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Estuarine Pollution: The Deterioration of the Oyster Industry in North Carolina

INTRODUCTION

"More than one million square miles of shellfish producing waters bordering the United States (one-tenth of the total available) are now unusable because of pollution."¹ The deterioration of the estuarine zones² of the coastal states has now reached major proportions and, in spite of concerted state and federal activity, the prospects for ultimate restoration of these estuarine waters seem dim. This comment has as its principle purpose the examination of the recent deterioration of the oyster industry of North Carolina and the remedies available against those who have contributed to the deterioration. This end will be accomplished through an analysis of the Newport River area—a formerly productive area that has been at least partially closed since 1969 to the taking of oysters.

The attractiveness of the estuarine zone as a region for industrial development, coupled with the concomitant increase in population, has precipitated a rapid decline in the quality of the estuarine waters of this country.

The overall recent population growth rate in the estuarine zone economic region has exceeded that of the Nation as a whole. From 1930 through 1960, the population of the coastal counties and SMSA's [Standard Metropolitan Statistical Areas] increased 78 percent, compared to a national growth rate of 46 percent. Future population growth is projected to continue above the national average, but at a somewhat lower rate. Estuarine zone population is expected to more than double between 1960 and 2020 from 60 million to 139 million persons. Approximately 35 percent of the Nation's total population will then be located on the land area encompassed by the national estuarine economic region.³

¹Note, *Ocean Pollution: An Examination of the Problem and an Appeal for International Cooperation*, 7 SAN DIEGO L. REV. 574, 575-76 (1970).

²"Estuary" is defined as "a coastal body of water where fresh river water, flowing from the land, meets salty ocean water." Cooper, *Salt Marshes and Estuaries: Cradle of North Carolina Fisheries*, in ESTUARINE RESOURCES 11 (1969). "North Carolina, with more than 2,000,000 acres, ranks third in the nation in total acreage of its estuarine waters." *Id.*

³REPORT OF THE SECRETARY OF THE INTERIOR TO THE UNITED STATES CONGRESS, THE NATIONAL ESTUARINE POLLUTION STUDY, S. Doc. No. 91-58, 91st Cong., 2d Sess. 196 (1970)

The concentration of population and industrial growth in the relatively small estuarine area "has led naturally to the use of estuarine waters for removal of the waste materials of man's civilization from his immediate vicinity."⁴ The once naturally clean estuaries are now "generally regarded as waste lands of value chiefly as convenient sewers for the dumping of wastes of an industrial civilization."⁵

A comprehensive examination of all sources of estuarine pollution is not feasible here. Industrial wastes, municipal sewage, agricultural run-off, storm drainage from towns and cities bordering the estuaries, and sewage and oil discharge from shipping are a few of the more significant contributors to the degradation of the quality of our coastal waters. Furthermore, "[t]he complex nature of pollution in the estuarine zone prevents the separation of sources of pollution, kinds of pollution, and types of environmental damage into neat compartments of cause and effect. All of human activities in the estuarine zone can damage the environment and most of them do."⁶

On a nationwide level, "[o]ver 8 billion gallons of *municipal wastes* are discharged daily into the waters of the estuarine zone."⁷ These municipal waste discharges have four important effects on the quality of water in the receiving body: "depletion of dissolved oxygen, and introduction of pathogenic organisms, settleable material, and inorganic nutrients."⁸ In the estuarine zones the average daily output of sewage is 125 gallons per capita.⁹ As the population of these areas increases, so, naturally, must the volume of waste. Merely increasing the number of facilities available for the treatment of municipal wastes is, at best, an incomplete solution.

Municipal waste water disposal is the most frequently cited example of water quality degradation The magnitude of the future extent of the water pollution problem is indicated by the

[hereinafter cited as *STUDY*]. From 1930 to 1960 the North Carolina estuary area has enjoyed a growth rate of forty-five per cent. *Id.* at 202, Table IV.4.1.

⁴*Id.* at 23.

⁵Odum, *The Role of Tidal Marshes in Estuarine Production*, in *ESTUARINE RESOURCES* 14 (1969).

⁶*STUDY* 337.

⁷*Id.* at 335.

⁸*Id.*

⁹Telephone interview with Clellie Smart, Department of Water and Air Resources, Mar. 15, 1971. Another authority estimates the per capita output of municipal wastes at 150 gallons per day. *STUDY* 257, Table IV.5.5. n.1.

projection that, even if secondary treatment were provided for all urban and sewered population in the United States by 1980, the amount of residual wastes reaching the Nation's waters would be about the same as today when much of the population is not served by secondary treatment facilities.¹⁰

THE NORTH CAROLINA OYSTER INDUSTRY

There are presently 1,093,451 acres available in North Carolina for the harvesting or production of oysters, with the total annual bushel production estimated to be 80,236.¹¹ According to the most recent survey available, these bushels were harvested by 346 full-time fishermen and 367 part-time fishermen.¹² For the approximately eighty thousand bushels of oysters that these fishermen harvest annually, a dockside price ranging from 1.50 to 6.50 dollars per bushel is received, with the average amount received being approximately four dollars per bushel. On the basis of these figures, the total annual income from the harvesting of oysters can be set at 320,000 dollars. Some economists contend, however, that this figure should be multiplied by seven,¹³ thus yielding a total annual "worth" of these oysters of 2,240,000 dollars. Further revenue from the harvesting of oysters comes from the taxation and regulation of the industry.¹⁴ A compilation of the above sources of income to the people of North Carolina should convince even the most skeptical that this industry is of significant financial import.

North Carolina's State Board of Health and Department of Water and Air Resources have been given the duty of conducting tests of the estuarine waters under their jurisdiction in order to determine whether the prescribed standards for water quality are being maintained. The basic test¹⁵ conducted to determine whether these standards are being

¹⁰STUDY 234.

¹¹Interview with Fentress Munden, Marine Biologist for the Commercial Fisheries Division of the Department of Conservation and Development, in Morehead City, N.C., Feb. 13, 1971.

¹²*Id.*

¹³Cooper, *Salt Marshes and Estuaries: Cradle of North Carolina Fisheries*, in *ESTUARINE RESOURCES* 12 (1969). The factor of seven apparently takes into account such costs as the wages and salaries of those who transport the oysters from the dock to the processing plant, costs at the plant itself, and the costs of presenting the oyster to the consumer.

¹⁴E.g., N.C. GEN. STAT. § 113-157 (Supp. 1969) provides for a tax on oysters of eight cents per bushel; N.C. GEN. STAT. §§ 113-156(e)(1) a-b (1965), provide for the licensing of shellfish "dealers."

¹⁵Standard testing procedures are outlined in U.S. DEP'T OF HEALTH, EDUCATION, AND

maintained is one for the presence of coliforms.¹⁶ The acceptable limit on the presence of these bacteria is a Most Probable Number (MPN) of seventy per one hundred milliliters.¹⁷ When a series of tests in any given area indicates that the coliform count has exceeded the acceptable limit, then, on advice of the State Board of Health, the area will be closed to the taking of oysters.

The closing of areas to the harvesting of oysters has, in recent years, become a fairly common practice.

The record of the oyster industry in the United States is a continuing story of depletion in absolute quantity and decline in the usefulness of remaining beds. Declines have taken place in nearly all estuary areas that naturally supported oyster populations. Depletion has occurred for many reasons, both natural and man-induced.

. . . .

Most of the reduction in domestic oyster production, however, can be attributed to man's activities in the estuaries. Examples of the diminution or extinction of this resource are many. New Jersey's Raritan Bay, an outstanding producer of oysters for the New York Market in the 19th Century, is now almost barren of this shellfish, mainly due to municipal and industrial waste discharge.¹⁸

The principal problem caused by the pollution of oyster beds by municipal sewage does not lie in the actual destruction of the shellfish, but arises rather from the ability of the shellfish to ingest and harbor certain organisms that may be harmful to the human consumer.¹⁹

As of this writing, at least 55,000 acres of shellfish-producing waters in North Carolina have been closed due to pollution.²⁰ If the present trend continues, according to one authority, the oyster industry

WELFARE, NATIONAL SHELLFISH SANITATION PROGRAM MANUAL OF OPERATIONS, PT. I, SANITATION OF SHELLFISH GROWING AREAS (1965 Revision) [hereinafter cited as HEW MANUAL].

¹⁶Evaluation of the micro-organism density in water receiving waste discharges is based on the test for the total number of viable coliform bacteria present. . . . The organism is present in fecal material in large numbers, is highly viable in water, and is relatively easy to identify. The use of an indicator organism is justified on the premise that, if coliforms of fecal origin are present, other pathogens of fecal origin probably are present also.

STUDY 246.

¹⁷HEW MANUAL 13.

¹⁸STUDY 217.

¹⁹*Id.* at 247.

²⁰Interview with Dr. Thomas Linton, Director, Commercial Fisheries Division of North Carolina Department of Conservation and Development, in Raleigh, N.C., Feb. 2, 1971.

of this state will probably completely disappear within the next twenty years.²¹

THE OYSTER INDUSTRY OF THE NEWPORT RIVER AREA

The Newport River area has become a controversial center of oyster production in North Carolina. The river originates at a point approximately twenty miles west of Morehead City, and, with the exception of the final four miles of its length, is extremely narrow. From a point approximately four miles to the west of Morehead City, however, there is an abrupt widening and decrease in depth, facts which have contributed to making the area one of the most attractive in the state for the commercial harvesting of oysters. The river itself would ostensibly appear to be one of the relatively few bodies of water in the state which is not plagued by excessive industrial and municipal development and pollution. With the exception of one feed lot and occasional farms, the only two possible sources of pollution in the area are the town of Newport, which has a sewage-treatment plant on the banks of the river ten miles upstream from the oyster beds, and the West Carteret County High School, which has a sewage-treatment facility located in the immediate vicinity of the widening point of the river. The major industry in the immediate area is commercial fishing—primarily for oysters, clams, and shrimp. Very little recreational activity or commercial shipping is present.²² All of the oyster fishermen interviewed in the vicinity of Morehead City were of the opinion that the Newport River area is among the most productive and attractive regions in the state for the commercial harvesting of oysters.

According to one estimate,²³ there are approximately one hundred persons engaged in either part of full-time oyster fishing in the productive areas of the Newport River. The income of these men derived from the commercial harvesting of oysters varies according to the number of hours spent in harvesting, the productivity of their respective leases, the weather, and other factors. One of the more industrious

²¹Interview with E.J. Willis, North Carolina State Board of Health official, in Morehead City, N.C., Feb. 13, 1971.

²²Letter from Robert G. Benton, Shellfish Sanitation Supervisor for the State Board of Health, to the authors, Mar. 15, 1971.

²³Interview with Earl Oglesby, commercial oyster fisherman, in Crab Point, N.C., Mar. 10, 1971. This estimate was conformed by letter from Fentress Munden, a Marine Biologist for the Department of Conservation and Development, Mar. 17, 1971.

fishermen interviewed reported that he had personally surveyed a majority of these one hundred men and had found that the seasonal income from the harvesting of oysters generally fell between three and twelve thousand dollars per man. These levels of income have not been attained since 1969, however, due in large part to two closings of the river.

On November 6, 1969, a proclamation was issued by the Department of Conservation and Development declaring that all waters to the west of a line drawn between Crab Point on the south and Core Creek on the north be closed to the taking of oysters. The apparent cause of the closing was a breakdown of the town of Newport's treatment facility. Due to the necessity of closing the facility for repairs, raw sewage flowed directly into the river. The state was not informed of the problem until five days had passed. Tests disclosed that the coliform count had increased to an MPN of over 1100 per one hundred milliliters at some of the stations tested, and the entire area, encompassing some 3290 acres,²⁴ was closed.

This area remained closed until September 6, 1970, when the Department of Conservation and Development issued a proclamation reopening a portion of it.²⁵ All waters to the west of Lawton Point remained closed.

Following the reopening of approximately one-half of the previously closed areas, fishermen began the fall portion of the 1970 harvesting season.²⁶ Those fishermen who had access to leased beds in the reopened area had varying degrees of success from the opening of the season until January 1, 1971: four fishermen, enjoying an excellent year, reported a combined income of approximately twenty thousand dollars over this period. Testing conducted by the State Board of Health and the Department of Water and Air Resources continued, and, for three months, there was an overall drop in the coliform count. Then, during the period between December 1, 1970, and January 11, 1971, a tremendous jump in the coliform count occurred. Of twelve stations studied, all those at which sampling was conducted on January 11

²⁴Letter from Robert G. Benton, Shellfish Sanitation Supervisor for the State Board of Health, to the authors, Mar. 15, 1971.

²⁵*Id.*

²⁶The season for the commercial harvesting of oysters runs from October 1 through March 15. See DEPARTMENT OF CONSERVATION AND DEVELOPMENT, NORTH CAROLINA FISHERIES LAWS AND REGULATIONS FOR COASTAL WATERS, Regulation H-1, at 40 (1970).

reported an MPN of over 1100 per one hundred milliliters. Since the tremendous increase was found in the reopened area as well as in the area which remained closed at the time of the January 11 testings, on January 30 the reopened area was closed for a second time within a five-month period.²⁷ Thus of a possible eleven months available for the commercial harvesting of oysters from the fall of 1969 through the spring of 1971, at least one-half of the Newport River was closed for a total of seven months.

It is apparently impossible to estimate the duration of the present closing. The Shellfish Sanitation Supervisor for the State Board of Health is hopeful that the area will again be open in the fall of 1971,²⁸ but is, at the same time, unable to rule out the possibility that the area will remain closed for a period in excess of one year.

Estimates of the annual loss in terms of income to the fishermen alone fall between one hundred and two hundred thousand dollars.²⁹ On the basis of the number of months in which the river has been closed, a conservative estimate of the total loss of income would be approximately two hundred thousand dollars. If the multiplier of seven³⁰ is used the total economic loss can be estimated at nearly one and one-half million dollars.

STATUTORY AND ADMINISTRATIVE FRAMEWORK

Having thus established that pollution of the estuaries of North Carolina has become a serious problem, the question then becomes what steps, if any, are being taken towards an ultimate solution. At present, there exists a myriad of agencies with authority to deal with the various problems of estuarine degradation. On the federal level the Departments of Defense, Interior, Agriculture, and Housing and Urban Development have varying degrees of authority over the estuaries of North Carolina.³¹

²⁷The effect of the second closing was to prohibit the taking of oysters from essentially the same area as was closed in November of 1969.

²⁸Interview with Robert G. Benton, Shellfish Sanitation Supervisor for the State Board of Health, in Morehead City, N.C., Mar. 10, 1971.

²⁹Earl Oglesby, a commercial oyster fisherman in the affected area, estimates the loss at the higher figure; the more conservative estimate comes from Fentress Munden, a Marine Biologist for the State Department of Conservation and Development.

³⁰See note 13 & accompanying text *supra*.

³¹COASTAL ZONE RESOURCES CORPORATION, prepared for the N.C. DEP'T OF CONSERVATION & DEVELOPMENT, DIVISION OF COMMERCIAL & SPORTS FISHERIES, A PLAN FOR THE NORTH CAROLINA ESTUARY STUDY 6-10 (1970).

On the state level there are nine departments or agencies which have at least the potential to exert some influence over the state's estuarine zones.³²

Of these state agencies, three—the State Board of Health, the Board of Water and Air Resources, and the Department of Conservation and Development—exercise the most control over the pollution of the estuaries.

The general powers and duties of the State Board of Health in the area of pollution of the state's waters are set forth in sections 130-157 through -165 of the General Statutes of North Carolina.³³

The State Board of Health, in general, has responsibilities for the disposal of sewage and wastes from public schools and state and local institutions, raw milk dairies, farm slaughter houses, shellfish processing plants, and similar establishments.³⁴

Specific examination must be made of those provisions which deal with, or which can be construed as dealing with, the problem of municipal sewage pollution of the estuaries. Section 130-163 gives the Board the power to make and adopt "regulations governing the sanitation of watersheds from which public domestic or drinking water supplies are obtained." The regulations must specifically govern, among other sources of pollution, the "disposal of sewage." Section 130-164 provides in part that "[n]o person shall wilfully defile, corrupt, or make impure any public or private water supply." Section 130-165 prohibits the "flow or discharge [of] sewage or industrial waste above the intake into any source from which a public drinking water supply" is taken without first being passed through an approved system of purification. An injunction may be issued to prevent such discharge. Section 130-169.01 gives the Board the specific authority to "make and enforce regulations concerning the sanitary aspects of the harvesting, processing, and handling of shellfish and crustaceans."

The North Carolina Water and Air Resources Act³⁵ provides for the creation of the Department of Water and Air Resources.³⁶ The Board

³²Among these are the following: Department of Conservation and Development; Department of Water and Air Resources; State Highway Commission; State Board of Health; Wildlife Resources Commission; and the Consolidated University of North Carolina. For a general discussion of the basic functions of these agencies, see *id.* at 16-28.

³³N.C. GEN. STAT. §§ 130-157 to -165 (1964), *as amended*, (Supp. 1969).

³⁴Aycock, *Introduction to Water Use Law in North Carolina*, 46 N.C.L. REV. 1, 36 (1967).

³⁵N.C. GEN. STAT. §§ 143-211 to -215.48 (Supp. 1969).

³⁶N.C. GEN. STAT. § 143-212 (Supp. 1969).

of Water and Air Resources was created at the same time to administer the provisions of the Act.³⁷ Among the primary responsibilities of the Board is the administration of a comprehensive water and air resources management and development program:

The program is designed to protect human health, to prevent injury to plant and animal life, to prevent damage to public and private property, to insure the continued enjoyment of natural attractions of the State, to encourage the expansion of employment opportunities, to provide a permanent foundation for healthy industrial development, and to secure for the people of North Carolina, now and in the future, the beneficial uses of these great natural resources.³⁸

These rather ambitious goals are to be met by means of specific provisions of the Act, sections of which must be examined in order to understand better the actions of the Board in the Newport River area. Section 143-214.1 specifically directs and empowers the Board to develop and adopt classifications of the waters of the state. After surveying the waters, the Board then must assign a classification to each particular body of water. Among these classifications is that of waters to be used for the taking of shellfish—a classification that requires a higher degree of duty than any other classification. Section 143-215.1, the general prohibition section, forbids the commission of specified acts without first obtaining a permit from the Board. More specifically, subsection (a)(4) prescribes that no one shall, without first obtaining a permit, “[i]ncrease the quantity . . . of sewage, industrial waste, or other waste discharged through any existing outlet . . . to an extent which would adversely affect the condition of the receiving water” Subsection (a)(5) deals with a change in the *nature* of the sewage as opposed to an increase of the *quantity* and specifically prohibits change in a manner “which would adversely affect the condition of the receiving water . . . in relation to any of the standards applicable to such water.” Section 143-215.6 provides for penalties to be levied against those who violate the prohibitions section. The penalties are to be not less than one hundred nor more than one thousand dollars for each violation. However, for willful violations, each day of infraction may be considered as a separate violation. A proviso to this section has some bearing on the Newport River situation: “where a vote of the people is required to

³⁷N.C. GEN. STAT. § 143-214 (Supp. 1969).

³⁸COASTAL ZONE RESOURCES CORPORATION, *supra* note 31, at 19.

effectuate the intent and purpose of this article by a municipality or other political subdivision of the State" and the vote goes against the proposal, "then, and only then, this section shall not apply to the elected officials or to any duly authorized appointed officials or employees, of said municipality or political subdivision." In addition to the foregoing penalties provision, the Director of the Department of Water and Air Resources has authority to institute an action in superior court to enjoin the violation.³⁹

The Department of Conservation and Development consists of the Divisions of Commercial and Sports Fisheries, Commerce and Industry, Travel and Promotion, Parks, Mineral Resources, Geodetic Survey, and Forest Service. The relevant primary duties of the Division of Commercial and Sports Fisheries include the licensing of commercial fishing vessels,⁴⁰ the leasing of oyster beds to private commercial fishermen,⁴¹ and the propagation of shellfish.⁴²

As of this writing, no action has been taken by any state agency to penalize those responsible for the pollution of the oyster beds in the Newport River. Perhaps the primary reason for this inaction is the difficulty of locating the source of the pollutants. This difficulty is compounded by the fact that the type of bacteria which contaminates the oysters can originate from the intestinal tracts of all warm-blooded animals. There are three recognized sources of this type of bacteria in the area of the Newport River: sewage from the town of Newport and the West Carteret County High School; drainage from farms in the vicinity; and, to a small degree, wildlife in the area.

When questioned as to the most probable cause of the tremendous jump in the coliform count before the second closing, one official from the State Board of Health, which was engaged in frequent testing of the river, stated that neither agricultural run-off nor wildlife could have caused a jump of such magnitude, even in the presence of the relatively heavy rains which preceded the closing.⁴³ The elimination of these two possible sources leaves but one remaining possibility—the bacteria were

³⁹N.C. GEN. STAT. § 143-215.8 (Supp. 1969).

⁴⁰N.C. GEN. STAT. § 113-152 (Supp. 1969). See also N.C. GEN. STAT. § 113-154 (Supp. 1969), for provisions on the licensing of commercial oyster and clam fishing.

⁴¹N.C. GEN. STAT. § 113-202 (Supp. 1969).

⁴²*Id.*

⁴³Interview with Robert G. Benton, Shellfish Sanitation Supervisor for the State Board of Health, in Morehead City, N.C., Mar. 10, 1971.

of human origin, emanating from the waste discharge of the town of Newport, or the West Carteret County High School, or both. On the other hand, an official from the Department of Water and Air Resources, which conducted less frequent testing than the Board of Health, ruled out the possibility that bacteria of human origin were the primary cause of the increase in the presence of coliform. According to this official, the most probable cause was increased drainage from agricultural lands during the period of heavy rains.⁴⁴

REMEDIES FOR THE NEWPORT RIVER POLLUTION

While the cause of the more recent increase in coliform count arguably remains unclear, there can be little doubt that some action is advisable against the possible offenders. Following the first closing in November, 1969, the Department of Water and Air Resources had only requested that the town of Newport construct a holding area sufficient to prevent future problems similar to those experienced. To date nothing has been accomplished towards the construction of such a holding area.⁴⁵ Tentative plans have been made by the State Board of Health to install a more efficient filter system at the West Carteret County High School treatment facility. The owner of the only livestock feedlot in the critical area has been contacted by the Department of Water and Air Resources with regard to moving his feedlot in order to preclude the possibility of run-off into the river. To date, the feedlot has not been moved and prospects for removal in the future seem dim.⁴⁶

None of the various statutory remedies available to the State Board of Health and, more significantly, to the Department of Water and Air Resources, have been invoked. Interviews with officials of those agencies failed to disclose any significant reasons for this inactivity. The State Board of Health, in conjunction with the Carteret County Board of Health, has begun regular testing at the Newport plant.⁴⁷

As with any critical analysis, disclosure of a problem serves only to highlight the need for a solution. Clearly, a more sophisticated and

⁴⁴Telephone interview with Clellie Smart, Department of Water and Air Resources, Mar. 15, 1971.

⁴⁵*Id.*

⁴⁶*Id.*

⁴⁷West Carteret County News-Times, Mar. 4, 1971, at 1, col. 1. There has not, as yet, been any indication of what will be the duration of these tests.

regular system of testing is needed in the Newport River area.⁴⁸ Reorganization of the agency network involved in combating the problem of water pollution would seem to be a necessity,⁴⁹ especially in light of the varying opinions of officials as to the fundamental questions of the gravity of the problem (or whether a problem exists at all) and its ease of solution.⁵⁰ In any problem of this magnitude, financial shortages generally appear as a significant barrier to immediate reform.⁵¹ The numerous officials interviewed seemed, for the most part, genuinely concerned about the future of the estuaries of North Carolina. Lack of finances, however, coupled with the concomitant decrease in the number of employees being hired, has seemingly doomed these agencies to ultimate failure. For example, there are presently no more than seven state employees engaged in the testing of the estuarine waters on North Carolina's coast.

PRIVATE LEGAL ACTIONS

Judicial Intervention and Review

Because of administrative action or inaction, it may be necessary

⁴⁸In light of the apparent propensity to malfunction in any sewer treatment facility, some type of monitoring system is a necessity. For a discussion of such a system see Brown and Duncan, *Legal Aspects of a Federal Water Quality Surveillance System*, 68 MICH. L. REV. 1131 (1970).

⁴⁹One possible solution is the formation of one central department to deal with estuarine pollution:

To the extent that planning and studies of anticipatory uses must still be shifted to governmental agencies, there are three solutions to the dilemma. First, as Rhode Island has done exceptionally well, men with diverse expertise in the many state departments involved in coastal problems can be brought together in a single department, such as a Department of Natural Resources. The benefit of being brought physically together is almost incalculable; the theoretical "coordinations" on paper become actual down-the-corridor or up-the-stairs consultations on almost every case; ideally, planning groups can work simultaneously with approving and protective groups.

Wilkes, *Consideration of Anticipatory Uses in Decisions on Coastal Development*, 6 SAN DIEGO L. REV. 354, 359 (1969).

⁵⁰Officials of the three agencies discussed above, in interviews in Raleigh, N.C., Feb. 2, 1971, gave the following views: one, recognizing the problem of estuarine pollution, had planned and was taking affirmative action to remedy the situation; another felt that nothing could be done to correct the problem; and the third felt that there had been a tremendous improvement in water quality in recent years, and forecasted a significant reduction in the closing of shellfish-producing waters of the state.

⁵¹For example, one authority estimated that in order to obtain adequate municipal waste treatment for the urban population of the estuarine region of North Carolina, 11,400,000 dollars would have to be expended in the period 1969-1973. STUDY, *supra* note 3, at 235, Table IV.4.10.

for a private party to appeal to the courts for judicial intervention or review. North Carolina provides for judicial intervention when an administrative agency unreasonably delays a decision:

Unreasonable delay on the part of any agency in reaching a final administrative decision shall be justification for any person whose rights, duties, or privileges are adversely affected by such delay to seek a court order compelling action by the agency.⁵²

This statute apparently has never been used. It is not clear what constitutes an "unreasonable delay." What may seem unreasonable to the private party may seem reasonable to an agency burdened with other matters. Although the statute speaks of a "final" administrative decision, arguably any delay is, in effect, a delay in reaching a final administrative decision. The intervention provided for in this statute does not allow judicial determination of the problem, but, rather, allows the judiciary to expedite the administrative process.

The general statute granting standing for judicial review of an agency's action is section 143-307 of the North Carolina General Statutes, which provides that any person who is "aggrieved by a final administrative decision, and who has exhausted all administrative remedies made available to him by statute or agency rule, is entitled to judicial review" One North Carolina case has indicated that the North Carolina courts will construe this statute liberally.⁵³ The federal courts recently have given broad construction to the term "aggrieved" in the federal Administrative Procedure Act⁵⁴ in cases involving protection of the environment by allowing concerned, but not economically affected, conservation groups to have standing to challenge administrative decisions in the courts.⁵⁵ Certainly owners and lessees of shellfish beds should be given standing to challenge administrative decisions where they have strong economic interests at stake.

A problem may lie in that section 143-307 further provides that if

⁵²N.C. GEN. STAT. § 143-308 (1964).

⁵³*In re Halifax Paper Co.*, 259 N.C. 589, 131 S.E. 2d 441 (1963).

⁵⁴"A person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof." 5 U.S.C. § 702 (Supp. V, 1970).

⁵⁵*See Road Review League v. Boyd*, 270 F. Supp. 650 (S.D.N.Y. 1967); *cf. Association of Data Processing Serv. Organizations, Inc. v. Camp*, 397 U.S. 150 (1970); *Scenic Hudson Preservation Conference v. Federal Power Comm'n*, 354 F.2d 608 (2d Cir. 1965), *cert. denied*, 384 U.S. 941 (1966) (Federal Power Act).

"adequate" procedure for judicial review is provided by some other statute, review shall be under that statute.⁵⁶ Statutes dealing with the Board of Water and Air Resources provide for appeal only by a person "against whom any final order or decision has been made."⁵⁷ Since *polluters* will generally be the only parties against whom a final decision is made, the statute may be interpreted to preclude effectively appeals by *persons who are harmed by pollution*. Arguably any interpretation of this statute which would deny judicial review to an "aggrieved" party would render the statute not "adequate" in terms of the general review statute. Moreover, the general review statute provides further that even a finding that the procedure under a special review statute is "adequate" will not "prevent any person from invoking any judicial remedy available to him under the law to test the validity of any administrative action."⁵⁸ One such judicial remedy is the inherent authority of the courts to review arbitrary administrative action.⁵⁹

A potentially more egregious situation exists under the statutory powers of the Board. A polluter can enter into a voluntary agreement with the Board to diminish pollution. Such an agreement, designated by a "certificate of approval," is

binding assurance that, for the period specified in the certificate and so long as such person complies with all the terms of the certificate, he will not be required to take or refrain from any further action nor be required to achieve any further results under the terms of this or any other State law relating to the control of water or air pollution, for the purpose of alleviating or eliminating any pollution or alleged pollution resulting from the sewage, industrial waste, other waste, or air contaminants, which such person is discharging into any water or the atmosphere.⁶⁰

There is expressly no right in any party to appeal the "terms" of this voluntary agreement.⁶¹ The polluter will not want to appeal the terms of

⁵⁶N.C. GEN. STAT. § 143-307 (1964) (emphasis added).

⁵⁷N.C. GEN. STAT. § 143-215.5 (1964), *as amended*, (Supp. 1969).

⁵⁸N.C. GEN. STAT. § 143-307 (1964).

⁵⁹"The court has inherent authority to review the discretionary action of any administrative agency, whenever such action affects personal or property rights, upon a *prima facie* showing . . . that such agency has acted arbitrarily, capriciously, or in disregard of law." *In re Wright*, 228 N.C. 584, 587, 46 S.E. 2d 696, 698 (1948).

⁶⁰N.C. GEN. STAT. § 143-215.2(i)(1) (Supp. 1969).

⁶¹N.C. GEN. STAT. § 143-215.2(j) (Supp. 1969). This provision is subject to the arguments previously advanced on the issue of the right to judicial review of administrative action. Even if a

an agreement voluntarily entered into. Only third parties, who are the very ones likely to be hurt by the voluntary agreement, are in effect cut off from court review of discretionary administrative decisions by the Board rendered without hearing or prior notice. This procedure is not only not "adequate" but is also inconsistent with the common fairness properly demanded of a responsive and representative government. Courts should exercise their inherent authority to review such administrative action.

Private Tort Actions—Nuisance

Because agencies are often inert and understaffed, private legal actions offer the potential for providing both justice for an aggrieved party and a deterrent to future polluters. Where shellfish beds are polluted, the normal legal actions brought against polluters are for public or private nuisance.⁶²

A private nuisance is an unreasonable activity by the defendant which causes a substantial invasion of the plaintiff's use and enjoyment of his land.⁶³ To sustain a private nuisance claim, a plaintiff must have

court cannot modify an agreement, it seems that a court could be called on to *interpret* it. Any argument against the constitutionality of this provision would seem to be offset by its voluntary nature: a polluter cannot be forced to enter into an agreement.

⁶²Other legal theories may also be employed where shellfish beds are damaged by pollution, but generally a nuisance action will be broad enough to encompass them. Trespass may provide an alternative theory. North Carolina courts, however, have indicated that the nomenclature used is not of overriding importance, at least where a "taking" is alleged:

Whether we say this is an action for damages resulting from a continuing trespass or for the maintenance of a nuisance or accord it some other name is immaterial.

Irrespective of the nomenclature used, it is in essence an action in tort for the wrongful damage to and taking of the land of plaintiffs, without compensation, for private gain.

Phillips v. Hassett Mining Co., 224 N.C. 17, 21, 92 S.E.2d 429, 432 (1956). Trespass is more appropriate where there is a direct physical invasion, as in the case where the defendant takes oysters from the plaintiff's oyster bed. McKenzie's Ex'rs v. Hulet, 4 N.C. 613 (1817). See generally Dobbs, *Trespass to Land in North Carolina—Part I. The Substantive Law*, 47 N.C.L. REV. 31 (1968) and Dobbs, *Trespass to Land in North Carolina—Part II. Remedies for Trespass*, 47 N.C.L. REV. 334 (1969).

Another possible legal theory is negligence. Normally in pollution cases negligence will be subsumed by the nuisance theory. Negligence is one type of conduct which can give rise to a nuisance; however, conduct that would not otherwise amount to a nuisance may become a nuisance when it is negligent. Thus a factory which would not be a nuisance if properly operated may be deemed one when it is operated in a negligent manner. See *King v. Ward*, 207 N.C. 782, 178 S.E. 577 (1935). In *Doucet v. Texas Co.*, 205 La. 312, 17 So.2d 340 (1944), recovery for oyster bed pollution was based on negligence.

⁶³*Watts v. Pama Mfg. Co.*, 256 N.C. 611, 619, 124 S.E.2d 809, 815 (1962).

some legal interest in land.⁶⁴ In North Carolina oyster beds may be privately owned,⁶⁵ leased from the state,⁶⁶ or state-owned for use by the public.⁶⁷ Any private citizen who has title to a submerged oyster bed or has a lease from the state should have sufficient legal interest for a private nuisance suit.

Those who do not have any interest in the land may use the more restrictive theory of public nuisance.⁶⁸ A public nuisance is an unreasonable invasion of a right held in common by the public.⁶⁹ Ordinarily, the decision to bring a suit for a public nuisance rests with a public official,⁷⁰ but an individual who has suffered *special* damages will not be barred from suing.⁷¹

In *Hampton v. North Carolina Pulp Co.*⁷² the court allowed a commercial fisherman to sue for injury to his business caused by

⁶⁴See W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 90, at 613 (3d ed. 1964). An adverse possessor has been held to have sufficient interest in land to maintain an action. *Brink v. Moeschl Edwards Corrugating Co.*, 142 Ky. 88, 133 S.W. 1147 (1911).

⁶⁵For a study of the various ways that title to estuarine land has been obtained, see Rice, *Estuarine Land of North Carolina: Legal Aspects of Ownership, Use and Control*, 46 N.C.L. REV. 779 (1968). N.C. GEN. STAT. § 113-205 (1966) required persons claiming title to beds or rights of fishery under navigable waters to register their claim on or before January 1, 1970, or have their claims voided. Approximately 4800 claims were registered, but they have not been processed as to their validity. See note 20 *supra*.

⁶⁶The present provision is N.C. GEN. STAT. § 113-202 (Supp. 1969). For a history of the various leasing statutes, see Rice, *supra* note 65. In North Carolina leased areas are the source of the bulk of commercial harvests.

⁶⁷Some state owned oyster bottoms are designated "natural seed oyster areas" from which it is lawful to take oysters to transplant in private beds. N.C. GEN. STAT. § 113-203 (Supp. 1969).

⁶⁸"The term comprehends a miscellaneous and diversified group of minor criminal offenses, based on some interference with the interests of the community, or the comfort or convenience of the general public." W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 89, at 605 (3d ed. 1964). For example, N.C. GEN. STAT. §§ 19-1 to -8 (1965) deals with "offenses against public morals" which were nuisances at common law.

⁶⁹To be considered "public" the nuisance must affect rights of the general public rather than rights peculiar to an individual or group. *Cf. Wilcher v. Sharpe*, 236 N.C. 308, 72 S.E.2d 662 (1952). This requirement is somewhat fictional since it is not necessary that others be affected or even know about the interference with their public rights. Thus the fact that there may be "a denizen of the Great Smoky Mountains who had never heard of the Roanoke River or of the fishes that disport themselves therein" did not preclude the finding of a public nuisance on the river. *Hampton v. North Carolina Pulp Co.*, 223 N.C. 535, 546, 27 S.E.2d 538, 545 (1943). The proper inquiry is whether the plaintiff comes into contact with the nuisance in the exercise of a public right.

⁷⁰*Frizzle v. Patrick*, 59 N.C. 354 (1863). No better reason for strict application of the rule has been offered than to prevent multiplicity of suits. *Reyburn v. Sawyer*, 135 N.C. 328, 336, 47 S.E. 761, 764 (1904). See note 74 *infra*.

⁷¹*E.g.*, *Hampton v. North Carolina Pulp Co.*, 223 N.C. 535, 27 S.E.2d 538 (1943).

⁷²*Id.*

effluents discharged into the Roanoke River from the defendant's pulp mill. Although the court recited the talisman that an action for a public nuisance requires special damages different from those of the general public,⁷³ it made certain that any substantial individual injury would be compensable.⁷⁴ Thus, although plaintiff's rights to the fish technically were held in common with all people in the state and although the state itself could have maintained an action, the plaintiff was not barred from suing. The rationale of this case would not permit actions by concerned, but not directly affected, citizen groups;⁷⁵ but anyone with significant provable damages, such as a commercial oyster fisherman, would be allowed to sue.

Although public and private nuisances often have little in common,⁷⁶ they may overlap where the interference is with both a private right and a right held in common with the public. Such a "mixed" nuisance⁷⁷ is likely in most shellfish pollution situations.⁷⁸ In *Grant v. United States*⁷⁹ the Fourth Circuit Court of Appeals applied the *Hampton* rationale to allow a North Carolina oyster fisherman to recover damages resulting from the dumping of laundry wastes and sewage into tidal waters. Although the court apparently based its

⁷³*Id.* at 542, 27 S.E.2d at 543.

⁷⁴The real reason on which the rule denying individual recovery of damages is based—and the only one on which the policy it reflects could be justified—is that a purely public right is of such a nature that ordinarily an interference with it produces no appreciable or substantial damage

Id. at 544, 27 S.E.2d at 544.

The law will not permit a substantial injury to the person or property of another by a nuisance, though public and indictable, to go without individual redress, whether the right of action be referred to the existence of a special damage, or to an invasion of a more particular and more important personal right.

Id. at 547, 27 S.E.2d at 545.

⁷⁵*E.g.*, *Banks v. Burnsville*, 228 N.C. 553, 46 S.E.2d 559 (1948). Some states have statutes specifically conferring standing to private parties to abate public nuisances or other environmental hazards. FLA. STAT. ANN. § 60.05(1) (1969); MICH. COMP. LAWS § 14.528(202) (Supp. 1971). N.C. GEN. STAT. § 19-2 (1965) gives standing to private individuals to bring an action to abate an offense against public morals. At present legislation is under preparation by Professor Thomas Schoenbaum of the University of North Carolina Law School that would grant standing to private individuals and groups to sue to abate environmental damage where there are no special damages.

⁷⁶W. PROSSER, *HANDBOOK OF THE LAW OF TORTS* § 87, at 594 (3d ed. 1964).

⁷⁷*McManus v. Southern Ry.*, 150 N.C. 655, 64 S.E. 766 (1909). In such a case it is not required that the plaintiff allege that his damages differ from those of the general public.

⁷⁸Pollution of streams affects public rights such as boating, swimming, and fishing, but it also affects oyster fishermen in the exercise of private rights to harvest oysters exclusively in areas they own or lease.

⁷⁹192 F.2d 482 (4th Cir. 1951).

decision on public nuisance theory,⁸⁰ it also could have founded its conclusion on private nuisance since the plaintiff held an oyster lease from the state.⁸¹

The fact that the plaintiff has been substantially damaged⁸² does not always entitle him to relief. First, as a basis of liability, there must be intentional, negligent,⁸³ or ultra-hazardous activity by the defendant.⁸⁴ Even when the activity is intentional,⁸⁵ it must also be found to be unreasonable.⁸⁶ The reasonableness of an intentional invasion is a jury determination made by balancing the interests of the parties and the community.⁸⁷ There is a nuisance only when the defendant's conduct is unreasonable in light of its utility and the harm that results.⁸⁸

The balancing process has been criticized for giving undue consideration to the company that hires the most people and has the greatest economic impact on the area.⁸⁹ Where a private nuisance is alleged and the interests of only two parties are involved, such emphasis is appropriate. However, in a pollution case where the conduct of the defendant invades a right held in common with the public, the relative economic size of the two parties is less valid as a criterion for decision. Our natural resources are not unlimited, and a determination of the

⁸⁰*Id.* at 486.

⁸¹The court failed to delineate the two categories of nuisances since it spoke to the necessity of special damages and of property rights in the same paragraph. *Id.*

⁸²By substantial invasion is meant an invasion that involves more than slight inconvenience or petty annoyance. The law does not concern itself with trifles. Practically all human activities, unless carried on in a wilderness, interfere to some extent with others or involve some risk of interference.

Watts v. Pama Mfg. Co., 256 N.C. 611, 619, 124 S.E.2d 809, 815 (1962).

⁸³See note 62 *supra*.

⁸⁴Morgan v. High Penn Oil Co., 238 N.C. 185, 77 S.E. 2d 682 (1953). In Wright v. Masonite Corp., 368 F.2d 661 (4th Cir. 1966), North Carolina law was applied to deny liability for damage to the plaintiff's grocery store caused by formaldehyde gas from defendant's manufacturing plant on the grounds that the alleged nuisance was unintentional and not negligent. There is a dissenting opinion by Judge Bryan. *Id.* at 666.

⁸⁵An invasion is "intentional" when the defendant "acts for the purpose of causing it, or knows that it is resulting from his conduct, or knows that it is substantially certain to result from his conduct." Morgan v. High Penn Oil Co., 238 N.E. 185, 194, 77 S.E.2d 682, 689 (1953).

⁸⁶*Id.* at 193, 77 S.E.2d at 689.

⁸⁷Watts v. Pama Mfg. Co., 256 N.C. 611, 618, 124 S.E.2d 809, 814 (1962).

⁸⁸W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 88, at 602 (3d ed. 1964). Professor Prosser suggests that where the plaintiff alleges negligence as a basis of liability, he should have the burden of proving unreasonable conduct, but that where the interference is intentional, the defendant should have the burden of proving that his invasion was reasonable.

⁸⁹E.g., Comment, *Water Quality Standards in Private Nuisance Actions*, 79 YALE L.J. 102 (1969).

interests of the two parties will not necessarily reflect the ecological interests of society in preserving those resources.

Once the existence of a nuisance is determined, the court must decide on a remedy. The private remedy against a public or private nuisance is damages, an injunction, or both.⁹⁰ Once a nuisance is found to exist, the relative hardship upon the parties is not relevant to the award of damages.⁹¹ But where an injunction is sought, a second balancing process must be employed,⁹² giving different weights to the same factors initially used to determine the existence of the nuisance.

From the standpoint of environmental protection, an injunction is the most desirable remedy. North Carolina courts, however, have generally awarded damages. Since an aggrieved party who demands only past damages for a continuing interference must bring additional lawsuits for any subsequent damage, he may desire an award of permanent damages.⁹³ Although it was recognized early that a major purpose of damages should be to force abatement,⁹⁴ by an award of permanent damages a court in effect allows the polluter to "buy" an easement to pollute.⁹⁵ Since an award of past damages in addition to an injunction theoretically puts the aggrieved party in the same position as if permanent damages had been awarded, courts should be reluctant to give permanent damages in pollution cases. It is better that the polluter spend his money controlling pollution than compensating private parties for future injuries.

Between closing down a polluter's plant and awarding damages, there is a wide range of equitable power that courts may exercise.⁹⁶ The reluctance to use this power may be due partially to the difficulty in

⁹⁰"Injuries remediable by the old writ of nuisance are subjects of action as other injuries; and in such action there may be judgment for damages, or for the removal of the nuisance, or both." N.C. GEN. STAT. § 1-539 (1969).

⁹¹W. PROSSER, *HANDBOOK OF THE LAW OF TORTS* § 90, at 621 (3d ed. 1964).

⁹²*Cf. Frizzle v. Patrick*, 59 N.C. 354 (1863).

⁹³*E.g., Aydtlett v. Carolina By-Products Co.*, 215 N.C. 700, 2 S.E.2d 881 (1939). In such a case both parties must consent to permanent damages. *Id.* at 702, 2 S.E.2d 882.

⁹⁴"The damages ought not to be for what the incommoded property is worth, but competent to the purpose in view, that is, a demolition of the erection that occasions the nuisance." *Bradley v. Amis*, 3 N.C. 399, 2 Hayw. 349 (1806) (note by reporter).

⁹⁵[I]f the keeping up of the nuisance will afford more profit to the wrong-doer than the small damages assessed by a jury, he will keep it up forever, and thus one individual will be able to take from another his property against his consent, and detain it from him as long as he pleases.

Id. See also *Aydtlett v. Carolina By-Products Co.*, 215 N.C. 700, 2 S.E.2d 881 (1939).

⁹⁶See Note, *Comparative Injury Doctrine of Nuisance*, 49 N.C.L. REV. 402, 408-9 (1971).

framing a decree encountered by a judge who possesses little technical expertise in the field. Hopefully, as technological advances better enable us to deal with the problems of our environment, courts will frame flexible injunctions that optimize existing technological and cost factors. Courts should require a polluter to abate his pollution unless the cost is prohibitive.⁹⁷ Further, courts should not be content with present technology, but should decree that polluters spend money for research on pollution abatement.

One major problem that courts have faced has been the lack of standards against which to judge a polluter's conduct. In assessing a polluter's conduct as to its reasonableness, the polluter's *potential* for improved conduct, as well as the industry standard, is the proper inquiry.⁹⁸ Standards set by administrative agencies, such as those set pursuant to the Federal Water Quality Act,⁹⁹ should provide points of departure.¹⁰⁰ General standards set by administrative bodies, however, cannot¹⁰¹ and should not shield polluters from liability in private actions.

The difficulty and expense of bringing suit and in sustaining the burden of proof in cases concerning pollution may be prohibitive to the average litigant or his lawyer.¹⁰² Expert witnesses are scarce and expensive. Costs of investigation and normal court costs must be paid. Any recovery, while very important to one who depends for his livelihood on oyster beds,¹⁰³ is likely to be small in relation to the costs. Class actions, where feasible, should be used to distribute the costs of a suit among many plaintiffs.¹⁰⁴

⁹⁷*Renken v. Harvey Aluminum, Inc.*, 226 F. Supp. 169 (D. Ore. 1963); *Herring v. H.W. Walker Co.*, 409 Pa. 126, 185 A.2d 565 (1962).

⁹⁸*Watts v. Pama Mfg. Co.*, 256 N.C. 611, 616, 124 S.E.2d 809, 813 (1962).

⁹⁹33 U.S.C. §§ 466-466a-k (Supp. IV, 1969).

¹⁰⁰Comment, *Water Quality Standards in Private Nuisance Actions*, 79 YALE L.J. 102 (1969).

¹⁰¹In *Donnell v. City of Greensboro*, 164 N.C. 330, 80 S.E. 377 (1913), the fact that the city's sewage treatment plant complied with the Board of Health standards did not defeat plaintiff's action. Cf. *Phillips v. Hassett Mining Co.*, 244 N.C. 17, 92 S.E.2d 429 (1956), in which a statute that gave mica miners the right to let waste run into streams was no defense to plaintiff's action. The court stated: "The General Assembly is without authority to take the property of one citizen and give it to another for private gain." *Id.* at 23, 92 S.E.2d at 433.

¹⁰²In *Doucet v. Texas Co.*, 205 La. 311, 17 So. 2d 340 (1944), the trial records involved nineteen volumes, 3533 pages of testimony, and 862 exhibits. It took ten years to bring the controversy to an end. The plaintiff demanded only 10,650 dollars.

¹⁰³Oyster fishermen often spend six to eight months of the year harvesting oysters and the rest of the year catching shrimp. Closing an oyster bed therefore may take away approximately half of an oyster fisherman's income.

¹⁰⁴See Comment, *The Environmental Lawsuit: Traditional Doctrines and Evolving Theories to Control Pollution*, 16 WAYNE L. REV. 1085, 1097-1102 (1970). This comment is a good compendium of the various means of solving environmental problems through the courts.

Another major problem facing a private litigant is finding evidence to prove causation. Some evidence can be obtained from the results of monitoring—the process whereby governmental agencies take water samples at different points along a river and analyze them as to the presence of pathogenic organisms or toxic chemicals.¹⁰⁵ Monitoring of oyster beds is used to determine whether oysters taken from the beds are fit for human consumption, but the records also can be used to pinpoint the causes of the impure water. However, the data must be interpreted by experts because factors such as tide flow, wind direction and velocity, rainfall and flooding, and salinity affect the monitoring process. An additional drawback of this source of evidence is that monitoring often is done too infrequently to be totally reliable.

Furthermore, statistical data from monitoring do not prove causation but show only correlation. Monitoring oyster beds determines the presence of organic wastes, but these wastes can come from many sources. As already stated, organic wastes can come from municipal sewage plants, faulty septic tanks, human excrement from boats, animal run-off from farms, storm sewers, and other sources. Some of these sources can be controlled feasibly while others cannot.

Courts traditionally have responded to difficulty-of-proof problems by imposing judicial constructs such as *res ipsa loquitur*, strict liability, nuisance *per se*, and negligence *per se*. In some pollution cases, courts, without legislative mandate, have shifted the burden to the defendant once a *prima facie* case is established for the plaintiff.¹⁰⁶ Where a polluter violates the federal water-quality standards, it has been suggested that his violation constitute a *prima facie* case that he caused the plaintiff's injury.¹⁰⁷ Some statutes, including the proposed North Carolina Citizen Standing Act,¹⁰⁸ would, in suits for equitable relief, shift the burden to the defendant upon proof of substantial damage to the environment. It is sound policy to put the burden on the party who should know when, where, and how much he is polluting. Such a policy would not only aid injured plaintiffs but also encourage polluters to keep records and garner technical expertise about their emissions.

¹⁰⁵See p. ____ *supra*.

¹⁰⁶E.g., *Texas Eastern Transmission Corp. v. Wildlife Preserves, Inc.*, 48 N.J. 261, 225 A.2d 130 (1966). See Comment, *The Environmental Lawsuit: Traditional Doctrines and Evolving Theories to Control Pollution*, 16 WAYNE L. REV. 1085, 1102-06 (1970).

¹⁰⁷Comment, *Water Quality Standards in Private Nuisance Actions*, 79 YALE L.J. 102, 108 (1969).

¹⁰⁸See note 75 *supra*.

In the usual situation when an oyster bed is closed, the reason is not that the oysters are damaged but rather that the water quality has deteriorated to a level where oysters produced in it are unfit for human consumption. If the deterioration is caused by the combined conduct of several unreasonable polluters, a court will hold each liable as a joint tortfeasor and apportion the damages.¹⁰⁹ Even though a defendant's conduct is not unreasonable because it *alone* does not cause substantial harm to the plaintiff, the conduct may become unreasonable if the defendant has knowledge of other polluters.¹¹⁰

One persistent problem of shellfish pollution is that municipal corporations are major polluters of oyster beds through the discharge of treated sewage from sewage plants and untreated waste through storm sewers or nonfunctioning sewage plants. Although sewage disposal serves a necessary and important purpose, a municipality that injures a persons' property may be liable for damages. Even where performing a governmental function, the doctrine of governmental immunity cannot avail a municipality whose maintenance of a nuisance causes damages which courts deem to be a "taking."¹¹¹ Plaintiff's remedy ordinarily is under the eminent domain statutes; however, where statutes afford no adequate recourse, the constitutional provisions against a "taking" are self-executing and the common law provides a remedy.¹¹²

There is a difference of opinion as to the liability of a municipal corporation for injuries caused by the discharge of sewage to persons holding oyster leases from the state. In Virginia such municipal pollution is not a "taking" of property; the courts reason that there is a paramount common law right of municipalities to drain their sewage.¹¹³ The New York courts have disagreed.¹¹⁴ Although the North Carolina Supreme Court has never ruled on the specific question, the Fourth Circuit Court of Appeals has stated that North Carolina law would permit a recovery by a plaintiff leasing an oyster bed from the state.¹¹⁵

¹⁰⁹Phillips v. Hassett Mining Co., 244 N.C. 17, 92 S.E.2d 429 (1956). The injured party may choose to sue less than all of the tortfeasors, but the defendants may add the other tortfeasors to the suit.

¹¹⁰Moses v. Town of Morganton, 192 N.C. 102, 133 S.E. 421 (1926).

¹¹¹E.g., Clinard v. Town of Kernersville, 215 N.C. 745, 3 S.E.2d 267 (1939). See Aycock, *Introduction to North Carolina Water Use Law*, 46 N.C.L. REV. 1, 13 & n.62 (1967).

¹¹²Midgett v. North Carolina State Highway Comm'n, 260 N.C. 241, 132 S.E.2d 599 (1963).

¹¹³Darling v. City of Newport News, 123 Va. 14, 96 S.E. 307 (1918).

¹¹⁴Huffmire v. City of Brooklyn, 162 N.Y. 584, 57 N.E. 176 (1900).

¹¹⁵Grant v. United States, 192 F.2d 482 (4th Cir. 1951) (Parker, J.).