured in the befouled area of the Bight were suffering from a disease known as fin rot. Lobsters and crabs exposed under laboratory conditions to the same pollutants as are pouring daily into the Bight, developed a fouling of their bronchial chambers and gills. The test animals all perished within three to four days. A report recently prepared by M. Grant Gross, Research Oceanographer at the Marine Sciences Center, State University of New York at Stony Brook, warns of high concentrations of a number of toxic and cancer causing elements. If these elements enter or have entered the food chain, we are faced with a serious hazard to public health. Studies conducted by a group of scientists under the direction of the Smithsonian Institution substantiate these terrible conclusions.

Immediate steps must be taken to ameliorate if not to reverse this deplorable and dangerous condition. It is for this reason that I wholeheartedly endorse three bills which would put into effect the steps necessary to reduce the level of contaminants in the New York Bight, and would constitute an effective preliminary action in the fight just beginning to retrieve our oceans from a terrible fate.

My first preference would be for a bill which establishes a blanket ban on dumping of potentially harmful foreign matter into the oceans. H.R. 18454, introduced by our colleague from Massachusetts (Mr. Harrington) and now pending before this Subcommittee, and an identical bill of which I am a co-sponsor (H.R. 18592), would be a first step toward providing such protection. It would prohibit, under regulations and standards formulated by the Secretary of the Interior, dumping of "all industrial wastes, sludge, spoil, and all other materials that might be harmful to the wildlife or wildlife resources or to the ecology" in the coastal waters of the United States. The bill would put the burden where it should be—on the dumper—to show that the foreign matter which he intends to dump in our coastal waters is not harmful to marine ecology.

Indeed, Mr. Chairman, I would like to see this Subcommittee go even beyond the ban in H.R. 18454, sweeping as that seems to us today. I would like to see a bill which prohibits dumping of deleterious matter by U.S. citizens or U.S. owned or registered vessels—in shore, by anyone subject to U.S. jurisdiction—in any ocean or sea anywhere in the world. Such a bill could be based not on our interest in preserving the purity of our coastal waters, but on our jurisdiction over the actions of our citizens and vessels on the high seas. We would be saying, in effect, to American citizens and to ships owned by our citizens or flying our flag: "No matter where you are sailing around the globe, you shall not dump into the ocean any deleterious substance."

Of course such a ban would have to be accompanied by vigorous efforts to persuade other nations to impose similar bans on their nationals and vessels of their registry. Otherwise, we would be imposing an intolerable commercial disadvantage on U.S. citizens and shipowners and on ships of U.S. registry. We could, and should, take the initiative in pushing for international agreements which will regulate dumping into the oceans by all persons and ships of whatever nationality, ownership or registry. A start on this effort could be made through the 70-nation International Oceanographic Commission set up by UNESCO in 1961. That organization is now sponsoring a cooperative program of research on the Mediterranean Sea involving some 20 nations, including U.S.S.R., Israel, Syria, and our own government. I suggest that if nations as diverse as these can agree on the importance of oceanographic research in the Mediterranean, then perhaps we can also agree on the importance of an international ban on the dumping of potentially deleterious substances into the oceans.

Mr. Chairman, the proposals before you are far-reaching. I submit to you that if we had had a policy of placing the burden on the polluter to justify his actions in this country ten years ago, we could have avoided many of the problems which are most worrisome to our population today. Someday we must begin to look ahead far enough to spare ourselves—and more important, our children—the pains which we have experienced from lack of foresight. A global ban, internationally enforced, on dumping of deleterious substances in the oceans will not be an absolute ban on all dumping. It will merely put the burden for justifying any dumping where it belongs—on dumpers. It will force those who are now using the oceans—which belong to all nations and to all men—to justify making this invaluable international resource their private garbage can.

As alternatives, I would like to discuss briefly two other bills which are long steps in the right direction.

H.R. 16229, introduced by my distinguished colleague, Mr. Ottinger, would amend the National Environment Policy Act of 1969 to allow the Secretary of the Army to revoke or terminate any license or permit which he may have already issued authorizing the discharge of waste materials into the waters of the New York Bight. Can there be any question that this step must be taken?

Also before this Subcommittee is Mr. Murphy's bill, H.R. 17843, to amend the Fish and Wildlife Coordinating Act to provide additional protection to ecology by requiring the designation of certain water and submerged land areas where the depositing of specified waste materials will be permitted. When informed of the situation of the New York Bight, Governor Cahill of New Jersey responded by suggesting that we move the dumps to one hundred miles offshore in order not to endanger the areas so close to our cities. Mr. Murphy's bill, written I am sure in partial response to this proposal (which would endanger outlying areas as well as put us in conflict with existing or potential international laws) would allow for extensive research into the best way of disposing of this material.

Obviously we must stop the destruction of the New York Bight immediately and without hesitation. Obviously we must conduct extensive research concerning ways of disposing of our waste materials so that we will not have a repetition of the New York Bight conditions. I am not going to urge you to support these bills because I am already confident that you will. What I am going to urge you to do is to look beyond the New York Bight to the problems of the future.

The New York Bight is not a localized problem. It is symptomatic of a much larger problem that we must terminate now. Short term solutions, such as limiting the amount of waste to be dumped in certain areas, must be sought to solve extraordinary situations such as the New York Bight. But short term solutions must be provided with the knowledge that a more permanent solution must be forthcoming.

This is no longer only a national problem. Thor Heyerdahl underscored the extent of the damage to our oceans when he reported, after his 3,300 mile ocean trip, that the mid Atlantic is so polluted with oil and other articles that there were some days it was not even fit to bathe in. The time has come for all of us to work together toward a solution.

We cannot afford to wait and to decry once again the miserable condition of our environment which we have created for ourselves. Rather we must join together and offer a solution. No other animal fouls his nest as does man. We must learn to stop it.

Thank you.

Mr. MIKVA. I want to say I, too, was struck by the statement of my colleague from California, because I think what he was urging the subcommittee to do was a very eloquent plea for what I was hoping the subcommittee would do, and that is, not to look for only the short-range answer. The New York Bight obviously is a very serious problem, not only to New Yorkers but everybody else, but the New York Bight is only a small bite of the whole problem, because in fact the entire ocean is the problem, which is why I would urge the subcommittee to give serious attention to the bill proposed by our colleague from Massachusetts, Mr. Harrington, and, indeed, to go even beyond that and think seriously about the efficacy and wisdom of a bill which would say that everybody under U.S. jurisdiction, those who are U.S. citizens, who are actually dumping off our coasts, and U.S. citizens or U.S. flagships anywhere in the world, are prohibited from using the oceans as garbage cans. These bodies of water have too many precious needs to be used in such a wasteful manner.

To take up what Congressman Miller urged on you, a serious push by our country to get international agreements about the use of the oceans for dumping, perhaps I am not quite so pessimistic as the previous witness in that respect. I was struck by the fact that under the auspices of UNESCO the 70-nation International Oceanography Commission has in fact been meeting since 1961. They are sponsoring a cooperative program now involving research on the Mediterranean Sea involving some 20 nations, including—and I would urge you to listen who is involved in this combine—the Soviet Union, Israel, Syria, and our own Government. If you can put all those nations down at one table on the Mediterranean Sea, it seems to me there would be reasonable hope of finding some kind of agreement on the use of the oceans generally.

We had a planner that we did not pay much attention to, by the name of Daniel Burnham. We have been quoting him ever since he died. He had a slogan about Chicago: "Make No Small Plans."

I would urge this subcommittee to make no small plans about this very large problem. While I hope that, whatever else happens, the problems that so concern our New York colleagues and the New York Bight are solved immediately, I also hope this subcommittee does not think that is the end of the line, because the bodies of water that are really our own permanent heritage are fast becoming endangered.

I am troubled by what our colleague from New York, Mr. Ottinger, suggested as even a temporary solution for sewage by dumping it 30 miles out. As Mr. Miller pointed out, you are still on the shelf at that point, and you are probably going to get that stuff washed right back in where it was.

Mr. Heyerdahl during his recent journey pointed out there were many days in the middle of the ocean that he found the water unfit for swimming because of oil spills and other wastes and debris in the middle of the ocean.

I think our plans will be expensive, as Mr. Grover pointed out. They will not come cheap. But they will be a lot less expensive than some of the things we are now considering for the Great Lakes if we com-

pare them to what we might have done 50 or 100 years ago and avoided the problem in the first place.

My own city takes a great deal of pride that our beaches are still open. We are perhaps one of the few cities on our side of the lake whose beaches are open. I take small pride in that, because I am aware that the only way Chicago keeps its beaches open is by that 8th wonder of the world, the Chicago Sanitary District, which reversed the flow of the river, and we dump a daily contribution of sewage and sludge down to every community that has the misfortune of being downstate from us. While the Chicago beaches are open, there isn't a river in Illinois that feeds into the Chicago Illinois River that is swimmable.

The short fact is that the problems of Lake Michigan are so serious that we are talking about fantastic sums just to try to reclaim our beaches and try to reclaim our fish life. I would hate to think the sums involved to try to reclaim an ocean that passes the point of no return.

Thank you for your interest, and I hope this subcommittee comes up with a product that will save this very important resource.

Mr. DINGELL. Mr. Mikva, the committee is grateful to you for your very helpful testimony and for your great patience this morning. We very much appreciate it.

Mr. Grover?

Mr. GROVER. I have no questions, but I am very pleased to hear the statement and to hear the recommendations made.

Mr. KARTH. I have no questions, Mr. Chairman. I want to join you in thanking our colleague for being as brief as he has been. I know he has been sitting in the audience all morning, giving everyone else an opportunity to be heard, and he has filed his statement for the record in the interest of time. I want to thank the gentleman for his contribution this morning.

Mr. DINGELL. We are grateful to you, Mr. Mikva.

Mr. MIKVA. Thank you.

Mr. DINGELL. Our next witness is our very dear friend from the State of California, Hon. John E. Moss. Congressman, we welcome any statement you may choose to give to the committee at this time.

STATEMENT OF HON. JOHN E. MOSS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. Moss. You are very kind Mr. Chairman. Thank you.

As a cosponsor of H.R. 17843, I am pleased to present my ideas on its merits.

The bill would amend the fish and wildlife coordination act to allow the Secretary of Interior to designate portions of navigable waters and the Outer Continental Shelf as suitable for the discharge of sewage, sludge and spoil. Further, the Secretary is to establish standards applicable to the discharge of such waste materials.

This legislation recognizes a trend which has been generally evident in most recent conservation legislation, in that the States are given the opportunity to develop standards applicable to discharges into waters subject to jurisdiction by that State. If the standards are at least as

stringent as those proposed by the Secretary, and if there are adequate enforcement procedures set forth by the State, then the State standard shall apply.

There has been a resurgence of responsibility at the State level of government in recent years and we in the Congress have generally shown support for this movement by providing opportunities for the State to set standards and administer pollution control programs.

The bill also spells out penalties up to \$10,000 per day for discharging the waste substances outside of designated disposal areas or within disposal areas but in a condition which does not meet the established standards.

John Kenneth Galbraith, the economist, has aptly characterized ours an "effluent society". The unimaginable volume of waste which we continue to generate has for too long been looked upon as part of the price we pay for our standard of living. Now, however, it is becoming increasingly evident that Americans want a clean and decent place in which to live, work and play in addition to the material goods they use and enjoy.

The point has been made many times in the last year that we cannot continue to enjoy the high levels of inefficient consumption of our resources base without paying for it in terms of a degraded environment. We are now at the point where we must begin to restructure our relationship with the natural world.

The changes we must eventually make are monumental, involving the very life style of the individual and the way in which he perceives the world. These changes will not be made overnight, or perhaps even in a generation, but we can make some legislative steps which will move us in the right direction.

I feel that H.R. 17843 is just such an essential legislative step, and not really very far removed from the seemingly cosmic changes which are required.

Dr. Paul Ehrlich, the Stanford University biologist, has recently shown the environmental affinity of man and wildlife when he said:

Only a few million people realize that killing off the brown pelican is fundamentally killing us off, too; that we depend absolutely on the stability of complex ecological systems of which all these other things are part; that we're destabilizing them by killing other organisms.

I think man must understand that he is an endangered species too.

It isn't a question of people or animals—it's got to be both of us or we're finished.

Mr. Chairman, I am glad to hear scientists of Dr. Ehrlich's stature making these important points, points which the members of this committee have been aware of for a number of years. In protecting our wildlife, we are protecting ourselves.

The list of injuries inflicted upon wildlife by man's economic activities is both long and depressing. By our prompt action on this and similar pieces of legislation, we can slow down and eventually halt the lengthening of that list. Sewage, pesticides, and most recently mercury, are but a few of the poisons we have spread upon the living web of life.

With the dumping of polluted spoil from our rivers, lakes, and coastal areas, we have often compounded the injurious effect of these poisons by destroying vital habitat in marshes and wetlands.

We have not yet reached the point of economic and technologic feasibility for nonpolluting manufacturing processes and complete recycling of used material. Until we reach that point, our concern for the environment may best be expressed by adopting the principle of this bill allowing disposal of prescribed polluting substances in specified places. If we cannot eliminate pollution, we can manage it to allow the least possible damage to the environment.

Mr. DINGELL. The subcommittee values your fine statement and we thank you for your time.

A very able gentleman who used to sit on this committee from the State of Texas, our colleague Bob Casey.

STATEMENT OF HON. BOB CASEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. CASEY. Mr. Chairman and distinguished colleagues, I join in expressing my personal thanks to you for your expeditious hearing on the bill I have had the pleasure to cosponsor with my friend, Representative John Murphy of New York.

I commend him, as I do all of you, for the leadership shown in moving to protect our most vital resource—our marine environment.

New York is not alone in facing the critical problem of abuse of our coastal waters. We, along the gulf coast, know only too well that action must be taken, and soon, to prevent the abuse of this great body of water. The facts cited by my colleague grimly show the callous disregard our Nation has shown over the past decades and immediacy of the need for protective legislation at the local, State, and Federal level. He has shown the seriousness of the problem as it applies to his great State of New York. I take this opportunity to submit facts applicable to our own area and the great Gulf of Mexico, the ninth largest body of water in the world.

Few people realize the enormity of the problem we face with the Gulf of Mexico, for it is the dumping ground for pollution carried by river drainage from 31 of our States. Our five coastal States—Alabama, Florida, Louisiana, Mississippi, and Texas—have 17,141 miles of tidal shore—18 percent of the U.S. total. In Texas, almost three-fourths of our population live within 50 miles of the gulf, and I'm sure the same is true of many of our sister States. In fact, between the years of 1950 and 1966, the population of our five Gulf Coast States increased 40 percent, and I know the rate of growth is continuing to accelerate as new industries seek to locate along the gulf's advantageous shoreline.

The gulf is a vast reservoir of natural resources for our Nation, much of it still relatively undeveloped. But these facts are known: nearly 31 percent of the U.S. fish catch in 1968 came from the gulf. More than 80 percent of our Nation's oil and gas sales comes from this region, and it is estimated that 60 percent of the U.S. Continental Shelf petroleum reserve lies under gulf waters. There are 33 separate

bay systems, averaging 550 square miles, which are the spawning grounds for our vast seafood resources—and the drainage pits for our waterborne pollution.

And yet—in spite of its tremendous importance—how little we know about the Gulf of Mexico, and how little is being done to protect it.

True, there are studies underway which will be invaluable as a basis for action in years to come. Indeed, I have been privileged to help at the Federal level on two major studies now underway—one, primarily State financed with Federal assistance on Galveston Bay; the second, a massive decade-long study of the gulf environment by the Gulf Universities Research Corp., a consortium of 17 major universities in our five coastal States, and including the University of Mexico, and a number of major industries. It is estimated that the cost of this latter study over the decade will be about \$150 million. A month ago, the National Science Foundation announced a \$100,000 6-month grant to GURC for development of a comprehensive plan for implementing the massive gulf environmental program, which holds such exciting long-range promise. This is the only proposed study focused on a single oceanic system adjacent to our coastline, and on the common problems of marine preservation, conservation, and development, utilizing the tremendous scientific talent of 1,400 of our Nation's top scientists at these institutions.

But as my colleague pointed out, we cannot wait for the answers to come from these studies. Indeed, some of our scientists state the gulf is a prime candidate to be the next Lake Erie unless immediate action is taken to protect it from pollution. Our bill, in my judgment, would give that protection.

Many of you are familiar with my home area of Houston and Harris County. You know that although we are 50 miles inland, we alternate between being the second- or third-ranking port in our Nation. To reach our port facilities, oceangoing vessels must travel up the Houston ship channel, a 40-foot-depth channel dredged the length of Buffalo Bayou, often termed the most polluted body of water in our Nation. Along its banks are lined the great petroleum and chemical industries, and other industrial complexes which have brought dynamic growth and prosperity to our area. They also brought the problems of pollution, by air and water. Much is being done at the local and State level to control it, and indeed, most of these major industries are fully cooperating in a responsible manner. But the ship channel is the main drainage system for a highly developed urban area of nearly 2 million people and it empties into Galveston Bay all of the accumulated wastes from sewage treatment plants and our industrial complex, as well as the residential runoff from heavy tropical rainstorms. Adding to this are the spills from tankers, from chemical plants, or from those obtuse industrialists who view any body of water as their own private industrial sewer.

Unlike New York, Texas has not—as yet—viewed the Gulf of Mexico as a site for disposal of solid wastes from our urban areas. But all of us know that it is but a matter of time, unless action is taken now, that this will be seized upon as an easier and cheaper solution to the urban problem of garbage disposal. The cost of land, and the vigorous objections from those who live nearby to incineration

or landfill garbage disposal sites, will force our city officials to seek this method unless action is taken now to enact these needed guidelines.

Mr. Chairman, on behalf of the people of my district and my State, I again commend you and my colleagues for prompt consideration of our bill. I know you share our concern for protection of our environment and our great natural resources, and it is my hope that the members of this important committee will act favorably on this legislation.

We cannot delay too long in moving to protect our estuarine areas, and I believe that our bill, H.R. 17603, presents a solid basis for remedy of this most complex and difficult problem.

Mr. DINGELL. Thank you for a very informative statement.

I would now like to call our colleague from the Empire State, the very able gentleman, Hon. Lester Wolff.

STATEMENT OF HON. LESTER L. WOLFF, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. WOLFF. Mr. Chairman, I am pleased to have this opportunity to appear before this distinguished subcommittee concerned with the extremely grave situation that is currently developing at this moment in the New York Bight section of New York Harbor. The ecological catastrophe that encompasses this 20-square-mile area stems from the decision to allow the dumping of dredge and sewage spoil under permit authority of the U.S. Army Corps of Engineers.

It is through the efforts of my distinguished colleague, Mr. Ottinger, that this grave threat to our lives has come to the attention of this subcommittee. I find myself here today to attest to the fact that this dumping has had and will continue to have detrimental ecological effects not only on the New York Harbor area but the entire North Atlantic seaboard. It is because of my colleague's inquiry concerning the means the U.S. Army Corps of Engineers effects to dispose of this waste that we may find some cause as to why New York Bight has become virtually a "dead sea."

Although the evidence regarding the Bight area situation is not yet complete, I find it conclusive enough to assume that an ecological catastrophe emanating from New York may trigger a destructive ecological chain reaction on the entire North Atlantic coastline. No amount of foresight can predict the consequences.

The Sandy Hook report, a 15-month study of this area conducted by the Sandy Hook Laboratory reveals the existence of a 20-square-mile area south of the Ambrose Light which is devoid of significant marine life. I think that in all sincerity this can be called a dead sea. Unfortunately, Mr. Chairman, death here breeds life. It breeds life for bacterial disease, viruses, fin-rot disease in the marine life in these areas. Most of all it breeds danger. It breeds a severe threat to the public who unknowingly may consume contaminated or diseased fish.

We are just barely realizing how contaminated these fish may be. Conclusive evidence from a variety of sources all concerned with this problem, the Sandy Hook Laboratories, the Smithsonian Institution,

and the Marine Science Research Center, in their report show evidence of strong concentrations of heavy metals, such as chromium, lead, and copper. In an article appearing in the July 26 edition of the Washington Post, a report made in Sweden discussed the effects of mercury concentrations in fish and its severe effects on public health. What I find most alarming from these various reports is the rate at which we are finding out how we have endangered our public health with substances we know little about. It appears, Mr. Chairman, that we are actually moving at an unprecedeted rate to destroy our natural marine food sources.

According to Mr. Grant Gross, a research oceanographer for the Marine Science Research Center at the State University of New York at Stony Brook, the average waste solid discharge per person in New York City for 1 day is 4.5 pounds. Annually this would mean with a current population of 9 million that 8.6 million tons of wasted solids, and this is excluding rubbish and floatable debris, is being dumped in New York Harbor. This dumping is apparently the largest single source of sediment entering directly into the Atlantic Ocean from North America.

The amount of waste solids discharged by the New York metropolitan region is comparable to that of the world's major rivers as a source of sediment entering the coastal ocean. Even greater though is the fact that the New York metropolitan region may be the largest source of sediment entering the whole North Atlantic Ocean, excluding the Amazon and Mississippi. We must realize that the sediment from most of the rivers in the North Atlantic area never reach the ocean, and usually settles in its estuaries, but New York Harbor deposits it on the Continental Shelf.

In the Smithsonian report which was prepared at the request of the corps, it states that, "there is a high incidence of fin rot disease (among Atlantic fish) that has apparently originated in the New York Bight area." The report in its conclusion states that the disease might possibly spread throughout the entire fish population and strongly urges that this be given "high priorities."

The Gross report in support of this conclusion goes on to warn that there are high concentrations of toxic and cancer-causing elements, which if introduced into the food chain will in effect become a serious hazard to public health. The Gross report did not elaborate on the fact that it may have entered the food chain, however the Smithsonian report states that, "tissue analyses for heavy metals on a worm and clam indicate concentrations of chromium and lead at higher levels than those acceptable to the FWPCA."

Contrary to what those reports say the corps has failed to heed the warning of giving the problem, "high priorities." This is definitely a problem that cannot be ignored or dealt with in an indifferent attitude. Not thinking about it won't make it go away. At one time the corps did give it some thought but in defense of its obvious failure to act, decided that these reports were only preliminary and were reserving opinion until complete reports were filed. Again Mr. Chairman, this is bureaucracy at its best.

We must work with what we have at our hands now. Let me reiterate then. We know there exists toxic proportions of chromium,

lead, and other metals in these fish. I strongly doubt that further evidence will disprove these facts. We can look at this from the other end of the spectrum in a more progressive sense and we can assume that if we know that these poisons exist only after preliminary studies, we can then conclude that there may be some more serious threats to our public health than have been realized. I feel the solution, then, is to stop this dumping of dredge and sewage spoil as a beginning in curtailing this pollution problem in New York Harbor.

In conclusion, I would like to say that I find it not only disappointing but disheartening that it has come to the point where congressional action seems to be the only avenue left for controlling this situation. After numerous attempts by my colleague, Mr. Ottinger, to effect change at a level which this problem by rights should have been dealt with, I find it quite alarming that neither the situation has changed nor have there been any concrete attempts to change it. The point is and has always been that some action, preventive as well as remedial, must be taken and I strongly urge that no added delay be imposed upon the passage of H.R. 15828. Again, I thank you for the opportunity to appear before this subcommittee and to express my sincere desire that this problem be corrected as soon as possible.

Mr. DINGELL. Thank you Congressman, for an excellent statement.

Another very able member from New York, Hon. Ogden Reid, will be our next witness.

STATEMENT OF HON. OGDEN R. REID, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. REID. Mr. Chairman and members of the subcommittee, I very much appreciate having this opportunity to voice my strong support of H.R. 15828, which would amend the National Environmental Policy Act to require the Secretary of the Army to terminate certain licenses and permits relating to the disposition of waste materials in the waters of the New York Bight. I commend my colleague from New York Mr. Ottinger's work on this bill as the principal sponsor, and I am pleased to be a cosponsor of it. It is, in my view, essential legislation if we are at all serious about attacking the critical danger that threatens our environment.

We have made New York Harbor not only into a junkyard but also into a graveyard. Just south of Ambrose Light in New York Harbor, in what was once an area rich in sea life, there is what is now known as a "dead sea"—a body of water filled with millions of tons of sewage sludge and dredging spoils, killing marine life and endangering the health of those humans who eat seafood caught in that area.

For 40 years we have been dumping in his area; in recent years the situation has grown critical, as evidence has grown to indicate that killing marine life is a graver issue than it once seemed. When reports are submitted which show that there is indeed a danger to human health from this situation—specifically, that hepatitis may be a direct result of human consumption of certain polluted species of fish—it is time that, out of simple logic and out of a basic concern for health, we renew our efforts toward fighting water pollution in general, and to

ward halting the possibly suicidal dumping which we are now watching destroy life.

We must act now to prevent the dangers posed by this dredging operation. This Federal Government must provide greater resources and help to fund States adequately for advanced sewage treatment works, as well as paying the States the funds already owed them.

I strongly urge that the subcommittee and the committee report this bill favorably in this session.

Mr. DINGELL. Thank you very much.

Congressman Tiernan wants to give a very brief statement at this time. We welcome your statement Mr. Tiernan.

STATEMENT OF HON. ROBERT O. TIERNAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF RHODE ISLAND

Mr. TIERNAN. I am proud to be the representative of a State with some of the most beautiful shore area in this country. I come before you today, however, not only as a Congressman but also as a concerned citizen. I have witnessed the gradual deterioration of our waterways for too many years and let me assure you I do not intend to witness it any longer. We are faced with a crisis unparalleled in our history. Unless affirmative action is taken and taken soon, clean water is going to be nothing more than a fond memory even in our own lifetime. Therefore, I strongly urge that action be taken as expeditiously as possible in sending to the floor of the House H.R. 18454, the amendment to the Fish and Wildlife Coordination Act.

Mr. DINGELL. Thank you Congressman.

Our good friend from Florida, the Honorable Claude Pepper, would now like to give a statement. Please go ahead Congressman.

STATEMENT OF HON. CLAUDE PEPPER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. PEPPER. Mr. Chairman, I am here today to applaud the fine beginning Mr. Fascell made in introducing two bills, H.R. 18913 and H.R. 18914, which are now before the House Merchant Marine, and Fisheries Committee.

This Congress now should go on record prohibiting the discharge into navigable water or international water any military material without the approval of the Council on Environmental Quality. This view is reflected by the administration in a statement of the Assistant Secretary to the Interior Dr. Leslie Glasgow on September 30. I feel, however, that the Congress should further go on record requiring now a full and complete investigation and study of national policy with respect to the discharging of materials into the oceans as called for in H.R. 18914.

Simple facts show that in 200 years with no national policy, the United States has irretrievably lost vast resources and set the pattern for possible ecological disaster.

The dumping of nerve gas off the Florida coast is hopefully the closing chapter in a book of irresponsible Federal activity.

In 1776 Lavoisier presented one of the first modern chemical descriptions of the sea—salts of sodium chloride, sulfates of sodium, calcium and magnesium, calcium carbonates and magnesium chloride. Early American sailing ships encountered an ocean which was the rinse water of a relatively unindustrialized world. There were areas clean and barren on the high seas, areas of plentiful fishing and coastal plant life over the Continental Shelf and the noticeably rich estuaries with tremendous varieties of life, all for the taking.

Today within the lifetime of this legislative body known as the Congress of the United States our impact as a species is so great that the barren high seas exhibit long-lived plastic containers, tarballs and immiscible hydrocarbon liquids rinsed as has been nature's way from the mountains and plains of the continents of the world. Our continent has taken the strong lead in the mobilization of materials to the sea. We have also put a cruel twist in the forms that we offer up as wastes.

If we let nature take its course some elements would be carried into the sea at rates appreciably slower—on the order of 10 to 40 times slower.

This means that not even considering the diverse and monstrous forms of waste we have speeded the process of the transfer of resources from the land to the sea by 10 to 40 times. In the 200 years since we began to function as a nation we have concentrated and discarded materials at rates which we are just beginning to appreciate. The rates at which we are discharging metallic elements is alarming but the consequences of our more complex organic wastes may be more far-reaching and devastating.

Life at sea contributes greatly to our oxygen supply. It is diverse and little understood. Seventy years ago the sea was delivering vast quantities of fine fish products to our doorstep. Today we understand but a few of the reasons for the threat to marine resources. We are able with science to quickly learn more. Now we need time to understand better the evolutionary relations that still exist in the sea. We need time to learn to live in harmony. We need time to allow the fullest objective evaluation of actions like the dumping of nerve gas. The DDT, radioactivity, the gas releases from world war scuttlings, the New York Bight dumping, the Santa Barbara and Miami oil spills are but brief indicators that local actions have global consequences.

This legislation will affirm the intent of the Congress that competent evaluation of the impact of future sea disposal activities be made.

Mr. DINGELL. Thank you Congressman, that was a very provocative statement.

Our good friend, Seymour Halpern, would like to address the subcommittee at this time.

STATEMENT BY HON. SEYMOUR HALPERN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. HALPERN. It is a privilege to appear before your subcommittee this morning to offer my statement in support of H.R. 17603.

The purpose of this bill is to provide protection for our wildlife from the multiple threats posed by disposal of ever-growing quantities of waste.

H.R. 17603 would provide such protection by requiring the Secretary of Interior to designate portions of our navigable waters and the Outer Continental Shelf wherein "sewage, sludge, spoil, or other waste can be safely discharged."

It is not, I hope, utopian to look toward the day when we shall not have to seek out portions of the earth to receive our trash, in whatever form. Until that day, it makes a great deal of sense to localize the harmful effects of waste disposal to the maximum extent possible.

Beyond indicating the places at which disposal may take place, the bill requires the Interior Secretary to develop standards applicable to the discharge. These standards are to be such as to insure that there will be no damage to, or loss of, wildlife.

Provision is also made for the establishment of State standards which, if they are as stringent as those proposed by the Secretary, will take the place of Federal standards. In this way, the States have the option of imposing conditions more exacting than those of the Federal Government.

I believe most of us are in general agreement as to the need to provide the most stringent of controls consonant with pollution abatement technology. We need to exercise the greatest caution in those areas in which we know the least, as the spreading concern with mercury poisoning of our fresh waters clearly indicates.

The establishment of standards, which H.R. 17603 contemplates, could readily become a major safeguard not only to fish and game and other segments of the biota, but to man himself.

Dr. George Woodwell of the Brookhaven National Laboratory in Upton, N.Y. wrote in *Science* this spring:

The accumulation of various toxic substances in the biosphere is leading to complex changes in the structure and function of natural ecosystems. Although the changes are complex, they follow in aggregate patterns that are similar in many different ecosystems and are therefore broadly predictable. The patterns involve many changes but include especially simplification of the structure of both plant and animal communities, shifts in the ratio of gross production to total respiration, and loss of part or all of the inventory of nutrients.

Mr. Chairman, we cannot allow these environmental ravages to continue unchecked.

Although there are frequent requests for more and more research on the problems of environmental deterioration, I feel that there is an even more pressing need for action. There is no consolation in learning from try-it-and-see pollution activities that another species has become endangered or that some vital piece of habitat has been destroyed.

This bill is a substantive new weapon to the arsenal of antipollution forces. I recommend prompt and favorable consideration by this committee.

Mr. DINGELL. We appreciate your fine statement, Mr. Halpern.

The next witness will be the very able Representative from Florida, Hon. Bill Chappell.

STATEMENT OF HON. BILL CHAPPELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. CHAPPELL. Mr. Chairman, I appreciate this opportunity to testify before this committee on proposed legislation to provide greater protection for our ecology by setting regulations on dumping in our coastal waters.

The Fourth District of Florida, which I represent, is unique in that it stretches from the Atlantic Ocean on one side to the Gulf of Mexico on the other. The people of this district are exceptionally aware of the immediate damage that can be done to our great oceans through thoughtless dumping.

Florida, ranking sixth in the Nation in the value of its fishing industry, depends heavily on our coastal waters for much of our supply.

The volume of waste water poured into our waterways has soared by 600 percent during this century, much of it finding its ways to our once-clean and beautiful shorelines. When we realize that it takes only one-tenth of 1 percent of contaminated materials to kill fish by consuming oxygen in the water, we can realize why millions of fish are dying each year.

One noted ecologist has predicted that the oceans can become so completely polluted that the sea life could be absolutely destroyed.

Our legislation, H.R. 18593, as well as similar bills before the committee, are intended to protect our waterways and oceans from further pollution.

Mr. Chairman, I appreciate the opportunity of making this statement on behalf of this legislation and I am hopeful the committee will consider this bill, or one of the companion measures, favorably.

Mr. DINGELL. Thank you very much.

Now we will call upon the gentleman from New Jersey, Hon. Frank Thompson.

STATEMENT OF HON. FRANK THOMPSON, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. THOMPSON. I want to thank you for this opportunity to testify before the subcommittee on H.R. 15829 and H.R. 17843. I want to commend you, Mr. Chairman, and your fellow members for your prompt action in scheduling hearings on this vital legislation.

The bills pending before the subcommittee arise as a result of the revelation late last year that a considerable area of the coastal waters off New York Harbor had suffered severe ecological damage as a result of the dumping over a period of years of sewage sludge, industrial waste, and other materials from the New York metropolitan area. This finding, contained in an interim report by the Sandy Hook Marine Laboratory, would appear to be valid. A final report from the laboratory should be available soon. But there seems little reason to doubt that substantial damage has been done as a result of this offshore dumping and that the potential exists for even greater environmental wastage. This conclusion has been reinforced by a report from Dr. Lionel Walford, director of the laboratory, that a

deadly bacterial disease believed to be directly linked to pollution has been discovered in fish caught between Fire Island, N.Y., and Atlantic City, N.J. This disease has been named "the Middle Atlantic fin rot disease." It has been discovered in 19 species of fish and is a prime suspect in the marked decline of the fish catch off New Jersey waters in the past 2 years.

On February 23 of this year, our distinguished colleague, Mr. Howard, chaired hearings of the Subcommittee on Rivers and Harbors of the Committee on Public Works at the Sandy Hook Laboratory on H.R. 15915, a bill relating to the termination of licenses and permits for dumping sewage sludge, refinery wastes, and other materials in the waters of New York Harbor. That hearing record is available and sets forth in some detail the history of such dumping. I see no reason to repeat here that information except to point out that it is carried out under the provisions of the act of Congress of June 29, 1888, which is now section 443 of title 33 of the U.S. Code. The act establishes six separate dumping grounds in the Atlantic Ocean off New York Harbor. These include a mud dumping ground for dredging spoil; a cellar dirt dumping ground into which is poured materials excavated from construction projects; a sewage sludge dumping ground; a wreck dumping ground for deposit of salvaged vessels; a waste acid dumping ground; and a waste chemical dumping ground.

The testimony adduced at the February hearings was to the effect that approximately 11 million cubic yards of sewage sludge and dredge spoil is being dumped off New York Harbor annually. Samples taken from the bottom indicate that marine life has been largely wiped out in the area of the sludge dumping ground. Detailed information as to the findings of this sampling, as carried out by the Sandy Hook Marine Laboratory, is set forth in the February 23 hearing record.

The immediate reaction of the publication of the Marine Laboratory's interim report was introduction of H.R. 15829 and related bills. These would amend the National Environmental Policy Act of 1969 to require the Secretary of the Army to terminate within 30 days of enactment of the title all licenses or permits authorizing the dumping of any sewage sludge, spoil or other waste materials within 25 miles of Ambrose Lighthouse. The bills also direct the Secretary of the Army, through the Corps of Engineers, to make a complete investigation of methods by which the waters of these dumping grounds might be restored to their original natural condition.

I cosponsored H.R. 15827, as did a number of our colleagues, in a sense of outrage at the damage being brought to our coastal waters and the marine life therein: however, upon reflection, it is apparent that, absent immediately available alternative methods of waste disposal, more time will be needed to resolve the problem. Thus, it was that I joined with the distinguished gentleman from New York (Mr. Murphy) on H.R. 17603, a bill which amends the Fish and Wildlife Coordination Act. It directs the Secretary of the Interior, acting through the Fish and Wildlife Service, to designate offshore disposal areas for certain waste materials and provides that no such designation be made pending a 2-year study by the Secretary, in coopera-

tion with the Corps of Engineers, to determine those areas most suitable for disposal purposes.

In determining designation of these disposal areas, the Secretary is directed to establish standards to insure that there be no damage or loss of any wildlife resources or pollution of navigable waters which will result from any such dumping activity. Such standards shall be applicable to all instrumentalities of the Federal Government, unless there be in effect State standards which are at least as stringent as the Federal standards. Violations of these standards would be made subject to civil penalty of not more than \$10,000 for each violation.

Mr. Chairman, I think H.R. 17843 offers a reasonable approach to the offshore dumping problem. Obviously, provision must be made for disposal of the wastes from the metropolitan area. Nevertheless, the people and industries of the area must be made to realize that they must bear the additional cost incident to development of new and safe disposal areas. I think the gentleman from New York should be commended for taking the initiative of developing this bill. I am hopeful, too, that the hearings held today and those held by the distinguished gentleman from New Jersey on February 23 will give rise to a new appreciation in the Congress as to the need for more substantial funding for our marine laboratories and the work that they are carrying out. On April 9 of this year, I pointed out in a public statement that the marine research program of the Bureau of Commercial Fisheries had been reduced by \$1,659,000 in fiscal 1970 and that this reduction would require closure of the marine biology laboratory at New Milford, Conn. In view of the findings of Dr. Walford and his colleagues at the Sandy Hook Marine Laboratory as to the ecological damage being wrought by man upon our coastal waters and fisheries, we should be expanding the level of marine research, not reducing it.

Mr. DINGELL. That was indeed a very fine statement Congressman. On behalf of the subcommittee, I wish to thank you for your time and efforts.

Congressman Minish, we would appreciate any remarks you would like to make before the subcommittee at this time.

STATEMENT OF HON. JOSEPH G. MINISH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. MINISH. Mr. Chairman, I am grateful for this opportunity to comment on my bill, H.R. 15829, which was introduced on February 10, 1970. The legislation would terminate licenses and permits to dispose of waste materials in the waters off the New York and New Jersey coasts near New York Bay. It would also require the Corps of Engineers to make a complete investigation of the methods by which the restoration of these waters may be accomplished.

Presently, the Corps of Engineers allows 5 million cubic yards of sewage sludge and more than 6 million tons of highly contaminated dredging spoil to be dumped annually in the ocean at a point about 7 miles from the New Jersey and New York beaches. The beaches of New Jersey are one of our State's most valuable natural and economic resources. They provide millions of citizens from New Jersey

and other States with a valuable and much-needed recreation and vacation area.

According to a report prepared by the U.S. Marine Laboratory at Sandy Hook, this dumping has already transformed a 20-square-mile area at the mouth of New York Harbor into a "dead sea," and there is an alarming drift of the pollutants toward the surrounding beaches. The indiscriminate dumping is contaminating sea life throughout the area to the point where fish caught in these waters may be unfit for human consumption.

The findings of the Sandy Hook study have since been confirmed and reinforced by two additional reports: one prepared by the Marine Studies Center of the State University of New York at Stony Brook, and another by a group of scientists under the direction of the Smithsonian Institution.

Mr. Chairman, in view of the graveness of this situation, and the potential menace to public beaches, it is imperative that we act now to prevent an impending ecological catastrophe. I urge the committee to give prompt favorable attention to H.R. 15829.

Mr. DINGELL. Thank you very much for an excellent statement.

Our next witness is Dr. Jack Pearce, research biologist, Sandy Hook Laboratory. Dr. Pearce, the Chair might observe that you have long been interested in this matter. The Chair observes that you gave testimony when the Subcommittee on Rivers and Harbors of the Public Works Committee took testimony in the New York-New Jersey area. The Chair observes that you made a number of comments there with regard to fish populations, the effects of fish populations from the dumping, and other matters regarding the dumping.

We would appreciate it very much if you would assist this committee by making similar comments at this time on these matters.

**STATEMENT OF DR. JACK PEARCE, RESEARCH BIOLOGIST,
SANDY HOOK MARINE LABORATORY**

Dr. PEARCE. I would be glad to.

The study at Sandy Hook Marine Laboratory commenced in August of 1968, and an interim report was prepared and submitted to the corps approximately 6 months ago. Since the publication or the presentation of this report, we have found a number of interesting developments in the New York Bight, one of which Congressman Ottinger alluded to this morning. That is, the area affected by the dumping seems to be increasing. We do not know actually if the increase is equal in every direction. If you draw radii out from the center of the dumping area, we do not know if, in every case, the dumping will be found to be increasing in all directions. However, we have found stations to the north, to the northwest, and to the southwest of the dumping area which, when we initiated the study, were unpolluted; today these stations are contaminated.

It is the feeling of the personnel involved in the study that recent contamination may result because the boats which are doing the dumping are being more accurate. That is, rather than dumping nearer

shore, because of the current level of public concern they may actually be sailing to and dumping further south than is necessary.

In other cases, last March for instance, we collected surf clams (*Spisula solidissima*) only 2 miles off the Long Island shore. These clams were heavily contaminated with coliform bacteria, suggesting they had been subjected to organic pollution. We do not know whether this is because of materials that are being carried by currents from the dumping site north to the clam beds, or whether this is the result of short dumping. Some personnel in other Federal agencies believe that it is the result of short dumping. In any case, the area affected by dumping seems to be expanding.

During the past winter, we noticed that the substratum surface layer, a small layer one-eighth to a quarter of an inch in thickness, seemed to recover slightly during the winter period. Rather than being completely black and anaerobic, it developed a thin, brownish layer of sediment which appeared to be well oxygenated. One might expect this in the wintertime when the temperatures are very low and bottom oxygen levels increase.

Since that time, the layer has been broken down over the entire sewer sludge disposal area, and the same conditions that we observed during the summer of 1969 now prevail. At the present time, the oxygen values are dropping precipitously just as they did in 1969. They may not reach the same critical level this year because the waters have tended to be cooler this year off the Jersey shore. It has been a rather cool summer, and the oceanic waters reflect this. The microbiological activity involved in these sediments may be depressed and consequently the oxygen might not drop so low this year.

One of the other things that we have noted, which was mentioned this morning, was that two very important species of crustaceans have been observed to be affected by the dumping of the dredge spoils and the sewer sludge sediments. These are the common lobster (*Homarus americanus*) and the red crab or the cancer crab (*Cancer irroratus*). Those of you who have read the interim report may recall that when these animals were exposed to sludges in the laboratory, the individuals became, you could describe it as being, sick, and they died after a period of several weeks' exposure. That was in the laboratory.

Recent collections that we have made in the dredge spoil and sewer sludge areas have resulted in our obtaining lobsters and crabs which are equally sick in the environment. I have with me a specimen of one of these crabs and if anybody would like to look at this crab to see the debilitation that develops, I would be glad to show it to them. I will enter it as evidence or testimony in today's hearing.

This includes not just a few crabs, but many crabs. Numerous lobsters seem to be affected in this same way. The lobsters are commercially important. The crabs at the present time do not have a high commercial value, but they form one of the dominant food items for many of the bottom-feeding fish. If you analyze fish guts, for instance, you regularly find this particular species of crab as a large portion of the food ingested.

Since this crab occurs around the sewer sludge areas, one can imagine that the heavy metals and the other toxic materials which are in the sludge and dredge spoils on the ocean bottom may enter into the crab's

body and then be passed into a fish body, ultimately culminating in man's food supplies. So, we do have a very positive pathway whereby these toxic materials that have been talked so much about this morning may enter into the food chain of humans. We are presently analyzing crabs for their heavy metal content.

The other very recent observation that we made was that while much of the sludge settles immediately from the boat when it is dumped offshore, recently there has been a large residual amount of material which we find floating. I have color slides of this material with me today. This material floats on the surface of the water for some period of time. Last week, part of this floatable material consisted of the dead bodies of rats. I do not know where these came from, how did they get in the sewer sludge processing plants, but there were at least a dozen rats floating in the water around our research vessel, along with other noxious-looking materials.

Furthermore, getting into the realm of observations, the beaches along the Jersey shore have been so contaminated this year that many people I know are dropping their membership in the beach clubs; they are refusing to swim in coastal water. Many of my neighbors, for instance, who have used certain beaches for the past decade or so, are no longer willing to swim there.

Then last weekend at a beach called the White Sand Beach in Long Branch, N.J., there was offal washed up on the shore for the length of one-eighth of a mile and about 10 feet wide. It was so bad people simply got up and left the beach. The owner has threatened to sue the city of Long Branch. He believes it is coming from a sewer outfall.

This type of material is found along the beaches at Sandy Hook and south to Asbury Park. It has its origin in many different sources, including pollution from the Hudson River, from sewer sludge dumping, and from local small outfalls along the Jersey shore.

Mr. DINGELL. Can you make the statement that any of these residues being deposited on the beach, the offal and toxic matter of one kind or another, is related to the dumping that we are discussing?

Dr. PEARCE. We have not attempted to tag this material so we cannot positively identify its origins in sewage sludge. However, on numerous cruises, in fact on a cruise made some weeks ago when officials from the Corps of Engineers accompanied us in the boat, this material was floating out all the way from the shoreline. When you leave Sandy Hook on our research vessel this material is found all the way out to the dump areas and beyond.

If you are interested, you can see that the material that is shown in the color slides we have taken at the site of dumping is very similar to the materials which wash up on our beaches. This material includes things like little plastic containers that tampons come in. It also includes condoms, a wide range of material of an extremely unpleasant nature. Cigarette butts are regularly found in this material. Cigarette filters are an index of pollution of the bottom environment. This is one of the ways we know that areas previously not intensively polluted have been impinged upon by these sludge materials. We simply count the number of band aids, cellophane and foil wrappers, or pharmaceutical containers, prophylactics, and cigarette filters. These form an excellent index of pollution in areas of marginal pollution.

At the center of the dump areas where you find completely reduced conditions—the area mentioned as being completely biologically impoverished—in an area of one square foot—our sampling device samples an area of approximately one square foot, actually one-tenth of a square meter—we sometimes find 40 cellulose cigarette filters in a sample and no life. As you move away from the center of the dumping, we find that these human artifacts decline in number.

Another material that is very common is seeds from oranges, tomatoes, and other produce. If you take a sample from the areas that are heavily polluted, you get literally hundreds of thousands of seeds. It is impossible to count them all in one sample, they are so numerous. This material contributes to the long-lasting organic pollution, that is, these seeds are resistant to being broken down. Once they are on the bottom, they remain there a long time.

So, we have today been able to delineate, as the interim report mentions, those areas which have been impinged upon by the sludge materials and dredge spoil materials.

In our current work we are trying to see if indeed the area is extending. The samples we have been able to take since the interim report suggest that areas which 2 years ago were uncontaminated and unpolluted are now polluted. Unfortunately our study is terminating in August and no further field work will be possible.

Another approach we have taken is that the study of very tiny crustaceans called amphipods. There are 30-some species of amphipods in the New York Bight. They are abundant in unpolluted environments in the New York Bight and seem to be very sensitive to any form of pollution. Dr. Howard Sanders, working at Woods Hole, for instance, has found that the amphipods drop out of the populations or communities before you can even detect oil pollution. They seem to be more sensitive than the most sensitive instrument we have to detect oil pollution.

We are finding much the same thing in the New York Bight. If you start south of the dump area and progress north into the dump area taking samples along a line or a transect—I can show you on charts if you are interested—we initially find amphipods to be very numerous. Then as we move toward the dump area amphipods of all species, except one, drop out of the population. So, we use this diversity index to indicate the consequences of pollution.

This is our most recent evidence. As I say, our current findings indicate that, indeed, the dump area is expanding. There is no reason for us not to suspect this, actually. Dr. Grant Gross from the university of New York at Stony Brook, in a recent report said that the amounts of materials being dumped each year in the New York Bight, if rendered into a completely solid form, would be sufficient to cover the island of Manhattan to a depth of 6 inches. The island of Manhattan is a little over 20 square miles in its surface area. The sewage sludge and spoil dump area is also a little over 20 square miles in its surface area, and it is continually being impinged upon. In wintertime the temperatures are probably too low for very rapid bacterial reduction to occur; in the summer conditions may be unsatisfactory for complete reduction. So, one would expect this area to increase in size, particularly since it has been projected that the

amounts of waste to be dumped in this area may increase by 4 percent per annum. This increase simply accompanies the increase in our standard of living, throwing away more material, plus the increase in population.

So, if this dumping continues, one can expect and in fact we have observed that the area will increase.

With regard to moving the dumping area, it is the thinking within the Marine Laboratory, and in consultation with other people in the Department of the Interior, that this might be feasible. Particularly if we take the heavy metals or the industrial products out of the domestic sewer sludge so you really have only human organic waste. This material could then be spread over a much larger area where the ocean environment might absorb it, at least for an interim period until such time as on-shore facilities are developed which could be used to process sewer sludge into something useful or, as Dr. Ketcham has said, to recycle this material back into our environment.

As it is now, Iowa corn is fed to cattle which are shipped to and consumed in New York City, and we then take the energy left in human waste materials and dump it into the New York Bight, a limited portion of the Atlantic Ocean, where it cannot be completely assimilated. This is a very real problem.

An even greater problem is what to do with dredging spoils, because the dredging spoils removed from much of the New York metropolitan area are very toxic in the environment, as Dr. Gross' studies have indicated and as our studies have found. These materials are regularly deposited in the New York Bight and they are the type of material which it is extremely difficult to find something useful to do with. They are toxic so you cannot use them for routine fills in road building and other positive actions, but they are also toxic to the marine environment.

I would be glad to try to answer any particular questions that you gentlemen might have.

Mr. DINGELL. Doctor, can you identify for the record the species of fish and wildlife in the area, and indicate what the effect of this dumping is on fish and wildlife in that area? It is obvious there are large numbers of mollusks, crustacea, and fish that pass through. Can you tell us about this?

Dr. PEARCE. There are a number of species that have commercial value. The occurrence of these depend upon the season. In many cases, fish are seasonal. Winter flounder, for instance, are found inshore during the winter, and tend to move offshore in the summer. Bluefish and striped bass are migratory forms which move into this area at different times of the year.

They must, however, have to pass through this debilitated area. All of these fish while they are moving into and through this area must feed. Some of them are what we call bottom-feeders. They feed upon shellfish; that is, crabs, shrimps, and the clams that are found at the bottom of the sea. If they cannot find sufficient food, it may possibly affect their ability to migrate and reproduce.

The pollutants in the water might, for instance, even affect their orientation. This is in the realm of speculation, but considerable amounts of work have been done on the effects, for instance, of copper

on the orientation of fish; are they attracted or repelled by this heavy metal? In some cases they are. If you have an area with a large amount of heavy metal, it is conceivable that fish are forced to move away, or to avoid the area.

If you are driving to New York City, if you hit an area with heavy traffic or air pollution, both of these are forms of pollution, you try to avoid it. You try to take another road if you can. Oftentimes, however, you cannot. It is the same with fish. Some fish must move into rivers and streams such as the Hudson River. If such bodies of water are polluted, fish might avoid the area. Actually, we really do not know how migratory fish find and move up streams. There is a big question mark in the minds of fish biologists today.

We do know to the east of the New York Bight dump area there is a large body of cold water sometimes called the cold water lens or the cold water cell. We know that several species of fish are repulsed by cold water, and as they start to move into it, they tend to avoid it and move out. It may be this large wedge of cold offshore water actually forces or funnels these fish into the polluted area.

As I have said, many things can happen. If fish cannot find sufficient food, this may affect them. It may be that fish do ingest some of the prey found in marginally polluted areas. We know many of these prey animals take up heavy metals and pesticides, the type of toxic material associated with the dredge spoils and the sewer sludge dumping areas. It is quite conceivable that these materials enter the bodies of fish and eventually culminate in some human's diet, someone's fish dinner for the evening.

There are several hundred species of fish which at one time or another occupy this area, and all of them are important. I have heard people say, "Well, the disappearance of one bird is of no consequence." Ecologists know that this is extremely important. The disappearance of one species of bird can have a very important effect on the ecological environment. The same is true with fish. If one species of fish no longer occurs in an area, this may upset an entire marine ecosystem, and we know that there are species of fish no longer occurring in the New York area. The weakfish and sheepshead are today not represented in our waters in any appreciable numbers. It is a great rarity for one of them to be caught. Such declines can be due to longrange changes in the climate but they can also be due to the increased stress which accompanies the pollution found in the New York Bight.

Mr. DINGELL. Doctor, you have some studies that you have made on this pollution in this New York Bight, do you not?

Dr. PEARCE. Yes.

Mr. DINGELL. Both insofar as what it is and the effect of it on fish and wildlife, do you not?

Dr. PEARCE. Yes, we do.

Mr. DINGELL. The Chair is going to direct at this time that Mr. Everett, our counsel, work with you to secure such of those studies as will be useful to the record that we are having here. I am sure you will be able to cooperate fully with him on this matter, will you not?

Dr. PEARCE. Yes, we can furnish him with a copy of our interim report as well as other more recent documents.

Mr. DINGELL. I would suggest that as soon as the hearing is done, that you consult with Mr. Everett regarding these. I am satisfied Mr. Ketcham will be happy to help you with that. So if you will see to it that we get your full cooperation in that matter, I would appreciate it. There is no obstacle to your cooperating with us in this matter, is there?

Dr. PEARCE. No, I don't believe so, as long as I am directed by the Chairman.

Mr. DINGELL. You are directed.

Dr. PEARCE. Since I am directed I can see no reason. The interim report has been made public, and, in fact, Congressman Howard's House bill, the proceedings of the Sandy Hook hearings, are now in a form which would inform each Member. If you can obtain a copy of this from Congressman Howard—

Mr. DINGELL. We do have, Doctor, the problem of compiling our own record, however.

Dr. PEARCE. Yes, I would be glad to assist you in any way possible.

Mr. DINGELL. Doctor, there have been many statements made that this pollution and dumping were creating gill destruction, fin and tail destruction, scale damage, and so forth to different species of fish. Would you care to make a comment on that?

Dr. PEARCE. I cannot comment as to the exact causative mechanism for the fin rot disease noted in fish. We believe that it might be tied to pollution. The fish that exhibit this are frequently found in polluted waters.

Mr. DINGELL. Do you find any in nonpolluted waters?

Dr. PEARCE. Generally, no. As you move out of the New York Bight area, the number of fish which exhibit or show this disease decrease in number, and the ones you find outside the area may be fish which were once resident in the New York Bight and which have moved into an unpolluted area. However, you cannot attribute this solely to the dumping of sludge or dredge spoils. The disease in lobsters and crabs, however, we have demonstrated to be associated directly with the sewer sludge and the dredge spoil.

Mr. DINGELL. Doctor, will you address yourself to that particular point?

Dr. PEARCE. Yes. Crabs and lobsters are both migratory forms. That is, they move offshore and onshore at different times of the year, and many of them must move across the waste disposal areas to get to their appropriate environments. In other words, the crabs at this time of year seem to be moving offshore, that is from Sandy Hook and the Jersey shore and the shores of Long Island out to deeper waters, and in many instances they must cross the sewer sludge and dredge spoil disposal areas.

As I mentioned, in laboratory experiments we were able to induce disease in these crustaceans by keeping them on dredge spoils and sewer sludges. Now we have found animals collected in the field near the sewer sludge and dredge spoil areas that are diseased. The bodies of the crabs are deteriorated. The gills show symptoms of disease. I have a bottle with a crab in it. If you would be interested I would be glad to show it to you. It has this condition. The condition seems to be

tied directly to the sewer sludge and dredge spoil areas. I also have photographs and slides. These are microphotographs showing the disease in gills of crabs and lobsters.

Mr. DINGELL. Would you submit those to the committee together with such appropriate explanatory material as would be appropriate. We would appreciate it if it would be done in such fashion as to be included in the record of the committee.

Dr. PEARCE. Yes. You can also have a bottle containing a preserved crab. I have one with me.

Mr. DINGELL. I am not sure we can put a preserved crab in the record.

Dr. PEARCE. You have pictures.

Mr. KITZMILLER. We do have such pictures.

Dr. PEARCE. And Mr. Howard also has them, so they can be made available. This is, as I say, a very serious problem. You see this disease in a wide variety of stages. As the crabs move initially into the sludge area, they are characterized by having dirty feet or black feet, and while in some situations black is beautiful, in this case it looks rather ugly. Superficially the crabs have a very debilitated appearance; when you dissect the animal, you find the gills are completely blackened rather than being clean white as they normally appear. The crab that I have with me today is in an early stage of this. I can show it to you after the hearings or give it to Mr. Everett so that it can be passed around for inspection.

Mr. DINGELL. We would appreciate having that. It may be useful when we have this later on the floor.

Dr. PEARCE. Yes. A substantial number of these crustaceans move through the dump areas. As you see on the chart, on the left you have the dredge spoil disposal area. The circle on the right with the black dot is the sewage sludge area. The Hudson Canyon runs between those two areas. The Hudson Canyon is thought to be a topographic feature which is ecologically important; many fish are known to move up through the bottom waters of the canyon. They move along the canyon as though it were a road, and other investigators when diving have observed that the walls of submarine canyons indeed contain numerous crustaceans. It is suspected that as the crabs and lobsters move into deeper waters they must cross the two dumping areas to migrate from the shallow or shoal areas into deeper waters. This is another factor about the offshore waste disposal that has been widely considered; what is the effects of the dumping on the canyon itself?

Mr. DINGELL. Can you make comment as to whether or not moving this dumping area to a less harmful ecological place might be a matter of importance to this committee in arriving at an appropriate action that should be taken by the Federal Government?

Dr. PEARCE. When the interim report came out, there was very little positive or absolute evidence to suggest that the sludge materials were moving on shore. We had indirect evidence that the sludge materials as they are dumped tend to be carried to the northeast, and further studies of the hydrography, that is the water movements, confirms this, that this material may be moved toward the shores of Long Island.

There were authorities who felt that the evidence was not sufficient.

There are other people, however, who believe that the studies do indicate that this is indeed occurring, what we call the fines, silts, clays, and organic debris, are carried onto the shores of Long Island. We have found large amounts, particularly this year, of material floating following a dump. I have color slides which I believe will illustrate this very well. This material may indeed be washing on the shores. I recently read in our local papers that the summer resort industry from Sandy Hook to Atlantic City is a \$2 billion industry. If indeed this is true and a portion of it is being despoiled by these dumping activities, obviously some consideration will have to be given to moving the dumping sites. This will have to be in large part the responsibility of Congress and the appropriate State officials. If indeed this is happening, then it suggests that the dump site has to be moved, if only as an interim measure.

We have studied an area offshore, which has already been mentioned and have made several collecting trips there. This is the area beyond the so-called 20-fathom line or water 120 feet and deeper. It is somewhat to the east of the present dumping area and is an area where there does not appear to be a substantial abundance of marine life when compared with the waters closer in shore; it does not appear to contain large numbers of surf clams, other clams and crustaceans of great economic importance. It may be possible that if the material is appropriately dumped, that is if the sludge is dumped over a much larger area, rather than being required to be disposed of at just one particular spot, the material might be spread out much further over the surface of the bottom, and would also be passed through a larger water mass. This might have the net effect of reducing the immediate effects of sewer sludge disposal.

The other questions I am frequently asked at hearings and other places is what will happen, once pollution abatement has occurred? No matter what you do with the sludge in future years, what will happen to the area that has already been impoverished of natural life? There are only a few studies of the consequences of pollution abatement throughout the whole world. I am coordinator of a program in the International Biological Program (IBP). This program is somewhat comparable to the International Geophysical Year. I am therefore privy to research underway and completed throughout the world and to date I have found only one or two studies of marine environments following pollution abatement. One of these studies has recently come out as a publication from the University of Miami Press. It is done by a marine scientist, Dr. McNulty. He reports that for many years sewage was dumped directly from the city of Miami into Biscayne Bay. Then some years ago they started piping it further offshore, putting it in the Gulf Stream. The idea is that this material is dispersed into the Gulf Stream. Once they started to discharge the sewage outside of Biscayne Bay into the open ocean, McNulty initiated a study. He found that even though certain changes do occur the area had not recovered completely several years after the termination of sewage dumping in Biscayne Bay. There were still fish that used to be represented there that were no longer to be found in the area. He makes a very definite statement in the abstract and conclusion of this small book that the alleviation of dumping has not com-

pletely corrected the condition. One could suspect that this would be the situation in the New York Bight.

We will probably find that this area will remain polluted for many years. One can make no exact predictions, but if it follows anything like the Biscayne Bay area, we will have an impoverished bottom for many years in the New York Bight; and so if we decide to move the dumping to another area, this should be kept in mind. If indeed we do have a new interim dumping area, this should be done with a considerable amount of scientific study.

There should be investigations, samples taken routinely, to see if dumping in a new area has any immediate effect; and, if it does, then we obviously have to correct ourselves.

Realistically, this is the situation that we find ourselves in. As a scientist who has studied these problems, I realize you cannot place the blame on any one individual or institution; as Pogo has said, "We have met the enemy and he is us." It is largely human pollution which has caused this condition, and it is basically a socio-economic problem that must be considered.

This was, incidentally, one of the basic recommendations of an ad hoc Interior Department report, which was recently completed. Your committee may have a copy of it. If you do not, I will be glad to furnish you with one.

Mr. DINGELL. I would appreciate it if you would consult with Mr. Everett to make sure we do have a copy of it. The Chair at this time will direct the counsel to see to it that such portions of that report as are appropriate are inserted into the record of this proceeding in the appropriate place.

Doctor, tell us about the cost of this now. Can you give us some ideas as to the cost of moving the dumping further out to sea, the loss of value of the fisheries that are affected by this dumping?

Dr. PEARCE. You cannot really put environmental issues in dollars and cents, at least at the present time. Obviously, if I may make an analogy with the air pollution conditions in New York, in the long run if one-half of New York City develops cancer of the lung, emphysema, and bronchitis from air pollution, then there is a real dollar-and-cents value involved.

Mr. DINGELL. But it is not presently definable.

Dr. PEARCE. At the present time, in terms of the loss to fisheries resources, it is easily definable, except that if you examine the reports that are put out each year by the Bureau of Commercial Fisheries, you will notice that each year there appears to be a decline in catches of different species. In some cases the catches remain constant, but this may reflect a more aggressive attitude on the part of fishermen; with declining resources the fishermen only try harder to maintain the catches. Again, this is something that would be better considered by someone from the Bureau of Commercial Fisheries who is more concerned with such information than I am. If, however, the ecological environment of the New York Bight is allowed to deteriorate, then one could imagine the day when there would no longer be any appreciable numbers of striped bass in the Hudson River drainage system; and we would find that just as the weakfish, sheepshead, and other species have disappeared, so these and other forms would disappear.

This may not have to do with the direct impingement of sludge and dredge spoils on the fish themselves. This is not very widely understood or appreciated. Most people suggest that pollutants are affecting the lobster or clam or striped bass. Hardshell clams, for instance, live very well in Raritan Bay which is terribly polluted. They are one of the few animals we can collect there.

The hardshell or quahog is a very valuable clam. It almost thrives on pollution except that you can't eat it. Some animals get by, but other forms such as the amphipods, which I mentioned earlier, and which are extremely important in the food chain, do not get by. However, the average person looking at an amphipod swimming in a tank or environment wouldn't even see it or know it existed. Yet if pollution impinges upon these very small, subtle forms of marine life, it will affect animals way up in the food chain. I know professional marine biologists who don't appreciate this phenomenon; they say, "I haven't seen any fish dying lately"; but if a thorough analysis is made, you do find forms that have disappeared or changed, and this is followed concomitantly by the disappearance of fish who depend on these fish for food. One of the principal effects of sewer sludge and dredge spoil disposal is to change the sediments at the bottom of the oceans. Much of the bottom marine life depend upon sediments of a certain type, sands, silts, clays, or a mixture of these materials. By adding sewer sludge you mechanically change the nature of these sediments. They all become very similar to fine clays. I have described it as something like black mayonnaise. If you take a sample from the dredge spoil area it smells exactly like petroleum or sewage. There are many ramifications that are not brought out in any of these hearings.

I have mentioned to Mr. Kitzmiller it is really a shame that Congressmen don't have marine biologists to advise them continuously on these matters. As Dr. Ketchum, Dr. Arons, and all of the people involved, I have spent a lifetime learning what we have in the marine environment, and you cannot convey this in one day. The tremendous lack of knowledge of the marine environment is abysmal. This is not a cliche. It is true. We understand this environment so poorly that it is frequently difficult to assess the impact of pollution on marine communities.

Mr. DINGELL. Doctor, are you able to tell us where there are other areas that it would be better for the dumping to take place, or is there any information you can give us?

Dr. PEARCE. I have already mentioned that there is one area.

Mr. DINGELL. You are talking about this cold water lens?

Dr. PEARCE. No, it might be a mistake to deposit sludge in the cold water lens. Because it is very cold throughout much of the year this might reduce the biological activity which would be necessary to break down organic sludges into their simpler components. What I have said is that to the east about 25 or 30 miles off the Jersey shore and about 25 miles off the shore of Long Island there is an area which consists of rather flat, monotonous sands. I am not saying that it is ecologically unimportant. We haven't studied it to that extent. But when you compare the life, that lives there with that which occurs in unpolluted portions of the New York Bight area, what must have occurred there prior to dumping, it is a relatively sterile area. I would

not make the statement that it is devoid of life. It is simply a type of marine environment which does not have a great productivity.

By spreading materials over a more extensive area, in other words, not letting it accumulate as it has in the New York Bight, and doing this in deeper waters, where there might be a greater opportunity for these materials to be assimilated in the water before they impact upon the substratum, you might have an area which could better receive these waste materials. As I said before, this would have to be done under considerable study. I have talked personally on a casual basis with Martin Lang who is responsible for the New York sewage disposal systems, and he once said that he could probably make available a limited number of his vessels to carry sludge to this area on an experimental basis. If we are going to do this, one of the things that must be done is to get the industrial sewage out of the domestic sewage.

Mr. DINGELL. Industrial sewage is essentially toxic.

Dr. PEARCE. Right.

Mr. DINGELL. Whereas municipal sewage is largely oxygen demanding only.

Dr. PEARCE. Yes. While domestic sewage demands oxygen and directly smothers marine life it should not contain the high levels of heavy metals and materials that we find in sewer sludge that is routinely analyzed. Dr. Gross has looked at sewer sludge from a number of communities in the New York metropolitan area. He has found large amounts of heavy metals in the sludges before they are dumped at sea. When we look at the sludges after they have fallen to the bottom and accumulated over a period of time we find even greater amounts of heavy metals. Such materials must be removed from sewage before it enters sewage processing plants.

This is not a new idea. This is one of the recommendations of the Interior Department ad hoc committee on dumping in the New York Bight; industry should no longer dump into domestic systems. It is well known in the New Jersey and New York area, that in many corporate entities, for instance the National Lead Co., at Sayreville, N.J., when they have routine overflows, they are dumped into the Middlesex sewer system in New Jersey. I am not saying these particular wastes have an immediate adverse effect; but you can imagine the sum total of many industries doing it, many small photographic processing studios dumping their waste into the domestic sewage system. This no longer can be tolerated. Companies must so process their sewage that the heavy metals and other toxic materials are removed before it is dumped into the domestic sewage system.

Mr. DINGELL. Could you give us any appreciation of what the cost of dumping this matter further out would be?

Dr. PEARCE. In informal conversations with a representative from the Moran Towing Co., he suggested that, if Moran were given the mandate for hauling all of the sewage from Metropolitan New York, they would simply build larger tankers, not barges but real tankers. They could withstand the heavier wave action. They would be faster than today's vessels so they could very rapidly move materials offshore and dump it, even 100 miles out. They might be rather anxious to see this occur, for obvious economic reasons. He suggested that the

price would not be prohibitively expensive. Now I do not have facts and figures on this, now.

I have also talked to certain individuals in my local community who suggest that they could take existing tankers and convert them to sludge barges in order to move materials offshore. They say they could do this at a price which is competitive with the current inshore dumping. Mr. Henry Engelbrecht, 104 Ilers Drive, Middletown, N.J., has a proposal which includes a comparative budget for dumping at sea. Using large, specially converted tankers, he believes he can haul sludges 125 miles offshore for \$1.11 per ton. Current costs range from \$0.72 to \$0.93 per ton for hauling sludge to the existing grounds and a cost override of \$0.005 to \$0.03 for each additional ton-mile. I am sure that Engelbrecht, the Moran people, and others could furnish this committee with additional information.

Mr. DINGELL. What would be the effect of dumping? Is there an area where the sea is really essentially an ecological desert in great depth?

Dr. PEARCE. No. A colleague of mine at Woods Hole, for instance, has worked in the abyssal depths, the deeper parts of the ocean. Dr. Sanders has found that in many cases there is more marine life, at least more diversity of marine species, in the deep waters than there are in the shallow, so you cannot say that there is any place either in the high seas or the coastal waters that is a biological desert. Every natural area supports some form of life. Even when you go great distances to sea and the plankton becomes very sparse, there is still significant life there. For all we know this life is extremely important in some food chain or some ecosystem many miles away. Mr. Miller mentioned earlier the Gulf Stream which moves along our shores and to Great Britain. We do not know, for instance, the consequences of building a huge dam and using the Gulf Stream as a source of power. It was readily appreciated that if you slowed down or shut off the flow of the Gulf Stream, this would affect the climate in Great Britain, so I don't think this argument or hypothesis got very far.

Much the same is true with biological aspects. You may do something in Florida or in North Carolina which will directly influence the fisheries or the marine life in New Jersey. We cannot think of biological activities as ceasing at arbitrary barriers, be they boundary lines of States or nations or zoo-geographic zones. As I mentioned, we know so little about the inshore environment, how can we possibly understand the deeper waters to warrant using them as unlimited dumping grounds at this time in history? This is true; I don't think you would find any competent marine scientist who would argue with this statement.

Yet there are all sorts of proposals for waste disposal in deep waters. The Philadelphia-Wilmington-Trenton area is talking about developing a huge trunk sewer system. There is a feasibility study underway by the Franklin Institute in Philadelphia. These people would like to see or are at least studying the possibilities of moving tremendous amounts of waste some 80 miles offshore to water about 1,600 feet and dumping it there. Our marine laboratory has been participating in a study of the marine life with this group. We have made three cruises. What we now know is infinitesimal compared with what we should know to make this kind of decision.

When I talk about moving material further offshore, in any way, I am simply saying that is only an interim measure, that we cannot—and this is only my personal opinion, it does not necessarily reflect the Department of Interior thinking—regard these modes of operation as permanent. These would be interim measures until such time as we can ecologically recycle materials on the land.

Now, I don't pretend to be an absolute authority on resources, but I will soon teach a course on resources at Rutgers. I have been doing a great deal of reading. This country is becoming desperately short of many resources. It does not make sense to throw car bodies in the sea or to discharge our organic wastes into the ocean where they cannot be assimilated. These should be returned to our environment again, as it was mentioned this morning, possibly to the fields in the South which have been rendered infertile because of past agricultural practices. Even in New Jersey we have pine barrens. In many cases these were cut and farmed at one time. These areas can be enriched by organic wastes from our metropolitan areas. This is within the realm of feasibility; it will be a necessity in a few decades.

If we say it can't be done or it is too difficult, I am convinced that it won't be done. If this happens, the human race, all of us living today, will suffer the consequences. I think that we have to look toward positive goals; and rather than saying it can't be done, if it appears it needs to be done, then immediately try and expedite the arrangements.

Mr. DINGELL. And find a way to do it.

Dr. PEARCE. And find a way to do it, but in many cases the ways exist. Some will say that a particular system is only a small pilot project; if they can use waste material in one instance, it is possible to do it on a mass production basis. When someone made the first car, we didn't say we would never have automobiles simply because only one car had been made. We went ahead and built a whole industry on the basis of a small idea that the car could replace the horse someday.

Ecologically compatible sewage treatment can today replace the systems that we have been using. We are working in the horse-and-buggy age with regard to waste disposal, but with a little ingenuity—and this is being applied; I have talked to people in the Bureau of Solid Waste Management and FWQA where there are people who believe we can do these things if we have the public support—we can develop new systems. First of all, you as Congressmen must have the support of your constituency before you can take any great leaps forward. Once you have done that, then you can implement the various Federal agencies and the State agencies who can carry out these systems; but it is a tremendous program. To improve or even keep our environment at the present level makes the development of the atom bomb look small by comparison.

I have talked to scientists from many universities and research institutions, so these aren't just my own ideas. Rather they are ideas that have been generated through a wide number of discussions; if, however, we don't take steps and do it immediately, then I have wasted my time coming here today, and this whole hearing has been a waste. It is my feeling that we must carry these actions out, and we can't wait a half decade or a decade. They have to be done now, and they

have to be done with the same philosophy with which we developed the atom bomb or we fought the Second World War. We have something positive to accomplish, and we should lend ourselves to the endeavor immediately. I can't think of any person at any level of government who could take issue with this.

Mr. DINGELL. Doctor, we are together on that point. Doctor, the House is now in session. There is a quorum call going on on the floor. We do thank you for your presentations today and for your very helpful testimony. The Chair will be seeking certain additional information from you which will be directed to you by letter. I am satisfied that you will be able to cooperate with us in providing the additional information that will be needed to make our hearings complete and you will be hearing from me in the not too distant future on these matters.

Doctor, we thank you very much for your most helpful testimony.

Dr. PEARCE. Thank you for having me.

Mr. DINGELL. If there is no further business to come before the committee, the committee will stand adjourned until 2:30.

(Whereupon, at 12:40 p.m., the committee adjourned to reconvene at 2:30 p.m., the same day.)

AFTERNOON SESSION

Mr. DINGELL. The subcommittee will come to order.

This afternoon our first witness is our colleague, Hon. Michael Harrington of Massachusetts. Congressman Harrington, we are privileged to welcome you for such statement as you choose to give.

STATEMENT OF HON. MICHAEL J. HARRINGTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MASSACHUSETTS

Mr. HARRINGTON. Mr. Chairman, I appreciate the chance to come this afternoon, particularly the courtesy extended to me by yourself to a very late date allow my bill to be included along with Congressman Ottinger's and Congressman Murphy's bills dealing with similar problems.

I believe that members of the committee and subcommittee have been given prepared statements outlining the bill and the rationale behind it. Rather than read from that, I thought that I might summarize the bill, and receive questions.

Mr. DINGELL. Without objection, your full statement will appear in the record at this point as if given.

(The statement follows:)

STATEMENT BY HON. MICHAEL J. HARRINGTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MASSACHUSETTS

Mr. Chairman. I want to express my thanks to you and the other members of the Subcommittee for permitting my bill to come before you at such short notice. It is indeed a pleasure for me to be able to testify today on a subject which I consider essential to our welfare—pollution free oceans.

Pollution has become the end product of our society. But pollution need not have been inevitable. It can still be stopped. One of our greatest resources is

our oceans, but the waters of the New York Bight are dead and the waters off the Boston Light Ship are dying. In a message to the Congress on waste disposal on April 15, 1970, President Nixon stated, "About 48 million tons of dredging, sludge, and other materials are annually dumped off the coastlands of the United States." This reckless dumping must be halted now.

We are hearing more and more about the incredible value of our oceans. We hear that our food supply may eventually come in greater proportion from the ocean than from the land. Untapped mineral resources are within these waters. As a source of oxygen and through its interaction with the terrestrial ecosystems, a healthy ocean may well have critical importance for the survival of the human species.

The coastline of the United States is 88,633 miles long—99,613 if you include the Great Lakes. Seventy-five percent of our population lives in the 30 states that comprise the Coastal Zone. Forty-five percent of our urban population lives in coastal counties. Twenty-five percent of our entire population lives within 50 miles of the coast. As you can see, the pollution of our oceans directly affects more than 150,000,000 people in this country.

It has been estimated that ninety percent of the ocean produces a negligible fraction of the present fish catch and has little potential for yielding more in the future. The coastal waters produce almost the entire shellfish crop and nearly half of the total fish crop. Recreational values, oil and mineral resources and mineral waste disposal areas are concentrated almost entirely in the coastal regions of the ocean. The Marine Science Council estimates that 8% of the nation's shellfish, representing 1.2 million acres of shellfish grounds, have been declared unsafe for human consumption. Dumping of wastes accounts in large measure for this destruction.

The National Commission on Marine Science, Engineering and Resources has reported that "In the past 20 years, dredging and filling have destroyed 7% (more than a half million acres) of the Nation's important fish and wildlife estuarine habitats."

We obviously need legislation to stop this devastation. Our new technology has created new kinds and larger amounts of material which must be disposed of. The disposal of domestic wastes into our coastal waters has introduced toxic, heavy metals and organics into these waters. The result has been to lower the available oxygen content of the bottom water. We have a clear example of this in the New York Bight, which Mr. Ottinger's bill deals with. It has been found that in the Bight area all of the typical forms of bottom life which normally inhabit similar areas have been eliminated from the damaged areas. The pollutants may be transported by water, or by moving sediments and may affect the life in a far greater area.

During the past 30 years, we have disposed of many synthetic chemicals heretofore unknown. These chemicals are foreign to organisms and natural pathways of biodegradation are lacking or inefficient. Thus many chemicals now dumped into our coastal waters enter the marine food chain and increase in density as they move through the chain until they become harmful to both marine and human life. Dr. Max Blumer, Senior Scientist at the Woods Hole Oceanographic Institute in Massachusetts has stated, "The marine food web is so involved and the biochemical processes necessary for the survival of every species are so complex that it is virtually impossible to foresee which species might be damaged by a certain persistent chemical. The award of the Nobel Prize to the discover of the insecticide DDT illustrates our ignorance in this area. Lacking sufficient foresight we need to be much more cautious in the use of persistent chemicals lest we disrupt inadvertently processes in the sea on which our survival may depend."

Our oceans will take far longer to recover from pollution than a river or lake. A small lake may be restored in a few years. Lake Erie may possibly be restored within fifty years—but an ocean will remain irreversibly damaged for many generations.

Dr. B. H. Ketchum of Woods Hole has pointed out "that nature has a tremendous capacity to recover from abuses of pollution, so long as the rate of addition does not exceed the rate of recovery of the environment. When this limit is exceeded, however, the deterioration of the environment is rapid and irreversible." I am afraid that our present rate and manner of dumping may exceed that limit now. If it is allowed to continue, irreversible damage is inevitable.

I realize that the Committee is most concerned about saving our oceans, otherwise there would be no hearing today. The bills which are before you represent somewhat different approaches to this problem. I have co-sponsored both Mr. Ottinger's and Mr. Murphy's bills because I believe it imperative that some legislation be passed to eliminate this hazard.

The New York Bight has a particularly acute problem, and aid to that area is obviously necessary. But, I believe that legislation, however necessary, which only prohibits dumping into the waters of the New York Bight or any other waters within a 25 mile radius begs the question. We need a nationwide program to prevent this from happening again, and we need to revitalize those areas where dumping has already caused previous harm. Mr. Murphy's bill is a good approach to the problem. I would like very much to see a study made of our entire coastal system. However, I do not believe that we can wait two years and permit continued dumping of dangerous materials while the study is going on. We must have standards now. That is why I have introduced my bill. Thirty-two members of the House have joined with me in filing this legislation.

At the present time there are no adequate Federal standards which prohibit granting permits to dump into the coastal waters of the United States if such refuse material would harm the environment. The Corps of Engineers was authorized by the Rivers and Harbors Act of 1899 (the Refuse Act) to issue permits for all construction and dumping into the navigable waters. In the early years of issuing permits under this authority, the guidelines were solely on the basis of the effect of the proposed work on navigation.

The Corps of Engineers, in a letter to me dated April 29, 1970 stated:

"By the Coordination Act of 1958, and subsequent amendments, the Corps was directed to coordinate this (dumping permit) activity with the Department of the Interior, and to consider their views on the effect of the proposed work on fish and wildlife and the ecology. The guidelines on issuance of permits have been broadened considerably over the past few years, and now consider the effect of the proposed work on fish and wildlife, conservation, pollution, and other factors affecting the general public interest, in addition to the effect on navigation. . . ."

I have quoted this passage because it so clearly exemplifies the problem we face. The fact is that the Corps has not taken ecological factors into consideration. In the same letter, the Corps included a list of waste products which, under a permit which they issued, have been dumped into the coastal waters off Massachusetts—in fact, into the coastal waters off Gloucester and Rockport in my District. Included in the list is "mercury contaminated wastes." In fact, for several years 35 pounds of mercury wastes were dumped 9.3 miles northeast of the Boston Light Ship. And that is not all. 750 pounds of beryllium, 1000 gallons of sulphuric acid and hundreds of gallons of other chemicals were dumped into these waters until the State insisted that the permit be suspended last February. The Corps has issued hundreds of permits over the years which allow for the dumping of industrial wastes and for dredging. I would like to insert in the record of these hearings a list of all permits issued throughout the country by the Corps since the 1899 law was enacted.

It is clear that the Army Corps of Engineers cannot possibly be taking ecological matters seriously when they issue a permit to dump mercury. I need not go into the details of mercury poisoning. The papers have told the story many times recently. But I do believe that the problem of mercury poisoning points up the necessity for standards governing dumping into our navigable waters.

Section 5B (a) of my bill would require the Secretary of the Interior, acting through the U. S. Fish and Wildlife Service and in consultation with the Army Chief of Engineers to establish standards "which apply to the deposit or discharge into the coastal waters of the United States of all industrial wastes, sludge, spoil, and all other materials that might be harmful to the wildlife or wildlife resources or to the ecology of these waters." The purpose of these standards is to ensure that no damage to the natural environment or ecology of these waters will occur as a result of this activity.

At this point, Mr. Chairman, I would like to clarify certain language in this bill. Sec. 5B (a), (Page 2, line 7 of H. R. 18454) uses the term "navigable waters". This term was used to provide the broadest coverage of environmental protection against dumping of materials into coastal waters. In addition, the term "coastal waters" is intended, throughout, to mean all waters off the United States Coast that are under United States jurisdiction. In reviewing my bill I see it might not be clear that the boundaries go that far, and consequently I will be happy to offer an amendment later to accomplish this purpose.

Sec. 5B (a) also requires that the person wishing to dump sustain the "burden of proof" that the materials that are dumped will not endanger the natural environment of these waters and will meet any additional requirements as the Secretary of the Interior deems necessary for the orderly regulation of such activity. Burden of proof does not require the person wishing to dump to prove beyond a shadow of a doubt that the materials will be harmless. Rather, burden of proof requires a "preponderance of evidence" which demonstrates that the dumper can abide by the standards. I feel that placing the burden of proof on the dumper is an important factor in this legislation. It is time that those who wish to dispose of refuse material be required to assume the ecological consequences of their actions. I do not believe that the United States Government should be responsible for the expense of subsidizing the ocean dumping of private interests.

In addition, this legislation takes into account the fact that in some locations materials can be dumped without harm to the ecology of the waters, whereas the same materials would be harmful to other areas. I have always felt that a unilateral prohibition against dumping was both unjust and unrealistic. Ocean currents in some areas will disperse most refuse material to the point where it does no harm. In other locations, however, the material may stagnate. The legislation also provides that different amounts of the same type of refuse may be dumped in different locations. Each dumping site and material has its own particular characteristics and these must be taken into account, as they will have to be by the person wishing to dump. There are, of course, certain materials such as mercury which would not be dumped at all. The standards set by the Secretary of the Interior and the burden of proof required of the dumper would effectively prohibit any dumping of such materials. Therefore, this section provides a flexible approach to the problem of dumping into the coastal waters.

Section 5B (b) provides that the standards established by the Secretary of the Interior shall be adopted and applied to all Federal and State authorities which have the right to issue authorizations to discharge or deposit material into these waters.

Sec. 5B (c) requires that the standards apply to all parts of the Federal and State governments and all persons who have authorization from the State or its agency to deposit or discharge such materials into these waters.

Sec. 5B (d) permits the States to establish and enforce standards covering these activities within their jurisdiction only on the condition that the State standards are stricter than the Federal standards and that the States provide "adequate procedures for enforcement." I believe this section is important because, as we have seen in the case of automobile pollution, many states have wished to enact stricter regulations than the Federal ones but have been unable to do so because Federal law requires that the Federal standards apply. There is presently a bill before the Massachusetts Legislature to provide for the regulation of ocean dumping off the Massachusetts coast area. There may be similar bills before other State legislatures. Therefore, a provision such as the one in this section is necessary to permit State regulation under controlled circumstances.

Sec. 5B (e) provides that every State and Federal instrumentality and every person applying for authorization to discharge or otherwise dispose of any material into these waters maintain records, make reports and provide whatever additional information the Secretary of the Interior needs to determine that the standards are being complied with. The Secretary may also, upon request, have access to these records.

Sec. 5B (f) provides that the district courts of the United States have jurisdiction to restrain violations of this Act. The courts have subpoena power and failure to obey the subpoena may be punishable by a charge of contempt of court.

Sec. 5B (g) provides that each violation of these standards shall be punishable by a fine of not more than \$10,000 nor less than \$5,000. This means that each time refuse is dumped in violation of the standards, the violator is liable for this fine. In many cases, several dumpings or discharges occur per day and each instance is a violation punishable by the fine.

Sec. 5B (h) terminates any existing authorizations for dumping issued by the United States under any other provision of law as of the enactment of this bill into law.

Mr. Chairman, if we continue this dumping into our coastal waters, not only will we seriously endanger our own lives, but we will have to spend billions

more to clean up the mess. We may even go beyond the point of being able to correct our mistakes. Since, as Dr. Blumer has stated, we cannot know the effects of some of the material we are dumping into our coastal waters, it is time we reassessed our values. We should be cautious in our actions. We must have standards. We must enforce those standards. And we must make private industry as well as the Federal and State governments responsible for maintaining the quality of our environment.

Mr. Chairman, you have heard from many witnesses about the dangers of ocean dumping. My bill is one approach to the problem—an approach that would have an immediate nationwide effect. I hope that the committee will seriously consider legislation which will establish standards now to limit the dumping of hazardous materials into our coastal waters. The need is clear and time is running out.

Thank you.

Mr. HARRINGTON. I would also, if I could, at this time like to indicate that Congressman Carey of New York, Clay of Missouri, Hathaway of Maine, Meskill of Connecticut, Morse of Massachusetts, and Ryan of New York would like to endorse the statement which has just been made a part of the record, and have it incorporated in the record as a part of their support of the general measure.

Mr. DINGELL. The record will so indicate.

Mr. HARRINGTON. Thank you. As I am sure you are aware, there are three measures which you are considering. All of them have relative merit. None of them obviously attains perfection. We are aware of what Congressman Ottinger's problem is in New York. We are aware of the need, as Congressman Murphy demonstrates in his bill, to have a study of some appreciable duration and scope dealing with the overall problem of dumping into the ocean in general, or the continental shelf area in particular, off the coast of this country. I think that we are all in general aware to some extent, through the media and our own information of the problems of pollution of our waterways.

We have already on the books a number of different statutes dealing with the problem, but it appears that there is one significant area yet uncovered in enough detail to provide a degree of relief or protection. It is the area the bill we have provided the committee with does I believe attempt address itself. It is the area dealing with the coastal waters off of the country. This bill provides for a method of shifting the burden of proof and imposing this burden on the person proposing to dump or dispose of wastes in a way that would give the Department of the Interior and the subsidiary agencies that are working with it the method of deciding whether or not permission would be granted to various industries and other disposers of waste to use the ocean and the coastal basin for dumping products of various kinds.

Our purpose is attempting to recognize the fact that there has to be some method to dispose of these wastes, and that an absolute prohibition of the kind that has been in effect in my own State since February of this year, while desirable from an interim point of view, is not the overall answer to the problem of dealing effectively with the problem of disposal of waste materials of this kind.

What we have tried to do in the bill is to recognize that a balance must be struck between an absolute prohibition against dumping and in the coastal waters and a lack of restriction which has characterized the dumping effort in recent years.

We have suggested that the burden be placed on the person proposing to dump, by making him show that the dumping in the area

selected, and the material to be dumped, will not in a general way affect the ecological balance that exists or be detrimental to the ocean life or to the overall public good that might be affected by it.

We provide various forms of standards and sanctions which can be imposed and used and we further allow the States, if they wish to do so, to impose more stringent safeguards, and thus take over the field, if they can satisfy the Department of the Interior and the Government in general that they are able and willing to get into this field effectively.

I think that, in general, summarizes the bill. The reason for offering it is that it does provide an interim ground between an absolute prohibition against dumping, and a study which would at least be 2 years in the making.

This legislation recognizes that something has to be done in the immediate future to deal with this problem. I hope, too, that out of this hearing might come a combination of these ideas, which will result in some effective effort on the part of those concerned with the problems at the Federal level to move into an area that has been neglected, since past legislation has not been adequate. I think that would summarize my feelings about the bill, Mr. Chairman.

Mr. DINGELL. Mr. Harrington, the committee is grateful to you for your very helpful statement and your very useful presentation. We appreciate it very much.

Mr. Keith?

Mr. KEITH. Thank you, Mr. Chairman. We are very appreciative of your contribution. It will be helpful to us as we go over the entire problem of which this is just a part. Nice to have you here.

Mr. DINGELL. We certainly do thank you very much for a very helpful statement. The Chair is appreciative of your vigor and interest in this matter.

Mr. HARRINGTON. Thank you.

May I introduce as a witness, speaking on behalf of my bill, a man in public office in Massachusetts, who is probably most closely identified today at the State level with active and effective concern in the area of the environment. He has staked out a reputation in this field for a lengthy period of time, and has come to be regarded as one who is most knowledgeable in the Massachusetts State Senate in this area. He has been responsible in most part for prohibition of dumping of the kinds of materials that have recently been written about—mercury and other deadly poisons.

A man who, I think, has been in the forefront of efforts to do something about having the Federal Government and the State government concern themselves with this problem. Senator Joseph Moakley, I think, can testify with much more knowledge and much more experience than I bring to bear on the subject and I with pleasure introduce him to you this afternoon.

Mr. DINGELL. Senator Moakley, we are certainly pleased to have you with us. Mr. Harrington, why don't you stay there at the witness table.

Senator, we are most happy to welcome you for such statement as you choose to give.

**STATEMENT OF HON. JOHN J. MOAKLEY, STATE SENATOR FROM
THE STATE OF MASSACHUSETTS**

Senator MOAKLEY. Thank you very much, Mr. Chairman and members of the committee.

It is a privilege for me to be here today to testify in behalf of H.R. 18454, introduced to your committee by Hon. Michael J. Harrington of Massachusetts.

I can tell you that from my own experience in the Commonwealth of Massachusetts as Chairman of the Special Legislative Commission on Marine Boundaries and Resources, that this legislation is critically long overdue, and in some cases may even be too late.

Mr. Chairman, the absurd reality is that the public believes that somewhere, somehow, someone is protecting them and their environment. It is undoubtedly the incurable optimism on the part of most Americans and the unfailing faith they place in their elected officials which may explain this phenomenon.

I do not, however, share their optimism nor their faith in us, as elected officials, at this juncture and in this area.

I am very deeply depressed over the absolute disregard of environmental and health consequences which our own Federal agencies practice.

The two most flagrantly derelict agencies who deserve public criticism in this area are the Army Corps of Engineers and the Atomic Energy Commission. For years, both have acted to the detriment of America's resources and health.

Let me just briefly tell you how I first met the Corps of Engineers. The meeting took place some 6 months ago when my commission began investigating the water pollution problem in my State of Massachusetts. We discovered that the Corps of Engineers granted a permit for the past 6 years to a private contractor to dump chemicals off Boston Harbor.

Allow me to read a list of what the corps permitted them to dump a few miles off our coast—just this year before public outrage put a stop to it:

- Beryllium, 750 pounds.
- Mercury, 35 pounds.
- Sodium, 2,500 pounds.
- Lithium aluminum hydride, 250 pounds.
- Methyl ethyl ketone, 50,000 gallons.
- Ether, 55 gallons.
- Sodium hydroxide, 200 gallons.
- Phenal, 50 gallons.
- Methyl isopropyl ketone, 250 gallons.
- Toluene, 250 gallons.
- Acetone, 200 gallons.
- Methanol, 500 gallons.
- Xylene, 250 gallons.
- Freon, 250 gallons.
- Nitric acid, 1,000 gallons.
- Hydrochloric acid, 500 gallons.
- Sulfuric acid, 1,000 gallons.
- Hydrofluoric acid, 250 gallons.

It reads like a recipe for disaster.

Most of these chemicals are insoluble, and mercury and beryllium are deadly poisons as you well know.

Mr. Chairman, H.R. 18454 is absolutely necessary as a beginning in the restoration of our water resources and the prevention of more incidents of the kind off Massachusetts.

I do, however, have one recommendation for your committee. I recommend that the Secretary of Interior establish, and that it be written into this legislation, a zero-pollution standard for thermal and radiation discharge into coastal waters from any nuclear facilities.

I am also compelled to comment that like so many other environmental protection measures, H.R. 18454, too, only deals with the symptoms of the problem.

Mr. Chairman, I throw out to you and your committee, the challenge of truly solving the scouge of smothering liquid and solid waste.

I recommend the establishment of a "National Industrial Process and Waste Review Board." This board would review manufacturing processes to determine first, whether the benefit of the new product outweighs the risk of the waste and byproducts which it produces. If not, the product will not be allowed into production. But, if the benefit and need of this product outweigh the risk to the public and environment then the board will determine through regulation how the waste must be recycled or disposed of on land. It may also require alternative industrial processes for products if the one used is damaging to the environment.

In other words, Mr. Chairman, because your committee's jurisdiction is limited, it forces you to deal with this pressing problem literally at the end of the line. That is, at the end of the assembly and production lines of American industry.

The problem lies at the beginning—and therefore it can only be solved at the beginning of the manufacturing process.

This Nation long ago lost the luxury to produce products without consideration for the environment and health effects, and solid and liquid waste considerations.

Industry must be made to account for the use of our environment as a garbage receptacle for their own profitmaking.

Mr. Chairman, in discussing a permanent and satisfactory solution to this problem we must not fail to consider the problem of municipal waste. In Boston Harbor alone, each and every day, 550 million gallons of primary treated sludge and 12 million gallons of untreated sewerage are pumped into these confined waters. Mr. Chairman, the harbor is dying, it will take \$1.5 billion to save it at this present time. The Administration has allocated \$4 billion for the entire Nation over the next 5 years.

To save our water resources, Congress must act now.

Mr. Chairman, it may be too late to save many of our rivers, harbors, and lakes but there is mounting evidence that we are beginning to kill our oceans.

You have an awesome task and responsibility. I hope that you are able to carry it out so the public will have real cause for optimism.

Mr. Chairman, I wish to submit for the record, a report of the Special Massachusetts Commission on Marine Boundaries and Resources on this very subject. Contained within it is legislation the State of Massachusetts will soon enact in the area of offshore dumping.

Mr. DINGELL. Without objection, the document referred to will be inserted in the record at this point.

The Commonwealth of Massachusetts

**REPORT
OF THE
COMMISSION ON
MARINE BOUNDARIES AND RESOURCES**

(Under the provisions of Chapter 77 of the Resolves of 1969
and Chapters 3 and 9 of the Resolves of 1970)

OCEAN DUMPING

March 31, 1970

The Commonwealth of Massachusetts

MEMBERSHIP OF THE COMMISSION ON MARINE
BOUNDARIES AND RESOURCES

(listed alphabetically)

<i>Senate</i>	<i>House of Representatives</i>
John Joseph Moakley, <i>Chairman</i>	Stephen T. Chmura, <i>Vice Chairman</i>
Allan F. Jones	Thomas Creighton
George V. Kenneally, Jr.	John J. Finnegan
	Walter J. Hannon
<i>Governor's Appointees</i>	
Frank Bachoff	James Hart
Richard R. Baxter	Joseph B. Walsh
Leo L. Beranek	<i>State Officials</i>
Davis Taylor	Robert Quinn
	<i>Attorney General</i>
<i>Legal Counsel</i>	Edward J. Ribbs
Harold Putnam, Esq.	<i>Commissioner of Public Works</i>
<i>Staff Assistant</i>	Arthur W. Brownell
Leo Allen	<i>Commissioner of Natural Resources</i>

The Commonwealth of Massachusetts

*Second Report of the Commission on Marine Boundaries
and Resources*

OCEAN DUMPING

The Commonwealth of Massachusetts

RESOLVE AUTHORIZING STUDY (Chapter 77 of the Resolves of 1969)

CHAP. 77. RESOLVE PROVIDING FOR AN INVESTIGATION AND STUDY BY A SPECIAL COMMISSION RELATIVE TO MARINE BOUNDARIES AND RESOURCES OF THE COMMONWEALTH.

Resolved, That a special commission, to consist of three members of the senate, six members of the house of representatives, the attorney general or his designee, the commissioner of natural resources or his designee, the commissioner of public works or his designee, and four persons to be appointed by the governor, is hereby established for the purpose of making an investigation and study of the marine boundaries and resources of the commonwealth. Said commission shall consider lateral seaward boundaries of the commonwealth for the purpose of attempting to reach agreement with the adjacent states of New Hampshire and Rhode Island as to seaward extensions of the present boundaries between Massachusetts and those states; the existing statutes of the commonwealth relating to exploitation, utilization and regulation of the waters within the boundaries of the commonwealth and of the seabed and subsoil lying beneath those waters; and a long range orderly plan for the management of the commonwealth's resources and assets in coastal, estuarine and submerged areas, as well as the protection of the commonwealth's interest in deep ocean research and related activities.

Approved August 13, 1969.

The Commonwealth of Massachusetts

In the Year One Thousand Nine Hundred and Seventy.

INTRODUCTION:

The dumping of toxic chemicals in the ocean off Boston Lightship is a serious threat to the environment that must be brought under immediate state control.

Hazardous chemicals have been dumped 9.3 miles northeast of Boston Lightship for approximately six years, under a permit issued by the Corps of Engineers. This Commission pointed out the persistent dangers inherent in this practice, and urged the state to assert its jurisdiction and its authority. More state authority is needed and is hereby recommended (see Appendix A). More state ocean jurisdiction is being sought and will be the subject of a later report.

The Commission has had the invaluable assistance of Doctors John M. Hunt and Max Blumer of the Department of Chemistry at the Woods Hole Oceanographic Institution in its evaluation of the dumped chemicals, and in arriving at a solution to the urgent problem.

The chemists advised the Commission that mercury, beryllium and radioactive waste should not be dumped in the ocean under any circumstances. Further, they advised us that other chemicals could be disposed of without damage to the marine environment if they were ordered burned, neutralized, re-cycled or refined.

Study by the Commission staff found that no state official had sufficient authority to evaluate present methods of disposing of hazardous wastes and to order safer procedures, nor to investigate industrial and research processes in an effort to minimize harmful end products.

Legal research indicated that the Department of Public Safety possessed adequate controls over explosives and inflammables, and the Department of Public Health had adequate controls over land dumps. But no state official possessed adequate authority over haz-

ardous chemical wastes, and particularly their dumping in the marine environment.

Investigation of the ocean dumping operation permitted by the Corps of Engineers quickly revealed that hazardous chemical wastes were being produced by Massachusetts industry, hospitals, schools and laboratories. Large quantities were being stored on premises, trucked over the highways of the Commonwealth, stored by a disposal company and dumped off-shore—all without any inspection, licensing or control by any official of the Commonwealth. Few state officials had any knowledge of the scope of the operation, and most lacked the benefit of advice from a qualified chemist.

Your Commission felt that this situation could not be permitted to continue. We were joined in this conclusion by Governor Francis W. Sargent, Attorney General Robert H. Quinn, Commissioner John P. King of the Department of Public Works, and Commissioners Arthur Brownell and Stephen Ells of the Department of Natural Resources, all of whom are members of or have appointees on this Commission on Marine Boundaries and Resources.

There was quick agreement that legislation is needed, and with the help of these leaders and their staffs we reached this agreement in the form of the legislation contained in Appendix A of this report.

Your Commission was impressed with the careful control of land dumping by the Department of Public Health under Commissioner Alfred L. Frechette and the skillful supervision of explosive and inflammables under State Fire Marshal Ralph L. Garrett. It hereby expresses its appreciation to these officials for their assistance in formulating the accompanying legislation and their willingness to accept the additional responsibilities imposed upon them by the bill.

CATEGORIES OF HAZARDOUS WASTES:

A layman can only be appalled at the length and the complexity of any lists of hazardous wastes being produced within the Commonwealth.

Only a very few highly-qualified professional people are familiar with the characteristics of many of these wastes, and even fewer know the answers to highly-technical questions relating to the impact of these wastes upon the environment.

In the past, the policy has been: "If it is dangerous, dump it anywhere you can."

In a Commonwealth which is beginning to value its natural heritage, and whose five million people are beginning to demand clean air and clean water as part of their birthright, this policy must be changed to: "If you are not positive the material is harmless, you can't dump it anywhere."

This may impose some temporary hardships upon industry, schools, hospitals and laboratories, but it must be made clear that the Commonwealth expects each such producer of a harmful waste to take every possible step to minimize the quantity and the danger of such wastes. And each producer must accept a personal obligation to dispose of any necessary residue—without regard to expense—in the safest possible way. The public demands no less; our interest in a continually habitable planet requires such concern.

The Commission feels that the Division of Water Pollution Control in the Department of Natural Resources should have primary responsibility for the waste control and disposal program authorized by the accompanying bill. It has furnished that Division with a list of chemicals supplied by Woods Hole scientists, and has recommended that categories of hazardous waste be created approximately as follows:

1. Harmless — may be dumped in the ocean off Boston Lightship.
2. Relatively harmless — but should be dumped off the continental shelf.
3. Harmful in the marine environment — should be burned, neutralized, re-cycled or refined on the premises of the producer.
4. Harmful in the marine environment — should be burned, neutralized, re-cycled or refined by a disposal company or refinery.
5. Harmful — should be banned from the marine environment and any site where it might enter the water table. (Mercury and beryllium are in this category.)
6. Harmful — should be banned from disposal anywhere in the Commonwealth, including its maximum ocean jurisdiction.

The last category applies to such substances as radio-active waste. The Commission has not pursued this problem further at this time, because it is satisfied that such materials are not pres-

ently being dumped in our ocean jurisdiction, nor within the land jurisdiction of the state.

But the Commission has been advised that such substances are scheduled to increase some thirty times in the next ten years. No less an authority than David E. Lilienthal, former chairman of the Tennessee Valley Authority and the Atomic Energy Commission, raises serious doubt as to whether the benefits of atomic power production are worth the enormous risks that are associated with the inevitable wastes.

THE LEGISLATION:

The bill which the Commission is filing herewith is the result of a co-operative effort by many state officials, who have come to share the concern of this Commission.

Valuable ideas were contributed by Governor Francis W. Sargent, who wanted the land protected as carefully as this Commission has a duty to protect the sea. Attorney General Robert H. Quinn felt that ultimate jurisdiction should rest with a board or commission upon which all interested state agencies were represented. We believe this valuable suggestion has been realized by the utilization of the existing Water Resources Commission, and the addition thereto of the Commissioner of Public Safety—the only interested Department not now represented on that Commission.

The Commission felt that the single most useful control was to authorize the Division of Water Pollution Control to license any disposal companies handling hazardous wastes. The Department of Natural Resources has agreed, and Commissioner Ells has given valuable help in drafting the legislation.

The bill does not impinge upon the existing powers of any of the interested state agencies, but allows the new board to add to such powers where needed by rules and regulations.

For the first time, it brings under state control the storing, handling, trucking and dumping of these hazardous wastes. It permits the state to approve hazardous waste dump sites. It allows reasonable license and inspection fees, so that the costs can be borne by the creator of hazardous wastes and not the public which seeks through this bill some reasonable protection.

Further, the bill imposes a substantial fine for violations —

\$5,000. and/or six months imprisonment. And the final Section 2 permits the Department of Natural Resources to utilize a portion of existing funds for research on improved methods of disposing of hazardous wastes.

CONCLUSION:

At the suggestion of this Commission, the Division of Water Pollution Control is meeting with the Department of Public Safety to solve the immediate problems which exist in advance of the passage of this legislation. The Corps of Engineers has promised its full co-operation.

Such temporary steps as they may be able to take within the next few weeks are at least some improvement over the unregulated situation which existed in advance of the work of this Commission. But they are no permanent solution.

The ultimate solution can only be a body of law that gives power to qualified and alert state officials to take such steps as may be needed to protect the public interest and the public safety. Such protection is necessary not only for the living, most of whom are not qualified to make the sophisticated judgments required in modern technology, but for generations yet unborn. A safe environment is their birthright.

Therefore, the Commission recommends immediate passage of the bill set forth in Appendix A, together with an emergency preamble.

JOHN JOSEPH MOAKLEY

ALLAN JONES

JAMES HART

WALTER HANNON, JR.

EDWARD J. RIBBS

(JOHN P. KING)

FRANK BACHOFF

STEVE T. CHMURA

GEORGE V. KENNEALLY, JR.

ROBERT H. QUINN

ARTHUR W. BROWNELL

RICHARD R. BAXTER
DAVIS TAYLOR

CREDITS:

In addition to the persons mentioned in the text of the Commission's report, we are indebted to the following for their assistance in the preparation of this report and the legislation:

Office of the Governor — Robert Yasi and George Brown

Assistant Attorneys General — Neil Colicchio, Kevin P. Curry,
David B. Gittelsohn, Arthur Loughlin and Thomas A. Sheehan

Department of Public Health — Robert A. McCracken and Ri-
chard M. Power, sanitary engineers

Department of Public Works — Patrick F. McDonough, counsel

U.S. Geological Survey — Dr. John Schlee

The Commonwealth of Massachusetts

In the Year One Thousand Nine Hundred and Seventy.

APPENDIX A

AN ACT TO CONTROL THE HANDLING AND DISPOSAL OF WASTES HAZARDOUS TO THE PUBLIC OR ITS ENVIRONMENT

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

1 SECTION 1. Chapter 21 of the General Laws is hereby amended by inserting after Section 56, inserted by Chapter 736 of 3 the Acts of 1968, the following new sections: —

4 Section 57. The members of the water resources commission 5 and the commissioner of the department of public safety shall 6 sit as a joint board for the purpose of insuring that certain 7 chemical and other hazardous wastes are safely and properly 8 handled and disposed of. Said board shall investigate the han- 9 dling and disposal of said wastes, and shall co-ordinate the ac- 10 tivities of its member agencies.

11 Where said board finds that the powers delegated to its 12 member agencies are insufficient, it shall have the power to 13 adopt such rules and regulations as may be necessary to pro- 14 tect the public and its environment from the effects of un- 15 regulated handling and disposal of said wastes. The board 16 shall delegate to the most appropriate agency among its mem- 17 bers responsibility for administration of its regulations. No- 18 thing in this section or section fifty-eight shall diminish or 19 interfere with the responsibilities of any other agency.

20 Said board shall after public hearing adopt rules and regu- 21 lations —

22 1) identifying those substances which, because of their 23 chemical, radioactive, flammable, explosive or other 24 characteristics, constitute or may reasonably be expect- 25 ed to constitute a danger to the public health, safety or

26 welfare or to the environment, and requiring that said
27 substances be handled and disposed of only by licensed
28 hazardous waste disposers. Mercury, beryllium, com-
29 pounds thereof, and such other elements and compounds
30 as may be listed from time to time by the board, shall
31 not be dumped in any of the waters of the common-
32 wealth.

- 33 2) specifying in what manner said wastes may be handled
34 or disposed of, including requiring that various types of
35 said wastes be segregated from one another, be neutral-
36 ized or otherwise rendered harmless prior to disposal
37 and be suitably contained.
- 38 3) specifying the location at which said substances may be
39 disposed of both within the commonwealth, or outside
40 thereof, to prevent damage to any natural resource uti-
41 lized or enjoyed by the public, or damage to the environ-
42 ment.
- 43 4) establishing reasonable exceptions when competent scien-
44 tific evidence satisfies the board that the substances and
45 quantities involved do not constitute a threat to the pub-
46 lic and its environment.
- 47 5) setting reasonable license and inspection fees.
- 48 6) necessary to carry out the purposes of this section and
49 section 58.

50 *Section 58.* No person including the originator thereof shall
51 handle or dispose of such hazardous wastes as are specified
52 by said board without a license from the division of water pol-
53 lution control. Said license shall be subject to such terms and
54 conditions as the division deems advisable in accordance with
55 the regulations adopted by the board, including that said
56 handling or disposal receive the specific approval of one or
57 more member agencies.

58 A violation of sections 57 through 58, or any regulation
59 adopted thereunder shall be punished by a fine of up to five
60 thousand dollars, or by imprisonment of up to six months, or
61 both. The superior court shall have jurisdiction to enforce

62 the provisions of said sections and remedy any violations
63 thereof, including injunctive relief.

1 SECTION 2. Section 38 of chapter 21 of the General Laws,
2 as amended by Chapter 873 of the acts of 1967, is hereby
3 amended by inserting after the word "waste" the following
4 words — or chemical, radioactive, flammable, explosive or
5 other waste hazardous to the public or its environment.

Mr. DINGELL. The Chair wishes to commend you for a very fine statement, and also for a very fine job of public interest. You are certainly to be commended for the vigor with which you approach these matters. The chair is very happy to recognize our good friend and very able Member of this committee, Mr. Keith.

Mr. KEITH. Senator, it is good to have you here. I would like to point out, Mr. Chairman, that you and I have talked at length about marine sanctuaries. The State of Massachusetts has moved ahead in this area within their own jurisdiction. I testified before Senator Moakley's committee on this subject of marine sanctuaries off the Cape Cod National Seashore. I believe I was not only the only Member of Congress, but one of the few Members of the legislative branch to testify at that hearing, and the bill did go through and has been signed into law just recently by the Governor, has it not?

Senator MOAKLEY. That is right, Congressman. In fact, your testimony was very helpful to the committee, because we know of your longstanding fight in this same area, and we appreciated very much having your expertise into the Massachusetts Legislature.

Mr. KEITH. You said earlier that there was a time problem. We have another witness, and I wonder how much time we are going to have. I would like to ask some questions of Senator Moakley.

Mr. DINGELL. Feel free to ask questions.

Mr. KEITH. You mentioned zero pollution standards for thermal and radiation discharge in the coastal waters from any nuclear facilities. Bearing in mind that we have a \$65 million nuclear plant at Plymouth, I would like to know literally what you mean by this?

Senator MOAKLEY. It is very simple, Mr. Congressman. The Atomic Energy Commission, when they allow these nuclear plants to go into operation, did not take into consideration thermal pollution. In fact, they disregarded it as something not within their jurisdiction. Now they see that thermal pollution is a threat and it is a problem, and I feel that no water should be allowed to increase in any degree. I think cooling towers should be installed so that the plants could be cooled, and the water would remain the same.

I think in Michigan or some State, that it just came out with an edict that the water couldn't be increased 1 percent.

Mr. DINGELL. One degree?

Senator MOAKLEY. One degree.

Mr. DINGELL. One degree. It was our State. No, I beg your pardon, it was the Federal Government that came out with 1° going into the Great Lakes. The State of Michigan wanted to go 28° . We are hopeful that the State will not prevail.

Senator MOAKLEY. Dr. Barry Commoner, Mr. Chairman, one of the leading ecologists, stated that if the thermal pollution were allowed, that is, if all these nuclear plants as proposed and on the drawing board were allowed to go into operation, by the year 2010 all our rivers would be boiling and would be used just to cool our nuclear plants. I feel this is something we cannot stand, so I feel this shouldn't be allowed to be increased any degree. I think that we have the sophistication and we have the expertise to do this now. It may be a little more expensive, but I think we owe it to the people and to the Commonwealth of Massachusetts to make this effort.

Mr. KEITH. There has been a lot recently in the press, in fact I believe last Saturday's or Sunday's Boston paper had an article concerning positive application of the effluent that was solely thermal in its effects, as contrasted to chemical, and pointed out, I believe, in Japan, where the thermal effluent had a beneficial effect when it was controlled on the immediate waters or those adjacent thereto, that the fish crop and other ecological aspects were aided and abetted, where it was understood and properly controlled and used. I would suspect that perhaps we will hear from other witnesses that would permit the use of some thermal application to the water.

Senator MOAKLEY. There was an incident in New York where thermal pollution attracted thousands and thousands of bass and they trapped themselves into some kind of pier arrangement there and they died. This knowledge came about because they saw all these crows and sea gulls and they had to get them out of the water. Any time you increase the water temperature you increase very greatly and disturb the ecology. It is bad enough in the ocean but imagine what it would do to lakes and rivers.

I think that the people who built these plants are the people who tell you about the beneficial arrangements that will be gathered by this thermal discharge, and not the people who have to live there and probably make their living there and who are affected by the environment.

Mr. KEITH. The newspaper in which this article appeared has the public interest at heart, and it lent a very favorable note to it, although it was a news story on the editorial page.

Senator MOAKLEY. For instance, the Atomic Energy Commission says that they have safe radiation levels and Dr. Gofman and Dr. Tamplin from the Lawrence Radiation Laboratory at California say under these safe radiation levels it means 40,000 children will be born malformed and 16,000 to 17,000 people will contract cancer and leukemia each and every year. I think it all depends on who you listen to as who you have to believe.

Mr. KEITH. I think the committee will take a balanced viewpoint of it. I appreciate your help, thank you, Mr. Chairman.

Senator MOAKLEY. Thank you very much, Mr. Chairman and members of the committee.

Mr. DINGELL. Senator, we certainly commend you for a very fine and helpful statement, one to which you have obviously given a great deal of thought and consideration. We are privileged to have you join with us today. Why don't you sit at the table while we call our next witness.

Mr. Harrington, would you like to introduce him?

Mr. HARRINGTON. I would like before doing that to do something if I could, Mr. Chairman, which I neglected to do previously. I would like to make a part of the record the permits which have been issued by the Army Corps of Engineers since 1899 under the Refuse Act.

Mr. DINGELL. Without objection it will appear in the files of the subcommittee.

Mr. HARRINGTON. Members of the committee, I believe, have received lists separately of the permits issued by the Corps of Engineers in their States for their own information. I think this compilation might be of value to the committee.

Mr. DINGELL. Without objection, the documents referred to will appear in the record.

Mr. HARRINGTON. I would also like to have you listen this afternoon to Dr. John M. Hunt, who is presently the Chairman of the Department of Chemistry at the Woods Hole Oceanographic Institute, and who is here to testify on behalf of my bill. Dr. Hunt will explain in greater detail the problems associated with dumping in the ocean and the Continental Shelf area.

Prior to coming to Woods Hole in 1964, Dr. Hunt for many years had worked in Oklahoma for an operating affiliate of Standard Oil of New Jersey. He brings, I think, a wealth of background in this field, and I hope that the committee will find him of interest as a witness in behalf of the bill before you on this general subject area.

Mr. DINGELL. Doctor, we are happy to have you with us. Will you give your full name and address to the reporter for the purpose of the record and we will be most happy to hear your statement.

STATEMENT OF DR. JOHN M. HUNT, CHAIRMAN OF THE DEPARTMENT OF CHEMISTRY, WOODS HOLE OCEANOGRAPHIC INSTITUTION

Dr. HUNT. Mr. Chairman, I appreciate this opportunity to present some research data from the Woods Hole Oceanographic Institution in support of Mr. Harrington's bill.

The problem of waste disposal in the ocean is exceedingly complex. There are several points which I would like to emphasize in my statement as having an important bearing on the way in which your final bill is formulated. These are as follows—

(1) Hazardous chemicals in increasing amounts are finding their way into the coastal waters of the United States and the open ocean through polluted river outfalls and from untreated sewage and direct dumping on the Continental Shelf. For example, the quantity of mercury in phytoplankton off the northeast coast of the United States is reaching levels which not only can disturb the ecology but also represent a potentially serious health hazard as mercury begins to spread through the marine food chain. All dumping of the most hazardous chemicals should be banned now rather than wait for future action after a period of investigation and study.

(2) There are many chemicals and other waste materials of relatively low hazard which may be dumped at sea without constituting a hazard to the marine food chain. It should be recognized, however, that anything dumped at sea will affect the ecology to some extent and, therefore, thorough studies and continuous surveillance of potential dumping sites are needed to minimize stress on the environment. Also, the choice of dumping sites should carefully consider the effect of sea bottom currents in transporting the more soluble components of wastes long distances from the point of dumping.

(3) We seriously need more research on the ultimate disposition of hazardous chemicals entering the marine environment. Very little is known today as to the extent to which poisonous substances dumped off our coast find their way into the marine food chain and are eventually ingested by humans, or by livestock that are fed fish products.

Last January, I testified before the Commission on Marine Boundaries and Resources of the Massachusetts Legislature which was chaired by Senator John J. Moakley. The problem being considered by the commission was the dumping of a whole series of substances ranging from highly toxic heavy metals, such as mercury and beryllium to harmless materials such as aluminum in Massachusetts Bay. I emphasized then, and I repeat just as emphatically now, that we should immediately halt dumping of highly toxic material in the marine environment. In the time I have available, I would like to cite mercury as an example of the seriousness of this problem.

It has been estimated that between 4,000 and 5,000 tons of mercury enters the oceans every year by rivers, offshore dumping and through the atmosphere (1).* Much of this enters through industrial waste although, some finds its pathway through the use of mercury in fungicides. The entrance of mercury, like many other chemicals, into the marine environment was not taken seriously until a rather mysterious disease which proved to be mercury poisoning broke out in a small city of southern Japan. A factory on Minamata Bay had been discharging acid waste sludges into the bay for many years. By 1965, over 100 people who lived largely on fish and shellfish from the bay had become seriously ill with 41 deaths occurring (2). Eventually it was proven that the mercury had formed organic compounds which were accumulated by the fish and shellfish.

A second outbreak of this disease occurred in another part of Japan also due to the formation of organic mercury compounds in the fish. The mercury content of the fish in the bay at that time varied between 10 and 55 parts per million (p.p.m.). Patients who died of the poisoning had from 22 to 70 parts per million mercury in their liver and 144 to 226 parts per million in their kidneys. The repeated eating of fish resulted in concentrating the mercury in parts of the human body.

We have had no cases of mercury poisoning from eating fish along the Atlantic coast, and, as far as we know, mercury levels in edible marine food are well below those reported at Minamata. It is alarming to note, however, that at the lower end of the marine food chain the mercury contents are apparently high. We recently completed some analyses of particulate matter that occurs in the water at various depths in the Atlantic Ocean west of Long Island, and also in the Gulf of Maine (3). This particulate matter is mainly phytoplankton, which is the primary food at the very beginning of the marine food chain on which all marine life depends for survival and growth.

* See references.

Preliminary data show mercury values for the particulate matter in the Gulf of Maine to vary between 3 and 14 parts per million as you can see in the following table:

MERCURY IN PARTICULATE MATTER OF THE GULF OF MAINE

Sample location	Depth (meters)	Mercury content (p.p.m.)
42°38' N, 69°35' W.	10	9.6
	23	5.0
	28	3.2
	36	14.9
42°53' N, 68°55' W.	10	7.5
	25	2.7
	30	4.5
	60	8.7

Off Long Island our preliminary values are considerably higher, varying between 12 and 34 p.p.m. as noted in figure 1. In this figure you will notice there are 18 p.p.m. mercury at 24 meters just off Long Island Bight. This is in the particulate matter, which consists mostly of plankton, 12 p.p.m. mercury at 5 meters off the end of Long Island and 34 p.p.m. of mercury at 20 meters further out to sea. These latter values are within the range reported for the fish that caused the Minamata disease in Japan. However, we must emphasize that this preliminary data needs to be verified by further analyses. In addition, we do not know that this level is unusual for marine suspended matter nor do we know whether or not the mercury is further concentrated in the food chain. Currently, work is proceeding on the analysis of larger collections of plankton and fishes in order to answer some of these questions. It should be further emphasized here that we have no analyses for mercury in fish or shellfish along the New Jersey-New York coast. I am simply pointing out that these preliminary analyses of the particulate matter at the beginning of the food chain are putting up a danger signal which we cannot ignore if we are to preserve our fishing industry.

I have cited mercury as a typical highly toxic heavy metal but there are many others such as lead, arsenic, cadmium, chromium, nickel, beryllium, and vanadium that are also toxic but we know very little about their uptake by plankton and their migration through the marine food chain.

In addition to heavy metals there are many toxic chemicals—some of these Senator Moakley mentioned in his previous statement—which are sometimes dumped at sea in barrels such as phenols, ketones, aromatic hydrocarbons, chlorinated hydrocarbons, and so on. Many of these materials should be burned, neutralized, recycled or disposed of in some manner by a disposal company, or refinery, rather than being dumped at sea, because it is impossible to guarantee that any container will retain its contents indefinitely. I also put radioactive wastes in this category of dangerous substances that should not be dumped at sea. It has been estimated that at any given time during the year 2000 there will be one billion curies of radioactive waste from fission plants being transported on the highways of the United States toward burial grounds (4). I can only say that if the sea becomes the burial grounds it will tragically alter life in the sea as we know it.

There are, of course, many substances which are harmless, or relatively harmless, to the marine environment. Most construction materials such as bricks, rock fragments, cement, and wood are in this category and the main caution is that they not be dumped in areas heavily populated with bottom dwelling (benthic) organisms. Dredged materials are generally harmless although, there is some danger when dredging is done in highly polluted sediments. Transport of polluted material to a clean area may simply result in spreading the pollution. For example, it was reported earlier this year in the harbor at Cleveland, Ohio, some 17,600 tons of oil and grease were found in 660,000 tons of solids removed during 1966-67 dredging operations (5).

In summarizing my comments on the nature of the material dumped I repeat that any material will cause some change in the environment. This change can vary widely from a trivial effect to a very serious effect. We need immediate action to prevent dumping of the most hazardous chemicals but it would be possible to postpone action on the less harmful substances until studies have been completed for suitable standards and localities for dumping.

In picking disposal sites I would like to emphasize that it is just as important to understand the bottom currents as the surface currents since the former control the movement of soluble and neutrally buoyant materials leaking from the dump. The item I am holding is called a seabed drifter. It enables us to determine the residual drift along the sea bottom in much the same manner as drift bottles are employed at the surface of the sea.

The way this works is that you take a series of these, and you clamp them together with a salt spool and drop them from either an airplane or a boat. The salt spool carries the whole group to the bottom. The salt dissolves and each one of these separates. The residual current on the bottom will then carry this thing along the sea bottom very much like this. There is a small weight on here that gives it neutral buoyancy.

In figure 1, which I have at the end of my statement, the same one that showed the mercury, you will see a whole series of arrows. These arrows show the general direction of residual drift on the sea floor bottom in the area from Delaware Bay to Nantucket. You will note that most of the arrows on the north side of the dashed line show movement back toward the land. This means that many of the soluble or suspendable items that are dumped west of this line will eventually find their way to the nearshore area which has the greatest concentration of marine life and recreational facilities. On the next page is a figure called percent of SBD. That means seabed drifter, these little gadgets, launched and recovered on coasts or estuaries. The colors don't show too well on this copy, but you will notice the darkest areas in toward shore are the areas where the largest percent of samples dropped found their way back to shore. The New Jersey-New York area has one of the highest recoveries of drifters dropped at sea, and therefore represents one of the worst areas along the coast for dumping.

Beyond the 100 fathom line which is out at the edge of that colored area, almost none of the drifters were recovered so this area is relatively safe from the standpoint of having dumped materials coming back to shore. These deeper areas, however, do contain bottom dwelling

organisms, which are prime sources of food for some species of deep sea fish.

I would like to say a few words about the state of our knowledge of the movement of pollutants through the marine environment. We actually know very little about where all these dumped chemicals go and the amount of research being done on this is very small compared to the problem. I note that your subcommittee is considered the allocation of several million dollars to identify marine areas which will permit waste disposal. I think it is equally important to spend money to determine what happens to those substances which are dumped, particularly those known to affect the environment adversely. The painful situation today is that we have been dumping indiscriminately for decades and nobody bothered to see what was happening until some of the effects began to show up in the marine environment and in the food we eat.

In conclusion, I would like to recommend the following:

(1) Congress must act now to ban the dumping of the most hazardous chemicals anywhere in the marine environment.

(2) A thorough study should be made of suitable sites for the dumping of low hazard materials. The study should include information on bottom currents and bottom dwelling organisms. It should use direct visual observation by a research submarine. Also, there should be a periodic evaluation of the effects of the dumping by competent scientists.

(3) In classifying wastes with respect to their effect on the environment, and in evaluating the effects of dumping, I favor the suggestion of Dr. Grant Gross, of Stony Brook, (7) that an outside agency such as the National Academy of Sciences establish a panel of experts to review existing data and advise the pertinent regulatory agencies about continued use of dumping sites.

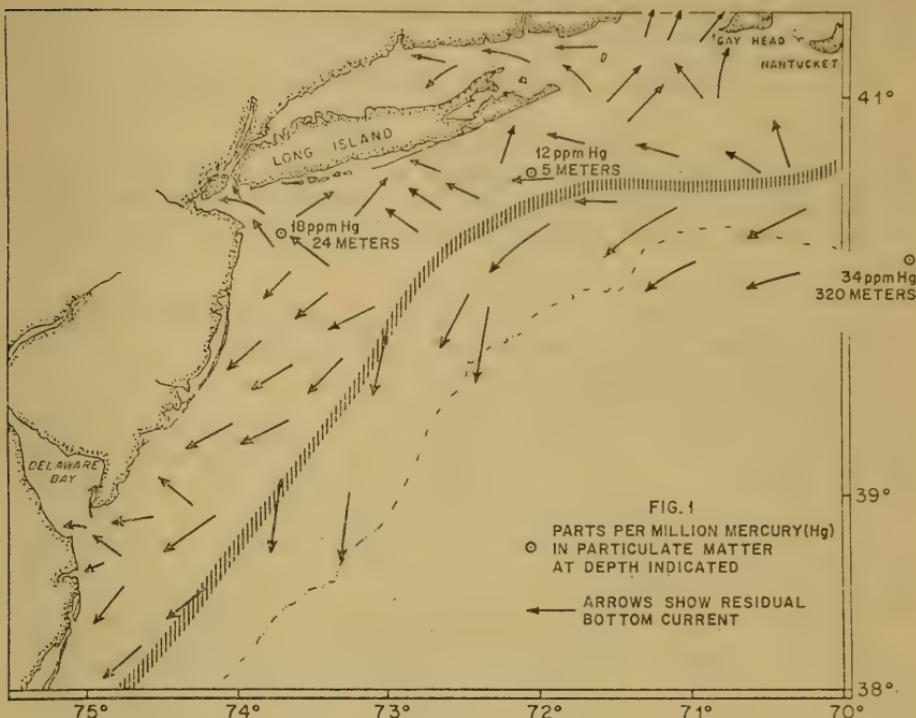
(4) Congress should seek ways to support long-term basic research on the dissemination of pollutants into the marine food chain of the open ocean. Some Government agencies who have the mission to support research on the environment have not concerned themselves with problems beyond the territorial waters of the United States. Unfortunately, the fish do not observe these boundaries.

(The data referred to follows:)

REFERENCES

1. Goldberg, E. D. (1970) "Chemical Invasion of the Ocean by Man" Yearbook of Science and Technology, McGraw-Hill, pp. 65-73.
2. Tokuomi, H. (1969) "Medical Aspects of Minamata Disease", Rev. Intern. Oceanogr. Med. Tome XIII-XIV, pp. 5-44.
3. Spencer, D. W. (1970) "The Distribution of Some Chemical Elements between Dissolved and Particulate Phases in the Ocean", Atomic Energy Commission Research Progress Report Contract AT(30-1)-4150.
4. Ritchie-Calder, L. (1970) "Mortgaging the Old Homestead", Foreign Affairs Spring Quarterly, pp. 45-50.
5. News Article (1970) "U.S.-Canada Agree on Lake Erie Ban", Oil and Gas Journal, July 6, 1970, p. 67.
6. Bumpus, D. F. (1965) "Residual Drift Along the Bottom of the Continental Shelf in the Middle Atlantic Bight Area", Limnology and Oceanography, Vol. 10 Supplement, Nov. 1965, pp. R50-R53.

7. Gross, M. G. (1970) "Statement to the Subcommittee on Air and Water Pollution of the Senate Committee on Public Works", Washington, D.C., March 5, 1970.



JOHN M. HUNT, CHAIRMAN, DEPARTMENT OF CHEMISTRY, WOODS HOLE OCEANOGRAPHIC INSTITUTION, WOODS HOLE, MASSACHUSETTS

Dr. Hunt was born in Cleveland, Ohio and received his education from Case-Western Reserve University and Pennsylvania State University (Ph.D., 1946). He spent fifteen years in the exploration research laboratory of Standard Oil of New Jersey in Tulsa, Oklahoma, where he eventually became Head of the Geochemistry Research Section. In 1964 he joined the Woods Hole Oceanographic Institution as Chairman of the Department of Chemistry.

Dr. Hunt has served on research committees of the American Petroleum Institute and is a past Chairman of the Organic Geochemistry Group of the Geochemical Society. He has been active in the American Chemical Society, Geological Society of America, American Geological Institute, American Association for the Advancement of Science, and the American Association of Petroleum Geologists. He is currently an Associate Editor of the Bulletin of the American Association of Petroleum Geologists and is a Lecturer on their Continuing Education Committee. He has published numerous papers in the field of organic geochemistry, and his current interests extend through all phases of chemical oceanography.

Dr. Hunt acknowledges long-term support of the work in his department by the National Science Foundation, the Atomic Energy Commission and the Office of Naval Research.

Mr. DINGELL. Doctor, the Chair wishes to commend you for a very, very helpful statement. Mr. Keith?

Mr. KEITH. I join with you in expressing our thanks to Dr. Hunt, and I would point out that from time to time we have had other members of the Woods Hole Oceanographic Institution down here, and they have been invariably helpful to us in determining what the proper course of action by this committee and the Congress is. I have used

very profitably, in the public interest, many of the members of the staff down there. You may recall Dr. Allen Vine testifying before us here on oceanographic problems.

We have a somewhat similar microcosm of this national problem right in Falmouth, do we not, in Woods Hole Harbor?

Dr. HUNT. Yes.

Mr. KEITH. Have they concluded what they should do with the sewage outfall there?

Dr. HUNT. That problem has not been settled.

Mr. KEITH. Here we have a community with all of the talent of Woods Hole right in its back yard, so to speak, and they have had a sewage outfall in the middle of Falmouth Harbor for probably 50 years.

Dr. HUNT. It has been a very long time.

Mr. KEITH. Is the staff of Woods Hole Oceanographic united in their feeling as to what should be done with that outfall?

Dr. HUNT. Not completely united, no.

Mr. KEITH. Has judgment been made?

Dr. HUNT. As far as I know, they haven't settled the matter yet. The problem is that on any sewage outfall, it becomes irrevocably wound up with economics, and when people start having to pay out of their pockets, then they consider different methods.

Mr. KEITH. As we explained to one of the witnesses this morning, there are costs with either approach. In New York Harbor, the cost of doing what Mr. Ottinger wanted would be most extensive.

Dr. HUNT. I would like to mention one thing in connection with your statements. About 2 weeks ago the steamship authority spilled a large amount of oil in the harbor, to add to the other things that cause a mess. We have a pipeline going out into the harbor which brings sea water in, which is used for marine animals used in experiments at the Woods Hole Oceanographic Institution. Unfortunately, the water coming in is periodically so bad now that we have many fish kills right in our own laboratories of experimental fish. We are facing a serious problem of having to move our source of sea water somewhere else.

Mr. KEITH. This is sort of like the shoemaker's children, who go barefoot sometimes. I don't know whether you are aware of the message that the President gave to us on April 15 of this year on the subject of disposal of wastes in the Great Lakes and the oceans. I don't believe that the study is going to be completed by the date, which is September 1970. They are going to study the effects of ocean pollution on the environment including rates of spreading decomposition and so forth and the adequacy of all existing legislative authorities to control ocean dumping. What you gentlemen are doing is building up the public interest so that when the support comes along, it will be very helpful to us in our efforts to expedite the action. I just wanted to show you that the executive branch is similarly very much concerned with this problem, and we are going to have an additional input to that which has been so generously offered by several of my colleagues and their staffs and the scientific fraternity.

I would be happy to meet with you following this meeting to discuss this matter in more depth. It is a subject about which you know a great deal and about which, even though I have been on this committee now for several years, I still have a lot to learn.

About this zero percent of thermal pollution—would you buy that?

Dr. HUNT. I am more a person who is concerned with the most serious problems first, and the less serious problems second. To this extent, I agree with the comments this morning of Congressman Miller, that we have some very serious problems facing us in connection with toxic metals and radioactive wastes and things like this, that we cannot wait for.

Mr. KEITH. I am talking about thermal pollution.

Dr. HUNT. I realize that. Thermal pollution is an area that can be damaging if the temperature is excessive above the environment, but I do not think I would go along with the idea of a zero temperature change as a reasonable law at the present time. For one thing, the temperature change will cause more damage in certain types of climates than in others.

Mr. KEITH. We run into a very serious problem when we make a fixed determination and do not vary it. For example, there is an amendment to the Food and Drug Act which says any food containing filth must be considered as unfit for human consumption, and this has inhibited our progress in the manufacture and sale of fish protein concentrate, which was to be made from whole fish. We have people coming in from the Food and Drug saying that there is too much fluoride in the bones that are left after you have otherwise prepared the fish for the fish protein concentrate. You get a concentration of fluoride. They say even if one person in a thousand got mottled teeth from that fluoride, they would have to rule against the sale of that material. They want to protect the housewife.

I would hope as the President's Council on the Environment develops policies, procedures and techniques, they can have some kind of board that can exercise a balanced judgment, and not get into a fixed position in which you cannot vary from a particular standard.

You have noted that thermal changes in water sometimes have a benefit. So, too, can some forms of sewage which, it is my understanding, are used extensively in some countries abroad to improve the ecological pattern of our environment.

I do not for a minute want to lead you or the press or the public to feel that some thermal pollution is good and some sewage is good and, therefore, none of it is bad, but there is a positive use that can be made in the disposition of some of this waste material.

Dr. HUNT. Your statements are right. In fact, there has been discussion among biologists of increasing the 10 percent productivity of the ocean by proper use of sewage and other types of effluent. The problem is that we do not have the research knowledge today to put this into effect.

Mr. KEITH. You mentioned the most dangerous chemical which you would immediately bar, did you not?

Dr. HUNT. Yes; mercury.

Mr. KEITH. Would you delineate which ones you would arbitrarily be more strict with?

Dr. HUNT. I mentioned a few, but specifically mercury, arsenic, beryllium, cadmium, chromium. These are some of the more serious ones. The problem is, though, the most serious ones are those that form complex organic materials and, therefore, are taken up in the

food chain. Some metals that are quite toxic will not be taken up in the food chain and, therefore, do not represent a hazard.

This is why I suggested there should be a panel of experts to look at the whole problem, because it is much more serious if toxic things are multiplied in the food chain, as in the example I cited of mercury being multiplied in the human being in the kidneys and the liver. DDT, we know, is multiplied by the food chain. This is much more serious than something that goes out and maybe is diffused. There are these differences in the chemicals and thermal pollution.

Mr. KEITH. Thank you, Mr. Chairman.

Mr. DINGELL. Thank you very much, Mr. Keith.

Doctor, the committee is most grateful to you for your statement.

Could you give us, at your convenience, a complete list of the chemicals that ought not to be tolerated in the marine environment by reason of being absorbed into the food chain because they become complex organic substances?

Dr. HUNT. I will try to provide you with a list based on our present knowledge.

Mr. DINGELL. Your knowledge is far superior to that of the Chair.

Mr. Harrington and Mr. Moakley and Dr. Hunt, we are grateful to you for your very helpful testimony and for your participation in our hearings. I assure you that the committee will try to move forward vigorously, taking careful consideration of your very helpful recommendations to us.

Gentlemen, I wish to commend all three of you and express my thanks to you.

If there is no further business to come before the Chair at this time, the committee will stand adjourned until the call of the Chair.

(Whereupon, at 3:30 p.m., the subcommittee adjourned, subject to the call of the Chair.)

DUMPING OF WASTE MATERIAL

WEDNESDAY, SEPTEMBER 30, 1970

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION
OF THE COMMITTEE ON MERCHANT MARINE AND FISHERIES,

Washington, D.C.

The subcommittee met, pursuant to call, at 10:10 a.m., in room 1334, Longworth House Office Building, Hon. John D. Dingell (chairman of the subcommittee) presiding.

Mr. DINGELL. The subcommittee will come to order.

This morning the Subcommittee on Fisheries and Wildlife Conservation will resume its hearings on a series of bills designed to afford additional protection to our fish and wildlife resources.

One group of bills—on which the hearings are continued—is a group introduced by Congressman Ottinger and cosponsored by 33 other Members of the House. Another group of bills was introduced by Congressman Murphy and cosponsored by 28 other Members of the House. Similar to the latter group of bills is a group introduced by Congressman Harrington and cosponsored by 31 other Members of the House.

In addition, the subcommittee will begin hearings today on a number of bills that have been introduced since the subcommittee adjourned its hearings on July 28. They are as follows:

H.R. 18913 by Congressman Fascell and a number of identical bills cosponsored by 74 Members of the House.

H.R. 18914 by Congressman Fascell and a number of identical bills cosponsored by 80 Members of the House.

H.R. 19077 and an identical bill, H.R. 19160, introduced by the Chair and cosponsored by seven Members of the House.

H.R. 19088 and an identical bill, H.R. 19168, introduced by Congressman Rogers and cosponsored by six other Members of the House.

And finally, H.R. 19359 introduced by Congressman Rogers and the present occupant of the chair.

Since all of the bills to be heard this morning are similar in nature, the subcommittee will consider them as a group, and when the witness comes to the witness table, he may comment on all of the bills or anyone of the bills, as he so chooses.

Our first witness to be heard this morning is our distinguished colleague, Paul Rogers of Florida.

Mr. Rogers, we are certainly privileged to recognize you for such statement as you choose to give this morning.

STATEMENT OF HON. PAUL G. ROGERS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. ROGERS. Thank you, Mr. Chairman and members of the committee.

I am pleased to be here. I feel very strongly that the various bills which the subcommittee considers will, if enacted, go a long way toward restoring our total environment to a much more desirable and healthful level.

I think that the main thrust of each of these bills is to in some way restore our environment to a level which was once enjoyed but which has now been relegated to memory in the minds of many Americans.

I deeply regret and personally resent the fact that more and more bodies of water which our generation enjoyed, are being denied our children. We can no longer fish in many of our inland waters which used to be a source of revenue and recreation. We are also losing portions of our great oceans to pollution.

I think we have heard the old argument and have seen the fallacy of the statement that "this or that body of water is too fast-moving or too large to pollute."

We have seen the Mississippi River fall to that theory. We saw Lake Erie age 12,000 years in four decades and now we see the Atlantic Ocean fast becoming the world's largest cesspool.

We need not look far for evidence of our indifference and greed. The Potomac River, a national river if ever there was one, is polluted. And even the basin which reflects the Jefferson Memorial is posted as polluted. Rock Creek is unfit for wading or swimming.

And in each case cited, there are two considerations. First, the health and pleasure of the citizen, and second, the fish, wildlife, and ecology of the body of water and the effect it has on the nearby environment.

I would hasten to add that this is not a regional problem. Florida cities have adopted out-fall sewer programs with such vigor that the Atlantic Ocean, the Gulf of Mexico, Lake Okeechobee and many of her rivers and waterways are producing fish kills and no swimming signs instead of the bounty which millions of natives and tourists have enjoyed for hundreds of years.

Mr. Chairman, I would like first to touch briefly on two of the three bills which are being considered here today, H.R. 19077 and H.R. 19088.

Basically, H.R. 19088 establishes the machinery and protocol which will insure that we never have another nerve gas dumping in the waterways of this Nation or offshore in the oceans. In addition, H.R. 19088 has provisions requiring that the Department of Defense catalog all its weaponry of a chemical radiological and biological nature. Thus we will know when these dangerous instruments are, or should, reach their shelf life, giving us a good indication when they should be disposed of.

Another provision in H.R. 19088 will require that each biological and chemical weapon be subject to de-militarization. This means that after a CBW is accepted by the military, a plan capable of breaking down that CBW must be available. I feel that this will enlarge the odds in favor of the public—the odds which the Department of De-

fense has been shrinking by shipping highly dangerous CBW's across our nation and dumping in our oceans. We have been spared total tragedy, but I fear that without the provisions of de-militarization and catalog, our good fortune will be short-lived.

As a form of check and balance on the military, these bills also call for at least 120 days notice before such CBW's are to be moved or destroyed. During this time, comments and recommendations will be requested from the Department of Interior, HEW, State, and the Council on Environmental Quality, along with any other concerned agency or department.

An "impact statement" is required as to the effects of the dumping on the ecology and wildlife. So that this is not to be confused with the initial or draft statement, the "impact statement" deals with the proposed dumping or disposal. Chemical or biological weapons are flatly prohibited from being disposed of in navigable waterways, the oceans within our territorial seas and beyond into international waterways. The "impact statement" will reflect on any substance which the military wishes to dump.

If the "impact statement" shows any adverse effects on the wildlife or environment, then the Secretary is instructed by this bill to hold the proposed dumping or disposal plan in abeyance until the adverse effect is corrected.

The third bill which I have introduced with Mr. Dingell, H.R. 19359, has even greater implications, for it not only goes to the problem of military discardables which might do harm to the environment and the life web, but also goes to every form of water polluter in the Nation today—from the military to the municipality and industry.

Very basically and briefly, the Secretary of Interior designates certain areas of the navigable waters where, based on past and present conditions and activity, certain things cannot be discharged. For instance, he might designate the Dead Sea off the coast of New York and New Jersey as such a place and thus forbid the discharge of such items as sewage, sludge, spoil, landfill, heated effluents, or any other waste which he deems would be harmful to the environment and life web.

He can protect an entire area from all discharges, or can ban specific discharges as he sees fit based on scientific evidence.

In addition, he is instructed to make a full and complete study of substances and waterways. After a year he is to designate areas where no dumping or limited disposal will be permitted. He is also instructed to establish standards for those substances within 180 days after the passage of the bill.

What this means is that after a year, the Secretary will have established areas which are now dying or being killed as off limits to harmful dumping. He will have formulated standards for our most deadly and noxious substances and posted them even before this.

There remains only one point—and this is the key to the program. If we are to have clean water, if we are to restore our environment and the marine and onshore life which is dependent on our water systems, then we must draw up a calendar, mark a date upon that calendar and say, "We will have no more filth and garbage and pollutants after that date."

My bill sets that date as January 1, 1976.

We arrive at that date via a three-stage timetable which will require, first of all, primary treatment for all discharges by January 1, 1972. The second step requires primary and secondary treatment by January 1, 1974. And then, by January 1, 1976, all sewage and industrial waste is required to be treated by primary, secondary, and tertiary processes.

I think this can be the most important step this committee and this Congress can take in beginning to get at the other pollution problems of this Nation. What we presently have is setting quality standards all over the Nation in a haphazard manner, and we are authorizing and licensing pollution. We say you can pollute up to a certain level. Like right now in the mercury situation.

I saw they agreed to let a company pollute up to 1 pound of mercury a week. This gets to be absurd when we know there should be no mercury thrown into the waterways. We know the effect. We know it is bad. This bill now begins to get at this problem. I think until we take this step we are not even going to begin to clean up the pollution in this Nation. So I would say, Mr. Chairman, that the present law only gives sanction and legal permit to pollution at an existing level. This is not good enough, and I am very hopeful that this committee will now take the necessary action to really begin to clean up the waterways of this Nation.

I thank the committee for its attention.

Mr. DINGELL. Mr. Rogers, I want to commend you for a fine and very carefully thought out and helpful statement. The Chair is well aware of your work in environmental protection and I wish to commend you for your leadership here today and at other times.

Mr. Pelly.

Mr. PELLY. Mr. Chairman, I just want to join in complimenting our colleague, Mr. Rogers. As always he is out in the forefront in the fight against the pollution of the environment. We know when he appears before our committee he is carrying on the crusade in which he engages continually, and as a member of this committee I certainly welcome him here today.

Mr. ROGERS. I thank the gentleman for his remarks.

Mr. DINGELL. Mr. Downing.

Mr. DOWNING. Thank you, Mr. Chairman.

As a long time friend and colleague, I know Mr. Rogers is one of the national leaders in this field. He has been doing a splendid job and I think he has made great accomplishments toward solving this problem.

As I take it, your bill would not be restricted to the governmental agencies but would include the private agencies as well.

Mr. ROGERS. This is correct. This would be all-encompassing as to setting deadlines as to dumping in the waterways. I think this is the only way to approach it.

Mr. DOWNING. Just the other day we were notified through the press that one of our agencies in Tidewater, Va., planned to dump 200,000 gallons of oily refuse, which they have been doing on an annual basis for some years.

Under present law, what will they have to do now to get permission to do that? Would you be in a position to comment on that?

They have to give notice, is that correct?

Mr. ROGERS. I would think so. It is a military installation. If it has an adverse effect, I would think they should, although I am not sure how many are doing it. I doubt if this is really being done by any of your military installations.

Mr. DOWNING. The problem is what are you going to do with this refuse. You have to get rid of it in some way.

Mr. ROGERS. What we are saying is that we are going to put deadlines. It will take some time, for instance, for all primary treatment. In other words, that will bring it to a certain degree of treatment, but not as much as we would like, but at least it would set a goal of requiring any dumpings in the water to have primary treatment by 1972. By 1974, secondary treatment would be required, which is about a 90-percent treatment. In fact, some of it even goes a little more than 90 percent. Tertiary treatment, we hope, will go to 95 or 98 percent treatment.

Mr. DOWNING. Is technology available for treatment of all refuse?

Mr. ROGERS. Technology is available. Then we also give authority as you know in these bills for the Secretary to prohibit the dumping of particularly hazardous materials or those materials that cannot be handled with primary treatment. So you would have the authority really to begin to clean up. For waste that can be treated we provide that it must be treated. For waste that cannot be, the Secretary says you cannot dump it at all.

Mr. DOWNING. The practical problem arises, what are you going to do with it?

Mr. ROGERS. There are going to be a number of things they are going to do, just as they are doing now with mercury. They are making changes. Simply by requiring this treatment, it is going to bring some technology and advances that we have not had before. A lot of this can be reused. You are going to find, just like in our solid waste problem, an emphasis on recycling of materials so that these wastes can be distilled, recovered, and reused.

I read just recently how easy it is to recover—in fact, I think it was mercury—which can be easily recovered and there is no reason why it should not be reused. It is also an economic advantage to the company if they will do it. Unless we begin to say this has to be done, no one is going to do it. This is what we have to come to and face up to. The time is passing.

Mr. DOWNING. You will recall when we were holding the special hearings on the CWS nerve gas agent there was evidence that this could be practically done at the Atomic Energy site.

Mr. ROGERS. Of course, it could. They are demilitarizing, as you know, all of the little gas bomblets with nerve gas. They are doing this. Unfortunately, they put this in cement which complicated this problem.

Mr. DOWNING. I thank the gentleman and again compliment him on a fine job.

Mr. ROGERS. Thank you.

Thank you very much, Mr. Chairman.

Mr. DINGELL. Mr. Rogers, we wish to commend you.

The Chair would now like to call a very able member of this sub-committee, the Honorable Frank Annunzio.

STATEMENT OF HON. FRANK ANNUNZIO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. ANNUNZIO. As a member of this committee and subcommittee, it is a great pleasure and privilege to testify today on a series of bills which, when enacted into law, will serve to protect the coastal zone of the United States as well as other marine waters of the world from continued profligate, thoughtless, and needless wanton destruction. It is with pride that I am associated with many of my colleagues from both sides of the House in the introduction and support of these very essential measures. Special recognition must be made of the far-seeing contribution made by Mr. Fascell, the distinguished Congressman from Florida and my good friend, as author of H.R. 18913, a bill to prohibit the discharge into any of the navigable waters of the United States or into international waters of any military material without a certification by the Council on Environmental Quality approving such discharge. Mr. Fascell has also introduced H.R. 18914, a bill to require the Council on Environmental Quality to make a full and complete investigation and study of national policy with respect to the discharging of material into the oceans. Finally, he is senior author of House Concurrent Resolution 706, which expresses the sense of the Congress that the pollution of waters all over the world is a matter of vital concern to all nations and should be dealt with as a matter of the highest priority.

I also recognize and compliment my colleagues, Mr. Rogers of Florida and Mr. Dingell, distinguished chairman of this subcommittee, for the leadership role they are playing by the introduction of H.R. 19088, a bill to amend the National Environmental Policy Act of 1969 to require a longer period of notice before a Federal agency commences any action significantly affecting the environment, and H.R. 19359, a bill to amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by requiring the designation of certain water and submerged land areas where the depositing of certain waste materials is prohibited, and to require the establishment of standards with respect to such deposits in all other areas.

My purpose in coming here today is to express my strongest support for these various measures under consideration. The recent insulting episode wherein the military establishment forced the Congress and the Nation into the position of having only a few days to consider the wisdom and advisability of dumping vast amounts of lethal nerve gas and explosives into the ocean pointed up vividly how essential it is to have a national policy for the protection of the marine environment. Further, we now recognize the necessity to spell out procedures and regulations guarding against repetition of such an eventuality. Even today we do not know whether ocean disposal was the best way of ridding ourselves of these dangerous materials, nor with certainty what effects might ensue in the future. We do know, however, that when the Army announced the decision to transport and dispose of the gas-explosive projectiles, many of our citizens became alarmed, and properly so. Conservationists, scientists, and responsible persons from all disciplines were dismayed that such a massive affront to our frail environment could be made in these days of ecological awareness with so little knowledge and concern of the consequences.

Traditionally, we as a nation have divested ourselves of our wastes and unwanted materials by dumping them into some nearby water course, eventually to reach the sea, or into the ocean directly. The Military Establishment has been dumping out-dated munitions into convenient ocean areas for many years. In fact, examination of many navigation charts shows these as restricted areas. This method of operation is not unique to our military forces, nor should the military be held totally and exclusively guilty. The oceans have been utilized as dumping grounds for garbage, sewage, oil, chemical effluents, heavy metals, radioactive wastes, and all sorts of other potentially destructive materials. The civilian abuses of the ocean are continued with no more knowledge of the consequences than are those of the military.

The time has come to replace tradition with knowledge. The time has come for reappraisal of our tacitly assumed national policy of promiscuous dumping into territorial and international waters. So far we are lucky that we seem to have suffered no great and direct tragedy as a consequence. Recent studies, however, indicate that this lack of tragedy is only apparent. The ongoing dumping of garbage into waters off New York has produced a vast area devoid of life, large numbers of fish with fins rotting off and other dreadful debilities. Just what do we really know about the situation? Very little, I am afraid.

We must take action to prevent further degradation of the environment without full and complete knowledge of what we are doing. These measures under consideration today do not solve all of the problems associated with ocean disposal; they merely call for the bare minimum permissible to a civilized and responsible people. All that is required is time to consider the consequences and alternatives of specific programs and episodes of dumping potentially harmful substances into the ocean, sanctuaries for the preservation of valuable marine ecosystems, and enunciation of a policy to stop destruction of the world ocean by pollution. Beyond this the Council of Environmental Quality is enjoined to regulate discharges of military material into the seas and to study all aspects of existing national policy concerning dumping into the sea. Failure to assume this bare minimum of responsibility to protect our world against continuing assault of thoughtless pollution could be considered the height of folly, for nature has demonstrated time and again that no creature can continue to thrive or even persist engulfed in its own waste products.

Mr. Chairman, I thank you for this opportunity to join with you in supporting these long overdue measures designed to preserve the one and only world we and our children live in.

Mr. DINGELL. Thank you Congressman, that was an excellent statement.

Our colleague from the State of Florida, Hon. Don Fuqua would now like to present his statement. You may proceed, Congressman.

STATEMENT OF HON. DON FUQUA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. FUQUA. Thank you, Mr. Chairman. Recent developments have magnified the need for this country to take a long and hard look at its waste disposal techniques and more especially the disposal of devastating military weaponry. We cannot get rid of waste by moving it

from here to there. It has only just come to wide public notice that we are running out of places to safely dispose of our military hardware.

In response to the great need for study and subsequent guidelines for weaponry disposal, I have joined with several of my colleagues in introducing legislation that will serve to require the Council on Environmental Quality to make a full and complete investigation and study of national policy with respect to the discharging of material into the oceans. Additional legislation will require a certification by the Council on Environmental Quality before any military materials are discharged into any of the navigable waters.

These measures should not be viewed as stopgap but as a national commitment to end the dilatory procedures that prevented the military from effectively detoxifying lethal nerve gas before it was necessary to dispose of it under the ocean at the possible expense of the safety of sea life and man. The Council on Environmental Quality has the needed expertise and manpower to authoritatively recommend national policy on the disposal of wastes into the environment. The need for rendering these materials harmless to man and inoffensive to the ecological balance of nature is great indeed.

Thank you for the opportunity to present these comments in support of this most urgent legislation.

Mr. DINGELL. An excellent presentation, Congressman.

The next witness will be the gentleman from New York, the Honorable James M. Hanley.

STATEMENT OF HON. JAMES M. HANLEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. HANLEY. Thor Heyerdahl, during his recent transatlantic voyage on the papyrus reed boat *Ra*, sent back disturbing news that at almost no time during his historic journey was the ocean free from floating debris and serious pollution. The situation at times was so bad that Heyerdahl and his crew were reluctant to wash in the filthy water. He contrasted this situation with his famous voyage on the *Kon Tiki* several years ago when he found that, on the whole, the oceans were clean and wholesome.

Bolstering this visual image with scientific investigations, the world-renowned expert on ocean life, Jacques Cousteau, recently sounded the warning that life in the oceans is slowly dying because of increased pollution.

Closer to home, in my own State, an area of several square miles of ocean where New York City has been dumping refuse has been declared dead. Not dying—dead. Nothing alive was found.

The impact on ocean life of pollution from the nations of the world is just beginning to be fully appreciated. The initial findings are alarming indeed. Few of us fully realize that a very large proportion of the oxygen in our atmosphere is generated by organisms in the sea. Kill them and you kill animal life on the land—including human beings.

The recent dumping of large supplies of poison gas into the ocean dramatized one aspect of ocean pollution: the large-scale dumping

carried on by armed forces. However, the problem is even broader than this. Some 48 million tons of everything from mustard gas to TNT, from sulfuric acid to municipal sewage, is dumped into the ocean from various sources in the United States.

My colleague, Dante Fascell, is the principal sponsor of two bills which I had the honor of cosponsoring. H.R. 18913 would prohibit dumping of military material into any navigable waters without approval by the Council on Environmental Quality. This bill should be passed as quickly as possible. With the tremendous increase in the noxious military materials which can be dumped, we can no longer assume that indiscriminate disposal of this waste will have only a nominal effect on ocean life.

The second bill, H.R. 18914, takes a broader view. By requiring the Council on Environmental Quality to make a complete investigation of a national policy for the discharge of waste material into the ocean, the bill points up the disturbing fact that there is now no such national policy.

The other bills which you are considering also have a great deal of merit. Taken as a package, they would make great strides toward developing a consistent and tough approach toward disposal of waste into our waterways and oceans.

It is not too strong to say that we are dealing with matters of life and death. As a nation, we must move quickly to save our waterways and oceans for, in the final analysis, we will be acting to save ourselves.

Mr. DINGELL. We appreciate your statement, Congressman.

Another of our colleagues from New York, the Honorable Howard W. Robison, will present his statement at this time.

STATEMENT OF HON. HOWARD W. ROBISON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. ROBISON. I greatly appreciate the opportunity to present my views on the disposal of weapons to the Subcommittee on Fisheries and Wildlife of the Committee on Merchant Marine and Fisheries. My position, as I shall outline below, is that I favor the basic thrust of H.R. 18913 and similar legislation aimed at preventing the pollution and further degradation of the world's waters. I think that all too often we have assumed that our lakes, rivers, bays, and oceans can absorb all of the refuse that we choose to dump in them without any permanent damage being sustained. Recent experience has shown that premise to be totally erroneous.

In the case of our military weapons—munitions, gases, chemicals, and so forth—the disposal in the oceans has come more often than not from the lack of convenient alternate plans for disposal. In the name of "protecting the population from imminent harm," the military has chosen to dump its old, dangerous, or obsolete weapons in the sea, thereby endangering the habitat of those creatures who are in the vicinity of the dumping site. I would submit that these "emergency" situations are created by a monumental lack of foresight by certain military officials charged with responsibility in this area. Unfortunately, even recent events have yet to impress on the Department of

Defense that by avoiding one "emergency" on land we create another long-range, and equally insidious, emergency in the world's great seas.

Perhaps it might be argued that the two most recent dumpings—involving nerve gas and munitions—should be forgotten, and we should simply look to the future. I would submit, however, that the only way we can look to the future is by recalling with precision the events of recent days to be certain that we reject the premises of the policy behind these recent disposal operations. It would appear to me that the "policy" of the military has been to regard the oceans as a convenient container in which to put unwanted items—and what is worse, they have not reserved the oceans as the container of last resort, but rather have chosen the sea whenever a self-proclaimed "emergency" arises. I would submit that if we substitute the phrase "lack of planning" for "emergency" a truer picture emerges.

In recent months the Navy has loaded a ship with nerve gas, placed location transmitters and gas detectors aboard, and scuttled the ship. Now, it lies somewhere on the bottom of the ocean, but no one knows exactly where, because the transmitters failed. It may be discharging its gas into the ocean—but no one knows because the detectors have similarly malfunctioned. Also, in recent months, the Navy came close to dumping tons of munitions on a previously dumped cache of mustard gas. At the last minute a possible disaster was averted when someone suggested that the great depths might cause these munitions to explode—as they subsequently did—and discharge the mustard gas—as they might have if the site had not been altered. Frighteningly enough, Mr. Chairman, these events took place within days of one another, and, yet, there is no evidence to suggest that we learned anything from either one of these occurrences. Indeed, the military did not even connect the outcry concerning the nerve gas—even though they had been through the Federal courts only days before—with the possible dangers of dumping munitions on mustard gas.

Yet, it is clear that the military is not solely at fault in these instances. The Executive and the Congress must share the blame equally. We have, in our quest for more firepower, more retaliatory force, more weapons of terror, chosen to rush ahead with development—and, yes, with deployment—of these weapons without giving sufficient thought to what is to be done when we discover, at some later date, that the weapons no longer have a useful purpose. We have given neither direction nor instruction about the importance of being able to safely destroy that which we have asked the military to create; and, therefore, they choose the easiest, most convenient, and least expensive method of disposal, we are in a poor position to object. We must turn the corner. Mr. Chairman, and face our responsibility head on, for our streams, rivers, bays, and oceans can ill-afford more delay on our part.

We must, in short, gear our military hardware retention and acquisition programs to the need for eventual disposal of their products, and we must devise specific plans on how to dispose of those weapons which we currently have in our arsenal or are developing experimentally. We must also demand, as a condition precedent to the authorization of any additional weaponry, that specific and detailed plans are available for the disposition of those new weapons. Part of the responsibility for such legislation lies within the jurisdiction of this subcommittee, and

I would urge you to exercise that jurisdiction and report a measure which will protect us from our own weapons of defense.

Mr. DINGELL. Our next witness is Mr. Fascell, who has long been interested in this matter. We are pleased to welcome you to this committee to discuss any or all of the bills now pending of which you are a sponsor of a large number of them.

STATEMENT OF HON. DANTE B. FASCELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. FASCELL. Thank you, Mr. Chairman.

Mr. ROGERS. Mr. Chairman, before our distinguished colleague begins, may I just join the chairman in welcoming my colleague from Florida to the committee. He has been on top of this problem. He has done an excellent job of bringing this to the attention of the Congress and I think his legislation attests to that.

I commend him and welcome him.

Mr. FASCELL. I thank my distinguished friend and colleague for those kind words.

I am delighted to have the opportunity to hear your testimony and appear before this subcommittee which has done so much and taken such an important leadership in this problem. Of course, I am delighted that my colleague from Florida Congressman Rogers has for many years taken the position of national leadership in the fight against pollution.

Mr. Chairman, my colleague's testimony evokes some comment from me before I get to my prepared statement. With all the interest that exists in the Congress now, as evidenced by the number of bills before this subcommittee and other legislation which has been passed by the Congress over the past several years, the exceeding public interest and awareness that exists, it is obvious that now is the time to take a seven-league step.

There is no doubt that man is destroying his environment faster than he can rehabilitate it, and the cost is going to be phenomenal.

The best time to get over the hurdle of the cost is the time when people demand that something be done.

It cannot be done for nothing. I think here is an obvious opportunity that gives us a square shot at the challenge.

My other comment is, in answer to Mr. Downing's very pointed question, "What are you going to do with it?" Technology, as my colleague from Florida has said, is the answer to many pollution problems. I have read that raw garbage can be compressed and treated so that it can be used as a building material which is impervious to rot, water, termites and other destructive elements.

Technology like that is fantastic. It is beyond my comprehension. If it is true, what a great way to use up the garbage. I do not think technology is all-powerful but it gives us great opportunity if we will just prod it, as Mr. Rogers has said.

Mr. Chairman, you have a lot of bills before you. I am going to limit my comments to the two I have introduced which carry a host of cosponsors, somewhere between 70 and 80 on each bill.

Mr. Chairman, it is hardly necessary for us to catalog the tons of waste material dumped into our national and international waterways. Oil, sewage, garbage, chemical effluents, heavy metals, radioactive wastes, trace elements, dry cleaning fluids, chemical warfare agents and irritants, detergents, and pesticides are just a portion of what man disposes of in the waters, seemingly without regard for, or knowledge of, the consequences. Study after study warns that we are systematically destroying our water resources. The need for definitive action is well established.

Last year the Congress followed the lead of this subcommittee and the Merchant Marine and Fisheries Committee in enacting the National Environmental Policy Act. The two proposals I have sponsored which are under consideration today would strengthen the position of the President's Council on Environmental Quality in preventing the further use of our waterways for garbage disposal of all kinds and give the Council a clear mandate for a national reappraisal of public policy in this area. Each proposal is straight forward and I would like to briefly comment on the provisions.

First, H.R. 18913 would prohibit the discharge into any of the navigable waters of the United States or into international waters of any military material without a certification by the Council on Environmental Quality approving such discharge.

Military material includes any chemical, biological or radiological warfare agent, or any other material currently in our arsenal.

Under existing law, as I understand it, the Department of Defense must seek the recommendations of the Council on its disposal plans. This is as it should be. My thinking, however, is that the Council should have final, unequivocal authority to approve or disapprove any disposal plan. The Council's recommendatory authority should be replaced with approval authority.

Mr. Chairman, 74 of our colleagues in the House have agreed with this proposition and cosponsored legislation identical to H.R. 18913. I would like to insert at this point the identical bill numbers and co-sponsors.

(The list follows:)

H.R. 18949

Mr. Annunzio	Mr. Hanley
Mr. Ayres	Mr. Helstoski
Mr. Boland	Mrs. May
Mr. Brasco	Mr. Michel
Mr. Burke of Florida	Mr. Moorhead
Mr. Chappell	Mr. Morse
Mr. Donohue	Mr. Ottinger
Mr. Frelinghuysen	Mr. Pepper
Mr. Friedel	Mr. Podell
Mr. Fulton of Pennsylvania	Mr. Tiernan
Mr. Galifianakis	Mr. Tunney
Mr. Gibbons	Mr. Zablocki

H.R. 18965

Mr. Fuqua	Mr. Waldie
Mr. Hanna	Mr. Findley
Mr. Kluczynski	Mr. Biaggi
Mr. Nix	Mr. Hathaway
Mr. O'Neill of Massachusetts	Mr. Eilberg
Mr. Rodino	Mr. McFall
Mr. Rosenthal	Mr. Brooks
Mr. Roybal	

Mr. Don Clausen	H.R. 19019
Mr. Flood	Mr. Howard Mr. Udall
Mr. Addabbo	H.R. 19258
Mr. Bennett	Mr. Leggett Mr. McKneally
Mr. Clark	Mr. Mikva
Mr. Culver	Mr. O'Hara
Mr. Downing	Mr. Pettis
Mr. Dulski	Mr. Pirnie
Mr. Edwards of California	Mr. Reid of New York
Mr. Fraser	Mr. Roe
Mr. Halpern	Mr. Ryan
Mr. Harrington	Mr. Saylor
Mr. Koch	Mr. Williams
Mr. Daddario	H.R. 19259
Mr. Vanik	Mr. Scheuer Mr. Yatron
Mrs. Chisholm	H.R. 19371
Mr. Horton	Mr. Rees
Mr. Pike	Mr. Olsen

Mr. FASCELL. My second proposal, H.R. 18914, would require the Council on Environmental Quality to make a full and complete investigation and study and develop a national policy with respect to the discharging of material of any kind into waters of the Atlantic and Pacific, the Gulf of Mexico, and any other waters within the territorial sea and the contiguous zone of the United States. The Council would submit its report—including recommendations for a national policy including treaties, agreements, and legislation necessary in connection therewith—to the President and the Congress.

I am aware that under the original legislation authorizing the establishment of the Council on Environmental Quality an annual report to the President and the Congress is required. Because the Council is the major policy organ in all fields of environmental pollution the problems of water quality would be—and indeed were in its first report—covered. In my judgment, however, this is not sufficient.

Special emphasis must be placed on a comprehensive review of all existing legislation governing the discharge of materials into our waters. The effectiveness of this body of legislation must be analyzed. And finally, a determination must be made as to whether or not existing statutes are sufficient to preserve our water resources.

Such a review may reveal that the legislation enacted by the Congress thus far is strong enough—in theory. Perhaps the problem is merely one of enforcement. We must find out, and that calls for the investigation I propose by the Council on Environmental Quality.

Mr. Chairman, 79 of our colleagues in the House have agreed with this proposal and cosponsored legislation identical to H.R. 18914. The bills and cosponsors follow.

(The list follows:)

H.R. 18948

Mr. Annunzio	Mr. Hanley
Mr. Ayres	Mr. Helstoski
Mr. Boland	Mrs. May
Mr. Brasco	Mr. Michel
Mr. Burke of Florida	Mr. Moorhead
Mr. Chappell	Mr. Morse
Mr. Donohue	Mr. Ottinger
Mr. Frelinghuysen	Mr. Pepper
Mr. Friedel	Mr. Podell
Mr. Fulton of Pennsylvania	Mr. Tiernan
Mr. Galifianakis	Mr. Tunney
Mr. Gibbons	Mr. Zablocki

H.R. 18964

Mr. Burton of California	Mr. Waldie
Mr. Fuqua	Mr. Findley
Mr. Kluczynski	Mr. Biaggi
Mr. Nix	Mr. Hathaway
Mr. O'Neill of Massachusetts	Mr. Eilberg
Mr. Rodino	Mr. McFall
Mr. Rosenthal	Mr. Brooks
Mr. Roybal	

H.R. 18950

Mr. Sikes	Mr. Haley

H.R. 19018

Mr. Blatnik	Mr. Howard
Mr. Don Clausen	Mr. Matsunaga
Mr. Flood	Mr. Udall

H.R. 19256

Mr. Addabbo	Mr. McKneally
Mr. Bennett	Mr. Mikva
Mr. Clark	Mr. O'Hara
Mr. Culver	Mr. Olsen
Mr. Downing	Mr. Pettis
Mr. Dulski	Mr. Pirnie
Mr. Edwards of California	Mr. Reid of New York
Mr. Fraser	Mr. Roe
Mr. Halpern	Mr. Ryan
Mr. Harrington	Mr. Saylor
Mr. Koch	Mr. Williams
Mr. Leggett	

H.R. 19257

Mr. Daddario	Mr. Scheuer
Mr. Derwinski	Mr. Yatron
Mr. Meskill	

H.R. 19372

Mrs. Chisholm	Mr. Pike
Mr. Horton	Mr. Rees

Mr. FASCELL. Mr. Chairman, both H.R. 18913 and H.R. 18914 were originally introduced as a result of the incident early last month involving the disposal of lethal nerve gas in the Atlantic Ocean by the U.S. Department of the Army. That incident pointed to the urgent need for a reappraisal of national policy—called for in H.R. 18914—and strengthening of procedures to secure approval for disposing of garbage in our waterways—as called for in H.R. 18913.

I have an additional suggestion—which I offer for the subcommittee's consideration—which involves a more immediate step to prevent

a future incident involving the disposal of military materials in the waters. I have introduced this proposal in the House and it has been referred to another committee. I would hope, however, that the basis of the proposal could be incorporated in any legislation recommended by this subcommittee, under its jurisdiction regarding the Council on Environmental Quality.

I would recommend that the Department of Defense be required to inventory all existing munitions, chemical, biological and radiological warfare agents, and other military material which may present any danger to man or to the environment. The Department would then determine the disposal date—the date beyond which each item cannot be safely retained—and the best means of disposing of each item, and submit this information to the Council on Environmental Quality for certification.

Similarly, prior to the acquisition of any new munitions, the ultimate disposition of which will present a danger to man or to the environment, the Department of Defense would be required to fix the date beyond which such munition cannot be safely retained and determine the best means of disposing of such munition. This information would then be submitted to the Council on Environmental Quality and to the Congress for approval—prior to the acquisition of such munition.

It seems to me that the question of environmental impact has to be determined either prior or simultaneously with acquisition. Otherwise, you are going to have overriding factors of need which will make environmental impact secondary. That is exactly what has happened to us under our present policy. That is the reason why, because of other urgent necessities, the military had no choice except to do what they did in this last dump. The committee had no choice but to go along with it, as did the American people and the world. It seems to me we can come up with a better system than that. I am not trying to tie the hands of the Department of Defense. Goodness knows they have enough problems. I think in some reasonable way this can be done.

There may be arguments on determining a method of disposal or fixing the date beyond which a material may be held, because it might be difficult. However, we ought to try and do the best we can. I am sure the DOD with the right attitude can meet this problem and I am sure with the right attitude the Council on Environmental Quality is not going to unnecessarily hamstring them.

This is a policy question which in my judgment does not belong in the Armed Services Committee, because the primary problem we are dealing with is environmental impact. Therefore, I hope this committee will act under its jurisdiction to consider and act on that suggestion.

There is one final bill I have, Mr. Chairman, which is not before this committee. It is before the committee where I am going to testify next, that is Foreign Affairs. It is a bill which would urge our Administration to advise the U.N. Preparatory Committee for the Stockholm Conference in 1972 to place on the agenda the establishment of an international mechanism which deals with the problem of dumping in the oceans.

If we in the United States can take the strongest possible action to preserve our waters and our contiguous zones, and if the rest of the world is dumping, it will not do us much good. Therefore, we had better take the leadership in this international effort.

I am hopeful, in fact I am sure that our U.S. delegation under the able direction of Chris Herter, Jr., is leading the fight for a strong U.S. position to the Conference in Stockholm in 1972.

So, Mr. Chairman, in conclusion, we have to face this problem on a broad basis, both domestically and internationally. This is a golden opportunity to do it. The danger is clear and imminent. We have the opportunity because of support and interest to overcome many of the strong hurdles that are natural and inherent in this kind of an effort.

I commend the committee for its interest in holding hearings on all of these bills. I am sure that whatever the committee votes out will be a giant step in dealing with this very difficult but important problem.

Mr. DINGELL. Mr. Fascell, the committee wishes to commend you for a very fine and helpful statement and your very vigorous and effective leadership in this area, also.

Mr. Pelly.

Mr. PELLY. I certainly welcome the gentleman from Florida before this committee again. It seems to me the other day I saw something about acquiring private holdings inside the Everglades, and I believe Mr. Fascell was very active in legislation which made that possible.

Mr. FASCELL. Yes, sir. We are delighted that authorization has come through the Congress. It has been a long, hard struggle. I do not have to tell the gentleman who helped set the national policy for a land and water conservation fund which makes moneys available to acquire inholdings, that the policy is beginning to produce significant results.

Mr. PELLY. We have before the committee legislation to protect endangered species.

Mr. FASCELL. I also support that legislation.

Mr. PELLY. I did not find out how consistent you were—how you were on the Miami Airport or the Florida Ship Canal, but I will not embarrass you now.

Mr. FASCELL. I will be very glad to detail my positions if we have enough time.

Mr. PELLY. We won't go into that now.

I have two questions. How do you define the term "military material" as used in one of your bills, H.R. 18913?

Mr. FASCELL. I think the easiest answer to that is just to define it as everything that is disposable.

Mr. PELLY. Anything that is dumped?

Mr. FASCELL. Anything that has to be disposed of.

Mr. PELLY. In the other bill you call for a complete investigation and study of national policy with respect to the discharging of material. I wonder how that dovetails with the existing study that was ordered by the President which the Council on Environmental Quality is about to complete, as I understand it. Would that go a little further?

Mr. FASCELL. That is my understanding, Mr. Pelly, that my bill would go a little further. It would be directed toward a specific problem of discharge.

Mr. PELLY. No doubt we will hear from the Chairman of the Council on Environmental Quality and at that time he will discuss the matter of ocean dumping.

Mr. FASCELL. That is right. Obviously if it is covered in their present study there is no need to go any further. That was not my understanding, that there was any major or substantial study on the national policy of dumping in the water, and particularly with respect to international waters.

Mr. PELLY. It may be a matter of just great minds thinking alike and working in the same direction. I hope that their study will be as complete as your legislation called for.

Mr. FASCELL. It probably is, I might add. I just don't know. I want to express it legislatively if necessary.

Mr. PELLY. We certainly have a very fine Council. They are top-notch people. They are obviously going to perform a very important function when they come in with recommendations on ocean dumping.

Mr. FASCELL. I agree with the gentleman and I think it is important, because they will be setting national policy.

Mr. PELLY. Again I want to say I welcome you before this committee.

Mr. FASCELL. Thank you.

Mr. DINGELL. Mr. Downing.

Mr. DOWNING. Thank you, Mr. Chairman.

The same adjectives I used for Mr. Rogers will apply to you.

Mr. FASCELL. Thank you.

Mr. DOWNING. As usual your testimony interested me.

What you say in fact about military waste is that man should not create something he cannot safely destroy.

Mr. FASCELL. The question I am asking is should that be our national policy and how do we implement it?

Mr. DOWNING. I believe you will agree with me that this nation has to have a vibrant economy if we are to survive. Should there be some discussion as to the economic effects that drastic measures may prevent?

Mr. FASCELL. Absolutely. You cannot just ignore all of the factors. This is a complex society. There is no simple solution to probably anything. It would just be a mistake to ignore the economic consequences. For example, the problem of thermal pollution, was unheard of until we had nuclear electric generating plants. Now we have all kinds of lawsuits and decisions that have to be made, scientific studies, as to what the actual effect is, and how to control it. In trying to meet this problem as an individual, and as a Congressman, I try to adopt the balanced approach. I suggest, for example, to this administration that what we need to do, at least with power, if not everything—but this was related specifically to power—and I am using this as an illustration of exactly the point you make—I suggested we have to take a look at our power needs in this country for the next 10 or 20 years.

FPC is now doing that study. It is almost completed. Then some agency has to have the authority to evaluate the environmental impact and the economic impact, of producing that energy and thereafter co-ordinating the decisionmaking process so our society can live.

You just cannot say you are going to close down all the plants. That would be ridiculous.

Mr. DOWNING. That is the point I am making.

Mr. FASCELL. That is right.

I understand it thoroughly. We have to find a way to have this progress and still substantially keep our environment. It is the \$64 question of all time. How we are going to do that is a challenge to test the ingenuity of man. But it has to be done if we are going to live at all. We are certainly not going to be able to turn the clock back on our societies.

Mr. DOWNING. That is my opinion, too. Thank you so much.

Mr. DINGELL. Mr. Rogers.

Mr. ROGERS. I have no questions.

I think the problem has been pointed up very vividly. The action is needed. We had this pointed out through recent actions taken by the DOD. I think, as you say, that the Congress and the people are in the mood now. They want something done to stop this.

Mr. FASCELL. This committee has exerted tremendous leadership. They have great courage. I have no doubt when they get through with the consideration of these matters pending before them, we will have some very significant and forward-looking legislation.

Mr. DINGELL. Mr. McCloskey.

Mr. MCCLOSKEY. Thank you.

I have two questions, Mr. Fascell. I notice in your bill, H.R. 18913, you recommend the certification by the Council on Environmental Quality as to the plan. I wonder if you could comment on the problem that we face as to the definition of which jurisdiction is to handle this kind of a thing. We all agree it ought to be done. We have the Corps of Engineers carrying out the Refuge Act of 1899 with the jurisdiction that is somewhat in question because of our creation of the Water Standard Quality Act. We have the Corps of Engineers, the State water quality people and the Federal water quality people. You suggest the Council of Environmental Quality, yet we have the Environment Protection Agency which has the money which the Council would need if it would do what you suggest.

Finally, we have created another agency with jurisdiction over the ocean. I wonder if you have any thought as to which of these agencies might be the best to carry on the policing of dumping into the oceans, and the estuaries and tributaries.

Mr. FASCELL. Of course, you put your finger on a very important point. A normal problem in government; and that is proliferation. We have the coordination problem right now. It has to be met head on, it seems to me, as part of and as a matter of national policy. That is important.

However, we are headed in that direction both administratively and legislatively. Perhaps not fast enough, but we have had growing pains in this area so we have a proliferation that we will stumble around with for some time. We will have to solve the problem you identified. My thought is to get all the questions into a civilian agency as close to the White House as possible.

Mr. MCCLOSKEY. Granted the Council has the jurisdiction, but no money or staff or really intention of carrying out that kind of enforcement.

Mr. FASCELL. They are and maybe ought to remain simply a policy organization with no operational responsibility.

Mr. McCLOSKEY. Who would you choose between the Corps of Engineers and the Federal Water Quality Administration?

Mr. FASCELL. I think I would take the responsibilities of environment away from the Corps of Engineers because there is an apparent conflict difficulty which the corps should not be burdened with.

Mr. ROGERS. If the gentleman would yield, I think the present proposal is to have the Environmental Protection Agency or the agency that would administer these protections and have a council, as I understand it, as an advisory group. So your EPA would go ahead and enforce these things and probably use the Coast Guard to carry out a lot of the enforcement. That was the thinking of the President.

Mr. McCLOSKEY. Our consideration of this bill requires amendment of the 1899 Refuse Act because the Corps of Engineers is already charged with this responsibility, is it not?

Mr. FASCELL. I am not familiar with all of the ramifications of the present internal administrative discussions, if you want to call it that, with respect to enforcement of that particular act, its interpretation and its applicability. But I think if there is any question about it, it would not hurt this committee just to rewrite it.

Mr. McCLOSKEY. May I ask my second question?

Mr. FASCELL. Yes.

Mr. McCLOSKEY. With the gentleman's long experience in this body dealing with this problem and viewing these new priorities with which we now attack this problem and the proliferation of agencies we already have, what are your thoughts on the creation of a joint environmental committee of the Congress so that hopefully we would have one committee in Congress which exercised jurisdiction over bills of this kind?

Mr. FASCELL. I have a visceral reaction to joint committees. I recognize the tremendous problem we have in the Congress with respect to our overlapping and fragmented jurisdiction. I do not know whether we could cure that by revising the committee system under other categories. That is what we do when we create a joint committee to handle the scope or the overall problem. But a major part of such a concept is the Appropriations Committee. Where do they come in on a joint committee? How does one deal with the overall consideration of a specific problem without including the appropriations? All of us have wrestled with this in the Congress; the fragmented approach on a subject matter in the authorization process—which is fully separated from the appropriation process; and overlapping jurisdiction of the Senate and House committees. I start out with a basic reluctance for joint committees. However, it seems to have worked well with the AEC. Maybe a joint environmental committee is the answer.

Mr. McCLOSKEY. Thank you, Mr. Chairman.

Mr. DINGELL. Mr. Keith.

Mr. KEITH. Thank you, Mr. Chairman.

As you know, I have been an early advocate of a marine sanctuary concept. The letter from Secretary Glasgow talking about H.R. 19359 refers to ocean dumping as well as an obvious reference to the coastal areas which have concerned our colleagues and which really is a matter of discussion in the hearing today.

Inasmuch as it relates to ocean dumping, I hope that whatever action this committee takes, Mr. Chairman will recognize the relevancy

of the ocean, as we do the land to the estuarian area. And I hope that we will move from the immediate confines of the legislation that is before us to broaden the scope of the hearings and our action to protect the ocean area because of its impact on the estuary.

I am particularly concerned—and you may very well share the same concern—that Massachusetts suggested a sanctuary concept within a 3-mile limit.

The State has said that there shall be no exploitation of resources of a mineral sort within the 3-mile limit. I believe it is the first State action in this area. In effect it extends the national seashore for an area of some 3 miles. I am considering extending that from 3 to 30 miles, so that area, too, shall be a part of the sanctuary and will inhibit exploration and exploitation of products from it. We have had a great deal of activity there with high explosives, with numerous fish kills, and much industrial activity that adversely affects our scenic and fishery resources, such as from high explosives and industrial activities.

Mr. FASCELL. You are very correct in my judgment in the concept that you must have an overall approach to the problem of the preservation of the water. I had mentioned that earlier in my testimony, about the need for international mechanisms and agreements, as well as strong efforts domestically. The step taken by the State of Massachusetts is a step in the right direction. Beyond the 3-mile zone, there are international agreements on contiguous zones and territories. As the gentleman well knows, we are now in the process in the U.N. of hopefully dealing with the problem of deep-sea beds beyond the contiguous zone.

Mr. KEITH. My concept is concerned with the areas where we do not have jurisdiction of the seabed as we have with the Continental Shelf.

Mr. FASCELL. That is right.

We have an international agreement on the policy for exploitation in territorial water and contiguous zones.

Mr. KEITH. What I want to do for those areas where we have responsibility for the national seabed by treaty is to stay within the first 27 miles beyond the 3-mile limit. It is in these areas also where the most beneficial uses of an existing natural resource, whether it be fishery or scenic or recreational, should be utilized.

Mr. FASCELL. I understand the gentleman. What you are touching on is a basic administration decision that will be made by the Department of Interior which has the jurisdiction and the problem both for the preservation of our waters and the use of the funds from the exploitation.

Mr. KEITH. We introduced some legislation back in 1966 which, if it had been enacted, would have inhibited in my view the kind of development that took place in the Catalina Channel. What we are interested in in Massachusetts is preventing that kind of development in an area where, ecologically speaking, it would adversely effect the resources which we feel at this time are more essential.

Mr. FASCELL. Mr. Keith, there isn't any question that the time has come for a review of our national policy with respect to that problem. We have gone along on the assumption that we would exploit the

Continental Shelf under national license or agreement; and we would use these revenues, some of which go into the land and water conservation fund. This has been a rather recent decision on our part; but sometimes national policies change fast, and this may be the time to review that whole question.

Mr. KEITH. Well, I certainly feel that it is. I want to compliment the chairman for calling these hearings to bring this subject further into the open. I am delighted that you came here today.

Mr. FASCELL. I welcome the opportunity to engage in the discussion and have a chance to present my views.

Thank you, Mr. Chairman.

Mr. DINGELL. The committee wishes to thank you, Mr. Fascell, for your very helpful testimony. If time in any fashion permits, we are going to put together the legislation that we have here into a form where we can bring it to the floor of the House for consideration. Your very valuable contribution will certainly be utilized to the full.

Mr. FASCELL. Thank you.

Mr. DINGELL. Next I would like to call the very able gentleman from New York, the Honorable Joe Addabbo.

STATEMENT OF HON. JOSEPH P. ADDABBO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. ADDABBO. I appreciate this opportunity to present my views in support of H.R. 19256 and H.R. 19258 which I have cosponsored. These bills would authorize the Council on Environmental Quality to place limits on the discharge of military material into navigable waters and to make a full investigation of national policy with respect to the discharge of materials into the oceans.

I would like to commend our distinguished colleague from Florida, Congressman Dante B. Fascell, for his leadership in connection with this legislative effort to achieve a national policy on the discharge of materials. The approval of the two bills before the committee would be a meaningful start in addressing ourselves to the far-reaching consequences of continued pollution of navigable waters and the oceans.

Earlier this year reports of dead areas in the Atlantic Ocean shocked our Nation. Newspaper reports of chemical-warfare ingredients have also alarmed many Members of the Congress as well as residents of coastal communities. While Governors and local officials can issue public protests or seek relief in the courts, there does not exist any final Federal authority for deciding when proposed discharges of military material violate national policy or pose a danger to public safety.

The purpose of the two bills before the committee this morning is to give that authority to the Council on Environmental Quality, thereby placing public trust and hopefully public confidence in a Federal authority with the expertise and power to protect the public from the kind of tragedy which can result from an unwise decision to dump dangerous materials into navigable waters or the oceans.

This a national and an international problem requiring first a national policy and secondly, international cooperation. Those are the

two avenues which H.R. 19256 and H.R. 19258 endorse and direct the Council on Environmental Quality to explore.

For these reasons, I urge the committee to act favorably on H.R. 19256 and H.R. 19258.

Mr. DINGELL. Thank you, Congressman; that was an excellent statement.

Our next witness is the Assistant Secretary for Fish, Wildlife, Parks, and Natural Resources, Department of the Interior, Dr. Leslie L. Glasgow. The Chair is happy to welcome you.

Mr. KEITH. Mr. Chairman, I have to leave momentarily to attend a hearing on the Senate side, concerning the impact of conversion from a wartime economy to a peacetime economy. Since I have 12-percent unemployment in the city of New Bedford, I do have a role to play in that. However, I have an observer here and, as Secretary Glasgow knows, this is a subject that is as dear to my heart as any, and I will be back.

I would appreciate being excused momentarily.

Mr. DINGELL. Certainly.

Mr. Secretary, you may proceed.

If you will, identify the gentlemen who are present at the committee table with you.

STATEMENT OF DR. LESLIE L. GLASGOW, ASSISTANT SECRETARY FOR FISH, WILDLIFE, AND PARKS, DEPARTMENT OF THE INTERIOR; ACCCOMPANIED BY DR. ROLAND F. SMITH, ASSISTANT DIRECTOR FOR MARINE RESOURCES, BUREAU OF COMMERCIAL FISHERIES; L. E. DeCAMP, DIRECTOR, DIVISION OF TECHNICAL SUPPORT, FEDERAL WATER QUALITY ADMINISTRATION; AND DOUGLAS P. WHEELER, STAFF ATTORNEY, OFFICE OF LEGISLATIVE COUNSEL, U.S. DEPARTMENT OF THE INTERIOR

Dr. GLASGOW. Thank you, Mr. Chairman.

I do have some assistants here this morning.

On my left is Dr. Roland Smith who is Assistant Director for Marine Resources with the Bureau of Commercial Fisheries.

On my right is Mr. Louis DeCamp who is the Director of the Division of Technical Support for the Federal Water Quality Administration, and on the far left is Mr. Douglas Wheeler, staff attorney in the Office of the Legislative Counsel in the Department of the Interior.

Mr. DINGELL. If the Chair may make an unhappy observation, I have just received word from the House floor that a bill which I have to handle on the floor will be up shortly and I may have to momentarily break in and will set a time for hearing later this afternoon. I express my sincere apologies.

I know how pressed you are with other very important matters. I hope you won't take unkindly the necessity of the situation in which I find myself and I apologize.

Dr. GLASGOW. I am sure we all have certain events arising beyond our control and we must recognize them.

Mr. DINGELL. This is not done intentionally, I assure you.

Dr. GLASGOW. I appreciate this further opportunity to discuss with you and members of your subcommittee several bills addressed to the problem of ocean dumping—a resumption of the hearing on H.R. 17603, 18454, and 15827, and consideration of three new bills. We have also been asked to comment on H.R. 19077, which would amend the National Environmental Policy Act relative to procedures for the filing of environmental impact statements.

As indicated in our transmittal of the transcript from the July 27, 1970 hearing, it has not been possible for us to provide language as you requested that would bring these bills into conformity with administration policy. As we advised you, we must await transmittal by the Council on Environmental Quality of its recommendations to the President and his acceptance of those recommendations. It is my understanding that the Council's task force report will be in the President's hands within a week.

It may be helpful at this point to advise you of our actions in this area since my last appearance before you.

First, in regard to Representative Keith's suggestion that the Council's report on ocean dumping give consideration to the concept of marine sanctuaries as one means of preserving natural areas in the ocean, we wrote to Chairman Train on August 3. We have not yet seen the section of the report covering research needs and are unable to state whether Mr. Keith's suggestion was included.

Second, in July you requested that we specify those recommendations in our New York Bight report that would require legislation.

After review, we concluded that those for which Interior had the lead responsibility could be accomplished by clarification of Department policy or by changes in existing regulations. On those recommendations requiring possible legislation, we deferred to CEQ for consideration by its task force.

I want to assure you that since our last report to the committee, representatives of the Department of the Interior have worked closely with the Council and other Federal agencies in the completion of a comprehensive study on ocean dumping and in the preparation of a final report. As requested by the President, that report and appropriate recommendations, both administrative and legislative, will be transmitted to him by the Council.

After reviewing preliminary drafts of the report, we are confident that its findings will provide the basis for sound action to curtail the continued degradation of our marine environment.

We have been advised by the Council that the final report will contain several specific legislative recommendations, and it is for this reason that we again suggest to the committee that it defer action on the bills now under consideration. From personal knowledge, I can assure you that the Council has labored diligently to produce the kind of report intended by the Congress. In my opinion, to proceed at this point without the benefit of the Council's recommendations would be premature. I emphasize, however, that the Council is better equipped than I to discuss with you the scope of its study and the nature of its recommendations.

When I appeared before this committee just 2 short months ago, I tried to indicate to you how strongly I felt about the need

to control ocean pollution. You will recall that I said then: "Without doubt, we have reached that point where effective action to control such pollution is absolutely necessary." Within this short period, we have been faced with additional examples of serious environmental hazards to human health and fish and wildlife resources from a variety of sources.

In short, we are even more acutely aware today of the increasing volume of wastes being dumped into the ocean; and that without appropriate action, the volume of wastes entering the ocean will increase by many orders of magnitude. This will occur as communities and industry look to the sea as an alternative to land-based waste disposal operations.

Let me touch briefly upon another facet of this problem which I believe warrants consideration. I am referring to H.R. 15905, forwarded by the Secretary of the Interior to the Congress on February 10 of this year. This proposal provides a clear policy for the regulation and control of discharges into the ocean waters and is a part of the administration's comprehensive environmental protection proposal. We recognize that this bill is not before this distinguished committee. We trust that the House of Representatives will take early action on this bill.

Specifically, H.R. 15905 would authorize the Secretary of the Interior to establish water quality standards for the contiguous zone. These standards would complement the standards already established by the States and approved by the Secretary of the Interior for the adjacent waters of the territorial sea. These standards would be enforceable by the Secretary and violations would subject one to fines of up to \$10,000 per violation.

The bill would also abate the pollution of the open ocean beyond the contiguous zone by prohibiting discharges of polluting material transported from points within the United States to the high seas. Control of ocean pollution in the contiguous zone would build upon the existing structure of Federal-State water quality standards and pollution control programs. It would be a part of a consistent and significantly strengthened water pollution abatement authority including expeditious and equitable enforcement, investigatory authority, fines for violations and immediate injunctive relief to deal with emergency situations.

I would now like to comment briefly on the new bills which are to be discussed today.

We are in general support of H.R. 18913, which would prohibit the discharge of military material without certification by the CEQ. Our one suggestion would be for a definition of what is meant by "military material." With respect to the propriety of certification by a non-operating agency, we must defer to CEQ. Despite our opposition to all forms of ocean dumping, we believe that as long as there is no alternative to ocean disposal of military material, such activity should be strictly regulated to minimize degradation of the marine environment. We anticipate that the recommendations of the Council will be addressed to this question, which must be considered as part of, and contributing to the solution of the ocean pollution problem.

H.R. 18914 would require CEQ to make an investigation and study of national policy with respect to the discharge of all materials into

the territorial sea and contiguous zone. Since such a study is being completed by the Council, we see no need for enactment of this additional directive.

H.R. 19077 would amend the National Environmental Policy Act of 1969 to require a longer period of notice before a Federal agency commences any action significantly affecting the environment. I personally agree with the need for more advance notice of such actions and have taken it upon myself on several occasions to alert specific agencies that present practice does not provide adequate opportunity for review of projects proposed by other agencies.

H.R. 19359 would amend the Fish and Wildlife Coordination Act to provide additional protection to marine and wildlife ecology by authorizing the Secretary of the Interior to designate certain water and submerged land areas where the depositing of certain waste materials is prohibited and to require establishment of standards with respect to such deposits in all other areas.

We are, of course, in complete accord with the intent of this bill. We believe, however, that this problem will be given thorough coverage in the CEQ report and, consequently, we ask the committee to defer action until it has seen the task force report and its recommendations.

This completes my prepared testimony, Mr. Chairman. My colleagues and I will be pleased to attempt to answer your questions.

Mr. DINGELL. Mr. McCloskey, have you any questions?

Mr. McCLOSKEY. Doctor, it seems to me that between the report that is now under preparation and H.R. 15905 that we have a complete answer to the problems arising between the administration bill and any changes that may come out of the report that is now being worked on.

Would you find it appropriate to point out why you think H.R. 15905 has not received congressional action to date? It seems to deal with all the bills we are now considering.

Mr. GLASGOW. I don't know why it has not been considered. I am not trying to avoid answering your question, but I just don't know.

Mr. McCLOSKEY. Does that study that is now under way include consideration of the conflicts between the 1899 Refuse Act in the Corps of Engineers jurisdiction and the present Federal Water Quality Administration jurisdiction? Perhaps Mr. Smith could comment on that point.

I understand Justice has issued a memorandum indicating the Refuse Act would not apply to the local jurisdictions or local permit authority which has been granted by State or local governments to people who are putting refuse into the tributaries of navigable waters and that the 1899 Refuse Act would be enforced by Justice only as to those which have no permit from any level of government. Is that included in the report that is now under way, this legal question?

Dr. SMITH. Yes, Mr. McCloskey. This point has been given very careful attention and I think it may be resolved.

Mr. McCLOSKEY. What is the date of this report?

Dr. SMITH. It is due in the White House next week.

Mr. McCLOSKEY. In the White House next week. What about from the White House?

Dr. SMITH. That I don't know.

Dr. GLASGOW. I am sure the staff in the White House will have to review the report and then they will, of course, make recommendations to the President. It would be difficult to say how much time the staff will require to review it.

Mr. McCLOSKEY. I don't want to criticize anybody because I am tremendously impressed with what you and the Department of the Interior have been able to do with the limited budget and staff time you have had to turn out these reports. But when we talk about giving primary attention to the environment, when a congressional committee is held up month after month after month by the failures of the administration to work out a plan, then we are handicapped in going forward with comprehensive legislation when we can't seem to get together at these levels. It bothers me.

I want to point out the fact that I think people back home are demanding better cooperation than thus far we have had between the legislative and executive branch in coming up with legislative solutions.

Dr. GLASGOW. Because of this high priority of this report I don't believe the staff review at the White House will take 2 or 3 months. I think it will get immediate review.

Mr. DINGELL. I know of no legislation in this committee that has been sought by the administration in this particular subcommittee on which action still awaits, but I do know of a large number of pieces of legislation on which this subcommittee has requested reports from the administration on which we have received no action.

I would refer to this matter of the report which will be received by the White House next week. I am sure you are aware of the fact this subcommittee has a record of not only not holding back, but moving forward on such legislation with less than what I consider to be adequate and sufficient support from the administration. I refer not only to this administration, but also the the previous administration.

Mr. McCLOSKEY. I would suggest we defer pending receipt of the report. It seems appropriate that we do that, Mr. Chairman. It would be well if we had that report available when we reconvene in November, so we could then do something before the end of the session.

It seems incredible to me that a year ago the Congress gave this tremendous attention to water pollution by granting almost four times the President's budget to clear up pollution when we were cutting nearly every other Federal expenditure. A year ago everybody was in on this. This would seem to justify priority. Yet here we are with the session coming to a close without the necessary tools by which to resolve this policy.

I appreciate the administration's comments that the Congress has delayed many things the administration has sought but with regard to this I don't see how we can act on this until the information in this report is before the Congress. I want to strongly make the personal plea that this administration, by the time we reconvene, which, as I understand, will be November 9, have a comprehensive recommendation before us on which of these bills should be used.

Mr. DINGELL. The Chair would like to observe we do expect to communicate today with the Council on Environmental Quality advising that this committee will be meeting Tuesday to receive the report

alluded to and, second of all, to inform them that we intend to go forward with at least some of the legislation which the committee deems to be most appropriate to the needs as we see them.

The Chair makes this observation for the record and will let it be known that we don't intend to dawdle around unduly on this very important legislation.

Mr. Secretary, the Chair wishes to recognize you for any further comments you might have.

Dr. GLASGOW. This problem before us is extremely complex. It is difficult to come up with answers. Once we start cutting off ocean pollution, satisfactory alternatives must be found or there will be tremendous impact on people and the cities. A reasonable time is necessary to get answers on the satisfactory alternatives. It is a tremendous problem to work out.

I think trying to come up with some alternative is one of the things that has contributed to the delay of the report. It is a complex thing that must receive the best attention we can give.

Mr. DINGELL. Mr. Secretary, we have a quorum call. Does that complete your comments?

Dr. GLASGOW. I will be glad to answer any questions the committee might have.

Mr. DINGELL. The only thing I have to say is, I have observed your comment on page 3 where you recall comments before this body not long back where you said:

Without doubt, we have reached that point where effective action to control such pollution is absolutely essential.

I think that is the tenor of your comment this morning and it is the tenor of the attitude of the committee. It is the intention of the committee to move forward vigorously on the matters pending before this committee.

Mr. Secretary, I wish to thank you and the gentleman present with you this morning for your presence and your very helpful testimony. It may be the committee will have other questions to direct to you at a time later regarding the matters on which we have been proceeding this morning.

The committee wishes to thank you, all of you, for your very helpful presence before the committee.

The committee will now have to adjourn. We will reconvene at 2:30 or as close thereto as it is possible to do and all the witnesses will be heard who are on the witness list.

Dr. GLASGOW. Mr. Chairman, is it necessary that I return?

Mr. DINGELL. Mr. Secretary, I don't believe it will be necessary. We do thank you very much.

The subcommittee will stand adjourned until 2:30 this afternoon.

(Whereupon, at 11:25 a.m., the subcommittee was recessed, to reconvene at 2:30 p.m., the same day.)

AFTERNOON SESSION

Mr. DINGELL. The subcommittee will come to order. This is a continuation of the hearings on a series of bills relating to the dumping of chemicals and poisons into the oceans, and other matters relative thereto.

Our first witness this afternoon is Gen. Richard Groves, Deputy Director of Civil Works, Office, Chief of Engineers, Department of the Army.

STATEMENT OF BRIG. GEN. RICHARD H. GROVES, DEPUTY DIRECTOR OF CIVIL WORKS, OFFICE, CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY; ACCCOMPANIED BY MARK S. GURNEE, CHIEF, OPERATIONS DIVISION, CIVIL WORKS OFFICE, CHIEF OF ENGINEERS; AND EROLL L. TYLER, LEGISLATIVE COUNSEL

General Groves. Mr. Chairman and members of the committee, I am Brig. Gen. Richard H. Groves, Deputy Director of Civil Works, Office, Chief of Engineers, Department of the Army. I am accompanied by members of the staff of that office. I appreciate this opportunity to testify on H.R. 18913, 18914, 19077, and 19395, bills concerned with the control of dumping of materials into our waters and with protection of the environment.

H.R. 19359 would direct the Secretary of the Interior, acting through the Fish and Wildlife Service, to designate those portions of the navigable waters of the United States and of the waters above the Outer Continental Shelf, and the submerged lands beneath these waters, where he determines sewage, sludge, heated effluents, or any wastes, cannot be safely discharged.

In designating such areas, he would be directed to consider all ecological and environmental factors. No designation could be made until 1 year after enactment. In this 1-year period, the Secretary of the Interior, in cooperation with the Secretary of the Army, would make a study of potential water and submerged land areas for designation and identify those areas most suitable for designation as areas where no discharge could be made.

All permits for discharge of wastes into the designated areas would be terminated by the bill, and future permits to discharge in these areas would be prohibited. Discharges of wastes into areas not designated as "no discharge areas" would be governed by standards established by the Secretary of the Interior. These standards would require, for any sewage or industrial waste, primary treatment by January 1, 1972, secondary treatment by January 1, 1974, and tertiary treatment by January 1, 1976. The standards established would apply to departments and agencies of the United States and of the States, including their licensees and permittees.

H.R. 18913 would prohibit the discharge into the navigable waters of the United States or into international waters of any munitions, chemical, biological, or radiological warfare agent, or any other military material, except in accordance with a certificate issued by the Council on Environmental Quality.

H.R. 18914 would require the Council on Environmental Quality to make a complete investigation and study of national policy with respect to the discharging of materials into the oceans, and to report, with recommendations, to the President and the Congress.

Mr. Chairman, we in the corps are deeply concerned about the problems of attenuating adverse ecological and environmental effects asso-

ciated with the discharge of wastes into navigable waters of the United States and at sea.

However, as I stated 2 months ago at hearings before your subcommittee on related bills, while short-term responses to the problem may hold appeal, our real need is for effective and workable long-term solution which considers all aspects of the problem in context.

At these earlier hearings, I mentioned the study of the New York Bight area begun as a project of the Corps of Engineers by the Sandy Hook Marine Laboratory of the Department of the Interior in 1968, and the study we initiated in 1969, conducted by the Marine Science Research Center, State University of New York, to determine the chemical composition of the waste solids being deposited from the New York region into the ocean. I noted then that we are only beginning to identify the ecological effects of ocean dumping, and that comprehensive new approaches are necessary if we are to manage this problem expeditiously and wisely.

To accomplish this, the President has directed the Chairman of the Council on Environmental Quality to work with the Departments of the Interior, Army, other Federal agencies, and State and local governments on a comprehensive study of ocean dumping which will recommend further research needs and appropriate legislation and administrative action.

I am informed that this study, together with recommendations for legislation, where needed, to control ocean dumping, will be transmitted to the President next week. Since the scope of this study, as we understand it, includes the items covered by these bills, it seems appropriate for us to defer our comments on the bills at this time.

The other bill involved here is H.R. 19077, which would amend the National Environmental Policy Act of 1969 to require that the comments obtained from other Federal agencies and appropriate State agencies on the environmental impact of a proposed action be sought at least 120 days prior to the commencement of such action. Any recommendations received which are intended to minimize the impact on or enhance the quality of the environment of fish and wildlife would be required to be adopted by the agency taking the action.

Mr. Chairman, we are not in a position to comment specifically on the need for an desirability of this legislative proposal, as not enough experience has been had yet under the National Environmental Policy Act. We feel that the existing procedures should be given a reasonable period of time to demonstrate their effectiveness prior to consideration of any proposal to change them.

Mr. Chairman, this completes my statement. We will be pleased to answer any questions you may have.

Mr. DINGELL. Thank you very much, General. Mr. Everett.

Mr. EVERETT. General, the last statement you just made concerns with respect to the advance notice that would be required by any Federal department or agency planning to carry out a major Federal program that would affect the quality of our environment. Are you familiar with the recent ocean dumping of nerve gas?

General GROVES. I have read about it in the papers, yes, sir.

Mr. EVERETT. As you will recall, the Department was only required to give the Congress 10 days' advance notice prior to carrying out such

a program. Would you think 10 days is sufficient notice under the National Environmental Policy Act? Also I might carry that one step further: Would you comment on the 120-day requirement as compared to the 10-day requirement?

General GROVES. It would be very difficult for me to comment intelligently on the 10 days. I am really not familiar with the details of this particular case beyond what I read in the papers.

As for the 120 days, our opinion is that this would be quite workable. The thing that probably troubles us at first reading anyway is that it is not clear how many times you would have to do this and at what point, but the 120 days per se would be worthwhile, I am sure.

Mr. EVERETT. What was intended to be accomplished I think by the bill was to require any Federal department or agency to give at least 120 days advance notice of a plan they intended to carry out. At the time the 120-day notice goes out comments and views from interested officials would be requested. And then, after 60 days, any comments that came in would be incorporated into this environmental impact statement and sent around to the different departments and agencies again as being the final plans for any recommendations that would enhance or mitigate the effects on fish and wildlife resources and the environment would have to be attached as conditions to the project.

Would this give the Corps of Engineers any problem particularly with respect to its overall procedure?

General GROVES. It wouldn't cause us any unusual problems. In one sense it would make our job easier because it would be very specific as to the requirement we would have to meet. I might point out, however, that under our present procedures which have less time than 120 days, we are being severely criticized by many people with whom we deal for taking too long.

Mr. EVERETT. The Corps of Engineers does come within the coverage of the National Environmental Policy Act?

General GROVES. Yes, certainly.

Mr. EVERETT. We have had some department heads who claim that certain aspects of the programs did not.

General GROVES. There is no doubt in our mind, sir, and we have issued instructions to that effect to all the elements of the corps.

Mr. EVERETT. You mention in your statement a study that has been conducted as a result of the New York Bight program. I believe recommendations were made in this study with respect to the corps. Have those recommendations been adopted by the corps?

General GROVES. Which particular study are we talking about, sir, the ad hoc committee of the Department of the Interior?

Mr. EVERETT. Yes, the one dated June 24, 1970, of the Secretary of the Interior.

General GROVES. Yes; I know the one you are talking about. This is a committee set up at the time the New York Bight study drew severe criticism in the papers. We have taken those recommendations verbatim and issued them to the element of the corps in the field and appended thereto a statement of ours saying that this is our policy and that it will be executed as is.

Mr. EVERETT. Do you see any jurisdictional problems with respect to the administration over ocean dumping with regard to the Corps

of Engineers? Are the areas clearly identified to the point where you don't have duplication and conflict of procedures?

General GROVES. We have no conflicts or duplications at this time, sir; we have some gaps.

Mr. EVERETT. Could you indicate the gaps at this time?

General GROVES. We sense that the only authority we have to operate beyond the traditional territorial limits are in the cases of New York, Baltimore, and Hampton Roads Harbor.

Mr. EVERETT. How far does the jurisdiction go with respect to the territorial seas and the high seas?

General GROVES. The territorial limits are 3 miles. In the case of the three harbors I mentioned, there is no limit. We control it through the ships that return to us. Of course, if a ship goes out and doesn't come back, we have no jurisdiction.

Mr. EVERETT. It has been said that the corps have gone beyond the authority it has with respect to control of ocean dumping. Do you accept this statement as being correct?

General GROVES. We are aware of those interpretations, sir, and they are held by reputable people. I think one very specific example might be in the case of Boston where several years ago we issued a permit to dump beyond the territorial limits. It was published in the Federal Register and no objections were received. It was a clear-cut case where we assumed jurisdiction for the public interest and we exercised it, although we have been unable to find any statutory authority for it.

Mr. EVERETT. Quite often, General, as you have today, a department comes up here and asks that the committee defer action on bills, pending completion of a study. Suppose the committee decides not to wait and should report one or even several of these bills. I am thinking about provisions pertaining to ocean dumping once the legislation is enacted. Would you have any suggestions as to amendments that should be incorporated in these bills if they should be reported? Have you given thought to that?

General GROVES. I don't think we really have given serious thought to any of these specific ones, sir. If it comes to that, I think we would be happy to talk with you further to the extent that we can.

Mr. DINGELL. General, I believe it would be well to talk to Mr. Everett about this at an early time. We intend to move some of these bills and we would like your views on how to achieve a workable, meaningful, effective bill under which you can live and which will not create hardship which is not necessary for effective law enforcement or for effective administration of the law.

General GROVES. To the limit of the constraint under which we operate, we certainly will do that.

Mr. DINGELL. Can you brief the committee as to the policy of the Corps with regard to dumping? As I understand the Refuse Act of 1899, it imposes certain requirements on your agency with regard to dumping without a permit. I understand it is being rather widely disregarded. I wondered what you or the Attorney General were doing to halt dumping of pollutants in violation of that statute?

General GROVES. Sir, to state it very briefly, the situation today is about this: The 1899 act, as you know, requires that the placement of

refuse into navigable waters of the United States be under permit from the corps. Until fairly recently—well, let me point out there is very little dumping within the territorial limits of the United States. Virtually none. It is all beyond the limits.

Mr. DINGELL. That statute says that no person shall deposit anything other than liquids or runoff from rivers, streets, and highways into the navigable waters of the United States. If you cruise up or down any river or along any coastline of any lake, you will find industrial outfall after industrial outfall.

General GROVES. That is correct.

Mr. DINGELL. Your agency has done nothing about this. Mr. Reuss' subcommittee got into it and it finally became plain that the law as written did cover all these people. Then I understand your agency and some of the U.S. attorneys' offices around the country began to do something about persons who violated that particular law.

My question to you at this time is what is now going on, insofar as enforcement of that statute is concerned and what is the policy of the administration on the enforcement of that procedural statute? I am aware there are some slight differences between your agency now and the Attorney General who I understand doesn't want to enforce it.

General GROVES. In my earlier answer I was responding only in the context of ocean dumping. The broader question of just placement of any type of refuse—mainly through outfall, as you describe, is that we are now requiring permits on all discharges into the navigable waters of the United States. The procedures and policies that we will follow in the interim period deal with people for instance who have one that has been there for a long time, or one who doesn't have a permit. What do we do with him; these procedures are being developed right now. It involves many agencies, many departments—not only the corps and Justice, but there are others also involved.

Mr. DINGELL. There is no question that it is a clear violation of law?

General GROVES. There is no question. The question is what you are going to do about it and this is what is being negotiated.

Mr. DINGELL. The law says it will cost them \$2,500 a day.

Have you come in for any legislative relief? Each day constituting, as I understand it, a separate violation?

General GROVES. To answer your question, sir, to my knowledge we have not come in. We are discussing it at the interagency level. I would expect that out of this will come proposed legislation.

Mr. DINGELL. Has your agency submitted its section 103 policy statement as to how you bring your policies into conformity with the requirements of the National Environmental Policy Act and how your fundamental statutes should be changed to conform with the policy statement of that statute?

General GROVES. The Corps of Engineers has done so, yes, sir.

Mr. DINGELL. You have submitted the section 103 statement?

General GROVES. Yes, sir.

Mr. DINGELL. Can you tell us what that 103 statement says with regard to dumping and the violation of the Refuse Act of 1899?

General GROVES. I am unable to answer that at the moment. I will be happy to provide a copy for the record.

Mr. DINGELL. That would be most appreciated, if you please.

(The information follows:)

Several actions have been taken to modify our permit procedures:

a. Instructions were issued (11 February 1970) to Division Engineers that enforcement of the Refuse Act (33 U.S.C. 407) should be intensified within capabilities.

b. Procedures were established on 30 April 1970 for processing permit applications under provisions of the Water Quality Improvement Act of 1970 (state certification, etc.) and for the preparation of the 5-point statement prescribed in the National Environmental Policy Act of 1969.

c. A new permit form was adopted which includes more stringent requirements for protection of the environment.

d. On 19 May 1970, regulations for processing permits were revised to:

(1) Require applicants whose proposals involve outfall works to fully identify the effluent.

(2) Clarify the responsibilities of the Corp of Engineers and the Department of the Interior with respect to oil drilling operations on the Outer Continental Shelf. The new regulations note that the Department of the Interior is responsible for considering the impact which such operations may have on the total environment at the time of the selection of submerged lands of the Outer Continental Shelf for inclusion in the mineral leasing program administered by Interior, but provides for consideration by the Corps of the "impact of the proposed work on navigation and national security."

(3) Limit use of "Letters of Permission" to those cases involving minor work where impact on environmental values is not significant.

e. On 27 May 1970, all existing and future harbor lines were declared to be guidelines for defining, with respect to the impact on navigation interest alone, the offshore limits of open pile structures or fills. A permit is now required for any work shoreward of harbor lines.

f. On 29 July 1970, the Army announced that permits would be required under the Refuse Act (33 U.S.C. 407) for all discharges into navigable waters. In announcing this requirement, a need for additional funds and personnel was indicated. Budget action will be required.

(Committee Note: See Committee hearings 91-41, Appendix B, for sec. 103 statement submitted by the Corps of Engineers.)

Mr. DINGELL. General, the committee thanks you for your presence today and the gentlemen who accompany you.

There may be some questions the Chair will be in touch with you on. The one point the Chair mentioned earlier is the intention of the subcommittee to move very vigorously on the legislation before us and we would, of course, very much for that reason appreciate your assistance in arriving at the appropriate and proper language which will make it most effective for proper administration. We thank you.

Mr. Carl Pope, representative of the Zero Population Growth.

STATEMENT OF CARL D. POPE, REPRESENTING ZERO POPULATION GROWTH

Mr. POPE. I am Carl Pope, the Washington representative of the Zero Population Growth. A statement by Mr. Alderson, who unfortunately has been unable to be here today, has been submitted to the committee.

Mr. DINGELL. Counsel so advises me and without objection Mr. Alderson's statement will be inserted in the record at the appropriate part.

Mr. POPE. Thank you very much, Mr. Chairman.

Zero Population Growth strongly supports the goals and approach of H.R. 19359, which we believe to be substantially superior to exist-

ing Federal law aimed at the preservation of aquatic and marine environments. I will not attempt to review for this committee the magnitude of the problem, nor to remind it that testimony heard by many committees of both Houses of the Congress indicates that the danger to our living aquatic and marine environments is increasing.

We believe that there are three main weaknesses to existing Federal legislation. First, this legislation reflects an engineering rather than an ecological approach to what are ecological problems. Second, existing legislation puts the burden of proof on those who would protect the environment, and implicitly or explicitly recognizes the existence of a "right" to pollute in the absence of a clear and present danger to the public. Third, present law places unreasonable burdens upon regulatory agencies, and in so doing increases the long-term costs of protecting water quality to both users of water and the public.

Zero Population Growth believes that H.R. 19359 is superior to existing legislation in all three regards. First, we applaud the broad ecological charge to the Secretary to consider "the overall effect on the marine and wildlife ecological balance" of discharges into waters. This charge recognizes the complex nature of natural relationships and the danger of attempting to engineer water quality standards for particular human uses without consideration of irreversible, progressive degeneration which occurs in aquatic or marine environments placed under continual stress.

We support the provision in section 5C that standards shall be set "for the purpose of insuring that no damage to, or loss of, any marine life or wildlife or any other resource necessary for the ecological balance of the area . . . will result from any such activity."

Second, we believe that the bill places a clear burden on those who would use our waterways as a dump to establish the safety of the proposed practice. The bill permits the Secretary to identify those particularly fragile or crucial aquatic environments in which no dumping or effluent will be permitted; an example that comes to mind are fishery and shellfish spawning grounds along and off the Florida coast.

This burden is further insured by the provision in section 5C that "any person, before depositing or discharging such materials in the coastal waters of the United States, must present sufficient evidence that discharging such materials in the location in which they are to be deposited will not endanger the natural environment and ecology of those waters."

I would like to suggest here that this provision should extend to navigable as well as coastal waters; there seems to be adequate authority elsewhere in the bill for the Secretary himself to establish such a requirement, but it would still be preferable to establish a common standard for navigable and coastal areas.

The bill's final, and crucial, departure from present Federal legislation in this area is the simple and straightforward approach of the act. Present legislation in the area of water pollution, with the exception of oil spills, involves extremely cumbersome and complicated administrative procedures simply to establish standards. This was intended, in part, to permit localities to determine the appropriate use and level of water quality which they wished to maintain. We knew before this legislation was passed that there are few truly local

bodies of water; even the city at the mouth of a river system pollutes coastal areas used by others. We have the example of St. Joseph, Mo., designating one of our proudest rivers as its "sewer." These procedures have also injected into considerations of water quality the desire of communities to compete with each other for industry.

In my own State, Maryland, a considerable loss has been suffered by the city of Cumberland from the flight to neighboring States of industry seeking less stringent control of pollution of the Potomac. The results of this policy for Cumberland are obvious to those Members of Congress who deal with depressed-areas legislation; the effects on the river can be smelled on a warm day with the right wind from the foot of Capitol Hill.

Mr. Carl L. Klein has testified that present legislation denies the Federal Government the one key tool to control water pollution: the power to set uniform water quality standards and to enforce them with effluent controls designed to prevent the destruction of aquatic environments. H.R. 19359 provides this power, and in its permit provisions provides a straightforward tool for enforcement.

The longer we wait to set up clear procedures and authority to protect and restore aquatic environments, the larger the investment we will have made in production systems which make inadequate use of recycling techniques. The provisions of the bill requiring tertiary sewage treatment by 1976 are excellent. Municipal sewage plants produce a vast quantity of organic nutrients of great value which are currently dumped instead of being put back into agriculture.

The major reason is the lack of any incentive to develop the distribution systems for this nutrient.

Our present heavy reliance on inorganic nutrients in agriculture is costing us dear. Some estimates indicate that first-rate Kansas farmland is losing its fertility at the rate of 1 percent a year.

We need to devote all the skilled manpower and money we can to the substantive problems of developing closed and recycled systems for waste water. We should not divert these resources to an endless series of negotiations and confrontations between Federal and State officials; we should not offer to municipalities a bonus in the form of new industry for their failure to enforce water quality standards. Business needs to know now what is expected of it; the public needs to know now the costs of clean water; the Congress needs to know now where the responsibility lies for solving this problem. The most effective approach, the approach embodied in this bill, is to give the Secretary of the Interior the responsibility for establishing effluent and dumping standards sufficient to protect aquatic environments and to permit him to increase the sophistication of his standards as our increasing knowledge permits.

This is already an innovative bill; we would like to suggest one addition. Pesticide, herbicide, silt, and fertilizer runoff are among the more serious threats to our marine and aquatic environments. The problem of regulating them is complex. We would, however, like to see in this bill authority for the Secretary to publish a list of those materials which represent a runoff danger to marine environments, and to require that major users of these materials maintain adequate records and provide adequate information to determine the degree of threat posed by such substances; and to permit the Secretary, in

conjunction with other agencies, Federal and State, to develop proposals aimed at the control of this danger.

We would like to thank you, Mr. Chairman, and all the members of this subcommittee for the opportunity to appear here today on behalf of H.R. 19359.

Mr. DINGELL. Mr. Pope, the committee is very grateful to you for your very helpful and fine statement.

Mr. Everett?

Mr. EVERETT. I have no questions, Mr. Chairman.

Mr. DINGELL. Mr. Pope, we certainly want to thank you for your participation and most helpful statement.

Thank you very much.

Is there any other person desiring to be heard today? It is the intention to afford opportunity to a number of other departments of the Government to be heard either in person or through the submission of appropriate statements next week, depending upon the ability of the subcommittee to meet and to find time in its schedule. It is the hope of the Chair that we will be able to move this matter at an early time and in a vigorous fashion.

If there is no further business to come before the subcommittee at this time, the subcommittee will stand adjourned pending the call of the Chair.

(The following material was supplied for inclusion in the record:)

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., September 29, 1970.

Hon. JOHN D. DINGELL,
Chairman, Subcommittee on Fisheries and Wildlife Conservation, Committee on Merchant Marine and Fisheries, Longworth House Office Building

DEAR MR. CHAIRMAN: As you are well aware, the Department of the Army recently disposed of 418 concrete coffins of lethal nerve gas by sinking them in the Atlantic Ocean off the coast of Florida. I was deeply disturbed, as were many Americans and a considerable number of the residents of the Second Congressional District of Iowa, that the United States had not planned carefully enough for the eventual necessity of having to dispose of such lethal materials when they became obsolete or too dangerous to store.

Because the Army and other departments of the government are going to be faced with the task of disposing of additional large quantities of gas and other weapons, plans should be made now so that this disposal will not further add to the oceans becoming vast international garbage dumps nor contaminate other areas of our environment.

I have cosponsored a legislative package of four measures with the objective of establishing the necessary procedures and safeguards for determining and enforcing a definite policy concerning the disposal of waste products in the ocean. Two of those measures, H.R. 18913 and H.R. 18914, are scheduled for hearing before your subcommittee on September 30.

I would like to take this opportunity to respectfully urge your favorable consideration and early action on both of these measures.

Sincerely,

JOHN C. CULVER,
Member of Congress.

FEDERATION OF CONSERVATIONISTS, UNITED SOCIETIES, INC. (FOCUS).

The HOUSE SUBCOMMITTEE ON FISHERIES AND WILDLIFE,
U.S. House of Representatives,
Washington, D.C.

GENTLEMEN: The Federation of Conservationists, United Societies, Inc. supports in principle the bill to create marine wildlife sanctuaries by restricting

dumping of wastes, as proposed by Representative John M. Murphy, in accordance with the following considerations:

1. Some forty years of dumping of sewer sludge and dredging spoils off Amrose Light has created a "dead Sea" threatening the New York and New Jersey beaches. This contamination has poisoned marine life endangering the health of those who eat the sea food caught in the polluted waters in the vicinity of the dumping area. We must stop killing the sea.

2. The phasing out of sewerage sludge and dredging spoils should be started immediately, as alternative methods are already available to the communities for this waste disposable, by composting for free distribution to rural areas, or by use in building blocks, etc.

3. Scientific studies have already been made by the State University of New York, by the Smithsonian Institution, and by the United States Marine Laboratory, so that new, costly, time consuming "studies" are not necessary to establish the facts that these wastes are highly toxic, some of the material is cancer producing. The sludge problem must be solved even if it is costly.

4. We approve the creation of fish and wildlife sanctuaries in river, harbor and coastal areas, as called for under the bill, but wish to point out that any water and submerged land designated for deposit of waste should not be located on any of the productive grounds offshore.

5. We respectfully request that this statement be included as part of the record in the hearings to be conducted on July 27-28.

Sincerely,

ROBERT B. LITCH, *Executive Secretary.*

FRIENDS OF THE EARTH,
Washington, D.C., September 29, 1970.

Hon. JOHN D. DINGELL,

Chairman, Subcommittee on Fisheries and Wildlife Conservation, Committee on Merchant Marine and Fisheries, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: Friends of the Earth are pleased to endorse the principles of H.R. 19359, which would authorize the Secretary of the Interior to protect marine and wildlife ecology by prohibiting the dumping of injurious substances.

At this juncture, citizens are faced with the irony of suddenly discovering that substances dumped into rivers and oceans are harmful, but that nothing can be done to stop it. The results of technical studies are in, showing the ecological impact of dumping. The public has become aware of the problem through incidents such as the nerve gas fiasco, and through the educational work of Cousteau, Heyerdahl and others. Yet the enforcement of reasonable standards has not begun.

Friends of the Earth favor giving the Secretary of the Interior the power to establish zones in which dumping of injurious substances, including heated water is prohibited. We favor the setting of standards governing discharges in other areas, with the burden of proof placed upon the person who wishes to engage in dumping, as provided for in Section 5C. The bill quite properly gives States the incentive to take on the responsibility of protecting their waters, by permitting the Secretary to let States set and enforce their own more stringent standards.

Sincerely,

GEORGE ALDERSON,
Legislative Director.

THE AMERICAN ASSOCIATION OF PORT AUTHORITIES,
Washington, D.C., August 27, 1970.

Hon. EDWARD A. GARMATZ,

Chairman, Committee on Merchant Marine and Fisheries, U.S. House of Representatives, Longworth House Office Building, Washington, D.C.

DEAR CHAIRMAN GARMATZ: The American Association of Port Authorities has reviewed H.R. 17603, which would amend the Fish and Wildlife Coordination Act to require the designation of certain water and submerged land areas where the depositing of certain waste materials will be permitted, and to authorize the establishment of standards with respect to such deposits. At your kind invitation, I would like to offer a few preliminary comments on the bill.

The seaports of the United States, as you know, are heavily dependent upon channel and terminal dredging for their safe and efficient accommodation of water-borne commerce. As such, the AAPA is most interested in the disposal of dredged spoils, especially those which are contaminated by municipal, industrial, and agricultural pollutants. The goal in H.R. 17603 to designate portions of United States navigable waters and those above the Outer Continental Shelf and their submerged lands as areas for spoils disposal appears to be a constructive step toward resolving the growing spoils disposal problem. Likewise, the establishment of Federal material standards with the aid of information to be required from any organization or person applying for authorization to discharge or dispose material in designated areas is a realistic requirement, and one that hopefully will result in the promulgation of equally realistic controls and procedures based on such data. Finally, the continuance of the status quo for at least two years from the date of enactment of the bill to allow for a thorough investigation and study of potential water and submerged land areas to be designated for spoils disposal is reasonable, provided, of course, that the necessary studies can be completed in that time and their findings implemented.

H.R. 17603 is, in our opinion, a more realistic and workable approach to the disposal problem than, for example, H.R. 17099 or 17238. The latter bills would in effect bring dredging to a halt in ports where "reasonable progress" by States toward furnishing containment lands was not forthcoming within one year of their enactment. These bills ignore the fact that certain ports have virtually no such land available, or none at a reasonable cost. These bills would also require dredging organizations to pay to use such containment areas, even though they did not cause the pollution, and to share such revenues with the public agencies that allowed the pollution to occur.

Only three points in H.R. 17603 warrant possible further thought. The goal of "no damage" in line 24 of Section 5B (c) is virtually impossible to attain in a strict sense. It would be more realistic to determine the degree of damage that can be tolerated in a designated area. In addition, under Section 5B (f), I believe some grace period should be given to existing permittees to adapt to any new standards issued, with the time allowed dependent upon the degree and nature of the change. Finally, upon the establishment of the standards mentioned in Section 5B (c) and (f) I believe it would be appropriate to present them to the public through local hearings before they are implemented. This is presently required in the bill only in instances where State standards would be substituted for Federal standards.

Thank you for a chance to comment on the bill. We think it is a step in the right direction in a very difficult problem, and look forward to being invited to comment on it more formally at such time as hearings are continued on it.

Sincerely,

PAUL A. AMUNDSEN,
Executive Director.

NATIONAL WILDLIFE FEDERATION,
Washington, D.C., July 27, 1970.

Hon. JOHN D. DINGELL,
Chairman, Subcommittee on Fisheries and Wildlife, Committee on Merchant
Marine and Fisheries, Washington, D.C.

DEAR CONGRESSMAN DINGELL: We wish to thank you for the invitation to testify on these bills dealing with the depositing of certain waste materials in our coastal waters and in the ocean. The National Wildlife Federation supports favorable consideration of the principles expressed in H.R. 15827, H.R. 15828, H.R. 17603, and H.R. 18454.

From our knowledge as an association of independent state organizations and their affiliated local groups, the National Wildlife Federation continues in its belief that contamination of the environment by water and air pollutants, by toxic chemicals, and by solid wastes, constitutes the major natural resources problem of the age. In this area, one of the most crucial and demanding problems we face is that of disposal of waste materials in our waters, not only those waters covered by the bills now under consideration but all waters. In some cases, such as Lake Erie, we are told that it is already too late to act and in others the point of no return is fast approaching.

The enactment of the bills under consideration here would not act immediately to stop the pollution of our ocean water and submerged land areas but it would be an important first step toward the control of ocean pollution.

It was thought in the past that the oceans could handle all of the sewage, sludge, spoil and other wastes we could generate, but we were recently shocked into reality by hearing of dead spots in the ocean waters outside some of our bigger cities. If we do not act now it may soon be too late and the oceans which surround us may turn into one big cesspool.

We therefore think it imperative that Congress act as quickly as possible to enact legislation which would set standards and provide a means of effective control over the dumping of wastes into the navigable waters of the U.S. and the waters above the Outer Continental Shelf.

It will be appreciated if you will include this letter in support of H.R. 15827, H.R. 15828, H.R. 17603, and H.R. 18454 in the Record of Public Hearings. Thank you.

Sincerely,

THOMAS L. KIMBALL,
Executive Director.

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., August 21, 1970.

Hon. JOHN D. DINGELL,
House of Representatives,
Washington, D.C.

DEAR MR. DINGELL: Thank you for your letter of April 14 regarding waste disposal in the New York Bight. I appreciate this opportunity to comment on the use of the National Environmental Policy Act of 1969 (PL 91-190) to regulate ocean disposal and prevent further despoliation of marine resources. I will review what actions the Department of the Interior has taken and will take to meet the requirements of the Act.

As you know, the National Environmental Policy Act of 1969 requires all Federal agencies to administer policies, programs, regulations and public laws in a manner to prevent or eliminate damage to the environment and to encourage productive and enjoyable harmony between man and his environment. The detailed environmental statement required for every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment will do much to define the issues and to promote adoption of appropriate action alternatives that have a more beneficial environmental impact.

Each agency head is responsible for implementing the purposes of the Act for his agency only, and no Federal agency is given enforcement authority over another. At present, no Federal agency has authority to develop water quality standards beyond the limit of our territorial seas, namely three miles. Because of these facts, it is my opinion that this Act does not give this Agency full authority to control the ocean disposal of wastes.

The Corps of Engineers has established six dumping areas off New York Harbor outside the three-mile limit. These areas are: (1) The Mud Dumping Ground, located seven miles from Sandy Hook Light, used for disposal of material dredged from channels, anchorages, and vessel berths; (2) the Cellar Dirt Dumping Ground, located nine miles from Sandy Hook Light, used primarily for earth and rock from cellar excavation but also for broken concrete, rubble, and other non-floatable debris; (3) the Sewer Sludge Dumping Ground, located 11 miles from Sandy Hook Light, used for sewage wastes either in raw or treated state; (4) the Wreck Dumping Ground, located 13 miles from Sandy Hook Light, used for deposit of wrecks of vessels; (5) the Waste Acid Dumping Ground, located 16 miles from Sandy Hook Light, a depository for weak and dilute acid material; and (6) the Chemical Dumping Ground, located approximately 120 miles off the New York coast, used for highly toxic material. These areas were designated many years ago.

We can find no record of any agency within this Department being asked to participate in their selection. However, it is recalled that there were some informal discussions between the Corps of Engineers and the Fish and Wildlife Service in 1948 relative to the location of the waste-acid dumping ground.

To meet the requirements of the National Environmental Policy Act, we will submit a review of our policies and programs to the Council on Environmental Quality by September 1, 1970. Our purpose is to determine if any of our diverse responsibilities are in conflict with the purposes of the Act. In addition to this review, we are developing procedures for reviewing and forwarding environmental statements to the Council on Environmental Quality. We are developing capabilities to aid other agencies such as the Corps of Engineers in evaluating the environmental water quality effects of their actions. It is through these actions under the Act that the Department can and is taking steps to abate the dumping of wastes in our rivers and harbors.

In his April 15 message to Congress, President Nixon stressed the commitment of this Administration to deal effectively with the disposal of dredged materials into the Great Lakes and the 48 million tons of dredgings, sludge and other materials that are annually dumped off the coastlands of the United States. President Nixon directed the Chairman of the Council on Environmental Quality to undertake a comprehensive study of ocean dumping and submit a report to him by September 1, 1970. Recommendations for corrective legislation and administrative actions are expected at that time. The Department of the Interior is actively participating in this study. In addition, this Department has proposed legislation to provide for better control of ocean pollution. H.R. 15905 would amend Section 10 of the Federal Water Pollution Control Act and authorize the Secretary to establish water quality standards for the contiguous zone to the twelve-mile limit. If enacted, this legislation would provide substantial control over location of disposal sites and acceptable dumping practices.

I trust that my remarks will be useful to you and your Committee in evaluating the various legislative proposals developed to deal with the problems of ocean disposal. Your interest and continued support of our water quality enhancement programs are greatly appreciated.

Sincerely yours,

CARL L. KLEIN,
Assistant Secretary of the Interior.

ENVIRONMENTAL PROTECTION ADMINISTRATION,
DEPARTMENT OF WATER RESOURCES,
New York, N.Y., September 30, 1970.

Re Hearing—Marine Sludge Disposal, New York City.

Hon. EDWARD GARMETZ,
*Chairman, House Committee of Merchant Marine and Fisheries, House of
Representatives, Washington, D.C.*

DEAR SIR: I understand that your Committee has under consideration various proposals relating to sludge disposal in New York City. I hope that the following information will assist you in your deliberations.

The means now used to dispose of approximately 200,000 cubic feet per day of sludge (almost all of which has been fully digested so that most of the volatile elements have been removed) from New York City's Water Pollution Control facilities are outlined in the accompanying documents (see Attachment No. 3). We have found these procedures to be the most economic method of disposal. Alternatives to marine disposal are far more expensive and have other serious drawbacks which are discussed below.

It was natural in the history of waste water treatment for cities on tide water to resort to ocean disposal of their sludge as the most dependable and economical method when compared with elaborate, undependable and more expensive alternatives involving dewatering and incineration. New York City began its ocean disposal program in 1937, first by contract and then in early 1938 by the first of a line of tankers specifically designed for the function. Some months after dumping started, in grounds 12 miles off shore designated by the harbor supervisor in about 80 feet of water, a six-day observation test was run at 21 sampling points in and surrounding the grounds. Results indicated that outside of the immediate path of the dumping there were virtually no discernible effects on biochemical oxygen demand, dissolved oxygen, or coliform bacterial count even during the dumping operation. Within 13 hours after dumping no change in these conditions was observed. Retesting in 1949 and 1950 confirmed these findings. Recent tests indicate that digestion reduces the biochemical oxygen demand of the sludge by about 80%, a significant figure when considering its effect on the

dissolved oxygen content of the overlying liquid. Looking at total annual quantities of New York City sludge taken to sea during the last thirty years:

Year	Wet tons	Dry tons
1940		
1950		69,350
1960	1,754,000	68,921
1969	1,958,000	98,641
	1,989,000	87,440

During this period a significant amount of sludge was deposited on filled park land to create topsoil for golf courses and general park use. Were more such land available, it would be an ideal method of disposal, involving true recycling. For example, during 1967 alone, 3.9 million cubic yards were placed on Parks Department property.

We fully sympathize with present public concern with respect to the importance of environmental protection in the area of water quality, particularly in New York Harbor. At present we are actively engaged in a scientific and objective analysis of the waters of Jamaica Bay, a moderately large, almost fully enclosed body of water not far from the present dumping grounds near Ambrose Light. Present plans are to proceed with a comprehensive study which will extend to the waters of the entire New York Bight, including disposal grounds themselves. We are now engaged in the selection of a consultant for the first year of this study, which should shed much more light on the ecological consequences of water-connected activities in the New York Metropolitan area.

Recent public criticism of ocean disposal has raised the question of its advisability. Unfortunately, much of this criticism has not considered the alternatives and the adverse environmental consequences associated therewith, nor has it considered the total environment of man on tidewater. The immediate aqueous environment is the estuary, and it is to protect the quality of the estuary that most water pollution control plants on tidewater are built. Over emphasis on the oceanic efforts to the neglect of the immediate human environment might be termed an unbalanced approach.

Thus far, the available studies and our information indicate that the disposal grounds have had no measurable effect on man's use of the coastline. Coliform counts at ocean beaches are considerably lower than at beaches within the estuary, because the estuary water is retained long enough to spend its biochemical oxygen demand and the coliform "dies away" before exiting to the open sea, thus protecting the most desirable beaches.

Thus, it can hardly be said that an emergency exists calling for peremptory action in either changing the disposal point or prohibiting ocean disposal, which may lead to more undesirable environmental consequences. Now is the time for thorough study and evaluation, with the setting of short and long range goals based on the findings, and always considering alternatives with respect to air, water or land resources. If such an evaluation indicates that in the long run ocean disposal may have undesirable effects sufficient to warrant the use of alternatives, whether because of heavy metals, toxic materials or other reasons that may become apparent on further study, a massive demonstration effort must be mounted to develop the programs and hardware for other forms of disposal, be they on land, or by dewatering or oxidative processes, wet or dry, followed by land disposal.

At the Red Hook Environmental Center in New York City, now under design, consideration is being given to installation of equipment which would prepare the sludge for incineration in a very large adjacent municipal refuse incinerator, also under design. If such an installation is decided upon, it will be the first New York City pollution control plant not dependent on ocean disposal of sludge, and may be used as a process evaluation center, aided by the availability of huge furnaces almost within the same structure. Should a large rail haul refuse landfill program develop within the northeast corridor, as has been proposed, it would be an ideal project within which to incorporate sludge disposal on a test basis.

We therefore suggest the development of definitive scientific information as to the precise consequences of our present program before the investment of large sums and effort that might better be devoted to other aspects of the water pollution control program. It is suggested that federal funds be made avail-

able to assist New York City in its present five-year effort to study the waters of the New York Bight, from which data would be continuously accumulated to assess the quality of the harbor waters.

We are including as supporting information to this statement certain documentary material as follows:

1. Letter, James W. Barnett, Colonel, U.S. Army Corps of Engineers, to Jerome Kretchmer, Administrator, New York City Environmental Protection Administration (April 13, 1970);

2. Letter, Jerome Kretchmer, Administrator, to James W. Barnett, Colonel (May 27, 1970) with enclosures:

(a) "Costs of Sludge Disposal 100 Miles Offshore" E. R. Hanson, Supervisor of Sludge Vessel Operations (April 2, 1970)

(b) "An Estimate of Sludge Incineration Requirements-New York City" W. B. Pressman, Project Engineer (February 19, 1970)

(c) "Cost of Sludge Disposal, 25 Miles Offshore" E. R. Hanson (April 26, 1970)

3. Comparative Costs of Sludge Disposal-Various Cities (Bar Chart).

Thank you very much for your consideration. Should you or any of the Committee members require additional information, please do not hesitate to contact me.

Very truly yours,

MAURICE M. FELDMAN, P.E.,
Commissioner.

(Whereupon, at 3:07 o'clock p.m., the subcommittee adjourned, subject to the call of the Chair.)

