

September 1996

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Ann Powers

Pace University School of Law, apowers@law.pace.edu

Eric S. Andreas

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Recommended Citation

Ann Powers and Eric S. Andreas, *Long Island Sound: A Bibliography of Legal and Related Materials Bibliography*, 14 Pace Env'tl. L. Rev. 447 (1996)

DOI: <https://doi.org/10.58948/0738-6206.1381>

Available at: <https://digitalcommons.pace.edu/pelr/vol14/iss1/22>

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BIBLIOGRAPHY

Long Island Sound: A Bibliography of Legal and Related Materials

ANN POWERS*
ERIC S. ANDREAS**

Whether your view is from the deck of a sailboat or the bridge of a garbage barge, Long Island Sound is in trouble. Stretching for 110 miles, locked between highly developed shorelines with some of the most intense land use in the world, and draining a 16,000 mile watershed that stretches to Canada, the Sound is "downhill" from eight million people.¹

* Ann Powers is an Associate Professor of Law at Pace University School of Law and teaches in the Center for Environmental Legal Studies. She has extensive experience in water quality issues and estuary management. Professor Powers directs the Center's Long Island Sound Project, and is a director of Save the Sound. She received her B.A. from Indiana University and J.D. from Georgetown University Law Center.

** Eric Andreas is a Research Assistant at Pace University School of Law. He is a geologist and worked for six years with the United States Geological Survey, part of which was spent on Long Island Sound.

This bibliography was improved by suggestions of numerous individuals, including John Atkin, Carolyn Hughes, Curt Johnson, David Miller, Mark Tedesco, David Sive, Paul Stacey and Nicholas Triffin, to whom the authors are grateful. They would also like to acknowledge the assistance of Andrew Provence, Research Assistant.

1. See THE LONG ISLAND SOUND STUDY, COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN 1, 3 (1994) [hereinafter CCMP]. Long Island Sound is bordered by Connecticut and New York. However, the 16,000 square mile area which it drains encompasses all of Connecticut, those parts of New York lying near the Sound, as well as substantial portions of Massachusetts, New Hampshire and Vermont. It reaches into Canada, where the headwaters of the Connecticut River lie. For practical and managerial reasons, efforts to restore Long Island Sound focus on the watershed within Connecticut and New York. See *id.* at 1.

As a result, it receives enormous amounts of wastes and debris from our city streets, suburban lawns, farms, fields, factories, and sewage treatment plants.² It is an unfortunate truism that everything we do upon the land - the way we live, the way we farm, the way we work, travel, and amuse ourselves - is likely to have an impact on the water bodies that surround us.³ The Sound is no exception. Yet, in spite of the serious problems facing Long Island Sound, it survives.

While in many respects its health is precarious, there is reason to hope that a corner has been turned toward recovery. In large part, this is true because so many organizations and individuals have taken to heart protection of the Sound. Witness the many cars zipping along the roadways of coastal Connecticut with license plates bearing the legend, "Preserve the Sound."⁴ For a number of years, the Sound's problems have been receiving serious attention from both federal and state officials, as evidenced by the establishment of the Long Island Sound Study Management Conference, a joint federal/state cooperative effort to identify and remedy the ills that

2. See CCMP, *supra* note 1, at 3, 4. For example, the discharge of wastewater from over 60 publicly owned sewage treatment plants on the Sound exceeds one billion gallons a day. See *id.* at 4. Human activities result in as much as 53,700 tons of excess nitrogen being delivered annually to the Sound, as well as a wide range of toxic substances. See *id.* at 18, 47.

3. See WATER QUALITY 2000, A NATIONAL AGENDA FOR THE 21ST CENTURY: PHASE III REPORT 5 (1992) [hereinafter WQ2000]. WQ2000 is a concise summary of the myriad causes of impairment of our Nation's water bodies. See *id.* at 5-7. It is issued by WATER QUALITY 2000, a cooperative effort of the Water Environment Federation and more than 80 public, private, and nonprofit organizations. As the report notes, we are beginning to recognize basic conflicts between human activities and environmental quality. See *id.* at 5. Although there is variation by locale, impairment of water resources results mainly from industrial and municipal waste water discharges, agricultural activities, urban runoff, and land alteration activities, especially urban and suburban sprawl. See *id.* at 5-7.

4. And therein lies a contradiction. As the miles traveled by those living in the watershed increases, so does the pollution generated by their vehicles, pollution which eventually reaches and degrades the Sound. See CCMP, *supra* note 1, at 44 (Automobile emissions have been recognized as contributing to excess nitrogen in the Sound). However, limited monitoring data on atmospheric deposition of nutrients to the Sound has been among the factors hampering the development of effective management mechanisms. See *id.* at 45.

have befallen the estuary.⁵ This effort pulls within its ambit not only state and federal officials, but also municipal leaders, industry representatives, scientists, academicians, and citizens from around the watershed with a shared goal of restoring and protecting this extraordinary natural and economic resource. Pace University School of Law has participated in these undertakings, establishing a Long Island Sound Project, and hosting a colloquium which brought together a small group of officials and activists from Long Island Sound and Chesapeake Bay to explore common problems and their potential solutions. This bibliography is an additional contribution toward restoring and preserving Long Island Sound.

The Problems of Coastal and Estuarine Pollution

Our coastal, especially estuarine,⁶ waters are of tremendous importance to the Nation. They serve essential ecological functions, and their value to local economies of commerce and recreation is enormous. Commercial and sport fishing in-

5. See CCMP, *supra* note 1, at ES-1, 5-6. See also notes 23-36, *infra*, and accompanying text.

6. An estuary is a semi-enclosed coastal body of water where fresh and saltwater mix. See CCMP, *supra* note 1, at B-5. See also, JOHN A. KNAUSS, INTRODUCTION TO PHYSICAL OCEANOGRAPHY 38 (1978). This mixing contributes to a rich environment which supports a complex web of aquatic organisms and wildlife. The many diverse habitats found in and about the Sound, such as tidal wetlands, intertidal areas, and submerged aquatic vegetation, provide food, shelter, spawning and hatchery areas and nesting grounds for a broad range of fin and shellfish, birds and mammals. See CCMP, *supra* note 1, at ES-1, 2, 101-02. However, the Sound differs from most estuaries in that it is open at both ends and has no major freshwater source at its head. This contributes to a complex pattern of water circulation and pollutant presents special management problems. See *id.* at 1. "Estuary" and "estuarine zone" are also defined specifically in the Clean Water Act. See Clean Water Act of 1972 § 104(n)(4), 33 U.S.C. § 1254(n)(4) (1995) [hereinafter CWA] ("estuary" means all or part of the mouth of a river or stream or other body of water having unimpaired natural connection with open sea and within which the sea water is measurably diluted with fresh water derived from land drainage"); CWA § 320(k), 33 U.S.C. § 1330(k) ("estuarine zone" includes associated aquatic ecosystems and those portions of tributaries draining into the estuary up to the historic height of migration of anadromous fish or the historic head of tidal influence, whichever is higher").

dustries, boating and other recreation,⁷ and increased land values all add to the wealth of surrounding communities. Beyond ecological and economic value, these areas provide incalculable benefits to the psyche and spirit of the individuals who come in contact with them.

When we examine estuaries around the Nation - whether it is Long Island Sound, Puget Sound, Narragansett Bay, the Chesapeake, or others - the problems facing them are essentially similar. They were formerly among the most productive areas, but are subject to high levels of pollution, degradation of the ecosystem, and increasing population pressures.⁸ In order to understand the complexity of the tasks of those wishing to protect estuarine resources, it is essential to examine for a moment the nature of those problems. A useful construct to aid in assessing the health of a water body such as the Sound, examines three factors.⁹ The first is pollution; that is, the things we put into the Sound that do not belong there.¹⁰ It includes the entire range of industrial, urban, and agricultural discharges, whether they are deposited directly to the water or arrive through runoff or air deposition.¹¹ The second factor is harvest, which represents the things we take out of the Sound in the form of commercial and recreational seafood catches.¹² To the extent that the harvest exceeds the ability of the biota to replenish itself, it diminishes the resource.¹³ The third factor, resili-

7. The "total annual use value" from activities in Long Island Sound that depend on good water quality, such as fishing and boating, was estimated to exceed \$5 billion in 1990. See CCMP, *supra* note 1, at 2. Commercial and recreational fishing alone contributed more than \$1.2 billion. See *id.* at 101.

8. See generally OFFICE OF WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY, PUB.NO. EPA 503/9-92/007, THE NATIONAL ESTUARY PROGRAM AFTER FOUR YEARS: A REPORT TO CONGRESS (1992) (review of 17 National Estuary Program projects, including Long Island Sound), and Dawn M. Martin, et al., American Oceans Campaign, Estuaries on the Edge: The Vital Link Between Land and Sea (1996) (survey of 28 United States estuaries, including Long Island Sound).

9. See TOM HORTON & WILLIAM M. EICHBAUM, CHESAPEAKE BAY FOUNDATION, TURNING THE TIDE 33-36 (1991) [hereinafter HORTON].

10. See *id.* at 33.

11. See *id.* at 34.

12. See *id.* at 33, 34-35.

13. See HORTON, *supra* note 9 at 33, 34-35.

ence, refers to the ability of a natural system to repair and replenish itself.¹⁴ This may be best explained by analogizing to the human body's ability to ward off disease and sustain its natural balance. Just as our resilience can be lowered when our immune system is damaged or our organs are impaired, the Sound's resilience can be compromised. The destruction of underwater grasses, wetlands and surrounding forests, which together serve essential filtration and habitat functions, reduces the ability of the water body to cope with increased loads of pollution and decreases production of the aquatic life necessary to sustain harvests. All three of these factors are linked, and we cannot hope to restore the Sound without addressing them in tandem.¹⁵ To do so usually means that we must look beyond the shores of the Sound, to activities occurring throughout the watershed.¹⁶

All too often it is assumed that only those activities occurring near the water are likely to impair water quality. It is suggested that if shoreline development is controlled, and the discharge of industrial and municipal wastes limited, the problem will be solved. While these may be the most obvious threats to water quality, it is the cumulative impact of millions of individual activities throughout the drainage basin that ultimately degrades the water. Because the damage occurs on a watershed scale, so must the solution. Management programs and institutions organized by watershed should provide the most effective mechanism of gaining local support and participation, and of resolving conflicts which

14. See *id.* at 33, 35-36.

15. One additional factor to be considered is the extent to which rising sea levels threaten coastal habitats. See LESTER J. BROWN, *WORLDWATCH INSTITUTE, STATE OF THE WORLD* 28 (1996). See also *WORLD RESOURCES INSTITUTE & INTERNATIONAL INSTATED FOR ENVIRONMENT & DEVELOPMENT, WORLD RESOURCES 1988-89: AN ASSESSMENT OF THE RESOURCE BASE THAT SUPPORTS THE GLOBAL ECONOMY* 159 (1988). This may exacerbate loss in areas like Long Island Sound where shorelines are hardened by construction, thus leaving wetlands no room to retreat. See NATIONAL ACADEMY OF SCIENCES, ET AL., *POLICY IMPLICATION OF GREENHOUSE WARMING* 585-589 (1992).

16. A watershed is the land area that drains into a stream, river, estuary or other water body. See CCMP, *supra* note 1, at B-11.

arise in developing and implementing cleanup efforts.¹⁷ Fortunately, the importance of pursuing such a holistic, watershed-based approach to protecting the Nation's waters is being recognized, and the support for it is increasing. One of its most vocal adherents is the Environmental Protection Agency (EPA), which has declared, as official policy, that solutions to water quality problems should be sought on an integrated watershed-based basis.¹⁸ It has encouraged innovative efforts by the states and localities, and has been especially supportive of watershed management efforts through the National Estuary Program and mechanisms, such as the Long Island Sound Management Conference. This strong collaborative outlook bodes well for the future.

Protecting the Sound

The importance of estuaries as national natural and economic resources has long been recognized. When the Clean Water Act was written in 1972, attention was given to the problems of such coastal waters, and federal agencies were directed to study and report to Congress regarding the effect of pollution on them.¹⁹ Once such reports had been made, however, no further action was mandated. Nevertheless, they served to focus attention on the problems they described, and provided supporting documentation to those interested in taking further action. Unfortunately, it took fifteen years before significant congressional action aimed specifically at estuarine pollution and degradation occurred.

In the interim, a great deal of work was done to improve the status of the Nation's waters in general. The National Pollutant Discharge Elimination System (NPDES) was estab-

17. A cogent argument in favor of implementing integrated, watershed based protection of water resources is found in WQ2000, *supra* note 3, at 32-36. For a thorough review of the watershed approach and the barriers to its implementation, see Robert W. Adler, *Addressing Barriers to Watershed Protection*, 25 ENVTL. L. 973 (1995).

18. EPA's vision for implementation of the watershed approach can be found in *Why Watersheds?*. OFFICE OF WETLANDS, OCEANS, AND WATERSHEDS, U.S. ENVIRONMENTAL PROTECTION AGENCY, PUB.NO. EPA 800-F-96-001, WHY WATERSHEDS? (1996).

19. See CWA § 104(n), 33 U.S.C. § 1254(n) (1995).

lished and refined, water quality and technology based standards were formulated, permits were issued to thousands of dischargers, and point source pollution was substantially reduced. These advances benefited all of our waters, including our estuaries, as well as non-estuarine freshwater coastal waters, such as the Great Lakes.²⁰ But all too often, as point source controls improved, increasing development pressures in coastal areas negated water quality benefits.²¹ Because such coastal areas often have large urban populations nearby and serve as a source of both livelihood and recreation, their plight was especially visible.

As a result, much attention focused on protecting popular water bodies, such as the Great Lakes and Chesapeake Bay. These two entities were among the first to be the subject of broad-ranging interstate and international agreements to control pollution and reverse the decline of the resource.²² The Great Lakes suffered heavily from the combined effects of industrial and urban effluent. The severity of its problems, especially the presence of an astonishing array of toxics,²³ led to special efforts to clean it up. The states bordering the

20. See CCMP, *supra* note 1, at 3. For a critical assessment of the successes and failures of the Clean Water Act legislation and program, see ROBERT W. ADLER, ET AL., NATURAL RESOURCES DEFENSE COUNCIL, *THE CLEAN WATER ACT TWENTY YEARS LATER* (1996).

21. The problems of development on the Sound are stated succinctly by David J. Miller and Jane-Kerin Moffat in the overview to *Listen to the Sound: A Citizens Agenda*, a 1991 report issued by the National Audubon Society synthesizing the testimony of hundreds of citizens who expressed their visions for the future of the Sound at a series of town meeting: Development pressures and growth have a direct relationship to increased levels of pollution entering the Sound, whether from runoff, sewage treatment plants, or overflows from systems that also handle storm sewers Development generates pollution of the Sound from runoff and sewage treatment systems. See DAVID J. MILLER AND JANE-KERIN MOFFAT, NATIONAL AUDUBON SOCIETY, *LISTEN TO THE SOUND: A CITIZENS AGENDA* 12 (1991). They also note the role that development pressure plays in wetlands destruction. See *id.* at 11-12. See generally *id.* at 18-21. See also CCMP, *supra* note 1, at 3.

22. The United States and Canada entered into a bilateral "Great Lakes Water Quality Agreement" in 1978. See CWA § 118(a)(3)(H), 33 U.S.C. § 1268 (a)(3)(H) (1995).

23. See STATE OF THE WORLD, *supra* note 15, at 72-73 (30,000 different chemicals entering the lakes create a toxic brew that can cause massive fish kills and pose a threat to those consuming contaminated fish and wildlife).

lakes²⁴ began to cooperate with clean up measures, and in 1978, the United States and Canada entered into a bilateral "Great Lakes Water Quality Agreement" toward that end.²⁵ Similar activity occurred on Chesapeake Bay where initial studies, which later provided the basis for EPA's Bay Program, began in the mid-1970s.²⁶ It was in 1985 that the Long Island Sound Study got underway, thanks to a congressional appropriation, for EPA and the coastal states of Connecticut and New York, to assess the water quality of the Sound.²⁷

Chesapeake Bay and the Great Lakes received particular attention in the Clean Water Act (CWA) amendments of 1987, which approved the efforts already underway and provided clear sources of funding through specific provisions in the Act.²⁸ Instead of receiving the same individual attention, the Long Island Sound was grouped with several other water bodies to be considered for inclusion in a National Estuary Program (NEP) established by the 1987 law.²⁹ Nevertheless, money was available to continue the work of the Manage-

24. 12

The Great Lakes states include "Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin." CWA § 118(a)(3)(G), 33 U.S.C. § 1268(a)(3)(G) (1995).

25. See CWA § 118(a)(3)(H), 33 U.S.C. § 1268(a)(3)(H) (1995).

26. See CHESAPEAKE BAY PROGRAM, A WORK IN PROGRESS: A RETROSPECTIVE ON THE FIRST DECADE OF THE CHESAPEAKE BAY RESTORATION 2, 7 (1996). Considerable public concern about the health of the Bay led Congress to provide funding in 1975 for a comprehensive review of the Bay's status and the threats facing it. The study was completed in 1983, and served as the basis for the first Chesapeake Bay Agreement, entered into by the Environmental Protection Agency, Maryland, Pennsylvania, Virginia, the District of Columbia, and the Chesapeake Bay Commission, a tri-state coordinating body of state legislators. See *id.* at 2.

27. See CCMP, *supra* note 1, at ES-1, 5.

28. See Water Quality Act of 1987 §§ 103, 104, CWA §§ 117, 118; 33 U.S.C. §§ 1267, 1268 (1995) (approving programs and funding for Chesapeake Bay and Great Lakes, respectively).

29. Section 317 of the Water Quality Act of 1987 added a new § 320, National Estuary Program, to the Clean Water Act. CWA § 320, 33 U.S.C. § 1330 (1995). The Conference Report accompanying the legislation acknowledged that "the Nation's estuaries are of great national significance for fish and wildlife resources and provide important recreational and economic opportunities." H.R. CONF. REP. NO. 1004, 99TH CONG., 2D SESS. 115, at 147 (1986). The report continued, "[a]s such, it is national policy to maintain and enhance the water quality in estuaries and provide for the biological integrity of these waters." *Id.*

ment Conference in investigating and developing options to the problems of the Sound.

Following enactment of the 1987 legislation, the Long Island Sound was selected to participate in the National Estuary Program, and the Conference, which included federal, state, and local officials, representatives of industry, public interest groups, and academic institutions,³⁰ was charged with gathering data and assessing the condition of the estuary, identifying the causes of environmental problems, and creating a Comprehensive Conservation and Management Plan (CCMP) to recommend "priority corrective actions and compliance schedules" to address those problems.³¹ The Conference released the Plan in 1994; the principal problems it identified were (1) low levels of dissolved oxygen (hypoxia) in much of the Sound, due in large part to nitrogen from point sources, primarily sewage treatment plants; (2) toxic contamination; (3) contamination from pathogens; (4) floatable debris; (5) the impact of all these factors on living resources; and (6) the degradation of water quality and habitat due to land use and development.³² The Conference then began to develop strategies for addressing these issues, focusing especially on hypoxia. A three-phased approach was devised which called for a freeze on nitrogen loadings in key geographic areas at 1990 levels, and further reductions at later dates, to be achieved primarily by improved sewage treatment.³³

It was not until 1990 that Long Island Sound received federal legislative recognition comparable to that of the Great Lakes and Chesapeake Bay. In the Long Island Sound Improvement Act of 1990, Congress enacted a separate provision dealing with Long Island Sound.³⁴ In that provision, Congress specifically directed the Administrator of the EPA to continue the Management Conference and to establish an

30. See CWA § 320(c), 33 U.S.C. § 1330(c) (1995).

31. See CWA § 320(b), 33 U.S.C. § 1330(b) (1995).

32. See CCMP, *supra* note 1, at ES-1.

33. See *id.* at 28-40.

34. See CWA § 119, added by Pub. L. No. 101-596, § 202, 104 Stat. 3004 (1990) (codified at 33 U.S.C. § 1269).

office to oversee that work.³⁵ Congress also authorized funds to establish an office and support the cleanup effort. Even at this point, however, the Sound did not achieve parity since the funds authorized were exceedingly modest compared to other areas.³⁶

The office established by the 1990 legislation is to carry out a range of tasks in support of the Management Conference and the implementation of the Comprehensive Conservation and Management Plan. It is to provide administrative and technical support to the Conference, coordinate research and data gathering, provide information to the public, and prepare a report to Congress.³⁷ Unfortunately, the funding for the office is quite small, and it is currently staffed only by two full-time employees, and a part-time secretary.³⁸ Nonetheless, it has managed to provide substantial direction and coordination to the work of the Conference. However, whether the level of funding and staffing is adequate to address the complex problems still facing the Sound remains to be seen.

Methodology

Although the problems facing the Sound are serious, we can draw hope from the fact that so many organizations and individuals are working with fervor and devotion to protect and restore this national ecological treasure. It is to aid them in their work that this bibliography has been created.

35. See CWA § 119(a), (c), 33 U.S.C. § 1269(a), (c) (1995).

36. Congress authorized \$3 million to be appropriated for each of the fiscal years 1991 through 1996 for projects and studies, and sufficient funds to establish and maintain the Long Island Sound office. See CWA § 119(e), 33 U.S.C. § 119(e). By contrast, \$25 million was authorized to fund the Great Lakes cleanup in 1991. CWA § 118(h), 33 U.S.C. § 1268(h). State appropriations, as well as monies from other federal agencies, also have been directed toward restoring and preserving the Sound. See CCMP, *supra* note 1, at 155-167 (costs and funding).

37. See CWA § 119(c), 33 U.S.C. § 1269(c) (1995).

38. It should be noted that the funds actually appropriated by Congress for the Sound cleanup have never reached the \$3 million authorized, and in 1993 were as little as \$438,600. See LONG ISLAND SOUND STUDY FEDERAL FUNDING (1993) (A summary of funding obtained from EPA, on file with the authors).

The main audience for this bibliography is expected to be those working in the environmental law area, but the authors have endeavored to make it useful to more than lawyers. Its scope has been broadened to serve other environmental professionals/activists on the Sound, but not necessarily the general public. In deciding what materials to include, the focus was on materials which dealt with or related directly to the Sound.³⁹ However, there are a number of laws, regulations, and policies which deal with more general issues, such as state water quality, that are key to the Sound cleanup. An attempt has been made to include only those which are implicated most directly in activities on the Sound, such as the Clean Water Act.⁴⁰ To do otherwise would simply lead to a laundry list of federal and state statutes of only limited relevance.⁴¹ It should be noted that there are numerous counties, municipalities, and regional entities within the watershed, many of which have their own ordinances and regulations on issues such as habitat protection, sediment and erosion control, pollution control, zoning and land use which are relevant to the Sound cleanup as well. These materials usually can be located through the governmental entity itself, or the appropriate state office.⁴²

Most of the references in this work are generally available from the publisher or through libraries. Reports gener-

39. Just as the Long Sound Program has focused its attention on Connecticut and New York, *see* CCMP *supra* note 1, at 1, state materials in this bibliography are likewise geographically restricted. In terms of content, however, the materials include not only legal references, but more general technical and scientific material.

40. *See* CWA §§ 101-607, 33 U.S.C. §§ 1251-1387 (1995).

41. A full listing of federal environmental law statutes and related authorities may be found on the Pace Global Environmental Network. *See* Pace University Center for Legal Studies, *Global Environmental Law Network* (last modified Nov. 8, 1996) <<http://www.law.pace.edu/environ.html>>.

42. An excellent source of land use law is the Pace Land Use and Community Alliance Service web site. Pace Land Use Center, *Pace Land Use and Community Alliance Service* (last modified Nov. 8, 1996) <<http://www.pace.law.edu>>. It includes a Statutory Index for New York Land Use Law prepared by the New York Legislative Commission on Rural Resources, which provides state code references for a broad range of subjects including water supplies and sewage disposal, flood plain regulations, soil erosion, and dumping and litter control.

ated by the Long Island Sound Management Conference, along with supporting documentation, can be obtained from the Long Island Sound Office.⁴³ Due to the publication deadline, no works published after October 1996 are included. At the end of the bibliography a list of selected organizations and individuals is provided to assist in obtaining the referenced works, or for more current information. The bibliography is a work in progress, and its utility will be enhanced by its inclusion on the Pace Global Environmental Network,⁴⁴ where it will be updated periodically.

Bibliography

- I. Statutes: The first step to understanding the legal nature of any environmental problem is to locate the relevant statutes and regulations. The materials in this section are meant as an aid to moving in that direction. However, they are not meant to be a comprehensive list. They represent what we believe to be the basic statutory framework necessary for legally addressing environmental problems facing Long Island Sound. This section lists relevant federal statutes first, followed by analogous New York and Connecticut state provisions.

A. Federal

1. Federal Water Pollution Control (Clean Water) Act of 1972 §§ 101 et seq., 33 U.S.C. §§ 1251-1387 (1995) (amended 1987).
 - a. The Clean Water Act (CWA) is the major federal statute controlling point source pollution of our Nation's waters. As stated in section 101(a), the objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Of particular note is section

43. Another useful source of information may be found in environmental impact statements prepared pursuant to federal or state law on major projects. These can generally be found in the governmental offices concerned with the project, and often in libraries where the project was to be located.

44. <<http://www.law.pace.edu/enviro.html>>.

119, which mandates the continuation of the Long Island Sound Management Conference and establishes the Long Island Sound Study Office to be headed by the EPA. Section 320 creates the National Estuary Program, of which Long Island Sound is a part. Additionally, section 402 creates the National Pollution Discharge Elimination System (NPDES); sections 301 and 304 set effluent limitations based on technological standards; and section 303 establishes a method for setting water quality standards and total maximum daily loads. The Act also addresses nonpoint source pollution under section 319, and authorizes the Secretary of the Army to issue permits for dredge and fill material in wetlands under section 404. Subchapter D, Water Protection, of 40 CFR contains EPA regulations implementing the various CWA provisions concerning water quality standards, the national pollutant discharge elimination system, oil pollution, and citizen suits. Subchapter N, Effluent Guidelines and Standards, lists the technological standards for various industrial categories called for under section 301 and 304 of the CWA.

2. Solid Waste Disposal Act §§ 1002-11012, 42 U.S.C. §§ 6901-6992k (1995) (as amended by the Resource Conservation and Recovery Act (RCRA) of 1995).
 - a. The objective of the Resource Conservation and Recovery Act (RCRA), as stated in section 1003, is to "promote the protection of health and the environment and to conserve valuable material and energy resources." Section 1004(5) defines hazardous waste as a subcategory of solid waste. The Act's primary concern is with regulating the generation (§ 3002), transport (§ 3003), and treatment, storage, and disposal (§ 3004) of hazardous wastes. Section 3005 requires permits for any facility involved in the treatment, storage or disposal

sal of hazardous waste, and section 3006 provides for state permit programs.

3. Coastal Zone Management Act of 1972 §§ 302-318, 16 U.S.C. §§ 1451-1464 (1995).
 - a. The Coastal Zone Management Act is administered by the Department of Commerce, and is primarily concerned with encouraging states to develop land use plans for coastal areas using a system of financial incentives. Additionally, the Act addresses nonpoint source pollution by mandating the EPA to publish guidelines for managing nonpoint source pollution in coastal areas (§ 1455b(g)).
4. Oil Pollution Act of 1990 §§ 1001 et seq., 33 U.S.C. §§ 2701-2761 (1995).
 - a. The Oil Pollution Act makes parties responsible for oil pollution in the navigable waters, on the adjacent shorelines, or in the exclusive economic zone liable for any removal costs or damages that result from an oil spill.
5. Marine Protection, Research, and Sanctuaries (Ocean Dumping) Act of 1972 §§ 2 et seq., 33 U.S.C. §§ 1401-1445 (1995).
 - a. The Ocean Dumping Act requires a permit for the dumping of materials into ocean waters (§ 102). Section 103 specifically requires a permit for the dumping of dredged materials into ocean waters. Specifically, section 106(f) provides that a permit is "required for the dumping of dredged material in Long Island Sound" from any federal, or federally authorized program. Likewise, section 106(f) requires a permit for the dumping of dredged material from a non-federal dredging project exceeding 25,000 cubic yards.

B. Connecticut

1. Water Pollution Control, CONN. GEN. STAT. §§ 22a-416 to 22a-484. (1995).
 - a. Sections 22a-416 to 22a-484 contain the major statutory controls on water pollution within the state. Section 22a-430 contains the requirements for permits under the state pollution discharge elimination system.
2. Long Island Sound Account, CONN. GEN. STAT. § 22a-27k (1995).
 - a. Section 22a-27k establishes an account for any monies delegated to the preservation of Long Island Sound to be used by the CTDEP for furthering the environmental quality of the Sound.
3. Number Plates Commemoration Long Island Sound, CONN. GEN. STAT. § 14-21e (1995).
 - a. For an additional cost, the State has made available license plates commemorating Long Island Sound. The program was established to “enhance the public’s awareness of the State’s efforts to restore and protect Long Island Sound.” Any revenue obtained from the program is deposited in the Long Island Sound Account.
4. Wetlands and Watercourses, CONN. GEN. STAT. §§ 22a-28 to 22a-35a (1995).
 - a. The Wetlands and Watercourses sections of title 22a address the preservation and management of tidal wetlands. The statutes require that the state inventory tidal wetlands and then regulate any activity that would adversely affect them.
5. Coastal Management, CONN. GEN. STAT. §§ 22a-90 to 22a-113c (1995).
 - a. The Coastal Management Act addresses the preservation and management of coastal resources. The Act requires that the CTDEP prepare coastal boundary maps, and a model coastal management program for designated wa-

terfront communities. Developers are also required to submit coastal site plans with municipal zoning boards.

6. Water Resources Part I, CONN. GEN. STAT. §§ 22a-359 to 22a-363 (1995).
 - a. Part I of Water Resources establishes a regulatory permit program for dredging, dumping of fill, and erection of structures in tidal, coastal, or navigable waters.
7. Water Resources Part II, Removal of Sand and Gravel, CONN. GEN. STAT. §§ 22a-383 to 22a-390 (1995).
 - a. Part II of Water Resources establishes a regulatory permit program for the removal of sand and gravel from lands under tidal and coastal waters.
8. Harbor Management Act, CONN. GEN. STAT. §§ 22a-113k to 22a-113t (1995).
 - a. Under this Act, any municipality containing navigable waters may establish a Harbor Management Commission. The Harbor Management Commission must develop a Harbor Management Plan in cooperation with the Department of Environmental Protection, and the Department of Transportation. The plan must include goals for the development, use, and preservation of the harbor(s).
9. Inland Wetland and Watercourses Act, CONN. GEN. STAT. §§ 22a-36 to 22a-45a (1995).

"This act directs local municipalities to establish inland wetland agencies, set and regulate all private and municipal activities within inland wetlands and watercourses. Often inland wetlands exist within a few feet of the Sound pendent on topography and soil conditions."

10. Conn. Environmental Protection Act, CONN. GEN. STAT. §§ 22a-14 to 22a-20 (1995).

This Act establishes broad citizen authority to sue to enjoin "unreasonable" pollution or impairment of natural resources, and to intervene in administrative proceedings under the same standard.

b.

C. New York

1. Water Pollution Control, N.Y. ENVTL. CONSERV. LAW §§ 17-0101 to 17-1907 (Gould 1995).

- a. The major statutory controls on water pollution within the state, and the requirements for permits under the state pollution discharge elimination system are contained within these sections.

2. Marine and Coastal Resources, N.Y. ENVTL. CONSERV. LAW §§ 13-0101 to 13-0371 (Gould 1995).

- a. These sections are primarily concerned with protecting the states coastal and marine fisheries, such as shellfish and menhaden, and give the NYDEC permitting authority for certain catches.

3. Water Resources, N.Y. ENVTL. CONSERV. LAW §§ 15-0101 to 15-2723. (Gould 1995).

- a. The water resources sections of the Environmental Conservation Law are concerned primarily with maintaining New York's water resources for municipal, agricultural, industrial, and recreational use. Such resources include streams, lakes, ponds, rivers, estuaries, and sounds. The law gives the NYDEC the power to set and change water quality standards, and to issue permits for various water resource related activities.

4. Tidal Wetlands, N.Y. ENVTL. CONSERV. LAW §§ 25-0101 to 25-0601 (Gould 1995).

- a. The Tidal Wetlands sections mandate that the state inventory all tidal wetlands areas, and then regulate various land use activities in tidal wetland areas that would alter the natural environment.

Permits may be granted by the NYDEC for wetland alteration.

5. Coastal Erosion Hazard Areas, N.Y. ENVTL. CONSERV. LAW §§ 34-0101 to 34-0113 (Gould 1995).
 - a. Article 34 was enacted to protect coastal areas prone to erosion. The Act requires that coastal areas prone to erosion be identified, and that those areas be regulated so as to reduce the potential for erosion. Any building activity in designated coastal erosion areas requires a permit from the NYSDEC.
6. Environmental Quality Bond Act of 1972, Title 3—Water Quality Improvement Projects, N.Y. ENVTL. CONSERV. LAW §§ 51-0303 to 51-0305 (Gould 1995).
 - a. Title 3 provides that the state and municipalities may enter into a contract concerning state funding for municipal sewage treatment plants.
7. Air Pollution Control Act, N.Y. ENVTL. CONSERV. LAW § 19-0913 (Gould 1995).
 - a. Section 19-0913 of the Air Pollution Control Act specifically dictates that in the absence of any federal program, the state shall develop and promulgate standards controlling the emissions of nitrogen oxides from any new source.

II. **Compacts and Agreements:** Compacts and agreements between states and the federal government are important because often the parties have already come to an agreement on how to address interstate water pollution problems. Listed below are the major compacts and agreements affecting Long Island Sound.

A. Federal and State

1. Long Island Sound Agreement, Sept. 26, 1994, EPA-N.Y.-Conn.
 - a. The Long Island Sound Agreement is a non-binding agreement between the EPA, New York, and Connecticut. The parties agreed to adopt and fulfill the recommendations of the Long Island

Sound Study's Comprehensive Conservation Management Plan, and to preserve the Long Island Sound Study Management Conference as the nexus for intergovernmental cooperation.

B. Interstate

1. New England Interstate Water Pollution Control Compact, CONN. GEN. STAT. §§ 22a-309 to 22a-310 (1995); N.Y. ENVTL. CONSERV. LAW §§ 21-0101 to 21-0117 (Gould 1995).

a. The original compact was between the contiguous states of New England to abate pollution between states. The compact provides for the formation of the New England Interstate Water Pollution Control Commission, of which New York is a member.

b.

2. Tri-State Compact and Interstate Environmental Commission, N.Y. ENVTL. CONSERV. LAW §§ 21-0501 to 21-0525 (Gould 1995).

a. The Tri-State Compact was entered into by the states of New York, Connecticut, and New Jersey in an effort to abate pollution in the waters shared between the states. The compact creates the Interstate Environmental District which includes Long Island Sound, and an Interstate Sanitation Commission.

III. Federal Reports and Publications: There are a myriad of federal reports and publications that have a nexus to Long Island Sound, and they cannot by any means all be addressed in this bibliography. We have, however, chosen those that we believe are most relevant to the environmental legal and policy issues facing the Sound. Additionally, several of the cites listed provide information on other relevant sources. The largest contributor in this category is the EPA's Long Island Sound Study Of-

fice, which can provide the reader with an exhaustive list of scientific material not listed here.

A. Environmental Protection Agency (EPA): Long Island Sound Study (LISS)

1. THE LONG ISLAND SOUND STUDY, U.S. ENVIRONMENTAL PROTECTION AGENCY, COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN (1994).

- a. The Comprehensive Conservation and Management Plan (CCMP) is the product of the Long Island Sound Study Management Conference, which consists of federal, state, interstate, local agencies, universities, environmental groups, industry, and the public. The plan identifies six major environmental problems facing Long Island Sound, and details management strategies for addressing the problems. The major problems identified by the plan include: (1) low dissolved oxygen (hypoxia), (2) toxic contamination, (3) pathogen contamination, (4) floatable debris, (5) management of living resources and habitat, and (6) land use management. The report identifies the major environmental problem facing the Sound as hypoxia in late summer.

2. THE LONG ISLAND SOUND STUDY, U.S. ENVIRONMENTAL PROTECTION AGENCY, PUB. NO. EPA 842-S-94-001, SUMMARY OF THE COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN (1994).

- a. This sixty-three page document summarizes the major points of the overall Comprehensive Conservation and Management Plan, and presents it in an understandable format, including pictures and illustrations of people and activities on Long Island Sound.

3. LISS CCMP Support Documentation

- a. THE LONG ISLAND SOUND STUDY, U.S. ENVIRONMENTAL PROTECTION AGENCY, COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN SUPPORT DOCUMENT: TOXIC SUBSTANCE CONTAMINATION — ASSESSMENT OF CONDITIONS AND MANAGEMENT RECOMMENDATIONS (1993).
 - (1) The information in this report summarizes the scientific findings on toxic substance contamination in Long Island Sound, and suggests management strategies. The document was also used in formulating the LISS CCMP.
- b. THE LONG ISLAND SOUND STUDY, U.S. ENVIRONMENTAL PROTECTION AGENCY, COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN SUPPORT DOCUMENT: PATHOGEN CONTAMINATION — ASSESSMENT OF CONDITIONS AND MANAGEMENT RECOMMENDATIONS (1993).
 - (1) This document was used in formulating the LISS CCMP. It summarizes the scientific findings on pathogen contamination in Long Island Sound, and suggests management strategies.
- c. THE LONG ISLAND SOUND STUDY, U.S. ENVIRONMENTAL PROTECTION AGENCY, COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN SUPPORT DOCUMENT: FLOATABLE DEBRIS—ASSESSMENT OF CONDITIONS AND MANAGEMENT RECOMMENDATIONS (1993).
 - (1) The report on floatable debris was used in formulating the LISS CCMP. The document summarizes the scientific findings on the problem of floatable debris contamination in Long Island Sound, and suggests management strategies for its elimination.
- d. THE LONG ISLAND SOUND STUDY, U.S. ENVIRONMENTAL PROTECTION AGENCY, COMPREHENSIVE

CONSERVATION AND MANAGEMENT PLAN SUPPORT DOCUMENT: ASSESSMENT OF LIVING MARINE RESOURCES (1993).

- (1) The assessment of living marine resources report is an excellent review of the living marine resources in Long Island Sound. The report was used in formulation the LISS CCMP, and details the effects of hypoxia, toxic contamination, pathogen contamination, floatable debris, and "over fishing" on the health of marine organisms. Additionally, the report suggests management strategies for controlling the loss of living marine resources.
- e. THE LONG ISLAND SOUND STUDY, U.S. ENVIRONMENTAL PROTECTION AGENCY, COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN SUPPORT DOCUMENT: DISCUSSION OF EXISTING MANAGEMENT PROGRAMS FOR LONG ISLAND SOUND AND ITS RESOURCES (1993).
- (1) This document was prepared for the LISS CCMP, and lists federal, interstate, New York, and Connecticut agencies that have management programs affecting Long Island Sound.
- f. THE LONG ISLAND SOUND STUDY, U.S. ENVIRONMENTAL PROTECTION AGENCY, COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN SUPPORT DOCUMENT: ENVIRONMENTAL MONITORING OF LONG ISLAND SOUND PROGRAM INVENTORY (1993).
- (1) The report on environmental monitoring summarizes the agencies conducting environmental monitoring of Long Island Sound. The report details the monitoring of each agency, and describes for each agency the

type of monitoring, the location of monitoring sites, and other relevant data.

- g. THE LONG ISLAND SOUND STUDY, U.S. ENVIRONMENTAL PROTECTION AGENCY, A MONITORING PLAN FOR LONG ISLAND SOUND (1994).

(1) This report describes a comprehensive environmental monitoring program for Long Island Sound. The monitoring plan utilizes existing programs, suggesting improvements, recommendations, and additional monitoring programs where data is lacking.

4. JOSEPH E. BLUMBERG, THE LONG ISLAND SOUND STUDY, U.S. ENVIRONMENTAL PROTECTION AGENCY, THE LONG ISLAND SOUND MODELS (1994).

This fact sheet describes the development LISS 3.0 computer model of Long Island Sound and the uses it will have in creating efficient management of pollution in the Sound.

5. HydroQual, Inc., *Water Quality Modeling Analysis of Hypoxia in Long Island Sound Using LIS 3.0* (Mon. Day, 1996) (unpublished report on file with LISS).

HydroQual prepared this report for the Long Island Sound Study. Based on a three-dimensional time-variable hydrodynamic/water quality computer model the company developed (LIS 3.0), the study concluded that the model was accurate in evaluating nutrient reduction scenarios, and that nutrient loading is the most primarily responsible for the dissolved oxygen depression in Western Long Island Sound.

6. Computing Solutions, Inc., *Land Use Impacts on Long Island Sound Water Quality* (June 8, 1993) (unpublished report on file with LISS).

Computing Solutions prepared this report for the LISS Land Use Work Group as a background to help the group determine the effects of land use on Long Island Sound water quality. The report addresses how land use practices contribute to the main problems of pollution in the Sound (hypoxia, pathogens, toxic substances, and floatable debris), and suggests approaches for better land use management.

7. CH2M Hill & Stamford, Connecticut Water Pollution Control Facility, *Nonpoint Source Pollutant Trading Study: Rippowam and Noroton River Watersheds*, Connecticut (Mon. Day, 1995) (unpublished report on file with LISS).

The CH2M Hill report was prepared for the LISS, and addresses the effectiveness of a point/nonpoint source nitrogen trading program in the Rippowam and Noroton River watersheds.

8. Carol B. Griffin, SUNY-Syracuse, College of Environmental Science and Forestry, *Effectiveness and Feasibility of Best Management Practices in Reducing Urban Nonpoint Sources of Nitrogen to Long Island Sound* (Mon. Day, 1993) (unpublished report on file with LISS).

This report was prepared for the LISS. The report discusses the effectiveness and feasibility of using urban Best Management Practices (BMPs) in reaching a no-net-increase in nitrogen loading to Long Island Sound. The report indicates that BMPs are generally effective in reducing a no-net-increase, but may not be

feasible in urban areas like the Norwalk River watershed.

9. Apogee Research, Inc., *Options for Financing Nitrogen Control in Long Island Sound and the Potential Impact of Those Options on the States and Selected Communities* (1992) (unpublished report on file with LISS).

Apogee, Inc. prepared this report for the LISS. The report assesses the costs of management plans to control nitrogen influx in Long Island Sound at low, medium, and high levels, and analyzes the potential financial burden on Connecticut and New York. The report also presents financing options and projected demands, and explores potential new sources of revenue and administrative options for managing revenues.

10. Marilyn A. Altobello, University of Connecticut, *The Economic Importance of Long Island Sound's Water Quality Dependent Activities* (Mon. Day, 1992) (unpublished report on file with LISS).

The report, prepared for the LISS, estimates the economic value of various activities in Long Island Sound that are dependent on water quality, and specifically describes the estimated economic value of commercial finfishing and shellfishing, recreational beach swimming, boating, and sport fishing. Additionally, the report estimates the value of coastal wetlands, and intrinsic non-user values, and comments on the possible impacts of water quality on near-shore residential property values.

11. SEA GRANT MARINE ADVISORY PROGRAM, SOUND VALUES FACT SHEET.

The Sea Grant fact sheet concisely describes the results of the Altobello study of the economic, recreational, commercial, and aesthetic value of Long Island Sound.

12. Fact Sheets

The LISS published several fact sheets designed to keep the public informed of the mission and the progress of the LISS. Examples of the fact sheets are listed below:

- (1) LONG ISLAND SOUND STUDY, FACT SHEET NO. 7, NONPOINT SOURCE POLLUTION IN LONG ISLAND SOUND (1989).
- (2) LONG ISLAND SOUND STUDY, FACT SHEET NO. 10, TOXIC CONTAMINATION IN LONG ISLAND SOUND (1990).
- (3) LONG ISLAND SOUND STUDY, FACT SHEET NO. 11, NUTRIENT REDUCTION: NEW SOLUTIONS TO OLD PROBLEMS (1990).
- (4) LONG ISLAND SOUND STUDY, FACT SHEET NO. 15, WHAT IS THE LONG ISLAND SOUND STUDY? (1992).

13. UPDATE (The Long Island Sound Study, Stonybrook, N.Y.) Fall 1995 - Winter 1996.

The LISS publishes a biannual newsletter for the public about the progress of the LISS and various environmental issues concerning Long Island Sound.

14. The Long Island Sound Study, *The Long Island Sound Study Materials* (1996).

Publications and other materials available from the LISS office in Connecticut and New York are listed in this document. The list includes everything from posters, publications, and brochures to videos and educational ac-

tivity kits. Pertinent world wide web addresses are also listed.

B. EPA: Office Of Water

1. OFFICE OF WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY, PUB. NO. EPA 800-R-96-001, DRAFT FRAMEWORK FOR WATERSHED-BASED TRADING (1996).

The draft framework represents the EPA's ideal methodology for establishing effluent trading based on a watershed approach. The framework initially gives an introduction to the principles and economics of trading, and then describes how the mechanics of trading should work between various sources of pollution, such as point source/point source and point source/nonpoint source trading.

2. OFFICE OF WETLANDS, OCEANS, AND WATERSHEDS, U.S. ENVIRONMENTAL PROTECTION AGENCY, PUB. NO. EPA 800-F-96-001, WHY WATERSHEDS? (1996).

Why Watersheds? describes the EPA's vision of a watershed approach to managing water resources. The document generally describes the benefits of a watershed approach and lists grant incentives and regulatory changes that the EPA is offering states in order to entice states to adopt a watershed management approach.

3. OFFICE OF WETLANDS, OCEANS, AND WATERSHEDS, U.S. ENVIRONMENTAL PROTECTION AGENCY, PUB. NO. EPA 842-F-93-002, NATIONAL ESTUARY PROGRAM: BRINGING OUR ESTUARIES NEW LIFE (1993).

Bringing Our Estuaries New Life describes the structure and purpose of the National Estuary Program, and lists all the present National Es-

tuary Programs and their contacts including Long Island Sound.

4. OFFICE OF WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY, PUB. NO. EPA 840-S.93-001, *THE WATERSHED PROTECTION APPROACH: ANNUAL REPORT 1992* (1993).

The Watershed Protection Approach generally describes what a watershed approach is, why it's needed, and who can benefit from it. Additionally, the report describes the EPA's watershed protection strategy, and describes present watershed protection programs, including Long Island Sound Study.

5. OFFICE OF WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY, PUB. NO. EPA 503/9-92/007, *THE NATIONAL ESTUARY PROGRAM AFTER FOUR YEARS: A REPORT TO CONGRESS* (1992).

This report to Congress gives a description of the National Estuary Program (NEP), its basic structure, what the NEP has accomplished, and what needs to be done in the future. The report gives a brief description of the estuaries in the NEP, and includes a section on Long Island Sound describing the chief environmental problems facing the Sound, and the work of the Long Island Sound Study.

C. National Oceanic and Atmospheric Administration (NOAA)

1. NOAA, *NAUTICAL CHART OF LONG ISLAND SOUND—EASTERN PART*, MAP NO. 12354 (1995).
2. NOAA, *NAUTICAL CHART OF LONG ISLAND SOUND—WESTERN PART*, MAP NO. 12363 (1994).

IV. State Reports and Publications: As with federal reports and publications, this category lists those sources that

are relevant to environmental legal and policy issues concerning Long Island Sound.

A. Connecticut Dept. of Environmental Protection (CTDEP)

1. BUREAU OF WATER MANAGEMENT, CTDEP, WATER QUALITY STANDARDS (1996).

This document summarizes the present water quality standards for Connecticut waters. Classifications for coastal and marine surface waters are listed on pages 18-21.

2. BUREAU OF WATER MANAGEMENT, CTDEP, 1994 WATER QUALITY REPORT TO CONGRESS: SUBMITTED PURSUANT TO THE CLEAN WATER ACT SECTION 305(B) (1995).

The section 305(b) report discloses the present water quality status for Connecticut State waters including Long Island Sound, and must be submitted to Congress every two years. Notably, chapter 5 of the report assesses the present water quality in Long Island Sound according to the major environmental problems facing the Sound as stated by the LISS CCMP.

3. LONG ISLAND SOUND PROGRAMS, CTDEP, THE SOUND SOURCE: 1991 DIRECTORY (1991).

Private organizations and governmental agencies in Connecticut, as well as federal agencies that have an interest in environmental issues concerning Long Island Sound, are included in the directory. The directory lists agencies alphabetically, and reports pertinent information for each organization, such as contacts, addresses, and telephone numbers.

4. COASTAL AREA MANAGEMENT PROGRAM, CTDEP, LONG ISLAND SOUND: AN ATLAS OF NATURAL RESOURCES (1989).

The geology, physical oceanography, and marine and coastal biology of Long Island Sound are presented from a resource perspective in this atlas. The document is well illustrated and geared for the general public.

5. JAMES E. MURPHY, CTDEP, WATER QUALITY CLASSIFICATIONS MAP OF CONNECTICUT (1987).

This map shows the distribution of various water quality classes for the state of Connecticut. The map should be used in conjunction with the Connecticut water quality standards for a description of various water classes.

6. CTDEP, INTERIM PLAN FOR DISPOSAL OF DREDGED MATERIALS IN LONG ISLAND SOUND (1980).

This plan currently establishes guidelines for disposal of dredged material in Long Island Sound. Efforts are underway to revise the plan under a grant from the EPA Long Island Sound Office.

B. New York Dept. of Environmental Conservation (NYDEC)

1. Water Quality Regulations Surface Water and Groundwater Classifications and Standards, N.Y. COMP. CODES R. & REGS. tit. 6, §§ 700-705 (1996).

Water quality regulations set by the NYSDEC are listed in this publication. Sections 701.10-701.14 define saline surface water classifications. Section 703 lists qualitative and quantitative water quality standards.

2. DIVISION OF WATER, NYSDEC, NEW YORK STATE WATER QUALITY 1996: SUBMITTED PURSUANT TO SECTION 305(B) OF THE FEDERAL CLEAN WATER ACT (1996).

The section 305(b) report discloses the present water quality status for New York State waters including Long Island Sound and must be submitted to Congress every two years pursuant to CWA. Of particular importance is appendix A, page 285, which details the LISS CCMP and New York state's efforts to implement the plan and clean up Long Island Sound.

C. New York Dept. of State (NYDOS)

1. NYDOS, DRAFT OF THE LONG ISLAND SOUND COASTAL MANAGEMENT PLAN (March 1994).

The Long Island Sound Coastal Management Plan (LIS CMP) was developed in an effort to better address regional coastal management problems facing Long Island Sound. The plan addresses local priorities, as well as environmental, economic, and land use issues, and integrates much of the work accomplished by the Long Island Sound Study.

V. Publications by Private Organizations: There are several private organizations that have published material relevant to environmental legal and policy issues facing the Sound. Several of these LIS CCMP organizations sprung up in an effort to protect Long Island Sound. These include organizations like the Long Island Soundkeeper Fund, Sound Watch, and Save the Sound. Others were established for a more general environmental purpose, but have an interest in the Sound, such as the National Audubon Society and the Connecticut Fund for the Environment. The scope of these publications varies widely. Some are simply small brochures and newsletters, while others are complex scientific papers, monitoring reports, and policy proposals.

A. American Oceans Campaign

1. AMERICAN OCEANS CAMPAIGN, *ESTUARIES ON THE EDGE: THE VITAL LINK BETWEEN LAND AND SEA* (1996).

Estuaries on the Edge describes several endangered estuaries in the United States that are in need of help. Chapter six of the book focuses on Long Island Sound, and begins with an overview of the geography, demographics, and economics of the Sound. The chapter discusses the environmental problems facing Long Island Sound, and the LIS CCMP developed by the Long Island Sound Study. A brief directory of "Key Contacts" is also listed at the end of the chapter and includes addresses of various politicians to contact.

B. Connecticut Fund for the Environment (CFE)

1. ERIN KELLOG, ET AL., *CONNECTICUT FUND FOR THE ENVIRONMENT, ADVOCATES GUIDE TO THE LONG ISLAND SOUND*.

This brief guide is intended to inform the average Connecticut citizen of the major environmental problems facing Long Island Sound and how to help clean it up. The guide tells how to retrieve environmental information from various government sources, and how to help ensure that government, industry, and individuals are following the rules, and helping to protect the Sound.

2. CFE MEMBERSHIP NEWSLETTER (Connecticut Fund for the Environment, New Haven, Conn.) 1978 - present.

CFE's Newsletter is published quarterly, and discusses environmental issues in Connecticut, including those affecting Long Island Sound.

C. Estuarine Research Federation

14 ESTUARIES 3 (1991).

Estuaries is a scientific journal which focuses on estuarine research. This edition is dedicated entirely to Long Island Sound, and addresses issues of environmental quality in the Sound, including hypoxia, contaminants, and effects on benthic and pelagic fauna. Additionally, the Long Island Sound Study office used the volume as a resource when drafting the CCMP.

D. Long Island Soundkeeper Fund

1. TERRY BACKER, LONG ISLAND SOUNDKEEPER FUND, INC., THE SOUNDBOOK (1990).

The Soundbook is intended to inform the general public about all aspects of Long Island Sound. The book is well illustrated, and discusses the natural history, early human history, and modern ecology of the Sound today. The book also has information on the Long Island Sound watershed, the adverse impacts of human development on the health of the Sound, and what the average person can do to advert polluting it.

E. National Audubon Society

1. NATIONAL AUDOBON SOCIETY, LISTEN TO THE SOUND: A CITIZENS' AGENDA (1991).

This document includes excerpts from hearings that the National Audubon Society conducted in fifteen towns around the rim of Long Island Sound. Environmentalists, lawyers, fishermen, politicians, artists, etc., attended the meetings and gave their views on the environmental problems that face Long Island Sound, and what should be done. The agenda discusses the general environmental vision of the parties involved (a clean and healthy Sound), and sub-

mits recommendations for rectifying those problems.

2. Long Island Sound Conference, *Citizens' Summit '94: Realizing the Vision, A Summary of the Proceedings* (1994).

The main focus of the meeting was to review the draft of the Long Island Sound Study Comprehensive Conservation and Management Plan. This document provides an overview of the issues discussed at the summit, and are presented as summaries of workshops that were held.

F. Northeast Utilities

1. NORTHEAST UTILITIES SYSTEM, LONG ISLAND SOUND: A TREASURE TO CHERISH.

This small illustrated brochure discusses the ecology of Long Island Sound, and gives a general outlook on the environmental problems facing the Sound. The brochure also includes a directory of agencies and organizations associated with the Sound.

G. Save the Sound (Formerly Long Island Sound Taskforce)

1. HELEN ROSELLI & STEVE YERGEAU, SAVE THE SOUND, INC., 1995 LONG ISLAND SOUND WATER QUALITY REPORT: EIGHT HARBORS AND COVES IN THE WESTERN SOUND (1996).

The water quality of surface and bottom waters for harbors in Mamaroneck, Rye, Greenwich, Stamford, and Bridgeport are considered in this report. The report notes that all the harbors monitored have violated state water quality standards for an extended period of time and lists areas of 'dangerous' water quality and 'warning' water quality.

2. LARA LAUGHLIN & HELEN ROSSELLI, LONG ISLAND SOUND TASKFORCE, WATER QUALITY MONITORING: DATA TO ACTION (1994).

This document was essentially written to help small private environmental groups who are collecting water quality data in structuring and writing a water quality report. The document also includes a sample water quality report on two Long Island Sound Harbors.

3. BARBARA L. DEXTER & RICHARD B. HARRIS, LONG ISLAND SOUND TASKFORCE, WATER QUALITY MONITORING: A GUIDE FOR CONCERNED CITIZENS (1992).

This guide is an aid for those interested in beginning a water quality monitoring program, and gives a good technical description of what is involved in the water quality monitoring process.

4. MEMBERSHIP NEWS LETTER (Save the Sound, Inc., Stamford, Conn.) Spring 1995 - present.

Save The Sound publishes a quarterly newsletter concerning the organization's environmental efforts and other environmental issues facing Long Island Sound.

H. SoundWatch

1. SOUNDWATCH, WATER QUALITY MONITORING PROGRAM, WATER QUALITY REPORT: EASTCHESTER BAY: BRONX, NEW YORK (Jun-Sept. 1995).

SoundWatch monitors the water quality of surface and bottom waters in Eastchester Bay and publishes a yearly water quality report.

2. THE SOUNDWATCHER (SoundWatch, City Island, N.Y.), Winter 1988 - present.

The SoundWatcher newsletter is published six times a year and reports on SoundWatch activi-

ties, environmental problems facing Long Island Sound, and results from their water quality monitoring program in Eastchester Bay.

I. Yale Center for Environmental Law and Policy

1. BRYAN K. BROWN, JONAS KAROSAS, & DUNCAN SCHMITT, *POINT SOURCE NITROGEN CREDIT TRADING STRATEGIES FOR LONG ISLAND SOUND: CONTEXT AND RECOMMENDATIONS* (Dec. 1995) (unpublished report on file with D. Esty at Yale Center for Environmental Law and Policy).

This unpublished student paper identifies nitrogen pollution leading to hypoxia as the major environmental problem facing Long Island Sound and suggests effluent trading among various point sources as a means of managing hypoxia. The manuscript provides necessary information about trading principles, governmental laws, and constituencies involved, as well as giving examples of other trading programs.

- #### VI. World Wide Web Sites: Web sites are an excellent source for information regarding Long Island Sound, and several publications are available on-line. One caveat is, however, that Web addresses are subject to change. If an address fails to work, try using the root of the address. For example, instead of using <<http://www.epa.gov/region01/eco/lis>>, try <<http://www.epa.gov/>> and see if you can build it up from there.

A. Federal

1. EPA, Region 1, *Long Island Sound Study Index* (last modified Nov. 27, 1995) <<http://www.epa.gov/region01/eco/lis>>.

This is the main home page for the Long Island Sound Study Office. The site includes on-

line versions of the Long Island Sound Comprehensive Conservation and Management Plan, and various fact sheets.

2. Office of Water, EPA, *National Estuary Program* (last modified July 25, 1996) <<http://www.epa.gov/nep>>.

This site gives general information on the National Estuary Program, and includes a listing of all the sites involved in it.

3. Office of Water, EPA, *Watershed Management Program* (last modified Nov. 12, 1996) <<http://www.epa.gov/ow/watershed>>.

This site has information available on watershed programs and issues, and includes online versions of published documents.

4. Marine Science Research Center/SUNY Stonybrook, *Long Island Sound Study* (visited Jan. 14, 1997) <<http://www.msrc.sunysb.edu/gec/html/lisse.html>>.

MSRC at SUNY Stonybrook is the sister office to the main Long Island Sound Study office in Stamford, CT. This site has links to other Long Island Sound pages, and online scientific information concerning the Sound.

5. U.S. Geological Survey, Woods Hole, *Home Page* (visited Jan. 13, 1997) <<http://kai.er.usgs.gov/surveys/area1/lis/lis.html>>.

The U.S.G.S. site has information available on scientific surveys conducted by the U.S.G.S. on Long Island Sound. The site also includes a list of related web pages.

B. Other

1. Pace University Center for Environmental Legal Studies, *Pace Global Environmental Law Network* (last modified Nov. 8, 1996) <<http://www.law.pace.edu/environ.html>>.

Pace's environmental site allows the user to browse and search various environmental statutes, regulations, treaties, and cases. The site also has general information available concerning various environmental issues, and links to other environmental sites.

2. Save the Sound, Inc., *Save the Sound* (visited Jan. 25, 1997) <<http://www.savethesound.org>>.

This site offers information on Save the Sound, which is a non-profit organization dedicated to the protection of Long Island Sound.

3. American Oceans Campaign, *Home Page* (visited Jan. 13, 1997) <<http://www.american oceans.org/index.htm>>.

VII. Litigation: There are numerous environmental cases that have been tried involving Long Island Sound. What we have done is compiled a list of recent and pending litigation that focuses on the types of environmental legal problems facing the Sound today, and described them in sufficient detail to enable the reader to grasp their legal significance. The cases primarily involve litigation under the CWA and analogous state provisions, but include cases involving the RCRA and the Ocean Dumping Act.

A. Recent Litigation

1. *Keeney v. Town of Old Saybrook*, 237 Conn. 135 (1996).

The town of Old Saybrook appealed a decision enforcing orders from the Connecticut Department of Environmental Protection to abate pollution to the Connecticut River and

Long Island Sound, caused by residents inadequate and failing septic systems, by constructing a municipal sewage treatment plant. The Connecticut Supreme Court ruled that the town could be liable for the pollution caused by the town's residents under the theory of nuisance, stating that "a municipality may be held liable for a public nuisance that it intentionally creates through its prolonged and deliberate failure to act to abate that nuisance." The court then remanded the case to the lower court to determine if the town acted intentionally.

2. *Long Island Soundkeeper Fund v. New York Athletic Club*, 1996 WL 131863, 42 ERC 1421 (S.D.N.Y. 1996).

The Long Island Soundkeeper Fund and the New York Coastal Fishermen's Association sued the New York Athletic Club in an effort to enjoin the club from continuing operation of its trap shooting range. The operation of the range was resulting in the direct deposition of clay target debris and steel and lead shot into Long Island Sound. Plaintiffs asserted that the deposition of such material required a permit under the Clean Water Act. The Federal District Court held that the trap shooting range constituted a "point source" of pollution under the Clean Water Act, and enjoined defendant from operating the range until it obtained a permit.

3. *Natural Resources Defense Council, Inc. v. Fox*, 94 Civ. 8424 (S.D.N.Y. 1995).

The plaintiffs in this case moved for summary judgment on essentially two issues: (1) that the EPA failed to perform a non-discretionary duty by failing to establish "total maximum

daily loads" (TMDLs) for New York's waters including Long Island Sound, and (2) that the EPA acted arbitrarily and capriciously by not disapproving of New York's inadequate anti-degradation policy. The court held that a State's failure to submit TMDLs constituted constructive submission to EPA's limits and triggers the EPA's non-discretionary duty to establish TMDLs. However, the court concluded that there was "a triable issue of fact of whether New York has actually created and submitted TMDLs" and denied defendant's first motion for summary judgement. The court additionally held: (1) that citizen suits brought under § 303(d)(2), are not time barred by the six year statute of limitations, (2) that the doctrine of laches did not apply in a "suit to enforce a public right or protect the public interest." On the plaintiff's second motion for summary judgement, the court held that the approval of New York's water quality standards lacking a stated antidegradation policy was not arbitrary and capricious. Furthermore, the court concluded that actions under the Administrative Procedure Act were barred by a six year statute of limitations, and, therefore, any "review of the EPA's 1985 approval of New York's antidegradation policy is barred."

4. *Connecticut Coastal Fishermen's Ass'n v. Remington Arms Co.*, 989 F.2d 1305 (2d Cir. 1993).

In this case, Remington Arms appealed from a District Court decision that the company clean up the lead shot and target debris deposited in Long Island Sound from a target range that the company operated. The Court of Appeals held that the lead shot and target debris accumulated long enough to be consid-

ered discarded solid waste under the Resource Conservation and Recovery Act's "imminent hazard and substantial endangerment" clause. The court further held that lead shot meets the definition of hazardous waste due to its potential threat to the environment, and ordered the club to clean up the both the lead shot and clay target fragments adjacent to the range in Long Island Sound.

5. *Connecticut Fund for the Environment v. ACME Electro-Plating, Inc.*, 822 F.Supp. 57 (D. Conn. 1993).

The Connecticut Fund for the Environment sued ACME Electro-Plating in an effort to enjoin the company from further discharging effluent into the Stamford publicly owned treatment works (POTW) without a permit as required under the CWA. The Stamford POTW empties directly into Stamford harbor and Long Island Sound. The District Court granted summary judgment to the plaintiff, and held that there was no genuine issue as to any material fact as the facts of discharge were undisputed.

6. *New York Coastal Fishermen's Assoc. v. New York City Dept. of Sanitation*, 772 F.Supp. 162 (S.D.N.Y. 1991).

The New York Coastal Fishermen's Association sued the New York City Department of Sanitation (DOS) to enjoin the defendant from further allowing leachate from a landfill to be discharged into Long Island Sound through an existing publicly owned treatment works. The District Court held that existing consent orders between the New York Department of Conservation (NYDEC) and the DOS did not bar a citizen suit under the Clean

Water Act because a twelve year period of relative inaction on resolving the issue on the part of the NYDEC did not constitute "diligent prosecution." Finally, the court ruled that the plaintiff draft a permanent injunction allowing the defendants time to develop a plan to stop the leachate from entering the Sound.

7. *Town of Huntington v. Marsh*, 859 F.2d 1134 (2d Cir. 1988).

The Army Corps of Engineers appealed from a decision that barred the Corps from issuing discharge permits for dredged material at a newly designated site in Western Long Island Sound. The Corps argued that the new disposal site was properly chosen as the Ocean Dumping Act did not apply to Long Island Sound, and the agency completed the proper Environmental Impact Statement (EIS) required under the National Environmental Policy Act (NEPA). The Court of Appeals held that the Ocean Dumping Act specifically applies Long Island Sound, and that the Corps' EIS was inadequate. Furthermore, the court vacated the permanent injunction, and remanded to decide whether it was appropriate.

B. Pending Litigation

1. *Long Island Soundkeeper Fund, Inc. v. Long Island Lighting Co.*, No. 396CV587RNC (D. Conn. filed Apr. 4, 1996).

The issue in this case is whether power companies need to apply for a permit under the Clean Water Act for fluid leaking from their power cables that cross Long Island Sound. The SoundKeeper alleges that Long Island Lighting and Power, and Northeast Utilities

have discharged more than 36,000 gallons of cable fluid since 1969. The power companies are currently working under a consent agreement with the Connecticut Department of Environmental Conservation, and argue that the fluid is not hazardous.

2. *Connecticut Fund For The Environment v. New Haven Water Pollution Control Authority*, No. 395CV01242 (D. Conn. filed June 23, 1995).

CFE filed suit against the New Haven WPCA for SPDES permit violations (CWA § 402(d)) at the New Haven sewage treatment plant. The violations included those for total suspended solids, biological oxygen demand, and high chlorine. Currently, the parties have entered a consent decree (9/26/96), which is awaiting EPA and DOJ review.

3. *Connecticut Fund For The Environment v. Town of Stonington Water Pollution Control Authority*, No. 395CV00329 (D. Conn. filed Feb. 24, 1995).

CFE filed suit against the Stonington WPCA for SPDES permit violations at their Pawcatuck and Borough sewage treatment plants. The violations included those for fecal coliform at both plants, and biological oxygen demand and total suspended solids for Borough. Presently, a tentative settlement has been reached on some issues.

VIII. Legal References: Provided below is a list of legal references aimed primarily as in introduction to the CWA and important land use issues.

A. Clean Water Act

1. ROBERT W. ADLER, ET AL., NATURAL RESOURCES DEFENSE COUNSEL, *THE CLEAN WATER ACT: 20 YEARS LATER* (1993).

The authors discuss the original aim of the Clean Water Act, and how, twenty years later, the act has failed to hit its mark. The authors also suggest changes that have to be made to ensure the future protection of the nations waters.

2. ENVIRONMENTAL LAW INSTITUTE, *CLEAN WATER DESKBOOK* (2d ed. 1991).

The Clean Water Deskbook includes the entire text of the Clean Water Act, an overview of the act, an analysis of the 1987 amendments, the principal legislative history, a regulations outline, EPA policy guidance, and significant litigation.

3. WILLIAM H. ROGERS, JR., *ENVIRONMENTAL LAW* § 4 [WATER POLLUTION] (2d ed. 1994).

Section 4 of this work gives an overview of the origins of the Clean Water Act, and discusses pertinent sections in detail. The section also discusses the Oil Pollution Act of 1990.

4. DONALD W. STEVER, *ENVIRONMENTAL LAW INSTITUTE, LAW OF ENVIRONMENTAL PROTECTION* § 12 [WATER] (1993).

Section 12 of this treatise gives a history of water pollution in the United States, and discusses and explains the details of the Clean Water Act. Additionally, this section briefly discusses the Oil Pollution Control Act.

B. Land Use

1. John R. Nolon & Jayne E. Daley, *New York Land Use Law*, in *WEST'S NEW YORK PRACTICE SERIES*, ch. 16 (forthcoming 1997).

Chapter 16 discusses New York land use law in detail, and includes a discussion of the seminal cases deciding takings issues.

2. CONNECTICUT OFFICE OF POLICY AND MANAGEMENT, STATUTES GOVERNING MUNICIPAL PLANNING & ZONING (1995).

IX. Directory: The directory listing includes addresses and telephone numbers for those agencies and organizations mentioned in the bibliography, as well as others.

A. Federal Agencies

1. U.S. Environmental Protection Agency, Region 1, One Congress Street, John F. Kennedy Federal Building, Boston, MA 02203-0001, (617) 565-3420.
2. U.S. Environmental Protection Agency, Region 2, 290 Broadway, New York, NY 10007-1866, (212) 637-3000.
3. U.S. Environmental Protection Agency, Long Island Sound Study, The Long Island Sound Office, Connecticut, Stamford Government Center, 888 Washington Boulevard, Stamford, CT 06904, (203) 977-1541.
4. U.S. Environmental Protection Agency, Long Island Sound Study, The Long Island Sound Office: New York, Marine Sciences Research Center, SUNY at Stonybrook, Stony Brook, NY 11794-5000, (516) 632-9216.
5. U.S. Department of the Interior, Fish and Wildlife Service, Southern New England/New York Bight Coastal Ecosystems Program, Shoreline Plaza, Route 1A, P.O. Box 307, Charlestown, RI 02813, (401) 364-9124.
6. U.S. Department of Commerce, National Oceanographic and Atmospheric Administration, Ocean and Coastal Resources Management, 1305 East

West Highway, Silver Spring, Md. 20910, (301) 713-3155.

7. U.S. Department of Commerce, National Oceanographic and Atmospheric Administration, New England River Forecast Center, 705 Bloomfield Ave., Bloomfield, CT 06002, (203) 240-3514.
8. U.S. Army Corps of Engineers, Bldg. 108 South, 424 Trapelo Rd., Waltham, MA 02254-9149, (617) 647-8111.

B. State Agencies

1. Connecticut Department of Environmental Protection, Long Island Sound Office, 79 Elm Street, Hartford, CT 06106-5127, (860) 424-3034.
2. NY Department of Environmental Conservation, Division of Fish, Wildlife, and Marine Resources, 205-S North Bellemeade Rd., East Setauket, NY 11733, (516) 444 0430.

C. Municipal Agencies

1. New York City Department of Environmental Protection, 96-05 Horace Harding Expwy, Corona, NY 11368 (718) 337-4357.

D. Private Organizations

1. American Oceans Campaign, 725 Arizona Avenue, Suite 102, Santa Monica, CA 90401, (310) 576-61612.
2. Connecticut Fund for the Environment, 1032 Chapel Street, 4th Floor, New Haven, CT 06510, (203) 787-0646.
3. Estuarine Research Federation, (803) 777-3927.

4. Long Island Soundkeeper Fund, Inc., P.O. Box 4058, Norwalk, CT 06855, 1-800-933-SOUND, (203) 854-5330.
5. Long Island Sound Watershed Alliance, P.O. Box 313, Cos Cob, CT 06807-0313, (203) 629-1248.
6. National Audubon Society, 1789 Western Avenue, Albany, NY 12203, (518) 869-9731.
7. Northeast Utilities Conservation & Environmental Brochures, Work Opportunity Center, P.O. Box 481, Agawam, MA 01001.
8. Save the Sound, Inc., 185 Magee Avenue, Stamford, CT 06902-5939, (203) 327-9786.
9. SoundWatch, P.O. Box 104, City Island, New York 10464, (718) 885-2566.