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# Ending the War: A Strategy to Save America's Coastal Zone

Oliver A. Houck

# ENDING THE WAR: A STRATEGY TO SAVE AMERICA'S COASTAL ZONE

OLIVER A. HOUCK*

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We are involved in a war of extermination. It is the relentlessness of this war that makes protecting coastal resources so different from almost any other environmental struggle. Dirty air is reversible. Trees grow back. Rivers can be cleaned up. More wilderness areas can be designated. I have spent much of my adult life trying to reverse and grow back, to clean up and designate. My recent home is on a coast so vast that it holds one-quarter of the Nation's wetlands, so rich that it produces almost one-third of the Nation's seafood.[1] This coast, however, is disappearing so rapidly that the measures needed to save it are almost at the limits of technology, to say nothing of economics and political will.[2] And, as with almost all

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* Professor of Law, Tulane Law School. B.A., Harvard, 1960; J.D., Georgetown University Law Center, 1967. The author served as General Counsel (1971-1979) and Vice-President (1979-1981) to the National Wildlife Federation in Washington, D.C. The author gratefully acknowledges the assistance of several former colleagues and of the following students: James Yates, Hillary Percy, Stanley Millan, and Kathleen Hennessey.

1. OFFICE OF COASTAL ZONE MANAGEMENT, U.S. DEP'T OF COMMERCE AND COASTAL MANAGEMENT SECTION, LOUISIANA DEP'T OF TRANSP. & DEV., DRAFT ENVIRONMENTAL IMPACT STATEMENT & THE PROPOSED LOUISIANA COASTAL RESOURCES PROGRAM 26 (1980) [hereinafter IMPACT STATEMENT].

2. *See* Houck, *Land Loss in Coastal Louisiana: Causes, Consequences and Remedies*, 58 TUL.

coastal resources, when it is gone, it is gone forever.

This is not an article of despair. It is an argument that, to save coastal resources in any semblance of the abundance and productivity that we enjoy today—which is only about half of what we originally inherited—we need to recognize the limitations of the approaches on which we currently rely. We are asking federal regulation, such as that under section 404 of the Clean Water Act (CWA),[3] to do too much. We are expecting state regulation, such as that under the Coastal Zone Management Act (CZMA),[4] to overcome formidable economic and political pressures without the safeguard of a clear national mandate. We look to the "National Pollution Discharge Elimination System"[5]—a misnomer on the order of "Atoms for Peace"—to somehow trace estuarine pollution back to discharge sources and bring about their (dare I say it?) elimination. We expect federal water resource agencies, in particular the U.S. Army Corps of Engineers (Corps), to develop projects and practices to restore coastal wetlands when their primary mission runs in precisely the opposite direction.

As I pull my head out of the Louisiana controversy to view the Great Lakes, the Chesapeake, the Carolinas, Florida, the Gulf Coast, and the Pacific, I see nothing more positive than a reduced rate of loss.[6] With enormous effort, and occasional acts of courage by regulatory agencies, we manage to stop a shopping center here,[7] or a coastal resort there.[8] We cannot, however, expect public servants to fight each of these projects to the finish. The fights are brutal, and eventually even the best of public servants move on to private lives.

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L. REV. 3, 101-65 (1984). *See also* LOUISIANA WETLAND PROTECTION PANEL, U.S. ENVIRONMENTAL PROTECTION AGENCY, SAVING LOUISIANA'S COASTAL WETLANDS, THE NEED FOR A LONG-TERM PLAN OF ACTION 39-78 (1987) [hereinafter PANEL REPORT] (detailing possible measures for curtailing Louisiana wetland loss); THE COALITION TO RESTORE COASTAL LOUISIANA, COASTAL LOUISIANA—HERE TODAY GONE TOMORROW? (1987) [hereinafter COALITION REPORT] (recommending numerous structural, regulatory, and institutional programs to save the Louisiana coastal zone).

3. 33 U.S.C. § 1344 (1982).

4. 16 U.S.C. §§ 1451-1562 (1982 & Supp. IV 1986).

5. 33 U.S.C. § 1342 (1982).

6. Louisiana is losing about 50 square miles each year, an area the size of the District of Columbia. In ten years that rate will double. PANEL REPORT, *supra* note 2, at 9-13; COALITION REPORT, *supra* note 2, at 7-8.

7. *See* Newport Galleria Group v. Deland, 618 F. Supp. 1179 (D.D.C. 1985) (developer unsuccessfully sought to enjoin the EPA from initiating proceedings under § 404(c) of the Clean Water Act to prohibit the Army Corps of Engineers from issuing a permit for discharges into navigable waters).

8. *See* Deltona Corp. v. United States, 657 F.2d 1184 (Ct. Cl. 1981) (Army Corp of Engineers' denial of permit to dredge and fill one tract of land was lawful and did not constitute a "taking" under the fifth amendment), *cert. denied*, 455 U.S. 1017 (1982).

In the meantime, south of the city of New Orleans, 1000 acres have recently been developed into a Jack Nicklaus golf course. The mitigation consists of a small swamp park with a boardwalk.[9]

All over America, development is moving to the sea. At the same time, on every coastline, the sea is moving in to meet it. In between, the coast is rotten with conventional pollution.[10] No one knows how bad the heavy metals are.[11] Throughout the remaining estuaries we maintain an unimaginably large network of highways, causeways, pipelines, and canals.[12] Each one destroys. Each one is a trade-off—as is the trade-off for the golf course, and the one for a sewage outfall. The best we have been able to do under current federal and state programs is to make trades and buy time. Over time, however, we will lose. It is the principle of cut flowers. With enough fresh water, they take longer to die.

This article makes several proposals to save the coast. None may be original, but they are original to me in that ten years ago I would not have thought them necessary or prudent. I offer them now because I see no other way to avoid a long war of attrition that, by its very nature, we cannot win.

## I. COASTAL DEVELOPMENT

> It's a tough, nasty business telling people what to do with their property.[13]

The greatest pressure on coastal resources comes from their simple conversion to other uses. We have literally filled in and eliminated the wetlands of San Francisco Bay.[14] Cape Cod is all but un-

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9. Times-Picayune (New Orleans), Aug. 4, 1987, at B-3, col. 1.

10. One-half of Louisiana's oyster beds, the largest in the Nation, are closed each year due to fecal coliform. *Sewage pollution closes prime oyster beds*, Times-Picayune (New Orleans), Dec. 6, 1983, § 1, at 13, col. 1.

11. *See* B.J. Presley, *Cadmium Concentrations in Oysters: A Review* (Nov. 1986) (unpublished manuscript on file with author); J.B. Mathison, *Cadmium Intake in South Louisiana* (undated and unpublished manuscript on file with author). *See generally* OFFICE OF TECHNOLOGY ASSESSMENT, WASTES IN MARINE ENVIRONMENTS 123-40 (1987) [hereinafter OTA] (impacts of waste pollutants on human health).

12. *See* D. Davis, *Louisiana Canals and Their Influence on Wetland Development* (1973) (unpublished Ph.D. dissertation, available in L.S.U. library); R. Turner, R. Costanza & W. Scaife, *Canals and Wetland Erosion Rates in Coastal Louisiana*, FISH & WILDLIFE SERV., U.S. DEP'T OF THE INTERIOR, PROCEEDINGS OF THE CONFERENCE ON COASTAL EROSION AND WETLAND MODIFICATION IN LOUISIANA: CAUSES, CONSEQUENCES, AND OPTIONS 73-84 (1982).

13. *Efforts to Combat Marine Pollution Not Keeping Pace With Growth, State Group Told*, [Current Developments] Env't Rep. (BNA) 1934-35 (Dec. 18, 1987) (statement of Jim Ross, Director of Oregon Dep't of Land Conservation & Dev.).

14. *Coastal Degradation Threatens Millions with Loss of Livelihood, EPA Official Says*, [Cur-

recognizable to those who were born there as recently as twenty years ago. You can drive for hours down the coast of Florida, from Jacksonville to Miami Beach, in search of a place to access the beach, at times in search of a place from which to *view* it. Every coastal state has a similar story. Indeed, every estuary has—those estuaries, of course, that still remain.

There is no identifiable decision to develop the coast. The development is cumulative and case-by-case. And this is exactly where the regulatory programs fail. Each proposal seems so reasonable. How can a proposed development plan be denied on the grounds of what has already been done, by entirely different parties, some time before? Even more problematic, how can it be denied on the basis of what others will do, or may do, in the future?[15] For fifteen years, we have expected the section 404 program and state coastal management programs to stem the tide. Even in the best of circumstances and with the most enlightened of personnel, however, these programs cannot bar all, or even most, of the development of coastal wetlands, ridges, and islands. They can produce trade-offs. Under the circumstances of everyday life, with personnel who are not always enlightened or lion-hearted, the trades are poor and the rate of destruction is high.[16]

Regulatory programs are also limited by manpower and money. There are not enough regulators in America to do the analysis of each wetland and coastal development proposal called for under federal and state laws. The bureaucracy is nonetheless daunting. For instance, the New Orleans District of the Corps operates its per-

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rent Developments] Env't Rep. (BNA) 1585 (Oct. 23, 1987) [hereinafter *Coastal Degradation*].

15. To be sure, the National Environmental Policy Act, 42 U.S.C. §§ 4321-4370 (1982 & Supp. III 1985), and section 404 of the Clean Water Act, 33 U.S.C. § 1344 (1982), and their implementing regulations, 40 C.F.R. §§ 1508.7, .27(b)(7) (1987), and 33 C.F.R. § 320.4(b)(3) (1987), require consideration of "cumulative" impacts. In practice, however, this consideration is limited to directly related and nearly imminent actions. *See* Kleppe v. Sierra Club, 427 U.S. 390, 408-15 (1987) (further development could be allowed without a regional Environmental Impact Statement). The Army Corps of Engineers (Corps) is choosing to limit the consideration of these impacts still further by analyzing only the effects of the activity permitted (*e.g.*, a pier) instead of the associated development (*e.g.*, the manufacturing plant). Baldwin, *EPA Refers Proposed Corps NEPA Procedures to CEQ*, NAT'L WETLANDS NEWSL., May-June 1985, at 3, 4. Once such minimal consideration is allowed, it will rarely stand in the way of permit approval.

16. In Louisiana, for example, with the highest volume of coastal permit issuance in the Nation, a review of Corps permits for the years 1980-1986 shows an average of 6.3 denials a year, or approximately 0.64 percent of the applications considered. Inspection of Records of Permit Section, New Orleans District, U.S. Army Corps of Engineers, by James Yates (Nov. 16-20, 1987).

mit review program at $2.5 million a year.[17] This figure, of course, does not include the Louisiana coastal permit program, nor the Environmental Protection Agency (EPA) program, nor personnel from the U.S. Fish and Wildlife Service, National Marine Fisheries Service, Louisiana Department of Environmental Quality, Louisiana Department of Wildlife and Fisheries and Louisiana parish (county) coastal programs, all of whom are also involved in permit reviews. We have created a Dr. Seuss-like machine that produces occasionally good, but more often poor, compromises at the end of an elaborate pipeline. Indeed, the operation is made more effective by the very time it consumes, by attrition, and by concessions offered by applicants simply to be able to "get on with the job," than it is by any consideration of the merits of a particular case.[18] The EPA, recognizing its inability to cover the required waterfront, is now proposing to distinguish between "important" and "unimportant" wetlands[19]—a proposal that the construction-minded Corps has been quick to endorse. In a real sense, the federal government, motivated both by its own limitations and by continuing political pressures for wetland development, is getting ready to make a macrotrade. All but the "important" will go.

As a legal matter these programs may be doomed to an even more limited future. The strongest lever available to regulatory agencies is section 404(b)(1) of the CWA,[20] and its analogue in state

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17. Telephone interview with Ron Ventola, Chief, Permitting Branch, Operations Division, New Orleans District, U.S. Army Corps of Engineers (Nov. 25, 1987).

18. Applicant concessions often take the form of proposals to "mitigate" project impacts, proposals that the Corps often sees as "tipp[ing] the public interest balance" in favor of project approval. Barrows, *Mitigation in the Army Corps of Engineers Regulatory Program*, NAT'L WETLANDS NEWSL., Sept.-Oct. 1986, at 11. For a more jaundiced view, see Wilmar, *Mitigation: The Applicant's Perspective*, NAT'L WETLANDS NEWSL., Sept.-Oct. 1986, at 16, 17 (mitigation unfairly pressures applicants to make environmental concessions in order to expedite project approval).

19. *See* Remarks of Allan Hirsch, Director, Office of Federal Activities, U.S. Environmental Protection Agency, EPA J., Jan.-Feb. 1986, at 4 ("We need to focus more of our attention on identifying, in cooperation with the states and other federal agencies, important wetlands that require special attention before applicants for 404 permits are received.").

20. 33 U.S.C. § 1344(b)(1) (1982). As implemented by the EPA, the regulation requires:

> Where the activity associated with a discharge which is proposed for a special aquatic site . . . does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (*i.e.*, is not "water dependent"), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise.

40 C.F.R. § 230.10(a)(3) (1987).

coastal programs,[21] which require wetlands development to be "wetland dependent." Viewed in its strongest light, this test is analogous to that of section 4(f) of the Department of Transportation Act,[22] requiring a strong showing that a nonwetland site is infeasible before a wetland permit is granted.[23] One difficulty with this view is that, to date, few courts have been willing to apply the section 404(b)(1) guidelines this forcefully.[24] The more fundamen-

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21. Louisiana's coastal use guidelines are applied to coastal activity "to the maximum extent practicable," a term defined in the guidelines.

> *Guideline 1.8.* In those guidelines in which the modifier "maximum extent practicable" is used, the proposed use is in compliance with the guideline if the standard modified by the term is complied with. If the modified standard is not complied with, the use will be in compliance with the guidelines if the permitting authority finds, after a systematic consideration of all pertinent information regarding the use, the site and the impacts of the use as set forth in guideline 1.6, and a balancing of their relative significance, that the benefits resulting from the proposed use would clearly outweigh the adverse impacts resulting from non-compliance with the modified standard and there are no feasible and practical alternative locations, methods and practices for the use that are in compliance with the modified standard and:
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> a) significant public benefits will result from the use, or;
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> b) the use would serve important regional, state or national interests, including the national interest in resources and the siting of facilities in the coastal zone identified in the coastal resources program, or;
>
> c) the use is coastal water dependent.

IMPACT STATEMENT, *supra* note 1, at 53.

22. 49 U.S.C. § 303(c) (1982) (Secretary of Transportation may approve a transportation project requiring the use of publicly owned lands only if there is no feasible alternative and any harmful effects to the lands are minimized).

23. In Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402 (1971), the Supreme Court stringently interpreted the standard for consideration of alternatives under § 4(f):

> Section 4(f) of the Department of Transportation Act and § 138 of the Federal-Aid Highway Act are clear and specific directives. Both the Department of Transportation Act and the Federal-Aid Highway Act provide that the Secretary 'shall not approve any program or project' that requires the use of any public parkland 'unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park . . . .' This language is a plain and explicit bar to the use of federal funds for construction of highways through parks—only the most unusual situations are exempted . . . .
>
> Congress clearly did not intend that cost and disruption of the community were to be ignored by the Secretary. But the very existence of the statutes indicates that protection of parkland was to be given paramount importance. The few green havens that are public parks were not to be lost unless there were truly unusual factors present in a particular case or the cost or community disruption resulting from alternative routes reached extraordinary magnitudes. If the statutes are to have any meaning, the Secretary cannot approve the destruction of parkland unless he finds that alternative routes present unique problems.

*Id.* at 411-13 (1970) (citations and footnotes omitted).

24. *See, e.g.*, Louisiana Wildlife Fed'n, Inc. v. York, 761 F.2d 1044, 1046-48 (5th Cir.

tal difficulty is that, whether an alternative site is available or not, a denial of the right to develop the applied-for wetlands site may now constitute a "taking" for which compensation is constitutionally required.[25] Although the Supreme Court has not yet ruled on this question in the context of a wetland permit denial, its recent utterances are ominous. In *United States v. Riverside Bayview Homes*[26] the Court, while reaffirming broad federal jurisdiction under section 404, went out of its way to raise and reserve the question of whether the regulation constituted a taking.[27] In *First English Evangelical Lutheran Church v. County of Los Angeles*[28] the Court, while again reserving the taking claim,[29] declared that local governments would be liable in money damages for decisions that were subsequently adjudicated to be takings.[30] In *Nollan v. California Coastal Commission*[31] the Court went further by declaring coastal use mitigation requirements, which provided public access in return for construction on beachfront property, an unconstitutional taking.[32] These opinions will, at the very least, discourage state regulators from exercising their authority.[33] And where they do not discourage, before an increasingly conservative federal judiciary, taking claims may prevail outright.

To recapitulate, the very case-by-case nature of coastal regulation frustrates the goal of coastal protection. Individual permit decisions cannot, by their very nature, be "cumulative." They are intrinsically small and, on the merits, hit-or-miss. What they hit may be resubmitted for approval the following month or year. What they miss is converted, for the most part, irreversibly. The more broadly one regulates, however, the more uniformly and strictly one

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1985) (upholding the Corps' granting of six permits to clear wetlands for agricultural purposes as permissible under the guidelines).

25. U.S. CONST. amend V.

26. 474 U.S. 121 (1985).

27. *Id.* at 126-29 & n.6.

28. 107 S. Ct. 2378 (1987).

29. *Id.* at 2384-85.

30. *Id.* at 2388-89.

31. 107 S. Ct. 3141 (1987).

32. *Id.* at 3150.

33. The effect of these recent Supreme Court pronouncements on local governmental actions cannot be overstated. Attorneys for development interests have been quick to pick up the cry of "taking," along with the implied threat of governmental liability, in a range of local zoning decisions in the New Orleans area and in the proceedings of the Lake Pontchartrain Task Force, an inter-governmental agency established to develop a management plan for Louisiana's first area of critical environmental concern under the state's coastal management program.

acts to preclude development, and the more one runs the risk of an uncompensated taking.

This analysis leads to the following conclusions. First, regulatory programs cannot work because, at bottom, they are only that—regulatory programs.[34] They have bought us time; for this reason they need to be defended and applied. But that is all they can do. We must use this hard-won time to obtain an approach that meets the problem. Federal proposals within the past five years skirmish closer to the objective: one would bar federal infrastructure assistance in wetland areas and raise the price of, or eliminate, federal flood insurance;[35] another accelerates the acquisition of wetlands.[36] While each will be of assistance and each will buy more time, none will suffice. The federal government and coastal states must proclaim the overriding public interest in the protection of coastal areas; exclude certain classes of development, including major industrial, commercial, and residential uses; and permit, on a case-by-case basis, a residuum of more passive economic and other uses

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34. In this conclusion I find myself in unaccustomed agreement with those representatives of the Reagan administration charged with the execution of the § 404 program, who have insisted that § 404 is not an appropriate vehicle for wetland protection. *See, e.g.*, Address by William R. Gianelli, Assistant Secretary of the Army (Civil Works), at Water Forum '81 (Aug. 10, 1981) ("Section 404 program has gone far beyond its originally envisioned scope and beyond the appropriate role of the federal government in regulating the development . . . of our nation's waters and wetlands.") (unpublished manuscript on file with author).

The Coastal Zone Management Program, on the other hand, has been resisted by the administration because, in some instances, implementing states have used their authorities effectively to bar development supported by the federal government. *See Reagan Administration Turns to Courts to Limit Coastal Zone Management Act Program*, [Current Developments] Env't Rep. (BNA) 1334-36 (Dec. 12, 1986) (Delaware blanket prohibition on "bulk transfers" of coal, if permitted by CZMA, would violate the commerce clause according to the Justice Department). Those CZMA state programs also suffer from the same "spottiness" that characterized all water pollution programs prior to the "federalization" of pollution control by the 1972 Clean Water Act (CWA). Indeed, it often seems that the less coastline that remains, the more vigorous is the program to protect it. This phenomenon leaves the most important areas, such as Louisiana, vulnerable to the pressures of a weak local economy and strong development interests. In this matter, the administration's policy of "new federalism," returning authority to local governments, becomes a policy of the least protection possible. Where local programs are strong, the federal government seeks to override them in the courts or to defund them. *See id.* at 1334-36. Where they are weak, they so remain.

35. *See Watt Seeks Support for Measure Protecting Wetlands by Ending Subsidies, Raising Fees*, [Current Developments] Env't Rep. (BNA) 1666 (Jan. 28, 1983) (former Secretary of the Interior James Watt proposed bill to preserve wetlands by extending conservation loan and grant programs, providing new and higher user fees, and ending federal subsidies for destructive projects).

36. Emergency Wetlands Resources Act of 1986, Pub. L. No. 99-645, 100 Stat. 3582.

sufficient to enable the legislation to survive constitutional attack.[37]

This approach would have been, even to me, unthinkable a decade ago. It will certainly be unthinkable now to many state legislators, developers, and landowners. The time may not be right for its passage. But as the coastal base diminishes beach by beach, estuary by estuary, and state by state, the pressures for stronger action grow.[38] At some point before the entire Nation is reduced to the condition of Long Island—a highly developed seacoast with small museums of protected marsh—we will arrive at this approach, which is simply a stringent form of zoning. The question, as with most environmental solutions, is not "whether" but "when." The sooner that administrators, environmental organizations, fishermen, and other would-be coastal protectors recognize the limits of their existing approaches and the need to act more directly, the more likely we are to find a genuine solution in time.[39]

This approach, which could be called "genuine coastal zoning," runs its risk with a Supreme Court that is both increasingly hostile to

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37. The residual uses required to survive a constitutional attack remain undefined at this point in the law. While the literature on "taking" is enormous, each case will revolve on its own facts. The most recent Supreme Court pronouncement, however, Keystone Bituminous Coal Ass'n v. DeBenedictis, 107 S. Ct. 1232 (1987), reaffirms the longstanding principle that governmental restrictions will not constitute a taking requiring compensation so long as an economic use remains available to the owner. *Accord* Penn Cent. Transp. Co. v. New York, 438 U.S. 104 (1978); Pennsylvania Coal Co. v. Mahon, 260 U.S. 393 (1922).

38. Perhaps the best example of these pressures is the Chesapeake Bay Task Force, which is still laboring under the constraints of existing federal and state law. As a political matter, this stage of foundering about for answers with inadequate tools may be a prerequisite to moving more directly on the problem. This article attempts to point the way, and to some degree predict the way, that we will ultimately have to go to protect the Chesapeake Bay, Mobile Bay, Baritaria Bay, and the rest of America's coast.

39. America may be more ready for this approach than we believe. The collapse of the Nation's wetlands is now recognized, even by the most conservative of opinionmakers, as a national problem. The columnist James Kilpatrick has recently written:

> Twenty-five or 30 years ago, if I may intrude a personal note, I probably would have denounced the court's opinion [*Riverside Bayview Homes*] as an unwarranted extension of federal control over matters more wisely left to the states or to individual decision. In those fire-eating days, as a young editor in love with the state's rights and property rights, I tended to resist every extension of federal power.
>
> For the most part, I still feel the same way. On most issues I remain an unreconstructed states' righter, but the passing years have persuaded me that on problems that demonstrably are national in scope, a national approach is better. The disappearance of American wetlands is a national problem, involving damage to environmental systems that leap across state lines.

Kilpatrick, *Striking a judiciary blow for America's wetlands*, Times-Picayune (New Orleans), Dec. 17, 1985, at A-17, col. 1.

regulation and protective of individual property interests.[40] Nevertheless, based on past opinions of the Court, as opposed to the predilections of its more recent members, the "genuine coastal zoning" approach should prevail. The public purposes behind the zoning approach are compelling and quantifiable. The Louisiana coastal marshes, for example, have been valued in their natural state at $32 billion.[41] The residual uses in mineral leasing, agriculture, fish and wildlife harvest, and other related interests should suffice to defeat the taking claim.[42] In any event, the approach should be tried, as it is, with one exception, the most direct way to save the coast.

If the proposed legislation fails in the legislature or the courts, we would need to act even more directly: we take, or at least we take the development rights, and we compensate. Given the uncertainties of coastal development under current regulatory programs, the price of development rights may be less than feared. For example, assume 10 million acres of coastal wetlands are to be acquired[43] at a market price of $1,000 per acre.[44] The cost would be $10 billion for fee simple title, perhaps half that for development rights alone.[45] The cost is certainly not de minimus. The cost, however, can be amply justified by the economic benefits derived from coastal resources on a sustained-yield basis, and by savings in future investments we will *not* have to make to protect beachfront property. The case for acquisition can be made.[46]

The question remains: Who pays? The answer should parallel that provided for the cleanup of hazardous waste sites[47] and the

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40. *See supra* notes 25-32 and accompanying text.

41. *See* Houck, *supra* note 2, at 99.

42. *See supra* note 37

43. Some rather extensive coastlines such as that of Louisiana, where individual and commercial development is not a threat, need not be acquired at all.

44. The price is considerably less in Louisiana, in the order of $400 per acre. *See* Harrison Ryan v. Southern Natural Gas Co., No. 86-794, slip op. at 18 (E.D. La. filed Oct. 27, 1987).

45. The relationship of the price of development rights to fee simple rights will of course vary greatly from Cape Cod, where development is the primary value, to Texas, where subsurface minerals are the primary value.

46. Indeed, a more palatable means of acquiring these rights might be to set up a fund for their acquisition on a voluntary basis, coupled with a stringent regulatory program. I have yet, however, to see such an approach succeed on more than a localized basis to protect a local resource. Perhaps the largest example is the complex scheme of restrictions and blandishments that make up the program to preserve the New Jersey Pine Barrens. N.J. STAT. ANN. §§ 13:18A-1 to :18A-49 (West Supp. 1987). These local efforts will result in a few more museums. The alternative is a national program.

47. Comprehensive Environmental Response, Compensation, and Liability Act of

abandoned mines of Appalachia.[48] In the case of wetlands, the destruction has been caused largely by real estate development. To be sure, not all developers have destroyed wetlands. But it is equally true that a number of chemical companies have left no toxic traces and at least some coal companies can be assumed not to have wasted their lands. Developers as a whole, however, are more responsible than anyone else for the damage done to the wetlands.

Developers are also in a position to pay. One direct method would be a federal or state tax on new residential and commercial construction. With 1,807,100 new housing starts[49] in 1986, a premium of only $100 per residential structure would yield $180 million annually.[50] This would be more than enough for a compensation program to be phased in over the next ten years while the existing regulatory programs do their best to hold the line. Alternative or supplemental revenues could be obtained from a tax on real estate transfers, including, or restricted entirely to, transfers of undeveloped lands. Additional revenues might also be raised in the form of transfer fees, building permit fees, or taxes on existing property owners in coastal areas whose property values could be increased significantly by barring new development.[51] For acquisition in the short term while the need is acute, general funds could be appropriated, reimbursed later by these premiums. This is the mechanism that has fueled the federal acquisition of wetland waterfowl habitat.[52] Even if the federal government were unwilling to impose these taxes directly, it could condition state coastal management funding on the passage of state legislation imposing such taxes and allocating the proceeds to coastal acquisition. Similar requirements have been highly successful in the Pittman-Robert-

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1980, 42 U.S.C. §§ 9601-9657 (1982 & Supp. III 1985) (also known as CERCLA or "Superfund").

48. Abandoned Mine Reclamations, 30 U.S.C. §§ 1231-1243 (1982 & Supp. III 1985).

49. BUREAU OF CENSUS, U.S. DEP'T OF COMMERCE, HOUSING STARTS 3 (Aug. 1987).

50. One could reduce this premium considerably by imposing a similar fee on *commercial* construction. Another alternative would be to assess a fee based on the *value* of residential and commercial construction. Residential construction was valued at $187 million in 1986 and private nonresidential construction totalled $91 million. BUREAU OF CENSUS, U.S. DEP'T OF COMMERCE, VALUE OF NEW CONSTRUCTION PUT IN PLACE 5 (May 1987).

51. These premiums are, of course, adjustable in relation to commercial premiums, premiums on other construction (*e.g.*, shopping centers), the total amount envisaged as needed, and the time over which the program is projected.

52. *See* Migratory Bird Conservation Act, 16 U.S.C. § 715 (1982 & Supp. IV 1986).

son[53] and Dingell-Johnson[54] programs.

The purpose here is not to propose a specific scheme, but rather to indicate that mechanisms are available for the job—a job that at first blush could appear impossibly massive. Granted, the real estate industry will not like it, but the Superfund was not well liked by the chemical industry either. All of these solutions depend, initially, on recognizing what needs to be done. That recognition begins with accepting the fact that what we are doing now will not suffice.

## II. COASTAL DESTRUCTION

> Fifteen years ago, our situation was desperate . . . . Today it is at the catastrophic level. It is now a foregone conclusion that most of the remaining wetlands in Louisiana's coastal zone will be lost along with many of our coastal communities.[55]

As far reaching (or far-fetched) as the previous proposal may seem, it does not go far enough. Large areas of the coast are being destroyed directly by a kind of development that has nothing to do with encroaching human occupation. I will speak from my own experience of the Louisiana coastal zone, with occasional references to Florida and Alaska. Louisiana has 397 miles of coastline, 7,721 total miles of shoreline, and 7,656 square miles of estuaries within its coastal zone.[56] They are being taken, at a rate that staggers the imagination, by an assault of transportation and transmission corridors that is killing the host in the fashion of "a million blows."

In Louisiana the onslaught stems primarily from oil and gas development and the related demands of navigation.[57] Oil and gas deposits underlie the Louisiana coastal zone, as they do the Alaskan coastal plain and the southern wetlands of Florida. To access sites in Louisiana the industry dredges canals, hundreds of new canals a year—an estimated 10,000 miles of canals within the last fifty years. To export the product the industry lays pipelines—thousands of

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53. Federal Aid in Wildlife Restoration Act of 1937, 16 U.S.C. § 669 (1982 & Supp. IV 1986).

54. Federal Aid in Fish Restoration Act of 1950, 16 U.S.C. § 777 (1982 & Supp IV 1986).

55. *Erosion Expert: La. needs plan to save its marshes from ruin*, Times-Picayune (New Orleans), Nov. 10, 1984, at A-26, col. 2 (quoting Dr. Sherwood Gagliano, head of Coastal Environments, Inc.).

56. OFFICE OF WATER RESOURCES, LOUISIANA DEP'T OF ENVIRONMENTAL QUALITY, LOUISIANA WATER QUALITY MANAGEMENT PLAN 1 (1987).

57. The data and the processes described in the following two paragraphs of the text are taken from Houck, *supra* note 2, at 24-70 (and sources cited therein).

miles of pipeline—throughout the coastal zone. The Louisiana marsh is fragile, more fragile than the Everglades. The canals erode. They not only remain in place, as they do across the Alaskan tundra, they widen through their banks at a rate that will double their size within ten years. In twenty years they will have doubled again. Double and double—that is the rate of cancer.

The damage does not end here. This is only the most direct effect. Each canal and pipeline provides new access for the salt waters of the Gulf of Mexico. The Gulf intrudes, its more saline waters killing the plant life that holds the soils together; the roots disintegrate; the soil disintegrates; and the marshes disappear. The canals also bisect natural waterflow. They squeeze off subsurface flow as efficiently as a tourniquet. They impound and create lakes, as well as stagnate and degrade marsh, sometimes miles from their location. The sum of these effects has led one team of researchers to conclude: "In general, where canal density is high, land losses are high; where land losses are low, canal densities are low . . . . Canals, therefore, may be responsible for 89% of the total land loss."[58] Similar phenomena and their resultant damages can be seen in Alaska,[59] as well as in the Everglades and the Big Cypress watershed for Florida's coastal zone.[60] To these canals can be added networks of roads, dikes, and causeways, each disrupting the systems that have built the coastal marshes, and on which their survival depends.

The destruction continues. The Corps' records for the past seven years show an average of 899 permits yearly for activities in the Louisiana coastal zone.[61] To these individually permitted

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58. Scaife, Turner & Costanza, *Coastal Louisiana Recent Land Loss and Canal Impacts*, 7 ENVTL. MGMT. 433, 440 (1983).

59. For a rosy view of the oil industry's efforts to protect Alaska's "extremely valuable" North Slope wetlands, see Posey, *Wetlands and Oil: Coexistence on the Tundra*, EPA J., Jan.-Feb. 1986, at 19, 20. Atlantic Rockfield Corporation has developed a manual for oil and gas development on the North Slope that "incorporates the best available civil engineering technology on hydrology in arctic wetlands to maintain natural drainage patterns in wetland and shoreline areas." *Id.* at 20.

60. Florida's more diverse wetland threats are described in Hamann, *The Evolution of Florida Wetlands Regulation*, in ASSOCIATION OF STATE WETLANDS MANAGERS, CENTER FOR GOVERNMENTAL RESPONSIBILITY, WETLAND PROTECTION: STRENGTHENING THE ROLE OF THE STATES 40 (July 1985) and FISH & WILDLIFE SERV., U.S. DEP'T OF THE INTERIOR, WETLANDS OF THE UNITED STATES: CURRENT STATUS AND RECENT TRENDS 40-41 (Mar. 1984) (describing the environmental problems facing South Florida's Palustrine Wetlands).

61. New Orleans District records show that 1,371 § 404 permits were issued in 1980; 1,202 in 1981; 1,389 in 1982; 1,023 in 1983; 750 in 1984; 726 in 1985; and 609 in 1986. Activities authorized by state or regional permits and by nationwide permits totalled 300

projects can be added an almost equal number of activities that have been exempted under general permits.[62] The state's coastal zone records are corroborative.[63] The dominant activity in the zone is oil and gas development. When the price of oil dropped in the early 1980s from $30 to $12 a barrel, the pace of new drilling activity in the coast dropped accordingly. With the rise of oil to $20 a barrel, Louisiana has already seen a new surge of exploration.[64] While this is welcome news for the Louisiana economy, it is grim news for its coastal marshes. Unless some new way is found to access these deposits, we will cause the destruction of more coastal acreage than we could ever hope to salvage or replace.[65]

Once again, we are relying on regulatory programs to stem the tide—programs which are not up to the job. Both the federal section 404 program and its Louisiana counterpart require permits for access canals and transmission corridors. The federal permits are issued under the Corps' "public interest" guidelines[66] and the EPA's section 404(b)(1) guidelines.[67] Louisiana's permits are issued under its coastal management guidelines which, in pertinent part, closely resemble the EPA's test in section 404(b)(1).[68] The bottom-line issue in all permit decisions is the availability of alternatives. In a typical permit, the applicant will assert that it needs to get from A to B, and a dredged canal (or, in Florida, the access road) is the only feasible approach available. A "no action" decision or permit denial denies the applicant's property right in the deposit. Thus, the permit should be granted.

In a limited sense, the applicant is correct. It may not have an

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in 1980; 500 in 1981; 650 in 1982; 733 in 1983; 1,005 in 1984; 1,184 in 1985; and 1,162 in 1986. As can be seen, general permitting has supplanted about half of the individual permitting of seven years ago, but the level of activity remains near 2,000 actions a year. Inspection of Records of Permit Section, New Orleans District, U.S. Army Corps of Engineers, by James Yates (Nov. 16-20, 1987).

62. *Id.*

63. *See* Houck, *supra* note 2, at 158-59.

64. The rig utilization rate for the Louisiana coastal zone as of September 27, 1987, stood at 55.6% as opposed to a 29.5% usage rate one year from that date. Times-Picayune (New Orleans), Sept. 27, 1987, at G-10, col. 1.

65. Even with newly imposed requirements for directional drilling, Louisiana will, over the next ten years, permit the loss of more marsh acreage to oil and gas canals (approximately 20,000 acres) than it will create with the proposed $25 million freshwater diversion structure at Caernarvon (approximately 16,000 acres). *See* Houck, *We can't protect coast while destroying it*, Times-Picayune (New Orleans), July 8, 1987, at A-14, col. 1.

66. 33 C.F.R. § 320.4 (1987).

67. *See supra* note 20 and accompanying text.

68. *See supra* note 21.

available access alternative. Helicopters are expensive. So is directional drilling, even if technologically feasible at the given site.[69] The canal, on the other hand, is the traditional way. An entire dredging industry is available and willing to dig it. In these decisions, we are limited to the means of the individual applicant and the state of the art. For these reasons, the regulatory permit process for wetland development is no more effective than it is for residential and commercial development. The site is a given. Case-by-case review does not work. Neither does the state of the art. We need a program that looks beyond both the individual applicant and the limits of today's practices.

Such a program is, for largely similar reasons, exactly what the CWA prescribes for point source discharges: the best available technology (BAT).[70] In 1972 Congress explicitly concluded that the state of the art should be advanced by "action-forcing" technology and that the guidelines for this technology, as well as the permits issued under them, should not be limited to the means of individual applicants.[71] This process was, and remains, an effective way to clean up pollution.

Unfortunately, for reasons deeply rooted in the politics of dredge and fill activities, Congress exempted these operations from the National Pollutant Discharge Elimination System (NPDES),[72] creating an uneasy regulatory partnership between the Corps and the EPA, and producing decisions that focus on the impacts of the proposed activity rather than on technology. As we have seen, the EPA's section 404(b)(1) guidelines do require consideration of available alternatives; this consideration, however, is limited with regard to oil and gas deposits that are located in one particular location. What we are left with is a review of impacts and, perhaps, the alternative technologies of the moment. What we need instead is review based on BAT.

A BAT standard is particularly appropriate for oil, gas, and re-

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69. To its credit, the Louisiana Geological Survey has begun a case-by-case review of permits to evaluate the feasibility of directional drilling—a scrutiny that, combined with the temporary downturn in oil exploration, has led to substantial reductions in new canals. *See* Houck, *supra* note 2, at 151; Telephone interview with Johnny Johnston, Louisiana Geological Survey (Oct. 15, 1987).

70. The CWA prescribes standards for industrial discharges based on, at this point, the "best practicable control technology currently available." 33 U.S.C. §§ 1311, 1314 (1982 & Supp. III 1985).

71. *See* Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1036-37 (D.C. Cir. 1978).

72. *See* SENATE COMM. ON PUBLIC WORKS, 93D CONG., 1ST SESS., A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, at 1386-93 (Comm. Print 1973).

lated activities in the coastal zone. We are dealing with an industrial category similar to other categories in the NPDES program. This is a cohesive industry, all of whose members get the job done in the same basic way. We are dealing with a technology that is as identifiable as the treatment of process water from a chemical plant or of fish remains in a cannery.[73] Furthermore, as a class or category, few industries in the United States are in a better position to absorb the costs of a new technology.

What would BAT look like? It would be a "practice" standard,[74] as opposed to an effluent limitation. The guideline would examine available technologies for analogous operations in the United States and abroad. It would discover, for example, the construction and use of hovercraft to take passengers, heavy equipment, and even armored companies of United States Marines across waterways and marshes with only a negligible and temporary impact.[75] It would bring the experience of England and Alaska to Louisiana and Florida.[76] It would assess the costs of these technologies, calculate their economic impacts, and conclude in all probability that they are "available" within the meaning of the CWA.[77]

As a matter of procedure, the EPA should require this technology under its section 404(b)(1) guidelines which, as written, appear broad enough to allow it.[78] Granted, the EPA has never used its

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73. Indeed, the technological considerations would be more sophisticated than those involved in fish processing, for example. *See* Association of Pac. Fisheries v. EPA, 615 F.2d 794 (9th Cir. 1980) (guidelines for canned and preserved seafood processing).

74. *See id.* at 802 (example of a practice standard).

75. *See* O'Byrne, *Hovering barge may save marshes*, Times-Picayune (New Orleans), May 31, 1987, at C-2, col. 3. *See also* Brown, *SAS Begins AP-188 Hovercraft Service*, AVIATION WEEK AND SPACE TECH., Aug. 6, 1984, at 36-37 (details and specifications of Scandinavian Airline System's hovercraft service between Denmark and Sweden); Crawford, *Hover vehicles offer uplifting services*, OFFSHORE, Feb. 1979, at 111-12 (hovercraft vehicles used in North Sea, Dead Sea, Yukon River, and Persian Gulf by offshore contractors); Elson, *Air Cushion Vehicle Readied for Testing*, AVIATION WEEK AND SPACE TECH., May 23, 1977, at 54-58 (specifications of high-performance air cushion vehicle used as Marine Corps amphibious advanced assault landing craft).

76. *See* Hamer, *Hovercraft makers prepare for the future*, NEW SCIENTIST, Dec. 19-26, 1985, at 34; Ramsden, *Hoverbarge Transports Mukluk Drilling Rig*, PETROLEUM ENG'R INT'L, Sept. 1984, at 10-12; Abele & Brown, *Arctic Transportation: Operational and Environmental Evaluation of an Air Cushion Vehicle in Northern Alaska*, 99 J. PRESSURE VESSEL TECH. 176 (Feb. 1977).

77. For example, technologies recently proposed for the plastics manufacturing category will be "available" at a substantial cost to the industry, resulting in a number of plant closures. *Organic Chemicals, Plastics Industry Face New Costs Under EPA Final Regulations*, [Current Developments] Env't Rep. (BNA) 1736-38 (Nov. 13, 1987). The value of the BAT approach is that the technology can be studied on an industry-wide basis, and its application need not be constrained by the means of an individual applicant.

78. *See supra* note 20.

rulemaking authority to develop what is in effect a section 404(b)(1) BAT standard. Alternatively, then, the Corps could develop and issue the requirement as guidance to its Districts, or to its coastal Districts, under its section 404(a) authority.[79] Whichever agency chooses to act, the need here is to recognize that alternative technologies are available and must be used.

The future of the coastal zone depends upon more than arresting beachfront development. It depends also on new methods to carry on indispensable economic activity without destroying the coast. The EPA and the Corps should exercise their section 404 authorities to develop and require these methods.[80]

## III. COASTAL POLLUTION

> All the fish around here come and go in cycles, and years back, you could anticipate the cycles, but today, with the pollution the way it is, you can't be so sure that a fish that's gone will ever come back at all.[81]

This said, coastal pollution may overwhelm us. With all of the effort dedicated to water pollution control since 1972, including the development of technology standards, toxic standards, and a rigorous permit system, coastal estuaries are more polluted than ever by phosphorous, nitrogen, fecal coliform, and the most common varieties of waste. The available evidence on cadmium and other heavy metals suggests that toxic pollutants are also on the rise, but are simply less well documented.[82] Indeed, the major oversights and outright failures of the CWA are visited directly on the coast: nonpoint source pollution, sewage discharges, and water-quality-based remedies for degraded waters. As with the other assaults on coastal resources, unless they are met more directly, they will

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79. The Corps' permitting authority requires consideration of "reasonable alternative locations and methods to accomplish the objectives of the proposed structure or work." 33 C.F.R. § 320.4(a)(2)(ii) (1987).

80. Although this text is focused on the destruction caused by existing oil and gas access practices, the same could be said of coastal *fishing* practices, which accidentally destroy billions of tons of seafood netted in the process. *See Shrimper's concern on waste*, Times-Picayune (New Orleans), Oct. 13, 1987, at A-12, col. 1. (Louisiana's shrimp fleet "has grown so large that it is destroying over 1.5 billion pounds of sealife (by catch) annually."). Available technology to exclude fish and other unwanted species, including endangered sea turtles, has been vigorously resisted by Louisiana's commercial fishermen. *See Panel notes down delay on TEDs*, Times-Picayune (New Orleans), Nov. 20, 1987, at A-5, col. 1.

81. P. MATHIESON, MEN'S LIVES: THE SURFMEN AND BAYMEN OF SOUTH FORK (1986), *quoted in* OTA, *supra* note 11, at 53.

82. *See* sources cited *supra* note 11.

prevail.[83]

### *A. Nonpoint Source Pollution*

> Agriculture Commissioner Gil Dozier says he is willing to write off a northeast Louisiana lake in order to allow cotton farmers near the lake to spray toxaphene to kill bugs.
>
> Lake Providence is contaminated with the pesticide to the point that eating a fish from it would be inviting cancer. Dozier insists it poses no danger to human health so long as fishing is banned.[84]

The CWA emerges, after fifteen years of operation, as a story with good news and bad. The control of industrial point source discharges has led to a modest and generalized reduction in industrial pollutants, with the promise of more improvement as best available technology and toxic standards come in line.[85] This is the good news. The bad news is that this improvement has been offset, indeed overwhelmed, by a bewildering range of nonpoint source pollution: runoff from farms, hillsides, construction sites, streets, and shopping centers.[86] This year, more than six billion tons of soil will erode from nonfederal lands alone.[87] Approximately 70 percent of all sediment, 90 percent of fecal and other coliforms, 80 percent of nitrogen, and 50 percent of all phosphorous pollution comes from nonpoint sources.[88] This pollution affects almost one-quarter of the

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83. A recent government study made three major findings:

> Estuaries and coastal waters around the country receive the vast majority of pollutants introduced into marine environments. As a result, many of these waters have exhibited a variety of adverse impacts, and their overall health is declining or threatened.
>
> In the absence of additional measures, new or continued degradation will occur in many estuaries and some coastal waters around the country during the next few decades (even in some areas that exhibited improvements in the past).
>
> In contrast, the health of the open ocean generally appears to be better than that of estuaries and coastal waters.

OTA, *supra* note 11, at 3.

84. *Dozier Supports Sacrificing Lake to Use Pesticide*, Morning Advocate (Baton Rouge), May 25, 1979, at B-1, col. 1.

85. *Toxic Pollutants Concern Most States But Water Quality Better Overall, EPA Says*, [Current Developments] Env't Rep. (BNA) 1831 (Feb. 24, 1984) [hereinafter *Water Quality*].

86. "Nonpoint source pollution . . . continues to degrade the waters of most states and comprises 'the most important cause of water degradation' in about 10 states." *Id.* *See also Non-point Sources Found by INFORM to be Major Contributors of Toxics to Hudson River*, [Current Developments] Env't Rep. (BNA) 1263 (Aug. 28, 1987) [hereinafter *Hudson*] ("Non-point sources of certain chemicals have contributed significantly more pollution to the Hudson River than point sources."); Sferra, *NWF Urges Water Mandate*, NATIONAL WILDLIFE FEDERATION LEADER, Aug. 1983, at 6, col. 1 [hereinafter *NWF*] ("Thirty-seven states have reported to the . . . EPA that nonpoint sources are the major factors interfering with attainment of water quality standards.").

87. *NWF*, *supra* note 86, at 6.

88. *Id.*

Nation's rivers, one-third of its lakes, and, most relevant to this inquiry, 19,000 of its 32,000 square miles of estuaries.[89] A survey of 2,205 square miles of Louisiana estuaries characterized more than one-third of those estuaries as moderately or severely impaired.[90] Recent studies conducted upon a much larger scale have put the total figure at 3,000 square miles,[91] more than one-third of the estuaries of Louisiana. Whatever the exact figure, every year a band of "dead water" expands across the Louisiana marshes, and the band is growing larger.

More sophisticated pollutants also join the nonpoint mix, with agriculture as the primary source. Fertilizers contribute the major phosphates loadings.[92] Pesticides have on two occasions eliminated the Brown Pelican (the Louisiana state bird) from Louisiana shores.[93] From the urban side comes lead, cadmium, oil, and grease. A recent study on the Hudson River showed that while point sources discharged 239 pounds of lead, nonpoint sources were discharging 182,320 pounds.[94] Lead was not alone. Nonpoint sources on the Hudson also outweighed point sources in polychlorinated biphenyls (PCBs) (2,500 pounds to 0.4), cadmium (4,190 pounds to 6), mercury (540 pounds to 0.7), arsenic (24,180 pounds to 28), and oil and grease (9.2 million pounds to 385,730).[95]

Faced with this and other incontrovertible evidence, Congress redirected the CWA toward the control of nonpoint sources.[96] In so doing, it in effect split the nonpoint world into urban and agricultural sources. Urban stormwater, which captures most urban nonpoint pollution, will come under the NPDES program, with permits required for major urban centers at once, and for smaller cities over time.[97] All major municipalities are scheduled to be under per-

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89. *Farms polluting La.'s waters, study finds*, Times-Picayune (New Orleans), Jan. 10, 1987, at A-1, col. 1; A-4, col. 5.

90. OFFICE OF WATER RESOURCES, LOUISIANA DEP'T OF ENVIRONMENTAL QUALITY, 1986 WATER QUALITY INVENTORY REPORT § 3.05(b), at 39 (1986) [hereinafter INVENTORY REPORT].

91. *Scientists report on 'dead zones,'* Morning Advocate (Baton Rouge), Sept. 23, 1987, at B-1, col. 5.

92. OTA, *supra* note 11, at 75. Agricultural runoffs contain large amounts of pesticides and herbicides as well. *Id.*

93. *See* G. LOWERY, LOUISIANA BIRDS 121-25 (3d ed. 1974).

94. *Hudson*, *supra* note 86, at 1263.

95. *Id.*

96. *See* Water Quality Act of 1987, Pub. L. No. 100-4, §§ 319 (nonpoint sources), 405 (municipal nonpoint sources), 101 Stat. 7, 55, 69 (1987) (to be codified at 33 U.S.C. §§ 1329, 1342(p)).

97. *Id.* § 405 (to be codified at 33 U.S.C. § 1342(p)). The Water Quality Act of 1987 requires that all industries that discharge into sewage systems and municipalities with

mit by 1993 and in compliance by 1996.[98] While it may be argued that Congress has once again established unrealistic deadlines, particularly since no city has yet devised a means to control sudden slugs of stormwater, this program holds the same promise for "action-forcing" solutions that the industrial program did fifteen years ago. Thus, urban nonpoint is at least on a track worth pursuing.

The same cannot be said for agriculture, the major nonpoint contributor (which may speak volumes about the relative strength of cities and agriculture in American politics). The dominant role of agriculture in nonpoint and estuarine pollution is well recognized. The measures needed to control it are also well known, technologically available, relatively simple, and, by contrast to municipal and industrial controls, relatively cheap. We are not talking about the invention, adoption, and maintenance of hardware. Instead, we are talking about such farm practices as shelterbelts, winter plowing, and the application of pesticides. To date, such talk is heresy.

In 1987 Congress looked agricultural pollution in the eye and fainted. After its "overhaul" of the CWA, the best Congress could do was provide optional funding for the development of state nonpoint source programs.[99] According to a 1982 survey of state programs, forty-seven states already had nonpoint source programs of one sort or another in place.[100] At best, the new federal funding will encourage more specificity in these plans. More likely, it will produce a second round of paperwork comparable to that generated in the early 1970s by the hauntingly similar section 208 program.[101] Like the 1987 amendments to the CWA, section 208 was intended to fund state planning for nonpoint (and point, in an ill-defined way) source pollution. Unfortunately, the "overhauled" CWA offers no new recipe for success.

To their credit, some members of Congress did try. The key to effective agricultural pollution control lies in linking the massive

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more than 250,000 people have a permit by 1991, and to be in compliance within three years of receiving the permit. *Id.* § 405 (to be codified at 33 U.S.C. § 1342(p)(4)(A)).

98. *Id.* § 405 (to be codified at 33 U.S.C. § 1242(p)(4)(B)).

99. The Water Quality Act of 1987 provides federal grants and subsidies of up to 60% of the cost of state nonpoint management programs. *Id.* § 319 (to be codified at 33 U.S.C. § 1329(h)(3)). These programs must be approved by the EPA. Approval hinges upon identification of the following: navigable waters which cannot maintain water quality standards without nonpoint source control, categories of nonpoint sources, and the best management practices and measures to control each category. *Id.* § 319 (to be codified at 33 U.S.C. § 1329(a)(1)).

100. *Water Quality*, *supra* note 85, at 1832 .

101. *See* 33 U.S.C. § 1288 (1982). Subsection (f) provides federal grants for areawide planning to control nonpoint waste.

federal assistance and subsidies offered to the American farmer with sound conservation practices. Linkage of this sort provides suitable conditions to effectuate federal policies and is commonplace in virtually every federal assistance program, including employment, civil rights, and environmental protection.[102] Proposals to link farm subsidies with conservation in the 1987 amendments, however, met with protests from the American Farm Bureau Federation, the National Cattlemen's Association, the Texas Soil and Water Conservation Board, and perhaps most fatally, from Senator Lloyd Bentson (D-Texas), who stated that the 1987 amendments would be "killed" if "cross-compliance" language were involved.[103] The language was dropped in committee.[104]

We are now running out of choices. There is no reason to expect a farm state to curb its constituents in order to benefit a distant estuary. There is hardly more reason to expect even a coastal state, where the coastal impacts are most directly felt, to impose these curbs on its own farmers, given the rural influence on state legislatures. "Voluntary" state programs hold about the same promise as voluntary abstinence by real estate developers, which leaves two options: the imposition of more mandatory state programs, or the use of federal "cross-compliance." When it comes to state programs and the marginal economic benefits of winter plowing, of draining a few more potholes, and of putting a little more shelterbelt into cultivation, the state can either forbid these practices outright (which is all but unimaginable) or attempt to reduce them by tax or other blandishments (a solution that will be both costly and sporadic).[105]

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102. Houck, *This Side of Heresy: Conditioning Louisiana's Ten-Year Industrial Tax Exemption upon Compliance with Environmental Laws*, 61 TUL. L. REV. 289, 348 (1986). The first such statute was the Buy American Act of 1933 (codified at 41 U.S.C. § 10(b) (1982)). *Id.* at 348 n.327.

103. *Bentsen, Durenburger, Others Disagree over Requirements for Non-point Sources*, [Current Developments] Env't Rep. (BNA) 431 (July 22, 1983).

104. *Id.*

105. Federal tax incentives, similar to those offered to industry for point source pollution control equipment, could encourage more widespread reduction. The "sodbuster" provisions of the new farm bill provide direct payments for practices that will reduce nonpoint pollution, so long as these payments continue. The Food Security Act of 1985, Pub. L. No. 99-198, §§ 1211-1213, 99 Stat. 1506-07 (to be codified at 16 U.S.C. §§ 3811-3813)). *See generally* ECONOMIC RESEARCH SERV., U.S. DEP'T OF AGRICULTURE, SWAMPBUSTING: WETLAND CONVERSION AND FARM PROGRAMS (Aug. 1986) (noting that without federal price supports and tax incentives, conversion of wetlands to agriculture is, in most cases, unprofitable). Part of the cost of these programs is in their duration. An incentive to adopt an industrial technology has a fixed life, after which the technology is maintained by the industrial source. Incentives for nonpoint practices, on the other hand, represent a continuing and unpredictable outlay; when the market changes or the money stops flowing, the deal may end. With regard to the Conservation Reserve

While the EPA now has the means to encourage state programs, it has little means to mandate effective ones, because other federal agencies are at the same time encouraging farmers, through the use of almost $20 billion in price supports[106] and nearly a billion more in other assistance programs,[107] to drain, clear, fall plow, and apply chemical fertilizer and pesticides.

The 1987 amendments may be worse than no response at all to the agricultural pollution problem, for, while offering the illusion of a remedy, they in fact offer a program that has failed once before and contains no new ingredients. It is better to acknowledge that the problem has yet to be addressed. The most effective leverage on farm practices is federal farm assistance and farm subsidies. Until we are ready to accept this conclusion and implement it, farm pollution will continue to degrade rivers and their estuaries.

### *B. Municipal Sewage Treatment*

> The nation's sewage treatment plants remove about 13,600 tons a day of two principal pollutants, an improvement of 65 percent over 1973 levels. It [EPA] attributed this reduction to construction grants to state and local governments aimed at enhanced treatment levels of municipal waste water.
>
> Although the population served by municipal treatment plants has increased by 18 million people in the past 10 years, and municipal waste water flow has risen 7 billion gallons a day, the E.P.A. said, "*The total amount of pollutants entering the nation's waters from these plants stayed roughly constant.*"[108]

This is a rather shocking conclusion. Even with the billions of dollars invested over the past fifteen years in the construction of municipal sewage treatment works,[109] we are barely holding our

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program, conservationists are reported to be worried about "what will happen . . . once the program's 10-year contracts run out, especially if world food prices recover by then and make 'fence row to fence row' planting profitable again." *Conservation Reserve Program Half Full*, LAND LETTER, Oct. 1, 1987, at 8.

106. DOMESTIC POLICY ALTERNATIVES TASK FORCE, NAT'L AGRICULTURAL FORUM, ALTERNATIVES FOR U.S. FOOD AND AGRICULTURAL POLICY 72-74 (Dec. 1984). In 1983 the federal government paid out $28.3 billion in farm-price- and income-support programs and in-kind commodities. *Id.* at 72.

107. The U.S. Department of Agriculture's Agricultural Stabilization and Conservation Service was budgeted for $215.2 million, and the Soil Conservation Service's budget totalled $675.1 million in 1986. *Reagan's 1988 Natural Resources Stresses Recisions, User Fees, Cuts in Land Acquisition*, LAND LETTER, Jan. 15, 1987, at 2.

108. *E.P.A. Finds Significant Progress in Controlling Pollution of Water*, N.Y. Times, Feb. 12, 1984, § 1, at 31, col. 1 (emphasis added).

109. The federal government has spent more than $40 billion in the past 15 years for the construction of municipal treatment systems. OTA, *supra* note 11, at 209. The federal monies are provided under §§ 201-210 of the CWA, 33 U.S.C. §§ 1281-1299 (1982 & Supp. III 1985). This figure does not include state and local expenditures, which would nearly double the bill.

own. The effects of treatment are simply offset by the number of new subdivisions, new office complexes, and new dischargers that tie into the treatment plants.[110] We are like a dog chasing our tail.

Worse, the chase cannot continue indefinitely. The 1987 amendments signal the end of federal assistance for sewage treatment construction.[111] In a few years the federal monies will be gone, and it will be up to the states and local governments to construct and maintain publicly owned treatment works (POTWs).[112] Maintenance over the long term may prove to be the more formidable hurdle. And the newly constructed plants are operating at little more than 50 percent efficiency.[113] And at the end of the most efficient of operations, we are left with sludge, mountains of sludge, over ten million dry metric tons by the year 2000.[114]

The federal leverage over sewer dischargers that are not in compliance is quite limited. To its credit, the federal government has begun an enforcement campaign against major municipal viola-

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110. The size of the problem has been summarized by the Office of Technology Assessment as follows:

> Over 15,000 POTWs currently operate in the United States and each year they treat and discharge approximately 9.5 trillion gallons of wastewater. More than 2,200 POTWs are located in coastal counties, and they discharge about one-third of the Nation's municipal effluent. POTWs also produce increasing amounts of sewage sludge. The total amount generated by all POTWs more than doubled during the last decade, and almost 40 percent originates from POTWs located in coastal counties.
>
> By the year 2000, total sludge production could increase to over 10 million dry metric tons. The amount of effluent is expected to increase to between 13 and 16 trillion gallons per year. These increases will result from expanded use of secondary and advanced treatment processes, which produce more sludge, and increases in population, sewerage hookups, and numbers of POTWs.

OTA, *supra* note 11, at 217.

111. Water Quality Act of 1987, Pub. L. 100-4, §§ 211, 607, 101 Stat. 7, 21, 26-28 (to be codified at 33 U.S.C. §§ 1287, 1387).

112. The federal monies are to be terminated with grants totalling $9.6 billion through fiscal year 1990, at which time an additional $8.4 billion is appropriated to establish state-run, low-interest revolving loan programs. *Id.* This money is, of course, no longer "free" to local communities who will henceforth shoulder the entire burden to construct new facilities and maintain the current ones.

113. Based on a survey of 531 randomly selected major dischargers in 6 states, the General Accounting Office estimated that 82% of the dischargers exceeded their permit limits at least once during an 18 month period and that 31% of the dischargers that exceeded permit limits for one or more pollutants did so by 50% or more for at least 4 consecutive months. U.S. GEN. ACCOUNTING OFFICE, REPORT TO THE ADMINISTRATION, UNDERWATER DISCHARGERS ARE NOT COMPLYING WITH EPA POLLUTION CONTROL PERMITS, at i-iii (Dec. 2, 1983).

114. For an overview of the management of dredged material, see OTA, *supra* note 11, at 237.

tors.[115] Fines against these violators are assessed with increasing frequency,[116] but there are limits to what can be wrung from hard-pressed municipal budgets. Moreover, while an industrial discharge can be enjoined, no one has seriously proposed shutting down a POTW.[117] From time to time, a caring government and a daring court may undertake to replace a noncomplying POTW management with an appointed receivership.[118] The success of the receivership will depend, however, on funding that will be, as it wears out, increasingly difficult to obtain and technology that will be increasingly costly to maintain. Thus, we are locked into a program of hardware that in the best of circumstances has maintained a semi-polluted status quo. Furthermore, we lack the means to ensure even these results.

The impact of inadequate sewage treatment on estuarine resources[119] is perhaps even more dramatic than that of agricultural or industrial sources.[120] Fecal coliform alone has shut down Louisiana's oyster beds.[121] The same goes for shellfishing in Washington's Puget Sound,[122] and it may even be true for the shellfish harvests of Massachusetts and the Chesapeake Bay. Once again, from a coastal standpoint, we need a better answer.

One way is to return to first principles. When one stops to consider it, the idea of using water resources—on whose purity our health and that of other animals depend—to flush away and absorb human wastes is a little barbaric. One of the earliest taboos of the

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115. *See EPA Memorandum Reviewing Suits Filed Against Cities to Enforce National Municipal Policy under Clean Water Act*, [Current Developments] Env't Rep. (BNA) 1214 (Nov. 1, 1985).

116. The most massive fine to date has been assessed against the Puerto Rico Aqueduct and Sewer Authority in the order of $32,032,600. United States v. Puerto Rico Aqueduct and Sewer Auth., 25 E.R.C. 1921 (D.P.R. 1987).

117. *See* Montgomery Envtl. Coalition, Inc. v. EPA, 19 E.R.C. 1169, 1171 (D.C. Cir. 1983) ("[P]etitioners' interpretation of the Act ignores the fact that municipal sewage treatment plants simply cannot be shut down for violations of the Act; countervailing considerations of public health require that treatment facilities continue to operate.").

118. *See Court-Created Receivership Emerging as Remedy for Persistent Noncompliance with Environmental Laws*, 10 Envtl. L. Rep. (Envtl. L. Inst.) 10059 (Mar. 1980); *see also* United States v. City of Detroit, 476 F. Supp. 512 (E.D. Mich. 1979) (court appointed the Mayor of Detroit as administrator of the city wastewater system and granted him powers traditionally exercised by court-appointed receivers).

119. For a summary of sewage effluent and sludge impacts on estuarine areas, see OTA, *supra* note 11, at 223.

120. For a discussion of the major sources of pollutants to marine waters, see OTA, *supra* note 11, at 66-72.

121. *See Sewage pollution closes prime oyster beds*, Times-Picayune (New Orleans), Dec. 6, 1983, § 1, at 13, col. 1.

122. *See Coastal Degradation*, *supra* note 14, at 1585-86.

most primitive societies was that one did not foul the water. The idea of polluting our water with our wastes is defended by four rationalizations: (1) the water can take it; (2) it is cheap; (3) we have always done it this way; and (4) it is too late to change.

The evidence now shows, however, that the water cannot "take it." Not in the amounts now offered. There is also mounting evidence that it is far from "cheap," either in terms of continued construction and maintenance, or in the cost to "externalities" such as oysters, crabs, and the commercial harvest of the coastal zone. Furthermore, from an historical standpoint, we have not "always done it this way." For most of our history these wastes have been disposed of on land. Thus, we are left with the question of whether it is "too late to change."

Looking objectively into the next century, it is too early to tell when the costs for new sewage treatment works will catch up with expanding municipalities. When the bills for maintaining this infrastructure of hardware *also* come due—as they are now for maintaining the analogous federal aid system for bridges and highways—they will prove ruinous. When the costs for the safe disposal of the produced sludges are added—as they now will be under the 1987 CWA Amendments—they will in no way lighten the burden.[123] In retrospect, perhaps the largest and best intentioned mistake of the Water Pollution Control Amendments of 1972 was the section 201 funding for municipal sewage treatment. At enormous cost, it offered the illusion of a solution, and it forestalled sensible and more enduring policy changes. If the objective is to take municipal sewage out of the water, then, over the long term, the most sensible system would not put it into the water in the first place.

This is not to argue for a return to the slop pot and the honey bucket. Nor need we dump our wastes, once again, into city streets and gutters. Alternative systems for collecting and treating human wastes have been on the market for decades.[124] They have been defeated, as a commercial enterprise, by the relative convenience of a

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123. The 1987 Amendments call for the analysis and treatment of polluted sludges. The Water Quality Act of 1987, Pub. L. No. 100-4, § 406, 101 Stat. 7, 71 (1987) (to be codified at 33 U.S.C. § 1345).

124. *See* OFFICE OF WATER PROGRAM OPERATIONS & OFFICE OF RESEARCH AND DEV., U.S. ENVIRONMENTAL PROTECTION AGENCY, INNOVATIVE AND ALTERNATIVE TECHNOLOGY ASSESSMENT MANUAL A-248 to -249 (Feb. 1980) (and sources cited therein). Although these systems are available in a technological sense, they have been dwarfed and defeated in the marketplace by the enormous federal subsidies supplied to central municipal systems. Two billion dollars a year in federal construction funds is stiff competition indeed. Sadly, telephone calls to municipal wastewater engineers, state agencies, and the EPA during the month of December 1987 revealed that central systems based on

waterborne system that has been supported by billions in federal subsidies and that has ignored the external costs of its partially and imperfectly treated wastes.[125] Federal funding could have been far more effectively applied toward pollution control by developing and commercializing alternative systems. It still can be.

It is, of course, "too late" to undo the construction of the past fifteen years, and it would be inefficient to abandon it. But there is no need to perpetuate it. Sooner or later, we will have to recognize the need for an approach that treats sewage as a resource to be reclaimed, rather than a waste to be conveyed by, and dissolved into, water.

### *C. Pretreatment*

> Over one trillion gallons of wastewater containing RCRA hazardous wastes are discharged annually into municipal sewers by some 160,000 industrial facilities. Without any treatment at industrial facilities, these discharges would contain at least 160,000 metric tons of hazardous components—including 62,000 metric tons of priority metals, roughly 40,000 metric tons of priority organic chemicals, and at least 64,000 metric tons of non-priority organic chemicals.[126]

The preceding discussion notwithstanding, it is a fair bet that we will continue to live with the illogic of first putting human wastes into our water and then building ever more expensive plants to take them out. Were human wastes all that these plants had to treat, one could still clutch at a straw of hope. We might not improve things, but with enough money, we could hold our own. Unfortunately, we have instead designed a system (if it can be called that) that discharges industrial wastes and toxics in staggering amounts into POTWs, which, in turn, pass them on in staggering amounts to our

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waterborne sewage (and subsequent discharges) are currently the unchallenged premise of the sewage treatment field.

125. As one state assistant attorney general recalls:

> When I was involved in waste water treatment issues some years ago, the situation was that the appropriate technology people . . . had written large chunks of the clean water law but had not gotten control of the funding under the law. So EPA kept saying wonderful things about alternative technology and handing out money for the conventional steel and concrete approach. And when they found out that there was no such thing as enough money to do the job that way, they responded by relaxing the standards rather than by simply paying attention to the law concerning appropriate technology.

Letter from Richard M. Troy, Assistant Attorney General, Louisiana Dep't of Justice, to Oliver A. Houck (Mar. 22, 1985) (on file with the author).

126. OTA, *supra* note 11, at 212. For a general description of the pretreatment program under the CWA, see U.S. ENVIRONMENTAL PROTECTION AGENCY, ENVIRONMENTAL REGULATIONS AND TECHNOLOGY, THE NATIONAL PRETREATMENT PROGRAM (July 1986) [hereinafter PRETREATMENT].

coastal estuaries. The system, called "industrial pretreatment," may be the most unworkable aspect of an already troubled clean water program.

Pretreatment is one of those efficiency-based concepts that sounds plausible in a course in "Economics and the Environment." It is unnecessary to require industry to remove wastes and sewage that the local municipal plant is going to be treating anyway. Efficiencies of scale should allow industries to discharge their wastes into municipal systems with a credit for the municipal treatment.[127] Congress, which bought this argument from the start, has directed the EPA to develop separate "pretreatment" standards for industrial discharges into POTWs.[128] The standards are of two types: (1) "categorical" standards for a limited number of industries and for a somewhat larger number of toxics;[129] and (2) general standards that, in essence, prohibit the introduction of substances that would harm the POTW system itself.[130] The standards are implemented not by the EPA or the states, but by participating POTWs themselves.[131] The federal standards have been a nightmare to develop. Local implementation is approaching, even at this late date, a state of chaos.

The EPA has labored at length on pretreatment standards. Fifteen years after the passage of the CWA, with litigation at every turn,[132] the Agency has finally promulgated for twenty-seven industries categorical standards which regulate (but, of course, do not prohibit) the discharge of one hundred twenty-six toxic substances.[133] The first shortcoming is obvious: any unlisted industries and toxics; which include a wide range of nasty substances,[134] are essentially uncovered.[135] Also, after considerable trial and error, as

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127. *See* W. RODGERS, ENVIRONMENTAL LAW § 4.14, at 477-81 (1977). "Joint treatment at a single facility offers substantial advantages—more dependable flow rates, economies of scale, better use of manpower and land, more efficient disposal of sludges." *Id.* at 481.

128. 33 U.S.C. §§ 1314(g), 1317(b)-(c) (1982).

129. "Categorical" standards have been issued for 27 industries, covering 126 toxic pollutants. PRETREATMENT, *supra* note 126, at 17-18.

130. *Id.* at 15.

131. For the overall framework of enforcement authority, see *id.* at 10-11.

132. *E.g.*, National Resources Defense Council, Inc. v. EPA, 790 F.2d 289 (3d Cir. 1986); Chemical Mfrs. Ass'n v. National Resources Defense Council, Inc., 470 U.S. 116 (1985); CPC Int'l v. Train, 515 F.2d 1032 (8th Cir. 1975), *cert. denied*, 430 U.S. 966 (1977).

133. *See supra* note 129.

134. *See* PRETREATMENT, *supra* note 126, at 4.

135. Industry, seizing upon this loophole, is apparently changing its processes to avoid regulation. *Preliminary Tests Show Toxicity Problems in Sewage Treatment Plant Effluent,*

well as judicial review, the EPA has promulgated its "prohibited" standards designed to prevent "interference" with POTW systems.[136] The basic shortcoming of this approach is that a POTW will rarely be able to locate the sources of "interference" (*i.e.*, who is putting what into its system and causing what impact). The POTW system is treated, in effect, as a receiving basin. Abatement of these effects is subject to the same kind of "I'm not the one who is causing the problem" arguments and difficulties of proof that plagued the pre-1972 efforts at water pollution control.[137]

Notwithstanding the difficulties with the standards noted above, their implementation presents an even larger problem. First, only major POTWs, which are defined as POTWs with a daily flow of more than five million gallons and others with significant industrial inputs, are required to have pretreatment programs.[138] Thus, of the more than 15,000 POTWs in the United States only about 1,500 have pretreatment programs, which receive an estimated 82 percent of the total industrial wastewater entering POTWs.[139] The remaining 18 percent escape the program and any pretreatment at all. Adding to this loophole is the fact that implementation of the program is left to the local POTW, whose responsibility it is to identify the industries that are discharging wastewater into its system, to permit those discharges, and to monitor compliance.[140] Needless to say, even if the purpose of a *national* discharge program were to offset the political pressures placed on states to relax their programs,[141] those same pressures are even more formidable at the local level,[142] producing a wide variety of standards and levels of compliance

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*EPA Says*, Env't Rep. (BNA) 850 (Sept. 13, 1985). *See also Supreme Court Declines to Hear Second Case Involving Citizen Suits for Past Violations*, Env't Rep. (BNA) 1829-30 (Dec. 11, 1987) (a citizen suit against CIBA-Geigy Corp. was dismissed as moot because "the company had tied into a local sewage treatment plant").

136. General Pretreatment Regulations for Existing and New Sources, 52 Fed. Reg. 1586 (1987) (to be codified at 40 C.F.R. §§ 403.3, 403.5).

137. *See infra* note 160 and accompanying text.

138. 40 C.F.R. § 403.8(a) (1987).

139. OTA, *supra* note 11, at 183.

140. *See* 40 C.F.R. § 403.8(f) (1987). The EPA has provided elaborate guidance for local POTWs. *See* OFFICE OF WATER ENFORCEMENT AND PERMITS, U.S. ENVIRONMENTAL PROTECTION AGENCY, GUIDANCE MANUAL FOR POTW PRETREATMENT PROGRAM DEVELOPMENT (Oct. 1983).

141. *See* Weyerhaeuser Co. v. Costle, 590 F.2d 1011 (D.C. Cir. 1978).

142. For one example of local pressures working to frustrate a pretreatment program, see *DPW gears up for waste pre-treatment program*, Morning Advocate (Baton Rouge), Feb. 16, 1985, at B-1, col. 1 [hereinafter *DPW*]; *Businessmen sue to block program*, Morning Advocate (Baton Rouge), May 14, 1987, at B-1, col. 1 [hereinafter *Businessmen*]. Baton Rouge, a heavily industrialized city, sent out its first questionnaires to determine who was putting what into the local municipal system 13 years after the passage of the CWA. *DPW*,

among the local municipal systems.[143] The only federal monitoring requirements for categorical industries and their discharges to local systems are a *semi-annual* report on these discharges[144] and notification of any additional loads that would interfere with the POTW.[145] The EPA guidance manual also recommends random sampling of industrial effluent and on-site inspections, but these recommendations are not mandatory.[146]

At the end of the treatment process, the POTWs are left with a mountain of sludge that has been rendered useless, indeed hazardous, by the introduction of industrial wastes.[147] These contaminants prevent the most obvious and beneficial uses of sewage sludges, while creating considerable pressure for other disposal methods such as incineration and ocean dumping[148] that produce additional environmental hazards. Of course, those toxics that are not "treated" and retained in the sludge are passed through to the receiving waters which turn out to be, in large part, the Nation's estuaries. No less than 37 percent of the toxics entering our Nation's waters and estuaries pass from industries through POTWs.[149]

Virtually every review of the pretreatment program has rated it a failure. A 1980 Oversight Subcommittee report to the House Public Works Committee concluded that "[a]fter eight years of trying, EPA has been almost totally unsuccessful in implementing this requirement of the law."[150] The hearings left the subcommittee "with considerable doubt" about the workability of the program.[151] A 1982 report by the General Accounting Office found the program "undefined," resulting in "costly, inequitable and/or redundant

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*supra* at B-1. As soon as local requirements began to be enforced, local businessmen sued, charging that the rules were unconstitutional. *Businessmen*, *supra* at B-1.

143. For a discussion of a compliance study for 1600 major facilities, see OTA, *supra* note 11, at 199.

144. 40 C.F.R. § 403.12(e) (1987).

145. *Id.* § 403.12(f).

146. *See* OFFICE OF WATER ENFORCEMENT AND PERMITS, U.S. ENVIRONMENTAL PROTECTION AGENCY, PRETREATMENT COMPLIANCE MONITORING AND ENFORCEMENT GUIDANCE 2-11, 3-18 (Sept. 1986).

147. *See generally* OTA, *supra* note 11, at 209-23 (management of municipal effluent and sludge).

148. *See* National Wildlife Fed'n v. Ruckelshaus, 21 E.R.C. 1776 (D.N.J. 1983) (dismissing citizen group suit to stop sewage waste dumping in an area in the New York Bight Apex on ground that EPA's duty to enforce pretreatment standards is discretionary and outside the scope of the CWA's citizen suit provisions); City of New York v. EPA, 543 F. Supp. 1084, 1085 (S.D.N.Y. 1981) (noting that City of New York dumps 260 dry tons of sewage each day into the Bight Apex).

149. PRETREATMENT, *supra* note 126, at 4.

150. *See Congress to Review Clean Water Legislation*, CONG. Q., Jan. 23, 1982, at 124.

151. *Id.*

treatment that may not address toxic pollution problems" and would "drain . . . scarce Federal, State and local pollution control resources."[152] A 1987 Office of Technology Assessment report identified major, continuing shortcomings with the pretreatment program, none of them susceptible to any easy solution.[153]

These findings speak for themselves. In 1987 Congress struck a glancing blow at the pretreatment program from the opposite end—the sludges. The EPA now must identify the toxics present in sewage sludge and specify numerical limits for them.[154] The burden apparently will remain on the POTW, however, to work a reduction in toxic inputs from the sources. I wish them well. I am not holding my breath.[155]

There comes a time in *The Emperor's New Clothes* when a village boy points out that the emperor, in fact, is not wearing any clothes at all. That boy was taking a fresh look. Similarly, it is difficult for us to take a fresh look at pretreatment and municipal treatment as a whole. Even the staunchest defender of the municipal treatment program, however, has to blanch at the introduction of industrial pollution into its municipal sewer systems. Even the most vigorous defender of federalism has to blush at a program that turns the re-

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152. U.S. GEN. ACCOUNTING OFFICE, REPORT TO THE ADMINISTRATOR, U.S. ENVIRONMENTAL PROTECTION AGENCY, A NEW APPROACH IS NEEDED FOR THE FEDERAL INDUSTRIAL WASTEWATER PRETREATMENT PROGRAM 1 (Feb. 19, 1982).

153. The report found that: (1) while BAT standards for organic chemicals were achieving more than a 99% removal for direct discharges, pretreatment standards were achieving only a 4% removal rate; (2) some entire categories of toxic industrial discharges, including car washes and commercial laundries, were exempted from pretreatment standards, while standards have simply never been promulgated for others, such as textile mills and oil plastics moulding, (approximately 91,000 laundries dislodge 526 million gallons a day into POTWs, containing at least 13 priority, *i.e.*, toxic pollutants); (3) about 30% of the priority pollutants now entering POTWs originate from noncategorical sources; (4) a 1984 survey of electroplating firms revealed that 22% had not submitted monitoring reports and of those which were submitted, only 54% were in compliance with categorical pretreatment standards; and (5) at least 102 of the 126 CWA priority pollutants had been found in POTW influents, including both toxic pollutants (*e.g.*, chlorinated solvents, aromatic hydrocarbons) and hazardous substances (*e.g.*, xylene, methyl ethyl ketone). OTA, *supra* note 11, at 188:199, 212.

154. The Water Quality Act of 1987, Pub. L. No. 100-4, § 406(a), 101 Stat. 7, 71 (1987) (to be codified at 33 U.S.C. § 1345); *see generally The Water Quality Act of 1987: A Major Step in Assuring the Quality of the Nation's Waters*, 17 Envtl. L. Rep. (Envtl. L. Inst.) 10311 (Aug. 1987) (overview and analysis of the Water Quality Act of 1987).

155. The EPA, while not quite holding its breath, is talking sternly to POTWs. The Deputy Assistant for Water is paraphrased as telling the 60th Annual Conference of the Water Pollution Control Federation that "unless regulators move ahead" on toxics, Congress "will return to a technology-based approach the next time it renews the Water Act." *Toxic Pollution Must Be Stemmed Soon, or Congress Will React, EPA Official Warns*, [Current Developments] Env't Rep. (BNA) 1562 (Oct. 16, 1987).

sponsibility for regulating nearly half of the toxic pollution discharged in this country over to 15,000 disparate, local POTWs. Notwithstanding the notions of "efficiency" that motivated this program, it has produced one set of categorical standards for those industries that discharge into POTWs, another set for those that do not, and an entirely new bureaucracy to implement and enforce these standards. In the name of "efficiency" we have doubled the number of pollution standards, multiplied the number of regulatory agencies by about a hundredfold, and managed, in the end, to so poison our sewage sludges that they have become, in reality, hazardous wastes.

As was once said of the American involvement in Vietnam, it is time to declare this program a victory and get out.

### *D. Water Quality Upgrading*

[E]ven the weariest river [w]inds somewhere safe to sea.[156]

According to the Office of Technology Assessment, 1,300 major industries and 600 municipal treatment plants discharge into rivers that flow into coastal waters. These numbers are probably conservative. Few rivers do not flow to the sea. To be sure, these rivers do their share of aerating, purifying, and detoxifying—the "free work" that, to some, legitimizes the concept of discharging pollutants into water. Discharges in Des Moines, St. Louis, and the central states are purified, for the most part, before they reach the Gulf of Mexico. Even the toxic metals in these discharges have been "scrubbed" out by solid particles in the water column and lie strewn in the sediment along the way. Many are trapped behind the dams that line such rivers as the Columbia, the Snake, the Sacramento, the Missouri, the Savannah, the Trinity, and the Connecticut. The major municipal and industrial concentrations lie below these dams, however, at the base of the rivers, where they meet the sea. This is where the most pollution occurs. Here, the "flushing" action of running water is at its weakest, and the thesis of "free work" breaks down. Even the mighty Mississippi River has difficulty assimilating the effluent from the 175 facilities and 1.5 million people on its last leg to the Gulf.[157] The same can be said for the Hudson River at New York City, the Delaware River at Wilmington, and many others.

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156. Swinburne, *The Garden of Prosperpine*, in VICTORIAN POETRY 699 (E.K. Sutherland ed. 1942).

157. INVENTORY REPORT, *supra* note 90, at 27. There are over 350 industrial and municipal facilities discharging into the lower Mississippi from St. Francesville to Venice. *Id.*

With industrial sources at BAT, sewage treatment chasing its tail, urban runoff controls ten years into the future (if then), and agricultural discharges firmly out of control, where do we go from here?

The CWA has provided the same answers for conventional and toxic pollutants: we upgrade based on state water quality standards. Sections 1311, 1312, and 1313 require, in their aggregate, that states identify both the waters that remain below designated criteria (generally based on the extent to which they kill aquatic organisms) and the sources of the pollution that cause these continuing problems. In addition, the states must allocate "total maximum daily loads" for these sources and incorporate these allocations into revised discharge permits.[158] The intended result is the abatement of pollution.

In theory and practice, this concept has rarely worked. Indeed, in 1972, after sixteen years of no progress, Congress rejected this very concept and adopted another, founded on technology-based standards.[159] In so doing, Congress pointed out why the concept had failed. Among the reasons given were the almost insurmountable difficulties in determining: (1) the desired "use" of a stream, which would determine its water quality, given the competing desire to attract industrial growth; (2) the actual water quality of a stream in all of its constituents; (3) the effects of a single discharge, as well as the cumulative and synergistic effects of multiple discharges, on this water quality; (4) the cause of any particular drop in water quality; and (5) an appropriate "allocation" of reductions among diverse causes, each of whom is legitimately pointing the finger at somebody else.[160] Why, then, did Congress retain a water-quality-based process? Perhaps, because in 1972, Congress was under the impression that BAT would largely solve the pollution control problem.

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158. 33 U.S.C. §§ 1311-1313 (1982). Section 1313(d)(1)(C) requires each state to establish the total maximum daily load (TMDL) of particular pollutants for a limited body of water, and accept and attain the applicable water quality standard. Section 1313(d)(2) allows the Administrator to set the TMDL upon disapproving the state's standard. Section 1311(b) requires that BAT permits be revised, at which time the TMDL is to be taken into account. Section 1312(a) allows the EPA to upgrade effluent limitations which interfere with attaining or maintaining a water quality in a specific body of water. This new limitation must compare the economic and social costs of achieving these limitations to the social and economic benefits to be attained.

159. *See* PRETREATMENT, *supra* note 126, at 15.

160. *See* EPA v. California, 426 U.S. 200, 203-09 (1976) (reviewing the difficulties underlying water pollution legislation); F. GRAD, ENVIRONMENTAL LAW 73, 74 (3d ed. 1985) (noting difficulties in identifying ambient water quality, pollution, effects, and sources); *see also* Weyerhaeuser Co. v. Costle, 590 F.2d 1011 (D.C. Cir. 1978) (detailing economic factors to be considered under EPA variance clause).

Water quality upgrading would remain as a backup system for those rare exceptions in which water required it. Whatever the reason, the exceptions have swallowed the rule. Nonpoint pollution grows, sewage treatment barely holds its own, and even industrial BAT has proven to be less stringent than anticipated—indeed, it is often little more stringent than the interim 1977 standard of best practicable technology (BPT)[161]—all of which puts more pressure on water quality upgrading to do the job. The estuaries have been left with a safety net that in the past, for excellent reasons, has caught nothing at all. In Louisiana, with almost one-fifth of its water areas identified as "water quality limited" (*i.e.*, polluted),[162] water quality upgrading has yet to lead to the revision of a single NPDES permit.[163]

In 1987 the Congress amended the CWA to address, among other things, the barely touched topic of toxic discharges.[164] In so doing, it adopted an approach based on water quality standards and receiving water quality.[165] States are now told to adopt toxic water quality criteria, "identify" toxic-limited waters, and allocate loadings—an all too familiar game. In effect, this program, having failed miserably from the 1950s to 1972 for even such easily identified pollutants as total suspended solids, and having been virtually inactive from 1972 to 1987, is now the front line for the most obviously serious pollutants. As a practical matter, given the demands on already limited state water pollution control programs, this new offensive on toxics will most likely preempt state efforts under section 1313—the contemplated "safety net" for the more conventional pollutants, such as biological oxygen demand and fecal coliforms, which are

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161. *New BAT Standard: Lowering the Ceiling or Raising the Floor?*, 13 Envtl. L. Rep. (Envtl. L. Inst.) 10002 (Jan. 1983).

162. "Of the 133 designated segments, 25 are water quality limited and 108 are effluent limited." INVENTORY REPORT, *supra* note 90, at 14.

163. Personal communication with Dale Givens, Assistant Administrator for Water Quality, Louisiana Dep't of Environmental Quality (Oct. 1987). For the practical difficulties in upgrading even a single water segment, see LOUISIANA DEP'T OF ENVTL. QUALITY, WASTE LOAD ALLOCATION FOR THE VERMILLION RIVER (Mar. 1987) (also containing a 90-page study and water quality assessment with a 102-page appendix of yet more surveys and data).

164. A 1985 study by Greenpeace reported that more than one ton of toxic pollutants are discharged into Boston Harbor daily, with an additional 100 to 1000 tons leaking into the harbor every day from nonpoint sources such as leaking landfills. *See The Clean Water Act Amendments of 1987—A BNA Special Report (Part II)*, [Monographs] Env't Rep. (BNA) 42 (Sept. 4, 1987) [hereinafter *BNA Special Report*].

165. Section 308(d) of the Water Quality Act of 1987 requires a state to adopt water quality criteria for all toxic pollutants listed in 33 U.S.C. § 1317(a)(1) (1982). Water Quality Act of 1987, Pub. L. No. 100-4, § 308(d), 101 Stat. 7, 39 (1987) (to be codified at 33 U.S.C. § 133(c)(2)(B)). The criteria should be set to support the designated use of the body of water. *Id.*

having a field day at the coast. The EPA's Deputy Administrator for Water has frankly acknowledged that the new Act "speak[s] to the states" and is "generally-speaking, a water-quality based law."[166] By way of both explanation and defense, she went on to state that the water-quality-based approach, although problematic in the past, now has a better chance to succeed:

> Before the 1972 law, she said, you'd get into these long, long debates with dischargers who would say, 'No, let me prove to you this isn't a problem.' So I guess my feeling is that having established a very strong nationwide enforcement structure, we have got a tool that will allow us not to get lost in endless scientific debates.
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> Secondly, we've learned something in the last 20 years. Our monitoring technology is much better than it was 20 years ago. . . . So we've got a lot of information we didn't have 20 years ago. So the combination of the much better information and the much better permitting and enforcement base means that I think we have a chance we didn't have then.[167]

This author remains unconvinced. We have seen nothing but "endless scientific debates" over every sensitive pollution abatement issue from acid rain to vinyl chloride. There is no reason to believe that our science is even near the threshold of being dispositive,[168] or that states are now more willing to present a stringent and uniform front against pollution than they were in the 1960s when, in many cases, their economies were in much better condition. At bottom, the 1987 CWA Amendments are not scientific but ideological. This ideology is "no treatment for treatment's sake" (we only need to clean up pollution that hurts water quality) and "leave government to the states." This ideology may be good politics. As history shows, it is no strategy for pollution control.

All of which leaves the estuaries with little hope from this quarter for improvements in water quality. If a system of upgrading is to be effective, it will need considerably more muscle.

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166. *See BNA Special Report*, *supra* note 164, at 4.

167. *Id.*

168. A recent proposal to discharge 12 *million* tons of gypsum waste into the Mississippi River brought out batteries of testimony on environmental and human health effects that was so conflicting, with respect to every pollutant, that it disposed of nothing. For a summary of the Gypsum Task Force studies and the EPA's response to them, see U.S. ENVIRONMENTAL PROTECTION AGENCY—REGION 6, PUBLIC NOTICE OF FINAL PERMIT DECISION, ADVERTISING ORDER NO. 7T-3285-NNLX (Aug. 5, 1987).

*1. The National Estuary Program: More Old Wine.*—Recognizing the limitations of its existing approaches to estuarine pollution, in 1987 Congress seized upon initiatives that the EPA had recently launched under its pre-1987 authority[169] and elevated them into a "National Estuary Program."[170] The Program calls for the convening of "management conferences"—each of which is to last, hearteningly, no longer than five years—that will lead to pollution abatement plans for estuaries of national significance.[171] Additionally, specific authorizations are provided for the Great Lakes and the Chesapeake Bay.[172] Of perhaps passing note, no special authorization is made for the Louisiana coastal zone; indeed, no part of the Louisiana coastline—one-quarter of the Nation's coastal wetlands, and the most rapidly disappearing—is designated for "priority consideration."[173]

The mechanism of these plans is a familiar one. Water quality problems are to be identified, traced back to their sources, and remedied by additional controls established by the participating states.[174] And so we have the "water quality upgrading" mechanism in estuarine dress. This process is to be encouraged by federal funding for both the conferences and the management plans—a total of $12 million over the next five years.[175] How such a system, which has proven unworkable even for discrete rivers and identifiable watersheds, will now, under a new label, prove effective for cleaning up the myriad of nonpoint industrial and municipal discharges that interact to degrade estuaries of all sizes is left unexplained by the 1987 CWA Amendments and their legislative history.

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169. Under the authority of 33 U.S.C. § 1254(n) (1982), the EPA had launched an estuarine initiative based on regional management of water quality. *See Towards a National Coastal Policy*, 17 Envtl. L. Rep. (Envtl. L. Inst.) 10404, 10406 (Oct. 1987) [hereinafter *Coastal Policy*].

170. The Water Quality Act of 1987, Pub. L. No. 100-4, § 320, 101 Stat. 7, 61-65 (1987) (to be codified at 33 U.S.C. § 1330).

171. *See id.* § 320(a)(2)(A) (to be codified at 33 U.S.C. § 1330(a)(2)(A)) (requiring the "Management Conferences" to control point and nonpoint sources which pollute estuaries of "national significance"); *id.* § 320(e) (to be codified at 33 U.S.C. § 1330(e)) (requiring that these conferences last not more than five years).

172. *See id.* § 117 (to be codified at 33 U.S.C. § 1267) (addressing the Chesapeake Bay); *id.* § 118 (to be codified at 33 U.S.C. § 1268) (addressing the Great Lakes).

173. *See id.* § 320(a)(2)(B) (to be codified at 33 U.S.C. § 1330(a)(2)(B)) (establishing "priority consideration" for Long Island Sound, New York, and Connecticut; Narragansett Bay, Rhode Island; Buzzards Bay, Massachusetts; Puget Sound, Washington; New York-New Jersey Harbor, New York and New Jersey; Delaware Bay, Delaware and New Jersey; Delaware Inland Bays, Delaware; Albemarle Sound, North Carolina; Sarasota Bay, Florida; San Francisco Bay, California; and Galveston Bay, Texas).

174. *Id.* § 317(b) (to be codified at 33 U.S.C. § 1330(b)).

175. *Id.* § 317(i) (to be codified at 33 U.S.C. § 1330(i)).

Indeed, it was the failure of ten years of federally funded "enforcement conferences" under the old Water Pollution Control Act that led Congress to scrap the "conference" approach[176] and adopt technology standards and citizen suit enforcement instead.[177] That history notwithstanding, we have now authorized a coastal version of all that has not succeeded earlier.

This author's crystal ball predicts that the National Estuary Program will serve the limited purpose of bringing states together to talk about the pollution of their common estuaries. When these states are in earnest the Program will produce results.[178] For these states, however, the Program is the least necessary. Sadly, most polluted estuaries lie within the borders of a single state and their remedy will require more than another round of conferences.

*2. Impetus from the Courts: A "Taking" Action?*—One suggested way to encourage the cleanup of estuaries is to enfranchise coastal fishermen and other user groups to sue for takings of their resources and livelihoods.[179] The idea has its appeal, as there are few stronger motivators than potential liability. The problem comes with its application. As the law stands today, there is nothing to prevent an individual user or user group from suing to enforce a permit requirement against a violating discharger,[180] to apply a more stringent water-quality-based limitation against a discharger,[181] or to obtain damages for injury to livelihood based on harmful discharges.[182] The primary reason these remedies fail, however, is because it is so difficult to demonstrate the causal link between discharges and harm. It is a rare case that will prove dis-

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176. *See* Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1044 n.50 (D.C. Cir. 1978) ("Under the pre-1970s legislation, federal pollution regulation relied principally but unsuccessfully on the 'conference' with polluters.").

177. *See* PRETREATMENT, *supra* note 126, at 15.

178. Even these results will not be rapid. With all the federal and state-funded effort that has gone into the Chesapeake Bay, the Bay studies took *seven years* to complete and the first plan, outlining "strategies" for compliance, was not issued for *another two years*. *Coastal Policy*, *supra* note 169, at 10406 n.38. Confirming my worst fears about never-ending studies, see *Albemarle-Pamlico Estuarine Project First to Get Official CWA Designation*, [Current Developments] Env't Rep. (BNA) 1761 (Nov. 20, 1987) (observing that more federally funded studies will provide "basic information on what makes the estuaries tick").

179. *See* Tripp & Oppenheimer, *Restoration of the Chesapeake Bay: A Multi-State Institutional Challenge*, 47 MD. L. REV. 425, 449-50 (1988).

180. 33 U.S.C. § 1365(a)(1) (1982).

181. *Id.* § 1365(a)(2).

182. In the wake of Middlesex County Sewerage Auth. v. National Sea Clammers Ass'n, 453 U.S. 1 (1981), damage actions henceforth likely will be based on state-law theories.

charge A caused harm B. This will always be so with respect to individual discharges unless the standard for causation is lowered (in which case it is a little hard to see what is left of the action: for example if A discharges, is A liable on that basis?). The remedy founders for the same reasons water-quality-based upgrading founders: even in the most polluted estuaries, even in the dead zones of Louisiana, the causal connections are too difficult to establish.

Furthermore, individual discharges are not the primary culprit. The plaintiff user-groups are really looking at a kaleidoscope of federal, state, and private drainage ditches; farms and pesticide applicators; and shopping centers, construction sites, landfills, and the like. Houdini himself could not sort it out. No court would even try. This leaves the prospect for a suit against a different defendant—the state.

The vista here leaves one a little breathless. The state would be liable for taking property by failing to abate pollution. The action would not turn on negligence; nuisance; or any other balance of reasons, motives, or needs. In effect, it would impose strict liability. The action would not be barred by sovereign immunity, for it would allege the violation of a constitutional right. It is the very sweep of this action that will probably defeat it.

The grain of constitutional history sees the fifth and fourteenth amendments as limitations on government appropriation of property.[183] An appropriation, even a "regulatory taking," has traditionally required an affirmative act.[184] The acts here, namely, the state's poor track record in pollution cleanup, are essentially negative. Even as affirmative acts, they still sound in the negative: "You didn't do enough." If characterized as takings, these governmental acts would be difficult to distinguish from other governmental duties that, often against heavy odds, are poorly performed, or even

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183. *See, e.g.*, Washington *ex rel.* Seattle Title & Trust Co. v. Roberge, 278 U.S. 116 (1928) (delegation of legislative zoning powers by allowing neighborhood property owners to approve or reject intended property use without any legislative standards found unconstitutional under the fourteenth amendment); Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 415 (1922) ("The general rule . . . is that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.").

184. The accepted definition of a "taking" is a governmental *activity* resulting in significant physical damage to property that impairs its use. Pumpelly v. Green Bay Co., 80 U.S. (13 Wall.) 166, 179-80 (1871). This activity, of course, does not have to be an actual seizure of property; if the government causes an impairment of the use of the land, that is also a taking. *See, e.g.*, United States v. Causby, 328 U.S. 256 (1946) (ruling that low-flying government planes impaired a chicken farmer's use of his land, thus constituting a taking).

performed well but with poor results. Would not the failure of a police force to control neighborhood crime, for example, be just as much a taking of neighborhood property rights? Would the failure to regulate bars or after-hours clubs also constitute a taking? To classify negative acts as appropriations is, thus, somewhat open-ended. In the case at hand, damages to coastal economic values are even harder to establish than in the two previous hypotheticals because these values, unlike neighborhood homes, often do not belong to anyone. Granted, one will find oyster leases degraded and ownership rights in certain resources simply destroyed. These property rights do not constitute, however, the major values of the coast. If restricted to traditional property rights, the remedy is of limited scope. If, on the other hand, we expand the scope of plaintiffs to those beyond traditional ownership, the concept of taking would stretch beyond the point most courts would care to follow.[185] At this point, people who liked the neighborhood the way it was, crime-free, would begin to sue too. I doubt their likelihood of success.

When all is said and done, the takings approach offers a convenient shortcut around the difficulties of causation, duties, standards of care, and sovereign immunity. A test case involving a specific privately owned resource (*e.g.*, an oyster lease) and a specific governmental failure (*e.g.*, a group of discharge permits) could prove interesting. More likely than not, however, the court would look to abate the pollution under section 1313 of the CWA, or under more traditional concepts of negligence or nuisance.

*3. Impetus from Federal Programs: The Unused Muscle.*—Not sanguine for the success of the "estuaries program" and not sold on a taking claim, the search continues for a way to put strength behind the upgrading of the Nation's estuaries. A more obvious answer lies in the mechanisms the Congress has provided to enforce air quality upgrading under the Clean Air Act (CAA).

The CWA provides substantial grant funding to states for virtually the entire range of state water pollution control: sewage treatment construction, water quality programs, nonpoint programs, and toxic standards.[186] In the aggregate, construction funding in the 1987 fiscal year amounted to $1.8 billion and the program funding

185. *See* Louisiana *ex rel.* Guste v. The M/V Testbank, 752 F.2d 1019 (5th Cir. 1985) (court had difficulty in establishing the appropriate circle of plaintiffs damaged directly by an identifiable marine accident), *cert. denied*, 106 S. Ct. 3271 (1986).

186. *See* 33 U.S.C. § 1255 (1982) (grants for research and development); *id.* § 1256 (pollution control programs); *id.* § 1259 (training grants and contracts); *see also* Water Quality Act of 1987, § 319(h) (to be codified at 33 U.S.C. § 1329(h)) (grants for imple-

another $270 million.[187] In many states the federal grants, supplemented by state permit fees and fines, make up the entire water pollution control budget.[188] The obvious corollary here is that the federal grants constitute considerable leverage in the game. One opportunity for additional "muscle" would be to make these grants contingent upon a state's success, or at least "reasonable progress," in achieving water quality standards, particularly in the coastal zone. The difficulty in adopting this approach is that by denying the grant funding, we would be jeopardizing the very programs that a state needs to upgrade its water quality. The cure may kill the patient. Furthermore, it does not apply the leverage where it can do the most good.

The CAA affords an alternative model. The model is apt because attaining ambient air quality, as opposed to attaining technology standards, is the primary mechanism of the CAA.[189] The CAA encourages the attainment of air quality standards by sanctions that are, if anything, almost too powerful to be effective. These sanctions include the termination of federal aid and highway assistance[190] and an outright ban on the construction of new sources.[191] I will concede that these measures, although often threatened, have rarely been invoked.[192] Others will have to concede, however, that when they have been invoked against even the most intransigent states, these measures have brought results.[193] They also carry their

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mentation of nonpoint source programs); *id.* § 320(g) (to be codified at 33 U.S.C. § 1330(g)) (estuary programs).

187. *See* OFFICE OF THE COMPTROLLER, U.S. ENVIRONMENTAL PROTECTION AGENCY—SUMMARY OF THE 1987 BUDGET 77, 80 (Jan. 1986).

188. For example, of the $25 million budget of the Louisiana Department of Environmental Quality, $10 million is provided by the federal government and $15 million is derived from Department sources (*e.g.*, permit fees, inspection fees, fines); *no* monies are taken from state general revenues. Telephone interview with Darryn Serio, Fiscal Officer, Louisiana Dep't of Environmental Quality (Nov. 23, 1987).

189. *See* 42 U.S.C. § 7408 (1982) (requiring EPA to develop air quality criteria and control techniques); *id.* § 7409 (requiring the promulgation of national primary and secondary ambient air quality standards based upon the § 7408 criteria); *id.* § 7410 (requiring state implementation plans to achieve and maintain the ambient air quality standards).

190. *See* 42 U.S.C. § 7506(a)(1) (1982) (conditioning transportation funding upon compliance with national primary ambient air quality standards).

191. *See* 42 U.S.C. § 7410(a)(2)(I) (1982) (imposing a ban on new construction of any major stationary sources if the emissions from such facilities will exceed national ambient air quality standards); *id.* § 7616 (conditioning sewage treatment construction funding upon compliance with certain stationary source and emission standards).

192. *See* F. ANDERSON, D. MANDELKER & A. TARLOCK, ENVIRONMENTAL PROTECTION: LAW AND POLICY 241 (1984) [hereinafter F. ANDERSON] ("EPA was equally unenthusiastic about the funding cutoff provisions.").

193. *See, e.g.*, Mountain States Legal Found. v. Costle, 630 F.2d 754 (10th Cir. 1980)

own logic by applying the sanctions to activities that are, at bottom, the political and economic causes of the problem. The CWA does contain one analogous provision which authorizes the EPA to deny sewer hookups to violating municipal sewage treatment systems.[194] When invoked, or even threatened, it too has worked well.[195] When new construction is threatened, people start to listen.

Thus, the most effective "muscle" for state water quality upgrading is a provision that would suspend federal assistance to all activities in a coastal area that *contribute* to the degraded condition. Suspensions should be made subject to findings of degradation according to criteria that are susceptible to judicial review under the citizen suit provisions of the CWA.[196] On a given coast, these suspensions may jeopardize Housing and Urban Development projects, Soil Conservation Service and Corps of Engineer projects, federal aid for highways, farm loans, and farm assistance. The assistance, however, would not be enjoined forever. It need not even be enjoined until the desired water quality is achieved, so long as the state demonstrates reasonable progress.[197] But the injunction, however

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(denying Colorado complete approval of its state implementation plan, thereby causing loss of $132 million in research and sewage treatment grants, as well as an unspecified amount of federal highway funds), *cert. denied*, 450 U.S. 1050 (1981); Pacific Legal Found. v. Costle, 627 F.2d 917 (9th Cir. 1980) (upholding a district court's denial of an injunction restraining the EPA from enforcing a ban on construction or modification of certain stationary sources of air pollution in California because of the legislature's failure to adopt a state implementation plan), *cert. denied*, 450 U.S. 914 (1981); *see also* F. ANDERSON, *supra* note 192, at 241 (noting that, under threat, Colorado and Michigan decided to comply with the EPA and enact proper legislation).

194. 33 U.S.C. § 1342(h) (1982).

195. Baton Rouge was so threatened. The EPA recently announced that it would seek an injunction to stop all new sewer hookups within the parish limits (jeopardizing a $240 million sewerage upgrade program) and a $100-360 million fine if Baton Rouge did not improve its sewer program. *EPA gives council time to work out consent decree*, Morning Advocate (Baton Rouge), May 16, 1987, at A-1, col. 1.

196. 33 U.S.C. § 1365 (1982). For a discussion of the importance, and tribulations, of citizen suits under federal pollution control laws, see Miller, *Private Enforcement of Federal Pollution Control Laws*, 13 Envtl. L. Rep. (Envtl. L. Inst.) 10309 (Oct. 1983) (Part I), and 14 Envtl. L. Rep. (Envtl. L. Inst.) 10063 (Feb. 1984) (Part II).

197. A "reasonable progress" standard is one that the CAA imposes for new construction in nonattainment areas, 42 U.S.C. § 7503(1) (1982). The EPA has also applied this concept to its decisions on whether or not to impose sanctions under the CAA. *Sustained Progress, Extra Efforts Programs Face Serious Legal Risks, EPA Counsel Says*, [Current Developments] Env't Rep. (BNA) 1291 (Dec. 5, 1986) [hereinafter *Sustained Progress*]. It is expected that the EPA will not sanction any city that has made "reasonable efforts" at attaining its national ambient air quality standards: " 'We won't be aiming so much at sanctions as at determining whether their heart is in the program and whether current control measures are effective,' said Darryl Tyler, Director of the Control Program's Development Division of EPA's Office of Air Quality Planning and Standards." *Areas That Miss Ozone Deadline Not Likely to Face Economic Sanction, EPA Official Says*, [Current

temporary, would allow state pollution control programs to go forward while motivating those private interests at the root of the problem to become part of the solution. This is the only way the job is going to get done.

## IV. REMAKING A COASTAL ZONE

> All the King's horses and All the King's men Couldn't put Humpty together again.
>
> Mother Goose Nursery Rhyme

For large portions of the coastal United States, the measures just proposed should be sufficient. The rocky coasts of Maine require only to be cleaned up a little and then left alone. The same might be said for Oregon. But even if we could wave a magic wand over many of our largest and most productive estuaries, immediately implementing the aforementioned programs, substantial problems would still remain. Some estuaries have already perished. Others are well on their way. The causes may be different from San Francisco Bay to Nagshead, North Carolina, but they have a common factor: the effects of public works projects constructed and maintained by the Corps. Because these causes are different, I will discuss the experience of Louisiana, where the Corps has been most active and where the consequences of its activities are the most severe.[198]

To summarize a long history, amply detailed elsewhere,[199] about a century ago the Corps became involved in the effort to contain the Lower Mississippi River for purposes of navigation and, subsequently, flood control. By the 1920s the Corps had assumed responsibility for the construction and maintenance of the mainstream levees on the Mississippi and its outlets into the Gulf of Mexico. This one project alone, so mighty in its ambition, has successfully passed ship traffic into and out of the heartland of America, keeping the population of South Louisiana relatively dry in

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Developments] Env't Rep. (BNA) 2179 (Apr. 12, 1985). The EPA's sustained progress and reasonable extra efforts programs are designed to give cities more time to reach their national ambient air quality standards without imposing "draconian" sanctions such as construction bans. *Sustained Progress*, *supra*, at 1291.

198. For a discussion of the consequences of Corps activities in the Louisiana coastal zone, see Houck, *supra* note 2, at 30-44 (and sources cited therein).

199. *See* J. KEMPER, REBELLIOUS RIVER (1949); H. CARTER, LOWER MISSISSIPPI (1942); Kazmann & Johnson, *What If the Old River Control Structure Fails?*, LA. WATER RESOURCES INST. BULL., Sept. 1980, at 12; K. Hebert, *The Flood Control Capabilities of the Atchafalaya Basin Floodway*, LA. WATER RESOURCES INST. BULL., Apr. 1967, at 5; Houck, *supra* note 2, at 16-30 (and sources cited therein). The history that follows is taken from these sources.

the process. It has also had the unforeseen effect of eliminating the fresh water, sediments, and nutrients that the Mississippi had spread out across South Louisiana each year during the spring floods. These elements had been responsible for nourishing the plant life, accreting new sand bars, forming new deltas, and holding the Gulf of Mexico at bay. For the past 5,000 years, South Louisiana had been a land-winner—the fastest growing land mass in the United States. Following the completion of the Mississippi levee and jetty system, Louisiana became a land-loser—at an alarming and increasing rate. All the elements that built this coastal plain have been eliminated. Sixty thousand tons of sediments a day are funneled off the Gulf shelf as waste matter. The coast has been starved; it is dying, *en masse*.

The Mississippi project is but one Corps activity. The scope and diversity of all Corps projects in this region are unimaginably large and nearly impossible to convey without the aid of a map. Within the Mississippi delta alone lie more than a dozen commercial waterways averaging 8 feet in depth and 80 feet in width, some as wide as 1,000 feet, each dredged and maintained by the Corps, totaling more than 300 miles.[200] Another dozen such projects cut through marshes to the west of New Orleans, and across the entire coastal plain of the Gulf Intercoastal Waterway, averaging 12 feet by 50 feet, and adding 302 miles of mainstem and another 76 miles of side canals.[201] Along these navigation systems lie the ports of New Orleans, Baton Rouge, Lake Charles, La Place, Point à la Hache, and two dozen more—all federally constructed and maintained.[202]

At this point, were the federal hand in Louisiana's coastal land loss not already unmistakable, we could look further north up the Mississippi River. There we would find a series of mainstream dams and locks that have served, among other things, as sediment traps, drastically reducing the loads transported to South Louisiana. Historically, these loads were more than sufficient to offset the natural rates of subsidence. Recent Corps studies indicate that these sediment loads have decreased substantially during the last twenty years.[203] In the view of several experts, were the Mississippi to be magically returned to its original contours and allowed to overflow at will, the coastline might, at best, with these reduced silt loads, hold its own. They are no longer talking about "restoring" the

200. *See* Houck, *supra* note 2, at 44-51 (and sources cited therein).
201. *Id.*
202. *Id.*
203. *See* PANEL REPORT, *supra* note 2, at 16.

coast. They are talking about trying to hold onto what is left.[204] With some 40 percent of the Nation's coastal wetlands at stake, what is left is clearly worth saving. But it will take measures, indeed a perspective, that we have only recently begun to allow ourselves to consider. It will mean unleashing the Corps upon the coast once again on grand scale, not with the mission of taming it, but with the mission of saving it.[205]

To many, and to me not so many years ago, the Corps would appear as an unlikely savior of any ecosystem, particularly the coast. The Corps' mission in flood control and navigation has always overshadowed its "consideration" of environmental protection. Projects that actually benefited the environment, such as non-structural approaches to flood control, remain the exception to a general rule of remedies constructed of concrete and mud, easily justified to the Corps and to Congress by their achievement of "primary" (*e.g.*, flood control) goals.[206] Projects which are *justified* upon the basis of environmental benefit are few and far between. There is, however, no way to deal the Corps out of a lead role in restoring the coast. We will need to re-engineer dams, waterways, levees, and canal systems. We may even need to re-engineer the Mississippi River itself, to let it run free of its levees, and to run navigation exclusively through canals.

Two legislative developments offer hope for a more affirmative Corps role. The first, at this point only a Senate bill, directs the Corps to identify the Nation's ten most threatened coastlines and to draw up action plans on an expedited basis to protect them.[207] The bill provides $30 million a year to implement each action plan; the funding is to be derived from taxes on gasoline-powered equipment that are currently funneled into the federal Highway Trust Fund.[208]

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204. Dr. Sherwood Gagliano, head of the consulting firm of Coastal Environments, Inc., is of the opinion that the Louisiana coastal environment will never return to the vast marshlands of only two generations ago. In fact, he believes that "we won't be able to keep it the way it is today." *See Erosion Expert: La. needs plan to save marshes from ruin*, Times-Picayune (New Orleans), Nov. 10, 1984, at A-26, col. 2.

205. For a description of currently proposed Corps restoration projects in the Louisiana coastal zone, see PANEL REPORT, *supra* note 2, at 61-78; Houck, *supra* note 2, at 102-27.

206. *See* NEW ORLEANS DISTRICT, U.S. ARMY CORPS OF ENGINEERS, DEEP DRAFT ACCESS TO THE PORTS OF NEW ORLEANS AND BATON ROUGE, LOUISIANA (July 1981) (documenting the Corps' plan for sediment distribution in association with its project to deepen the Mississippi River to a 55-foot depth).

207. The bill is Senate Bill 655, introduced by Senator John Breaux of Louisiana. *Coastal Wetlands Recovery Act Would Have Corps Save Wetlands*, LAND LETTER, Sept. 1, 1987, at 6-7.

208. *Id.*

In its favor, this proposal calls for action on specific timetables and provides funding on a user-fee basis that has worked well for other construction and restoration projects. Conceptually, it gives the Corps a new mission—saving Mother Nature.[209] At this point, however, it is only a proposal and it will predictably face resistance from both an administration unwilling to spend on any domestic program and from the present beneficiaries of the Highway Trust Fund.

The second legislative initiative is contained in the Water Resources Development Act of 1986,[210] a law that opens the way for more beneficial Corps projects. Under various water resources statutes, and for various purposes, the Corps proposes projects to Congress based upon the economic principle that the benefits of these projects exceed their costs.[211] Because environmental benefits are difficult to quantify, Corps projects justified on improving the environment have not made it past that threshold.

These statutes also impose requirements of cost-sharing that have proven a deterrent.[212] Local communities, navigational interests, and other beneficiaries might be willing to "ante up" for a project that will generate economic growth; environmental growth does not provoke the same self-interested response. Environmental cost-sharers are as hard to find as environmental benefits are to quantify. On both scores, environmental projects founder.

The Water Resources Development Act of 1986 is a remarkable amalgam of the old and the new. It authorizes a large number of old-style projects based on concrete and mud.[213] On the other hand, it imposes new cost-sharing restrictions that may deter some particularly bad ideas in the future, in particular the massively expensive and marginally justified navigation projects that have affected so much of the public works and the politics of the

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209. To its credit, in the absence of this new global authority, the Corps is moving forward in Louisiana with studies that, in effect, accomplish something of the same result. One initiative will attempt, over the next year, to set up an institutional arrangement to develop projects to defend the coast. *See Corps seeks funds for land-loss study*, Morning Advocate (Baton Rouge), Oct. 19, 1987, at B-1, col. 1. A second initiative will look at what has been, to date, an idea in the order of heresy—the possibility of setting free the Lower Mississippi below New Orleans. *Id.* Granted, these are not yet "action plans," and much more will be lost before they become working projects. But they represent an historic step toward a more affirmative Corps role in coastal protection than concrete bulkheads and pumping sand.

210. Pub. L. No. 99-662, 100 Stat. 4082 (1986).

211. *See, e.g.*, 33 U.S.C. § 701a (1982) (benefits of improving navigable waters and tributaries for flood-control purposes must exceed costs).

212. *See id.* § 701(h) (cost-sharing for flood-control work).

213. Water Resources Development Act of 1986, Pub. L. No. 99-662, § 101, 100 Stat. 4082, 4082-84 (1986) (to be codified at 33 U.S.C. § 2211).

South.[214] Of particular importance to coastal restoration, however, are the following five provisions:

1. *Section 101(c).* The costs of "constructing projects or measures for the prevention or mitigation of erosion or shoaling damages attributable to Federal navigation works" shall be allocated in the same proportion as the cost-sharing provisions applicable to the original projects.[215] Because all of the major navigation projects of coastal Louisiana have been federally funded at 100 percent, the effect of this provision should be to eliminate the cost-sharing requirement for those measures now needed to contain the damage.

2. *Section 906(b).* The Corps is authorized to "mitigate damages to fish and wildlife resulting from any water resources project."[216] "Mitigation," in Corps parlance, refers to monies needed to offset losses to natural resources caused by a project.[217] This mitigation is now provided for projects, "whether completed, under construction, or to be completed," within a dollar ceiling of $30 million a year and $7.5 million per project.[218] Costs are to be allocated proportionally to the original projects which, again, for the most part, are 100 percent federally funded.[219]

3. *Section 906(e).* The Corps is also authorized to "enhance fish and wildlife resources," a term of art in water resources planning that refers to providing new benefits unrelated to damages caused in the past.[220] If a project benefits resources of "national economic importance," which should include much of the coast, or endangered species, which much of the coast contains, or national wildlife refuges, which are scattered across the coast, the construction costs, once again, are 100 percent federal.

4. *Section 907.* Furthermore, in formulating *all* water resources projects, the "benefits attributable to . . . environmental quality, including improvements of the environment and fish and wildlife enhancement, shall be deemed at least equal to the costs of such measures."[221] By legislative fiat, environmental benefits now equal costs.

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214. *See id.* § 102(a) (to be codified at 33 U.S.C. § 2212) (cost sharing for inland waterway projects).

215. *Id.* § 101(c) (to be codified at 33 U.S.C. § 2211).

216. *Id.* § 906(b)(1) (to be codified at 33 U.S.C. § 1283).

217. *See* 16 U.S.C. §§ 661-663 (1982).

218. Water Resources Development Act of 1986, Pub. L. No. 99-662, § 906(b)(1), 100 Stat. 4082, 4186 (1986) (to be codified at 33 U.S.C. § 2283).

219. *Id.* § 906(c) (to be codified at 33 U.S.C. § 2283).

220. *Id.* § 906(e) (to be codified at 33 U.S.C. § 2283).

221. *Id.* § 907 (to be codified at 33 U.S.C. § 2284).

5. *Section 1135.* Lastly, the Corps is authorized to review the "operation of water resources projects." To accomplish this task, the Corps is empowered to carry out a "demonstration program . . . for the purpose of making such modifications in the structures and operations" of these projects that will be "feasible and consistent with the authorized project purposes" and "will improve the quality of the environment in the public interest."[222] For these project modifications, however, local sponsors will shoulder 25 percent of the costs and the total federal contribution will not exceed $25 million.[223]

It is too early to evaluate the effectiveness of these new provisions. The Corps has yet to promulgate regulations implementing and interpreting them. The administration has yet fully to fund them. Corps field personnel are viewing them with some degree of confusion.[224] Nonetheless, it seems clear that, short of conferring a new coast-saving mission, these provisions should encourage the Corps to become more engaged in several types of coastal restoration work. Existing navigation projects can be modified to prevent erosion and mitigate their damages without cost-sharing or cost-benefit constraints. All existing projects can be reviewed with an eye toward mitigation, but within a $30 million ceiling. Enhancement projects may be planned for resources of "national economic importance," again without cost-sharing or cost-benefit ratio requirements, but without explicit provision for their funding as well. Project operations may be modified to enhance coastal resources, but with a 25 percent local cost share and within a $25 million ceiling.

This progress noted, the limitations of the Water Resources Development Act of 1986 are obvious. Remedies are authorized, but none are directed. For those remedies with authorized funding, the funding is simply not enough. One long overdue freshwater diversion project on the Lower Mississippi River will cost about as much to construct as the statute's annual mitigation fund.[225] Local governments must still pay for 25 percent of the costs of project opera-

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222. *Id.* § 1135(a)-(b) (to be codified at 33 U.S.C. § 2294).

223. *Id.* § 1135(b), (e) (to be codified at 33 U.S.C. § 2294).

224. Telephone interviews with Joey Dykes, New Orleans District, and Lawrence Barnett, Mississippi River Valley Division, U.S. Army Corps of Engineers (Nov. 2-3, 1987).

225. The Caernarvon freshwater diversion project located 15 miles below New Orleans will cost $25 million. *Erosion-stopping water project gets approval*, Times-Picayune (New Orleans), June 18, 1987, at B-12, col. 1. The Water Resources Development Act's mitigation fund is authorized at $35 million a year. Pub. L. No. 99-662, § 908, 100 Stat. 4082, 4188 (1986) (to be codified at 33 U.S.C. § 2285).

tions, which include maintenance dredging. The current least-cost, maintenance dredging practices will continue to waste a major potential source of sediments, marsh creation, and marsh restoration. New projects will still be competing, within a limited treasury, against other projects of demonstrable economic benefit. Regardless of the relaxed legal requirements for favorable cost-benefit ratios, no new project of any scale is going to proceed until it can justify itself economically. This justification will require the Corps to acknowledge and quantify all of the economic benefits that coasts provide in flood protection, storm surge reduction, water purification, and other functions that—were it using the same ingenuity to justify a new lake in Georgia, for example—it would have already found quantifiable and persuasive. Economics still will be the key.

From past perspective, the Water Resources Development Act of 1986 is a positive step forward. From the perspective of ten years into the future, when the steps needed may total billions of dollars, the Act is patently inadequate. Whether it comes from Senate Bill 655 or some other legislation, the Corps needs an affirmative mission to develop restoration projects as a first priority. Whether it comes from the proposed gasoline tax, a seafood and fisheries tax, or from taxes based on navigation, oil imports, oil and gas pipelines[226]—or all of the above—the Corps will need a stable fund that is adequate and resistent to predation. It is too late in the day, and the case is too urgent, simply to allow restoration projects to fight for the shrinking federal dollar on a more equal footing. We need the natural resources equivalent of the Manhattan Project. The one agency that can pull it off is ready for its marching orders.

## V. CONCLUSION

It is time to stop fooling around. A few parts of our coastline are holding their own. Most are deteriorating. Some are in a state of total collapse. Either we act more forcefully to save America's most important ecosystem, or we should stop spending the money and effort on halfway measures that simply forestall the inevitable, in the fashion of cut flowers.

While there is no single solution, this article has identified several beginning principles:

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226. For a discussion of a tax on oil and gas pipelines across the Louisiana coastal zone based upon environmental damages, see Pierce, *The Constitutionality of State Environmental Taxes*, 58 TUL. L. REV. 169 (1983); Edwards, Zehner & Moore, *Constitutional and Policy Implications of Louisiana's Proposed Environmental Energy Tax: Political Expediency of Effective Regulation?*, 58 TUL. L. REV. 215 (1983).

(1) We need to zone, or buy outright, the remaining undeveloped coastline so that in the years ahead undeveloped coastline remains;

(2) We need to develop nondestructive technologies to accomplish the work of the coastline—the harvest of nonrenewable (*e.g.*, oil and gas) and renewable (*e.g.*, fisheries) resources;

(3) We need to end our reliance upon water as a carrier and assimilator of human wastes, and instead find productive uses for these wastes;

(4) In the interim, we need to end the introduction of industrial pollutants into our sewage treatment systems, a practice far more harmful than the benefits purported to flow from it;

(5) We need to upgrade the water quality of the coastal zone by using the full leverage of federal aid to require sound conservation practices and "reasonable progress" in abating pollution at its various sources; and

(6) We need to rebuild the coast itself.

These measures do not call for the introduction of a socialist state. They do not preempt state or local abatement options. At least one measure calls for less federal presence and expenditure than that currently required. But they all have a common denominator: in each case, the federal government is going to have to take responsibility in a markedly different fashion. It will have to admit that some programs need more muscle, and that others have failed for need of a new approach. In an era of "federalism"—which in our case means turning environmental responsibilities over to state and local governments—these suggestions are not in vogue. *Tant pis*. They are necessary.

For if ever there were a federal interest in a natural resource—richer than the Rocky Mountains, more biologically important than even the wildlife of Alaska—it is in America's coastal zone. There is no place here for faint hearts or the ideologues of *laissez faire*. This is the place to take a stand.