

Fall 1990

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Recommended Citation

Cheryl A. Kuechenberg, *Indiana's Lake Michigan Shoreline: Recommended Shoreland Regulations for a Valuable Natural Resource*, 25 Val. U. L. Rev. 99 (1990).

Available at: <https://scholar.valpo.edu/vulr/vol25/iss1/4>

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Kuechenberg: Indiana's Lake Michigan Shoreline: Recommended Shoreland Regulat

INDIANA'S LAKE MICHIGAN SHORELINE: RECOMMENDED SHORELAND REGULATIONS FOR A VALUABLE NATURAL RESOURCE

INTRODUCTION

Indiana's forty miles of Lake Michigan shoreline has been referred to as "an important national asset"¹ and twenty miles of the best beaches in the Midwest.² The unique and irreplaceable nature of Indiana's shoreline dunes was eloquently summarized by poet Carl Sandburg when he wrote:

[Indiana's shoreline] dunes are to the Midwest what the Grand Canyon is to Arizona and the Yosemite to California. They constitute a signature of time and eternity; once lost, the loss would be irrevocable.³

While the Great Lakes coast⁴ is able to support a diversity of natural, recreational, and industrial activities, the fragile ecosystem of the coast remains vulnerable to man's influence.⁵ The beauty and natural resources of the coastal environment has led to increasing demands for shoreland development.⁶ As development accelerates in response to continued population growth along the shore, the pressure on the shoreland⁷ area will intensify.⁸

1. Hoosier Sierra Dunelands, Autumn 1989 (Special Sect.) at 2, col. 2 (quoting a resolution by The Sierra Club Binational Great Lakes Committee).

2. INDIANA DEP'T OF NATURAL RESOURCES, TECHNICAL REPORT 305, PUBLIC ACCESS TO THE INDIANA SHORELINE OF LAKE MICHIGAN, app. D, at 9 (1978) [hereinafter TECHNICAL REPORT 305].

3. L. WALDRON, THE INDIANA DUNES 4 (1983) (quoting a letter written by Carl Sandburg in 1958).

4. WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY 253, 1089 (1988) (defines coast as the land near the shore and defines shoreline as the strip of land where the water and shore meet). For purposes of this note, the terms coast(al), coastline, shoreland, and shoreline will be used interchangeably. See *infra* note 7 and accompanying text for definition of Indiana's Lake Michigan shoreland as used in this note.

5. Lawrence, *Towards a National Coastal Policy*, 17 ENVTL. L. REP. 10404 (1987) (comments on major federal programs affecting the coastal zone).

6. *Id.* at 1.

7. Johnson, *Floodplain, Wetland, and Shoreland Regulation in Wisconsin*, 61 WIS. B. BULL. 12, 14 (1988) (defines shoreland as 1,000 feet from a lake). But cf. Finnell, *Intergovernmental Relationships in Coastal Land Management*, 25 NAT. RESOURCES J. 31, 43-44 (1985) (1,000 feet is unnecessarily large for a developed urban area). For the purpose of this note the Indiana Lake Michigan shorelands will refer to the 375 feet landward of the high water mark. The current average erosion rate of Indiana's Lake Michigan shoreline is 7.5 feet annually, multiplied by fifty years gives a shoreland area of 375 feet landward of the high water mark which could erode within the next fifty years.

At present, state and federal governments are creating shoreland management programs in order to regulate development in coastal areas.⁹ The Great Lakes states have adopted a variety of approaches to regulate development along Lake Michigan's shorelands such as legislative adoption and expansion of the common law public trust doctrine,¹⁰ enactment of state shoreland statutes,¹¹ or participation in the federal government's Coastal Zone Management Act.¹² Unfortunately, Indiana does not follow other state and federal government movements toward adoption of legislation regulating

8. Lawrence, *supra* note 5, at 10404. See also OFFICE OF COASTAL ZONE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEP'T OF COMMERCE, WHO'S MINDING THE SHORE: A CITIZEN'S GUIDE TO COASTAL MANAGEMENT I (1976) [hereinafter WHO'S MINDING THE SHORE?] (fifty percent of the nation's population lives within fifty miles of the coast and the coastal growth rate is three times the national average); TECHNICAL REPORT 305, *supra* note 2, at 12 (the projected population for the Chicago-Gary-Hammond area is four million people by the year 2000).

9. The Coastal Zone Management Act (CZMA), 16 U.S.C. §§ 1451-64 (1988), provides a comprehensive coastal zone management framework. The CZMA was enacted by Congress in recognition of the value of the coasts and the ineffective management of the coastal areas by state and local governments. See 16 U.S.C. § 1451(a)-(j) (1988). Coastal states voluntarily participate by implementing state coastal programs that meet minimal federal requirements under the CZMA. See 16 U.S.C. § 1454 (1988). A strong incentive for state participation is the availability of federal financial assistance to aid in the development of a management program. *Id.* Lawrence, *supra* note 5, at 3 (twenty-nine of the thirty-five eligible states or territories have federally approved coastal zone management programs.). See also MANDELKER, ENVIRONMENTAL AND LAND CONTROLS LEGISLATION 224-32 (1976) The coastal management program is to cover the coastal waters and adjacent shoreline areas because the planning and control of the coastal zone is strongly influenced by the planning and control of the adjacent shorelands. The management program is to include comprehensive objectives, policies, and standards. The management program should include the identification of the coastal zone boundaries, the definition of permissible uses, the designation of "areas of particular concern", the identification of the means of state control, the prioritization of uses, and the description of the organization structure. *Id.*

10. See *infra* notes 48-87 and accompanying text. See also *Superior Pub. Rights, Inc. v. State Dept. of Natural Resources*, 80 Mich. App. 72, 263 N.W.2d 290 (1977) (The tests in Michigan's Great Lakes Submerged Lands Act are nearly identical with the tests under the common law public trust doctrine and are therefore valid tests); W. RODGERS, HANDBOOK ON ENVIRONMENTAL LAW 182 n.140 (1977) (Many states have expanded the public trust doctrine by statute or by constitutional amendment, thereby providing a valuable tool for protecting public rights in coastal waters); Fulton & Injerd, *Lake Michigan and the Public Trust: Its History and Application in Illinois*, Ill. Dept. of Transportation, Division of Water Resources 32 (1984) (Illinois Department of Transportation unpublished manuscript stating that the public trust doctrine is entrenched in Illinois judiciary and legislature as an important concept to preserve Lake Michigan as Illinois' most valuable natural resource); Nelson, *State Disposition of Submerged Lands Versus Public Rights in Navigable Waters*, 3 NAT. RESOURCES LAW. 491, 501-03 (1970) (discussion of Ohio, Illinois, and Wisconsin's use of the public trust doctrine).

11. See *infra* notes 88-116 and accompanying text.

12. See *infra* notes 117-48 and accompanying text.

development of shoreland areas.¹³

While Indiana has forty miles of valuable Lake Michigan shoreline,¹⁴ the state has not established a mechanism to regulate shoreland development along Lake Michigan.¹⁵ Indiana recently authorized a permit system for regulation of the water-use in Indiana's navigable waterways,¹⁶ however, the permit system does not regulate the use and development of the shoreland immediately adjacent to Lake Michigan's waters.¹⁷ While other Indiana shorelands are regulated under the state's Freshwater Protection Act or Flood Control Act, the Lake Michigan shorelands are exempt from regulation under both of these state statutes.¹⁸ Regulation of Indiana's Lake Michigan shorelands could prevent imprudent shoreline development that often causes severe erosion or that interferes with the public's ability to use and enjoy the shoreland beaches.¹⁹

This note suggests that the Indiana legislature enact regulations to protect Indiana's Lake Michigan shorelands from the adverse effects of uncontrolled development. Section one of this note briefly highlights the historical and geographic significance of Lake Michigan and explains some current problems threatening Indiana's shoreland beaches.²⁰ Section two discusses the common law public trust doctrine, the ineffectiveness of the common law as a means to protect the coastal area,²¹ and resultant state codifications of the public trust doctrine.²² Section three then describes some state legislative responses to

13. See *infra* notes 61-67 and accompanying text (Indiana has not legislatively adopted or expanded the public trust doctrine.); See *infra* notes 89-101 and accompanying text (Indiana has not adopted a shoreland management statute.); See *infra* notes 132-136 and accompanying text (Indiana is not participating in the federal Coastal Zone Management Act.).

14. See *supra* note 1 and accompanying text. See also W. WOOD, COASTAL SITUATION REPORT FOR THE STATE OF INDIANA 1 (1988) [hereinafter COASTAL SITUATION REPORT] (complete assessment of Indiana's Lake Michigan shoreline prepared by the Great Lakes Coastal Research Laboratory, School of Civil Engineering, Purdue University for the Indiana Department of Natural Resources).

15. See *infra* notes 89-101 and accompanying text.

16. Ind. Code § 13-2-4-9 (1989); Lucas, *Navigable Waters in Indiana: Searching for Solutions to Problems of Identification and Administration*, RES GESTAE, at 272-73 (Dec. 1988) (Lake Michigan is unquestionably a navigable waterway). See generally BLACK'S LAW DICTIONARY 926 (5th ed. 1979) (defines navigable waters as those waters useful for commerce).

17. Ind. Code § 13-2-4-9 (1989) (authorizes the navigable waterways permit system). See *infra* notes 89-92 and accompanying text.

18. See *infra* notes 93-94 and accompanying text.

19. See *infra* notes 33-47 and accompanying text.

20. See *infra* notes 48-64 and accompanying text.

21. See *infra* notes 65-67 and accompanying text.

22. See *infra* notes 68-87 and accompanying text.

coastal problems and state enactment of shoreland construction set-back²³ regulations.²⁴

Section four discusses the federal government's response to inadequate local mechanisms for regulating coastal developments, the enactment of the Coastal Zone Management Act, and some problems that prevented Indiana from developing a federally approved coastal zone management program.²⁵ Finally, this note concludes by presenting a model statute. The model statute adopts and expands the public trust doctrine, authorizes shoreland set-back regulations, and provides a framework for local government administration and enforcement of the set-back regulations.²⁶

I. SIGNIFICANCE OF INDIANA'S LAKE MICHIGAN SHORELINE AND CURRENT COASTAL PROBLEMS

A. *Factual Background*

The Lake Michigan shoreline in Indiana is unique for historical and geographical reasons. Ancient Lake Michigan was formed twelve thousand years ago.²⁷ The forces of glaciers, wind, and water combined to form our present day expanses of sand dunes and beaches.²⁸ Today, Lake Michigan is the third largest lake of the Great Lakes and the sixth largest freshwater lake in the world.²⁹

In addition to historic and geographical significance, the Indiana shoreland areas are an important scientific resource. The principles for the science of ecology were first formulated by Henry Cowles in the early 1900's in the Indiana shoreline dunes.³⁰ The Indiana dunes are still acclaimed as a vital

23. INTERNATIONAL JOINT COMMISSION ON THE GREAT LAKES, LIVING WITH THE LAKES: CHALLENGES AND OPPORTUNITIES 52 (1989) [hereinafter LIVING WITH THE LAKES] (Set-back regulations allow development while preserving beach areas by preventing construction too near the waters edge. Construction of new structures must be landward of a state established erosion control line. All new development is thus set-back enough to prevent erosion of the shoreland beaches).

24. See *infra* notes 88-115 and accompanying text.

25. See *infra* notes 116-149 and accompanying text.

26. See *infra* notes 150-162 and accompanying text.

27. IND. DEP'T OF NATURAL RESOURCES, GEOLOGICAL SURVEY SPECIAL REPORT 8, THE INDIANA DUNES-LEGACY OF SAND 2 (1974) [hereinafter SPECIAL REPORT 8] (discussing Lake Michigan's glacial history, shoreline processes, and shoreland vegetation).

28. *Id.* at 1.

29. *Id.* at 2.

30. L. WALDRON, *supra* note 3, at 20-21. Ecology is the scientific study of the mutual relationship between plants, animals, and the environment. *Id.* at 20. Henry Cowles, a professor at the University of Chicago from 1896 to 1939, studied the complexities of the dune ecosystem, investigated plant succession, and laid the foundation for the science of ecology. *Id.* at 20-22.

scientific resource for refining scientific understanding of ecological processes.³¹ Scientists are also interested in the wild plants along the shore which may offer the potential for the development of new prescription medicines used in the treatment of diseases such as the AIDS virus.³² The Indiana shorelands are an irreplaceable natural resource with an impressive history of formation and with continued importance in the natural science fields.

B. Coastal Problems

A growing problem along the Indiana coast is unregulated shoreland development.³³ An era of economic revitalization in Indiana has stimulated rapid shoreland development along the Lake Michigan coast.³⁴ Both local governments and private developers attempt to improve economic vitality and capitalize on the shoreline resources for economic benefits.³⁵ For example, Indiana adopted a plan for the construction of new or expanded marina facilities

31. UNITED STATES DEP'T OF INTERIOR, GARY MARINA DRAFT ENVIRONMENTAL IMPACT STATEMENT, app. C (1989)[hereinafter MARINA ENVIRONMENTAL IMPACT STATEMENT] (letters supporting the scientific importance of the Indiana shoreline dunes written by professors from the Department of Biological Sciences, University of Illinois at Chicago, and the Department of Botany, University of Michigan).

32. INDIANA LEGISLATIVE SERVICES AGENCY, SUNSET AUDIT, MATTERS OF RESOURCES, RECREATION, AND THE ARTS 119 (1989) [hereinafter SUNSET AUDIT] (Approximately 25% of prescription medicines are based on chemicals derived originally from wild plants. A threatened plant species, found only in the duneland black oak savannas of northwest Indiana, is currently being used in research to treat the AIDS virus).

33. SPECIAL REPORT 8, *supra* note 27, at 4-5 (much of Indiana's shoreline is eroding at a rate of more than fifteen feet per year). See also COASTAL SITUATION REPORT, *supra* note 14, at 137 (sixty percent of the worst erosion along Indiana's coastline is attributable to man-made development). See generally Ausness, *Land Use Controls in Coastal Areas*, 9 CAL. W.L. REV. 391, 393 (1973) (discusses coastal erosion caused by shoreland development and examines some state and federal government responses).

34. Hoosier Sierra Dunelands, *supra* note 1, at 4, col. 1 (quoting Congressman Peter Visclosky's statements: "During the past 10 years, tremendous changes have occurred in Indiana ... due to the restructuring of its preeminent industry, steel. [P]ublic officials and citizens of Northwest Indiana have been studying options for maintaining economic vitality. It is an exciting time ... in essence, it is a rebirth"). See also COASTAL SITUATION REPORT, *supra* note 14, at 3 (The recent increased demand for the use of Indiana's coastal resources creates the need to reconsider construction which directly affects the coastal zone). See generally MARINA ENVIRONMENTAL IMPACT STATEMENT, *supra* note 31, at 4-20 (In northwest Indiana jobs involving the production of metal decreased 23% between 1977 and 1982, and jobs involving the fabrication of metal products decreased 47% during this same time period).

35. TECHNICAL REPORT 305, *supra* note 2, at 12 (The shoreline of Lake Michigan in Indiana is an area in conflict over the use of the finite coastal resources as developers attempt to capitalize on the natural resources).

at five locations within Indiana's forty-mile coastline.³⁶ Because the new marinas will stimulate other developments, Indiana's shoreland developments will double within the next decade.³⁷

As Indiana's shoreland developments accelerate the state must regulate shoreland development to prevent severe erosion problems caused by imprudent development. Usually erosion is a natural process resulting from wind and wave action moving the sand along the shore in a shoreline replenishment process known as littoral drift.³⁸ Problems occur when the natural littoral drift is interrupted by man-made structures imprudently located near the shore.³⁹ When the littoral drift of sand is stopped, rapid erosion will occur.⁴⁰ Once the beaches erode, the soft sandy cliffs inland easily fall to the attack of the shoreland waves.⁴¹ Worsening erosion undercuts roadways,⁴² threatens residential subdivisions,⁴³ and forces expenditure of government funds for

36. LAKE MICHIGAN MARINA DEVELOPMENT COMMISSION, 1987 ANNUAL REPORT 1 (1987) (The goal of the marina projects is to create employment. Locations for new or expanded marinas in Indiana include Hammond, East Chicago, Gary, Portage, and Michigan City.) *Id.* at 79. See also LIVING WITH THE GREAT LAKES, *supra* note 23, at 40 (Marinas, motels and resorts have added to the economy of the Great Lakes areas). *But cf.* MARINA ENVIRONMENTAL IMPACT STATEMENT, *supra* note 31 (Correspondence from the chairperson of the Chicago Audubon Society opposing marina developments until a lakefront protection plan is developed. The Audubon Society calls the marina developments the privatization of the shoreline which offers free land privileges to a handful of wealthy in violation of the public's right to public lands. The Audubon Society considers the present lakefront developments an abysmal failure which leads to continuing demands for tax monies to rescue private developments along the lakeshore from severe erosion problems).

37. MARINA ENVIRONMENTAL IMPACT STATEMENT, *supra* note 31, at 5-44. See also LAKE MICHIGAN MARINA DEVELOPMENT COMMISSION, *supra* note 36, at 79 (over sixty percent of Indiana's shoreline is developed and the proposed marinas will reduce the remaining natural shoreline beaches by an additional six percent).

38. See W. BASCOM, WAVES AND BEACHES 213-27 (1964) (explanation and illustration of the littoral drift process. As wind and waves enter shoreline areas, sand is dislodged and moved along the shoreline in a natural shoreline replenishment process known as littoral drift. When the littoral drift is interrupted by shoreline development the natural replenishment of sand is halted and severe erosion occurs). See also COASTAL SITUATION REPORT, *supra* note 14, at 34-56 (in-depth analysis of Indiana's shoreline littoral drift system as well as classification of specific shoreline obstructions and the obstructions' impact on the Indiana coast).

39. Ausness, *supra* note 33, at 393. See also W. BASCOM, *supra* note 38, at 213-27.

40. W. BASCOM, *supra* note 38, at 213-27.

41. *Id.* See also WHO'S MINDING THE SHORE?, *supra* note 8, at 22 (construction on the dunes often destroys the dune system and the inevitable result is erosion. The dunes should not be altered in any way; rather, the dunes should be completely preserved).

42. SPECIAL REPORT 8, *supra* note 27, at 4.

43. L. WALDRON, *supra* note 3, at 8 (accounts how the erosion of a half mile of the Beverly Shores subdivision damaged thirty-three homes).

expensive beach nourishment programs.⁴⁴

Not only can unregulated development cause erosion, but the erosion can effectively diminish the shoreland beach area available for public recreation.⁴⁵ The limited ability of the public to access the shore is a major concern at Indiana's Lake Michigan park facilities.⁴⁶ The existing public parks and beaches are overcrowded and are frequently closed because the parks are filled to capacity.⁴⁷ The state must regulate shoreland development to ensure that future development does not result in beach erosion and does not curtail the ability of the public to use and enjoy shoreland areas. The next section of this note explores use of the public trust doctrine by state governments to ensure the public's right to use shoreland areas.

II. THE PUBLIC TRUST DOCTRINE: A COMMON LAW DOCTRINE EXPANDED IN RESPONSE TO COASTAL PROBLEMS

A. *History and Background of the Public Trust Doctrine*

Although state and federal legislation is a dominant force in modern environmental law, common law doctrines continue to play an important role.⁴⁸ One important common law doctrine used to prevent significant deterioration of public rights in shoreland resources is the public trust doctrine.⁴⁹

44. COASTAL SITUATION REPORT, *supra* note 14, at 119, 137. Beach nourishment is the process of rebuilding an eroded beach. Sand is dredged, transported to the beach and deposited on the eroded area. Major limitations of beach nourishment are the extreme expense of the process and the difficulty of finding environmentally "suitable" sand. *Id.* at 47-56.

45. WHO'S MINDING THE SHORE?, *supra* note 8, at 1 (Only two percent of the coast is available for recreational use and the per capita share of public beaches is one square inch per person; shoreline development threatens even that remaining share).

46. Hoosier Sierra Dunelands, *supra* note 1, at 4, col. 1 (quoting Congressman Peter Visclosky as stating that the main objective of his proposed Indiana Dunes National Lakeshore Access and Enhancement Act is to address the problem of insufficient public access to the dunes). *Id.* at 1-8 (description of the proposed expansion of the Indiana Dunes National Lakeshore Park; none of the property affected abuts the Lake Michigan waters). See also SUNSET AUDIT, *supra* note 32, at 127 (In comparison to surrounding states, Indiana ranks very low in the amount of land devoted as federal and state parks). See generally COASTAL SITUATION REPORT, *supra* note 14, at 9 (concern over the encroachment on natural shorelands brought about a proposal for the creation of the Indiana Dunes National Lakeshore Park in 1916. However, state response was slow and more than sixty percent of the originally proposed park was developed before the park became a reality in 1966).

47. SUNSET AUDIT, *supra* note 32, at 115-16 (The Indiana Dunes State Park had to close its gates by 10:30 a.m. on twelve occasions during the summer of 1987. Every summer weekend the parking and picnic sites are filled to capacity by 9:00 a.m. Saturday).

48. D. SELMI & K. MANASTER, STATE ENVIRONMENTAL LAW 2-2 (1989).

49. W. RODGERS, *supra* note 10, at 180-82 (Maximal efforts are required to minimize harm to irreplaceable natural resources. Public uses must be preserved and public rights should not be eroded or cheapened.).

The ancient origins of the public trust doctrine can be traced to a Roman law which declared that natural resources such as the sea and shores of the sea were the common property of all people.⁵⁰ In England, the public trust doctrine evolved into the concept that although the king held ownership to the waterways and submerged lands, the public held the inalienable right of usage.⁵¹ The early American public trust doctrine declared that the states held the waters and submerged lands in trust for the people.⁵² As American society became increasingly aware of the need for long-term conservation of coastal resources,⁵³ the public trust doctrine expanded into the modern concept that the waters, submerged lands, and the shoreland areas are held in trust by the state for the benefit of the people.⁵⁴

Contemporary public trust doctrine analysis includes invoking the public trust to prevent private or governmental interference with the public's right to use and enjoy coastal resources.⁵⁵ Furthermore, the public rights that are protected under the public trust are no longer limited to the traditional rights of navigation and fishing, but are frequently extended to recreational uses and land preservation.⁵⁶ While the public trust doctrine does not forbid shoreline development, the doctrine does require accomplishing necessary developments

50. D. SELMI & K. MANASTER, *supra* note 48, at 4-11 (citing THE INSTITUTES OF JUSTINIAN 2.1.1 (T. Cooper trans. & ed. 1841)).

51. *Id.* at 4-11. See also *Shively v. Bowlby*, 152 U.S. 1 (1894) (summarizes how the original states dealt with the ownership of submerged lands); Nelson, *State Disposition of Submerged Lands Versus Public Rights in Navigable Waters*, 3 NAT. RESOURCES LAW. 491, 493-96 (1970) (traces the evolution of the common law public trust doctrine from the time of the Magna Carta in England through the proprietors of the new colonies to the new states after the adoption of the United States Constitution).

52. D. SELMI & K. MANASTER, *supra* note 48, at 4-11, 4-14 (As the original states adopted the United States Constitution, each state held navigable waters and submerged lands in trust for the public. When new states entered the union, the "equal footing" doctrine granted the new states title to waters and submerged lands within their state boundaries subject to the paramount power of the federal government which retained commerce clause powers over navigable waterways).

53. *Id.* at 2-3.

54. Antone, *The Public Trust Doctrine and Related Michigan Environmental Legislation*, 66 MICH. B.J. 894 (1987) (reviews the public trust doctrine's relationship to current environmental laws and the potential for future expansion of the doctrine). See also J. Carlson, *The Public Trust and Urban Waterfront Development in Massachusetts: What is a Public Purpose?*, 7 HARVARD ENVTL. L. REV. 71 (1983) (discusses prospects for the continued vitality of the public trust doctrine in Massachusetts).

55. Antone, *supra* note 54, at 894.

56. W. RODGERS, *supra* note 10, at 174-175 (The public right to use public resources is by no means static. The right has been expanded to include sunbathing, swimming, and other recreational pursuits). See generally 1 W. RODGERS, ENVIRONMENTAL LAW: AIR AND WATER 155, 158-62 (1986) (discusses the common law public trust doctrine; the variations in resources and uses protected including conservation, recreation, and preservation of natural resources for future generations).

with minimal infringement on the public's right to use and enjoy coastal resources.⁵⁷

While most states have adopted the public trust doctrine,⁵⁸ state's application of the public trust doctrine is diverse.⁵⁹ Indiana applies a common law analysis of the public trust doctrine, however Indiana's common law public trust protection has not been expanded to include shoreland areas.⁶⁰ Illinois, Michigan and Wisconsin have legislatively adopted the common law public trust and have expanded public trust protection to shoreland areas through legislative and state constitutional codifications of the public trust doctrine.

B. Indiana's Common Law Approach

Although the Indiana courts do not expressly use the term "public trust doctrine", the courts' language imposes a trust obligation on the state to hold the waters and submerged lands of Lake Michigan in trust for the public's use and enjoyment.⁶¹ Indiana case law expressly states that the waters and submerged lands of Lake Michigan are held in trust for the people of the state, and the state is without power to convey or curtail the right of its people in these coastal resources.⁶²

57. Tannenbaum, *The Public Trust Doctrine in Maine's Submerged Lands: Public Rights, State Obligation, and the Role of the Courts*, 37 ME. L. REV. 105, 130 (1985) (analysis of the appropriate judicial uses of the public trust doctrine with emphasis on two U.S. Supreme Court decisions relating to the public trust. First, in *Hardin v. Jordan*, 140 U.S. 371 (1891), the Supreme Court utilized the public trust to establish and justify state regulatory control over coastal resources. Second, the Supreme Court in *Illinois Cent. R.R. v. Illinois*, 146 U.S. 387 (1892), acknowledged that violation of the public trust could provide authority for judicial invalidation of legislative grants of submerged lands). *But cf.* *Appleby v. New York*, 271 U.S. 364, 399 (1926) (The Supreme Court held that the holding reached in *Illinois Central* was a statement of Illinois law and the Court rejected the contention that *Illinois Central* created a universal public trust restraint on all the states). See generally Hannig, *The Public Trust Doctrine Expansion and Integration: A Proposed Balancing Test*, 23 SANTA CLARA L. REV. 211-236 (1983).

58. Antone, *supra* note 54, at 894.

59. W. RODGERS, *supra* note 10, at 171.

60. See *infra* notes 61-66 and accompanying text.

61. See *infra* note 62 and accompanying text.

62. *Lake Sand Co. v. State*, 68 Ind. App. 439, 120 N.E. 715, 715-16 (1918) (The state holds the bed of Lake Michigan in trust for the people as the common property of all, from which all may benefit so long as none attempt to deprive others of the same benefits. The state has authority to regulate removal of sand from Lake Michigan because the submerged lands of the lake are held in trust by the state). See also *Garner v. City of Michigan City*, 453 F. Supp. 33, 35 (N.D. Ind. 1978) (discusses *Lake Sand Co.* with approval); *Bath v. Courts*, 459 N.E.2d 72, 75 (Ind. Ct. App. 1984) (A recent Indiana case elucidating that the state holds all freshwater lakes in trust for the public's use and enjoyment).

Indiana's case law does not expand the traditional public trust doctrine to include trust interests in the shoreland areas adjacent to Lake Michigan waters.⁶³ Any future attempt to expand Indiana's common law public trust would involve a case-by-case analysis with the possibility of inconsistent results.⁶⁴

Even if Indiana's common law public trust were expanded, a purely common law scheme for environmental control is recognized as ineffective.⁶⁵ Commentators agree that the common law is simply inadequate for controlling environmental problems because the burden of proof is biased against environmental protection, the treatment of defendants is inconsistent, and the relief for plaintiffs is often sporadic.⁶⁶

In contrast, state legislative enactments, incorporating public trust concepts, can provide uniform shoreland regulations aimed at protecting natural resources.⁶⁷ Such legislative enactments are used by Illinois, Michigan, and Wisconsin and are discussed in the next section.

C. Other States Approaches to the Public Trust Doctrine

The public trust is a key legal doctrine in Illinois' shoreland management.⁶⁸ The Illinois' public trust doctrine is repeatedly expanded in response to the tremendous pressures urbanization places on the Lake Michigan

63. The public trust concept has not been frequently challenged in Indiana courts. No cases regarding the expansion of the public trust to shoreland areas have been addressed by Indiana courts. Indiana's common law public trust remains confined by stare decisis to protecting merely waters and submerged lands. See Waite, *Public Rights in Indiana Waters*, 37 IND. L.J. 467-68 (1962) (Indiana courts have not frequently invoked the public trust doctrine).

64. D. SELMI & K. MANASTER, *supra* note 48, at 2-3 (1989) (examines the limitations of common law doctrines in an age of environmental protection statutes).

65. *Id.* at 2-2, 2-3 n.5.

66. *Id.*

67. *Id.* at 2-3, 2-5 (statutes designed to fill the gaps afforded by common law environmental protection often incorporate common law concepts); W. RODGERS, *supra* note 10, at 182-186 (a survey of state legislative enactments that incorporate public trust concepts).

68. Fulton & Injerd, *supra* note 10, at 1-32 (unpublished manuscript presented to the Lincoln Institute of Land Policy, Public Trust Doctrine Seminar of Cambridge, Massachusetts. The authors review the history of the public trust in Illinois). See also *Lake Mich. Fed'n v. United States Army Corps of Eng'rs*, 742 F. Supp. 441 (N.D. Ill. 1990). (The legislative conveyance of 18.5 acres of Lake Michigan lakebed to a private university violated the public trust doctrine because the public would lose its right of unobstructed access to the shoreline. Furthermore, the public trust doctrine would invalidate any legislative conveyance which relinquished state power over a public resource when the primary purpose of the conveyance is to benefit a private interest.).

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shoreline.⁶⁹ The public trust concept is codified in Illinois' statutes⁷⁰ and in the Illinois' state constitution.⁷¹ Illinois' expanded use of the public trust doctrine includes invoking the doctrine to protect wildlife, water quality, recreation, to conserve natural resources for public use, and to control subdivision of shoreland areas.⁷²

Similarly, the Michigan legislature expanded and codified the common law public trust doctrine in response to the adverse impacts of uncontrolled shoreland

69. Fulton & Injerd, *supra* note 10, at 30 (The public trust doctrine has stood the test of time and has been the key legal doctrine used to preserve the Lake Michigan shoreline area for the benefit of the public).

70. Fulton & Injurd, *supra* note 10, at 18 (The Illinois General Assembly has designated the Illinois Department of Transportation as trustee of the state's public waters. The Department's regulatory powers are declared in Illinois' Rivers, Lakes, and Streams Act of 1911); *See* Rivers, Lakes, and Streams, ILL. ANN. STAT. ch. 9, para 24 (Smith-Hurd 1972):

Title to the bed of Lake Michigan ... is held in trust for the benefit of the People of the State and the Department of Transportation is the agency designated as the trustee.... It shall be the duty of said Department of Transportation, to carefully examine the shore lines of Lake Michigan ... each year for the purpose of seeing encroachments are not made....

Id;

Rivers, Lakes, and Streams, ILL. ANN. STAT. ch. 9, para 7 (Smith-Hurd 1972) states: It shall be the duty of the Department of Transportation to have general supervision of every body of water within the State of Illinois,...and from time to time for that purpose, to make accurate surveys of the shores of said lakes and rivers, and to jealously guard the same in order that the true and natural conditions thereof may not be wrongfully or improperly changed....

Id;

Rivers, Lakes, and Streams, ILL. ANN. STAT. ch. 9, para 73 (Smith-Hurd 1972) states: ... nothing in this Act ... shall be construed or held to be any impairment whatsoever of the rights of the citizens of the State of Illinois to fully and in a proper manner enjoy the use of any and all of the public waters of the State of Illinois, and the jurisdiction of said Department of Transportation shall be deemed to be for the purpose of protecting the rights of the people of the State in the full and free enjoyment of all such bodies of water, and for the purpose of preventing unlawful and improper encroachments upon the same, or impairment of the rights of the people with reference thereto,....

Id.

See also Fulton & Injerd, *supra* note 10, at 30 (In order to fulfill the public trust responsibility the Illinois Department of Transportation has implemented a permit system which includes regulation of the subdivision of shorelands bordering Lake Michigan).

71. ILL. CONST. art. XI, § 1. *See also* D. SELMI & K. MANASTER, *supra* note 48, at 4-19 (Environmental protection provisions in state constitutions which do not use the words "trust" or "trustee" nonetheless have been held to give constitutional status to the public trust doctrine); *See also* W. RODGERS, *supra* note 10, at 182 (States which have adopted environmental provisions into their constitutions are likely to expand the reach of the public trust doctrine).

72. Fulton & Injerd, *supra* note 10, at 30-31.

developments.⁷³ Michigan's most influential legislative expansion of the public trust doctrine is the Michigan Environmental Protection Act of 1970,⁷⁴ which has inspired many other states to legislatively adopt the public trust doctrine.⁷⁵ In addition, the Michigan Constitution⁷⁶ imposes a public trust obligation on the legislature to protect the state's natural resources.⁷⁷ Another important expansion, the Michigan Shorelands Protection and Management Act⁷⁸, codified the public trust doctrine to provide protection to Lake Michigan shoreland areas.⁷⁹

The public trust doctrine is also well established in Wisconsin.⁸⁰ Wisconsin has legislative⁸¹ and state constitutional expansions of the doctrine.⁸² In response to rapid shoreland developments, Wisconsin expanded the public trust doctrine to include shoreland areas in Wisconsin's Water

73. Bartke & Patton, *Water Based Recreational Development in Michigan-Problems of Developers*, 25 WAYNE L. REV. 1005, 1027 (1979) (Michigan's shoreland protection program was implemented in response to the overcrowding, pollution, and general decline of the environment resulting from uncontrolled shoreland developments).

74. MICH. COMP. LAWS ANN. §§ 691.1201-1207 (West 1989) (protects the air, water, and other natural resources from pollution, impairment, or destruction).

75. W. RODGERS, *supra* note 10, at 184 (citing the Michigan Environmental Protection Act of 1970, MICH. COMP. LAWS ANN. §§ 691.1201-1207 (West 1989)). See generally Antone, *supra* note 54, at 896 (Professor John Sax, the author of the Michigan Environmental Protection Act, has stated that the act is a vehicle for breaking loose from the traditional notions concerning the public trust).

76. MICH. CONST., art. IV, § 52 (states that the conservation and development of natural resources is of paramount public concern in the interest of the health, safety, and general welfare of the people).

77. Antone, *supra* note 54, at 896 (The Michigan Constitution, article IV, section 52, has been interpreted as imposing a public trust obligation on the state legislature).

78. MICH. COMP. LAWS ANN. §§ 691.1201-1207 (West 1989) (provides for the protection and management of Michigan shorelands through authorization of environmental studies, development of zoning ordinances, and establishment of remedies for violation of shoreland protection rules).

79. Antone, *supra* note 54, at 896. See also Nielsen & Day, 66 MICH. B.J. 864, 867-68 (1987) (The Michigan Soil Erosion and Sedimentation Control Act, MICH. COMP. LAWS ANN. § 282.101 (West 1989), established a permit system controlling any earth change within 500 feet of Lake Michigan. Each county administers and enforces the restrictions imposed by the Act).

80. W. RODGERS, *supra* note 10, at 182 (overview of state legislative and constitutional modifications of the public trust).

81. Water Resource Act, WIS. STAT. ANN. § 144.26(1) (West 1989) states in part:

To aid in the fulfillment of the state's role as trustee of its navigable waters ... it is declared to be in the public interest to make studies, establish policies, make plans and authorize municipal shoreland zoning regulations for the efficient use, conservation, development and protection of this state's natural resources. The regulations shall relate to lands under, abutting or lying close to navigable waters.

Id.

82. WIS. CONST., art. IX, § 1 (states that all rivers and lakes in the state are common highways and are forever free). See also *State v. Bleck*, 114 Wis. 2d 454, 338 N.W.2d 492 (1983) (interprets the public trust doctrine as firmly rooted in art. IX, sec. 1 of the Wisconsin Constitution).

Resource Act.⁸³ When the legislative expansion of the public trust to shoreland areas was challenged, the Wisconsin Supreme Court held that by virtue of the interdependency of coastal resources, the shoreland areas are subject to the public trust doctrine.⁸⁴

As Indiana's shoreland developments double in the next decade,⁸⁵ Indiana will need to regulate development to protect the environment of the shoreland areas. Indiana's current common law approach to the public trust doctrine is inadequate because it affords no protection to the shorelands adjacent to Lake Michigan waters.⁸⁶ Illinois, Michigan, and Wisconsin, confronted with the problem of uncontrolled shoreland development, have chosen to legislatively adopt the public trust and to expand the public trust protection to shoreland areas.⁸⁷ Similarly, Indiana could legislatively adopt the public trust doctrine and could expand the public trust doctrine to include protection of the Lake Michigan shorelands through enactment of a shoreland management statute.

III. STATE LEGISLATIVE RESPONSES TO COASTAL PROBLEMS THROUGH ENACTMENT OF SHORELAND MANAGEMENT STATUTES

The fragile coastal environment needs legislative regulation in order to optimize the economic and recreational value of the shoreland areas.⁸⁸ The Great Lakes states use a variety of schemes to regulate the shoreland area such as Indiana's navigable waters permit system and Sand Nourishment Fund, Wisconsin's statewide shoreland zoning ordinance, and Michigan's comprehensive shoreland legislation.

83. WIS. STAT. ANN. § 144.26 (West 1989). See Wilson, *Private Property and the Public Trust: A Theory for Preserving the Coastal Zone*, 4 UCLA J. OF ENVTL. L. & POL'Y 57, 84-94 (1984) (discusses the public trust doctrine in several states including Wisconsin).

84. *Just v. Marinette County*, 56 Wis. 2d 7, 201 N.W.2d 761, 767-68 (1972) (the Wisconsin Supreme Court upheld the legislative expansion of the public trust doctrine to protect shoreland areas by virtue of the close relationship of the coastal resources. The state's police power allows restricting property owners to uses which do not upset the public trust uses of the land); Wilson, *supra* note 83, at 84-91 (The author examines the public trust analysis used to sustain shorelands regulations against takings challenges in Wisconsin and concludes that the public trust doctrine can successfully support a state's exercise of police powers in shoreland regulations without compensation to riparian owners).

85. See *supra* note 34-37 and accompanying text.

86. See *supra* note 61-66 and accompanying text.

87. See *supra* notes 68-84 and accompanying text.

88. Maloney & O'Donnell, *Drawing the Line at the Oceanfront*, 30 U. FLA. L. REV. 383, 387 (1978) (describes Florida's state and local government efforts to develop a comprehensive program for managing coastal resources in response to the adverse environmental impact caused by rapid and uncontrolled shoreland development).

A. *Indiana's Current Responses*

Indiana recently enacted the Navigable Waterways Act which established a permit system to regulate waters within a navigable waterway.⁸⁹ The Act prohibits erecting a structure in or removing water from Lake Michigan without a permit from the Indiana Department of Natural Resources (DNR).⁹⁰ The permit system regulates activities occurring in the water and on the submerged lands beneath the water.⁹¹ If the words of the Act are taken literally, the permit system does not regulate the shorelands adjacent to the water.⁹²

Therefore, the waters and submerged lands of Lake Michigan are protected by the Navigable Waterway Act while the adjacent shorelands receive no statutory protection or regulation. The fact that the navigable waters permit system regulates only the waters and submerged lands of a lake ordinarily does not create a problem. Usually a lake's shorelands are regulated under either Indiana's Freshwater Protection Act or Indiana's Flood Control Act.⁹³ However, Lake Michigan shorelands are exempt from both Indiana's Freshwater Protection Act and the Flood Control Act.⁹⁴

89. IND. CODE § 13-2-4-9 (1989) states in part:

A person other than a public or municipal water utility, may not:

- (1) place, fill, or erect a permanent structure in;
 - (2) remove water from; or
 - (3) remove material from; a navigable waterway without a permit from the department.
 - (b) An application for a permit under this section must be made in a manner prescribed by rule.
 - (c) The department shall issue a permit if its issuance will not:
 - (1) unreasonably impair the navigability of the waterway;
 - (2) cause significant harm to the environment;
- ... (f) The department shall adopt rules ... to implement this section.

Id.

90. *Id.*

91. *Id.*

92. See *supra* note 89 and accompanying text.

93. Freshwater Protection Act, IND. CODE § 13-2-11.1 (1989) (regulates changes in water level, shoreline alteration, construction of ditches, and dredging of all public freshwater lakes in Indiana except Lake Michigan); Flood Control Act, IND. CODE § 13-2-22 (1989) (authorizes a state wide plan to regulate the alteration of rivers and streams as a means to control and limit flooding). *But see* IND. CODE § 13-1-4-1 (1989) (the Department of Environmental Management is the state agency responsible for controlling Lake Michigan water pollution under the Federal Water Pollution Prevention and Control Act, 33 U.S.C. §§ 1251-1387 (1988)).

94. See *supra* note 93 and accompanying text. See also Lucas, *supra* note 16, at 277 (the terms of the Flood Control Act are inapplicable to Lake Michigan and the Freshwater Protection Act exempts Lake Michigan). See generally Waite, *Public Rights in Indiana Waters*, 37 IND. L.J. 467, 471-485 (1962) (discusses statutory protection of freshwater lakes in Indiana under the Freshwater Protection Act and Flood Control Act).

Absent state regulation, the responsibility for controlling shoreland development belongs to the local governmental units⁹⁵ whose boundaries abut the coast. However, local governments are often ill-equipped to deal with controlling growth and protecting coastal resources.⁹⁶ Local land-use controls are aimed at maintaining harmony between various land uses and generally do not include mechanisms to regulate imprudent shoreland developments that cause erosion.⁹⁷

Indiana's Sand Nourishment Fund is one statute which does attempt to deal with the shoreline erosion problem.⁹⁸ The Indiana statute authorizes the Indiana DNR to use the fund for financing beach nourishment projects along the coast of Lake Michigan.⁹⁹ However, more than one year after the enactment of the Sand Nourishment Fund, no beach nourishment projects have been instituted.¹⁰⁰

A careful reading of the act authorizing the Sand Nourishment Fund reveals some reasons the fund may not be practical. The act does not appropriate any

95. IND. CODE § 36-1-2-23 (1989) (defines local governmental unit as a county, municipality, or township). For the purposes of this note, the terms local governmental unit and local government will be used interchangeably.

96. Rieser, *Managing the Cumulative Effects of Coastal Lake Development: Can Maine Law Meet the Challenge?*, 39 ME. L. REV. 321, 345 (1987) (Local zoning is the basic form of land use control. The town adopts regulations specifying the various purposes for which the land and buildings may be used. While local zoning can maintain harmony of land uses, it does not generally include environmental considerations.).

97. *Id.* at 321-45. See *infra* notes 117-118 and accompanying text.

98. Sand Nourishment Fund, IND. CODE § 14-3-15-1 to -2 (1989) states:

Sec. 1 As used in this chapter, "fund" refers to the sand nourishment fund established under section 2 of this chapter.

Sec. 2(a) The sand nourishment fund is established for the purpose of carrying out subsection (b). The fund shall be administered by the department of natural resources.

(b) The money in the fund shall be used for the following:

- (1) The deposit of sand along the coast of Lake Michigan in Indiana.
- (2) The design and establishment of systems that cause sand to be deposited along the coast of Lake Michigan in Indiana.
- (3) The prevention or reduction of the degradation of sand along the coast of Lake Michigan in Indiana.

(c) Money remaining in the fund does not revert to the state general fund at the end of a fiscal year. However, if the fund is abolished, the remaining money reverts to the state general fund.

Id.

99. *Id.*

100. Interview with Steve Davis, Lake Michigan Specialist, Indiana Department of Natural Resources (Jan. 15, 1990). *But cf.* COASTAL SITUATION REPORT, *supra* note 14, at 105, 137 (results of a comprehensive shoreline analysis determined that beach nourishment is urgently needed for twelve miles of Indiana's Lake Michigan shoreline).

money to initiate the fund, does not appropriate an annual budget, and does not establish a procedure for disbursement of any funds which might become available.¹⁰¹ Given these shortcomings, the Sand Nourishment Fund does not provide a means to reduce erosion or to regulate shoreland developments.

B. Wisconsin's and Michigan's Responses

Alternative approaches to shoreland regulation are used by Indiana's neighboring Great Lakes states. Michigan and Wisconsin have both responded to shoreland problems with different legislative approaches. A commonly accepted element of both states' approaches to shoreland management is the use of set-back regulations. Set-back regulations require construction of new developments landward¹⁰² of a state established erosion control line.¹⁰³ State established set-back regulations allow economic development, reduce erosion, and preserve beach areas for public use and enjoyment. Indiana could look to Michigan and Wisconsin legislation as an instructive model for developing an Indiana shoreland management program that includes set-back regulations.

The State of Wisconsin responded to coastal problems by adopting a shoreline management program. As development in Wisconsin increased, improper construction and unregulated shoreline development resulted in pollution and erosion of the Wisconsin shoreline.¹⁰⁴ In an effort to preserve the quality of the coast, Wisconsin implemented a comprehensive shoreland zoning program under the Water Resources Act.¹⁰⁵ The act authorized the development of comprehensive standards and the promulgation of a model

101. IND. CODE § 14-3-15-1 (1989). Cf. FLA. STAT. ANN. §§ 161.091, 161.101, 161.141 (West 1990) (Florida's Beach Management Trust Fund includes express appropriation of funds for beach nourishment, an annual budget allotment, procedures for disbursement of funds, a provision mandating that twenty percent of beach nourishment funds must come from the local government within which the beach is located, and clarifies property rights in land created or restored by beach nourishment).

102. WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY 672 (1988) (defines landward as in the direction of the land: to or toward the land).

103. LIVING WITH THE LAKES, *supra* note 23, at 52. See generally State of New Jersey, Dep't of Environmental Protection, Response Summary to Shoreline Erosion Setback Questionnaire 1-13 (1989) (unpublished survey of alternative approaches used by coastal states in establishing erosion set-back lines. Particularly accurate is New Jersey's use of computer mapping of shoreline changes to calculate erosion rates. The erosion rate is multiplied by fifty years to establish an erosion setback area, within which development is regulated. New information is added to the computer program to keep the erosion rate information up to date.).

104. F. BOSSELMAN & D. CALLIES, THE QUIET REVOLUTION IN LAND USE CONTROL 235 (1971) (explores the innovative land use laws of several states including Wisconsin, Hawaii, Vermont, Massachusetts, and Maine).

105. *Id.* at 236-39 (citing WIS. STAT. ANN. § 144.26(1) (West 1989)).

shoreland zoning ordinance.¹⁰⁶ The model ordinance establishes set-back requirements, regulates lot size and tree cutting, restricts the subdivision of land, and controls filling and dredging in shoreland areas.¹⁰⁷

The model shoreland ordinance used by Wisconsin places primary responsibility for shoreland protection on the local governments with authority at the state level to require compliance with minimum statutory standards.¹⁰⁸ Imposing minimum state requirements on local governments assures uniformity in the standards used for shoreland protection throughout Wisconsin.¹⁰⁹ Although Wisconsin imposes mandatory adoption of the shoreland ordinance only on unincorporated areas, many municipalities have voluntarily adopted the model ordinance.¹¹⁰

Michigan's legislature has implemented three comprehensive shoreland protection programs in response to the overcrowding, pollution, and environmental degradation caused by uncontrolled shoreland development.¹¹¹ The most important protection program is authorized by Michigan's Shoreland Protection and Management Act.¹¹² The Act establishes set-back requirements

106. *Id.* at 239-40, (citing WISCONSIN SHORELAND MANAGEMENT PROGRAM, WISCONSIN DEPARTMENT OF NATURAL RESOURCES 2-3 (1966) which states in part:

In accordance with its legislative mandate to provide 'recommended standards and criteria' for shoreland protection, the Division of Environmental Protection has published ... [t]hese regulations:

1. Require the establishment of 'appropriate districts' to protect shoreland areas: conservancy, recreational-residential, and general purpose districts.
2. Require the establishment of subdivision regulations which must prohibit any subdivision that:
 - (a) Is likely to result in hazard to the health, safety and welfare of future residents;
 - (b) Fails to maintain proper relation to adjoining areas;
 - (c) Does not provide public access ...
3. Require establishment of land use regulations which:
 - (a) Set minimum lot sizes ...
 - (b) Govern building location in relation to health and beauty preservation;
 - (c) Govern the cutting of trees....

107. *Id.* at 241-42 (cutting of trees and shrubbery are restricted within thirty-five feet of the shoreline. Shrubby must be preserved or replaced in order to prevent erosion and preserve the natural beauty of the shoreline). See also Johnson, *supra* note 7, at 14 (overview of Wisconsin's shoreland regulation and the impact such regulation has on real estate industry).

108. BOSSELMAN & CALLIES, *supra* note 104, at 254.

109. *Id.*

110. Johnson, *supra* note 7, at 14. But cf. BOSSELMAN & CALLIES, *supra* note 104, at 254-55 (critics of the Wisconsin shoreland ordinance charge that the state should impose mandatory adoption on all municipalities which are potential sources of coastal problems).

111. Bartke & Patton, *supra* note 73, at 1027 (explores legal issues developers and riparian owners confront in their efforts to use Michigan shoreland areas for economic profit).

112. Shoreland Protection and Management Act of 1970, MICH. COMP. LAWS ANN. §§ 281.63-645 (West 1989) (the act authorizes a shoreland management plan including the inventory of shoreland resources, procedures to resolve conflict of uses, criteria for the protection of shoreland

and regulates lot size, land use, and sanitary disposal.¹¹³ Additional regulation of Michigan shoreland development is authorized under the Soil Erosion and Sedimentation Control Act and the Great Lakes Submerged Lands Act.¹¹⁴ These Michigan statutes make up a comprehensive coastal zone management program¹¹⁵ approved under the federal Coastal Zone Management Act.¹¹⁶

IV. THE FEDERAL GOVERNMENT RESPONSE TO COASTAL PROBLEMS

A. *Introduction to the Coastal Zone Management Act*

While federal regulation of navigable waters was well established, the regulation of the adjacent shorelands was left to local governments resulting in the fragmentation of control within the coastal zone.¹¹⁷ As coastland development accelerated, the local mechanisms for managing such developments proved ineffective.¹¹⁸ Then Congress passed the Coastal Zone Management Act (CZMA)¹¹⁹ in response to state and local governments' failure to manage

from erosion including set-back regulations).

113. Bartke & Patton, *supra* note 73, at 1027 (citing to MICH. COMP. LAWS ANN. § 281.631-.645 (1979) and MICH. ADMIN. CODE R. 281.23 (Supp. 1974)).

114. Nielsen & Day, *Government Regulation of Shorefront Development-Permit Requirements*, 66 MICH. B.J. 864, 867 (1987) (discussing the shoreland permit system established by the Great Lakes Submerged Lands Act, MICH. COMP. LAWS ANN. §§ 322.701-.715 (West 1989) and the Soil Erosion and Sedimentation Control Act, MICH. COMP. LAWS ANN. § 282.101 (West 1989)).

115. See *infra* notes 117-131 and accompanying text. But cf. Bartke & Patton, *supra* note 70, at 1027 (criticizes Michigan's comprehensive coastal management program as overly restrictive and as "protecting the rights of the public ... at the expense of the commercial developers").

116. 16 U.S.C. §§ 1451-1464 (1988). See *infra* note 130 and accompanying text.

117. MANDELKER, *supra* note 9, at 223, 236, 240 (While The Rivers and Harbors Act, 33 U.S.C. § 403 (1970), gave the Army Corps of Engineers authority to issue dredge and fill permits for activities within a navigable waterway, a fragmented pattern of coastal control existed because the responsibility for coastal regulation was placed in the hands of local governments.).

118. Wolf, *Accommodating Tensions in the Coastal Zone: An Introduction and Overview*, 25 NAT. RESOURCES J. 7, 8 (1985) (The tension and demands caused by shoreland developments proved too much for local mechanisms). See also Rieser, *supra* note 96, at 322 (coastal towns struggle to control increasing developments and to prevent the associated decline of the shoreland areas. It is now recognized that numerous small-scale, unrelated land developments can have an even greater deteriorating effect on the shoreline than large-scale projects and that because of the economic and political pressures exerted by private developers, the local governments are usually unable to effectively regulate shoreland developments.). See also Hildreth & Johnson, *CZM in California, Oregon, and Washington*, 25 NAT. RESOURCES J. 103, 113 (1985) (California, Washington, and Oregon sharply criticized local governments' past performance on land use in the coastal zone. Local governments seemed overly interested in enhancing tax bases and often provided no protection to valuable coastal resources. Local governments were seen as "push-overs for developers.").

119. The Coastal Zone Management Act (CZMA), 16 U.S.C. §§ 1451-1464 (1988). See generally Eliopoulos, *Coastal Zone Management: Program at a Crossroads*, Monograph 30, ENVTL REP. (BNA) at 1-7 (1982) (summarizes the 1974, 1976, 1978, and 1980 Amendments to the CZMA).

valuable coastal shorelands adequately.¹²⁰ By passing the CZMA, Congress intended to improve the regulation of the coastal shorelands by state adoption of comprehensive management programs¹²¹ that regulated publicly and privately owned property according to goals, policies, and standards established by Congress.¹²² Improving land-use regulations, rather than purely water-use controls, was one of the primary objectives of the CZMA.¹²³

State participation in the CZMA is voluntary, but the participating states are required to adopt land development controls in the form of a comprehensive coastal zone management program (CZM program).¹²⁴ In simplest terms, the state CZM program must include three elements.¹²⁵ First, the state must define the geographic coastal zone area.¹²⁶ Second, the CZM program must

120. 16 U.S.C. § 1451(h) (1988). *See also* MANDELKER, *supra* note 9, at 224 (The CZMA is intended to protect coastal waters and adjacent shoreline areas. The Act has potential as a comprehensive land planning and development control program.); Lawrence, *supra* note 5, at 3 (quarterly newsletter of the ABA Standing Committee on Environmental Law describes and evaluates the CZMA). *See generally* Zile, *A Legislative-Political History of the Coastal Zone Management Act of 1972*, 1 COASTAL ZONE MGMT J. 235 (1974) (detailed history of the CZMA).

121. 16 U.S.C. § 1451(i) (1988). *See also* Eliopoulos, *supra* note 119, at 2 (Congress, in passing the CZMA, envisioned increased protection of valuable natural resources, better management of development in coastal areas, and better public access and enjoyment of coastal resources.) *See generally* Ausness, *supra* note 33, at 403-06 (discussion of comprehensive coastal zone management, through the alternative approaches of master programs, resource management plans and conservation plans).

122. 16 U.S.C. § 1452 (1988) (the stated national policy includes protecting coastal resources for this and succeeding generations and encouraging states to develop management programs that balance ecological and economic interests. The management programs should at least provide for protection of natural resources, minimize loss of property caused by improper development, provide public access to the coasts for recreational purposes, and encourage local government participation in carrying out the management program.); Kinsey, *CZM From the State Perspective: The New Jersey Experience*, 25 NAT. RESOURCES J. 73, 75 (1985) (goals, policies, and standards established by Congress are a symbol of the nationwide effort of the CZMA).

123. MANDELKER, *supra* note 9, at 237 (citing H.R. 14146, 92d Cong., 2d sess. (1972)).

124. 16 U.S.C. § 1454(b) (1988) (adoption of land development controls is necessary in order for a coastal state to qualify for federal financial assistance under the CZMA).

125. Kinsey, *supra* note 122, at 76. *See generally* MANDELKER, *supra* note 9, at 228 (citing the CZMA provisions for "Management Program Development Grants", 16 U.S.C. § 1454 (1988), and "Administrative Grants", 16 U.S.C. § 1455 (1988). The intent is to first provide federal funds for the states to develop CZM programs and then provide funds for the states to implement the CZM program.).

126. 16 U.S.C. § 1454(b)(1) (1988). *See also* 16 U.S.C. § 1453 (1988) (defines the coastal zone as "the coastal waters ... and the adjacent shorelands ... extend[ing] inland from the shorelines only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coast...."). *See generally* Hildreth & Johnson, *supra* note 118, at 125-26 (California exercises authority up to 1,000 yards inland, California Coastal Zone Conservation Act, CAL. PUB. RES. CODE §§ 27000-27650 (West 1983); Oregon's CZM program jurisdiction averages 30 to 50 miles inland, OR. REV. STAT. §§ 197.005-.795 (1983); and Washington state controls 200 feet inland of the water's edge, WASH. REV. CODE §§ 58.030 -.170 (1983)).

have specific policies indicating land uses and activities permitted in the defined coastal zone.¹²⁷ Third, the program must establish the organizational structure for implementation of the CZM program.¹²⁸ One of the strong incentives for state participation in the CZMA is the federal financial assistance available to states with approved CZM programs.¹²⁹ At present twenty-nine of the thirty-five eligible states and territories have federally approved CZM programs.¹³⁰ The approved CZM programs represent a wide variety of approaches in comprehensive coastal planning, development and preservation.¹³¹

B. *State Application of the Coastal Zone Management Act*

Indiana is one of the six remaining eligible states which does not have an approved CZM program.¹³² Indiana received federal funds for numerous coastal zone management studies until 1981.¹³³ Since 1981, Indiana has not participated in the federal CZM program.¹³⁴ Indiana dropped out of the

127. 16 U.S.C. § 1454 (1988). See also MANDELKER, *supra* note 9, at 231-2 (the CZM program must set forth objectives, standards, and policies, an inventory and designation of areas of special concern, definitive restrictions on land and water uses, and priorities among permissible land uses).

128. 16 U.S.C. § 1455(e) (1988) (the CZMA requires the state government to implement and manage the CZM program by one of three means: (1) a standard setting scheme where the state establishes standards for local implementation subject to state review and enforcement of compliance; (2) direct regulation of the coastal zone by the state government; or (3) state administrative review of local programs for consistency with the federal CZM program). See also Chasis, *The Coastal Zone Management Act: A Protective Mandate*, 25 NAT. RESOURCES J. 22, 26 (1985) (concise summary of the CZMA provisions).

129. 16 U.S.C. §§ 1454-1456 (1988). See also Lawrence, *supra* note 5, at 3 (examines two strong incentives for states to participate in the CZMA. First, 16 U.S.C. §§ 1454-1455 (1988), provided federal monies for state development and implementation of CZM programs. Second, 16 U.S.C. § 1456 (1988), declares that federal activities within the state coastal zone must be consistent with state CZM programs).

130. Eliopoulos, *supra* note 119, at 24-5. The following twenty-nine states and territories have approved CZM programs: Alabama, Alaska, American Samoa, California, Connecticut, Delaware, Florida, Guam, Hawaii, Louisiana, Maine, Maryland, Massachusetts, Michigan, Mississippi, New Jersey, New Hampshire, New York, North Carolina, Northern Marianas, Oregon, Pennsylvania, Puerto Rico, Rhode Island, South Carolina, Virgin Islands, Virginia, Washington, Wisconsin. The remaining eligible states not participating in the CZMA are: Georgia, Illinois, Indiana, Minnesota, Ohio, Texas. See also Eliopoulos, *supra* note 119, at 2 (state programs are approved by the Office of Coastal Zone Management within the National Oceanic and Atmospheric Administration of the Department of Commerce).

131. Wolf, *supra* note 118, at 8. See also Eliopoulos, *supra* note 119, at 25-48 (provides background information, current activities, and names a contact person or agency for each of the thirty-five eligible states).

132. Eliopoulos, *supra* note 119, at 24-25 (lists status of CZM programs for all eligible states as prepared by National Oceanic and Atmospheric Administration).

133. *Id.* at 39 (discusses Indiana's participation in the CZMA).

134. *Id.*

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program because the state was unable to develop an organizational structure¹³⁵ to implement and manage Indiana's proposed CZM program.¹³⁶

Some states have succeeded in developing organizational structures for implementing coastal zone programs.¹³⁷ For example, Hawaii, California, and Florida use an intergovernmental scheme to implement their CZM programs.¹³⁸ In an intergovernmental scheme the general responsibility for coastal regulation is placed with the local governments.¹³⁹ The state government provides the standards and regulatory framework by which local governments implement coastland regulations.¹⁴⁰ While the state legislature takes the lead in designating coastal regulatory standards, the state does not take a strong, direct administrative role.¹⁴¹ The state serves a monitoring function with power to review local government performance.¹⁴² Commentators call the intergovernmental approach to coastland regulation sound public policy because local government involvement in a state program encourages grass-roots innovation, experimentation, and citizen participation.¹⁴³

135. 16 U.S.C. § 1455(e) (1988) (the CZMA mandates that participating states adopt one of three organizational structures to implement and manage the CZM program: (1) a scheme where the state establishes standards for a locally implemented program subject to state review and enforcement; (2) the state government directly regulates the coastal zone; or (3) the state provides administrative review of local programs to ensure consistency with the federal CZM program).

136. *Id.*

137. Hildreth & Johnson, *supra* note 118, at 113-14 (Local officials who wanted to retain traditional power lobbied intensely against implementing CZM programs in California, Washington, and Oregon. Local officials viewed CZM programs as an attempt to invade the "turf" of the local governments, as an attack on the past performance of local officials, and as an attempt to change the way coastal resources were managed).

138. CAL. PUB. RES. CODE §§ 2700-27650 (West 1983); FLA. STAT. ANN. §§ 161.021, 161.52 (West Supp. 1990); HAW. REV. STAT. § 205A (1985).

139. Finnell, *supra* note 7, at 31 (traces the legislative evolution of California's and Florida's coastal programs, assesses intergovernmental relationships, and concludes that strong reliance on local governments is sound public policy). See generally Hildreth & Johnson, *supra* note 118, at 103, 113-120 (detailing the state and local government relationships in California's CZM program); O'Connell, *Florida's Struggle for Approval Under the Coastal Zone Management Act*, 25 NAT. RESOURCES J. 61, 68-72 (1985) (giving more money to local governments has not worked to ensure support for the CZM program, especially where the strings attached effectively strengthening the state role over local governments in the coastal zone).

140. Finnell, *supra* note 7, at 31.

141. *Id.* at 43 (California's and Florida's approach reflects the philosophy that while land development regulation should occur at the local level, the land use regulation in fragile coastal areas should not be left entirely to local officials).

142. *Id.* (The intergovernmental approach represents an advantageous compromise between localism and centralism. A strong local role encourages innovation, experimentation, and grass roots participation).

143. *Id.* at 31, 42-43. See also MANDELKER, *supra* note 9, at 394 (Numerous small and understaffed local governmental units cannot optimize land development usage without intervening state powers).

At present, severe funding cutbacks in the CZMA have reduced the incentive for remaining eligible states, like Indiana, to renew any attempt to establish a comprehensive federally approved CZM program.¹⁴⁴ Beginning with the Reagan administration, funding cuts, labelled "tantamount to repealing the CZMA",¹⁴⁵ have forced individual states to increasingly finance their own CZM programs.¹⁴⁶ Although future funding of the federal CZM program is uncertain,¹⁴⁷ state shoreland development regulations, distinguished from purely water-use controls, are essential for managing valuable coastal resources.¹⁴⁸

Even though severe cut-backs in federal funding of the CZMA eliminates the incentive for Indiana to develop a federally approved CZMA program, Indiana should adopt the intergovernmental approach to shoreland management successfully used by states who are participating in the federal CZMA program. Additionally, Indiana could protect shoreland areas during periods of accelerated development by adopting construction set-back regulations without participating in the CZMA.

The next section of this note proposes a model state shoreland management statute incorporating an intergovernmental approach to shoreland development regulations. The model statute establishes set-back regulations, authorizes local government administration of the set-back regulations, and establishes a framework for state review of local government performance.¹⁴⁹

V. MODEL STATE SHORELAND MANAGEMENT STATUTE

The following statute suggests a systematic approach to shoreland regulation by providing for the design, implementation, and continuing review of a uniform

144. Lawrence, *supra* note 5, at 4 (Federal funds available to states for administration of CZM programs had suffered a 50% reduction by 1989). See also Eliopoulos, *supra* note 119, at 8 (James F. Ross, Chairman of the Coastal States Organization in 1981, responded to proposed CZMA cutbacks by stating that the approved states would lack the capability to replace the loss of federal funding and the states not participating in the CZMA would lose the incentive to join).

145. Eliopoulos, *supra* note 119, at 7-10 (quoting James F. Ross, Chairman of the Coastal States Organization. The author lists the congressional appropriations for the CZMA from fiscal year 1974 to 1984 and provides some insight into the ongoing debate between Congress and the President regarding CZMA funding).

146. Lawrence, *supra* note 5, at 4 (individual states must replace the shrinking federal funds for administration of the state CZM programs).

147. Chasis, *supra* note 128, at 30 (Because the future of the federal CZM program is so uncertain, the states must support effective coastal management programs and must assume full responsibility for implementation and funding.).

148. Lawrence, *supra* note 5, at 8 (Efforts to control coastline problems without accompanying land use management is an uphill struggle against ever-increasing population and development).

149. See *infra* notes 150-161 and accompanying text.

state policy aimed at allowing economic development while preventing degradation of Indiana's irreplaceable shoreland resources.

Lake Michigan Shoreland Management Act

Section One: Statement of policy, purpose, and objectives

1.1 *Statement of Policy*

(a) The General Assembly recognizes that the Lake Michigan shorelands are subject to increasing development and that imprudent shoreland development can accelerate erosion, diminish natural protection to upland structures, endanger adjacent property, and interfere with the state's public trust obligation to ensure the public's ability to use and enjoy the shoreland areas. Therefore, it is the policy of the State of Indiana, in cooperation with local governments, to implement a shoreland management program.¹⁵⁰

1.2 *Statement of Purpose*

(a) The purpose of this Act is to protect Lake Michigan shoreland areas and to promote the public trust of shoreland resources. Because shoreland erosion is a serious menace to the economy and to the people's right to full use and enjoyment of shoreland beaches, it is the intended purpose of this Act to properly manage development of Lake Michigan shorelands in furtherance of the objectives stated below:¹⁵¹

1.3 *Statement of Objectives*

(a) The objectives of the Act include:

- (1) to carry out the state's public trust obligation in shoreland areas;
- (2) to establish construction set-back standards for administration by local governmental units, subject to approval and periodic review by the Department of Natural Resources.
- (3) to optimize public expenditures for erosion control and beach nourishment projects;
- (4) to promote shoreland stability and to allow necessary economic developments while minimizing adverse environmental impacts;
- (5) to preserve, maintain and, where desirable, improve and restore economic, recreational, and aesthetic value of the Lake Michigan shorelands;¹⁵²

150. See *infra* note 152 and accompanying text.

151. See *infra* note 152 and accompanying text.

152. The language of the model statute is drawn from several different state statutes and secondary sources. See Beach and Shore Preservation Act, FLA. STAT. ANN. § 161.053, 161.088, 161.53 (West 1990); Hawaii Coastal Zone Management Act, HAW. REV. STAT. § 205A-2 (1989); Michigan Environmental Protection Act, MICH. COMP. LAWS ANN. §§ 691.1201-.1204 (West 1989); Maloney & O'Donnell, *Drawing the Line at the Oceanfront*, 30 U. FLA. L. REV. 383, 406 (1978); See also Rieser, *supra* note 96, at 362 (Municipalities cannot regulate private property unless the state legislature confers that authority on the municipality with a detailed policy statement that will

Commentary: Section One codifies and expands Indiana's common law public trust doctrine. Codifying the public trust doctrine, to protect shoreland areas, rather than just waters and submerged lands, thereby ensures the public's right to future use and enjoyment of Lake Michigan shorelands.¹⁵³

In addition, this section advances the intergovernmental approach to shoreline management as a solution to the organizational structure problem which prevented Indiana from developing a federally approved CZM program.¹⁵⁴ The long-term objectives established in section one are not solely concerned with conservation, but instead are intended to permit economic developments that do not cause erosion and do not encroach on public shorelands. Long term objectives that balance development and conservation are an important means to allow economic development while preventing degradation of irreplaceable shoreland resources.

Section Two:

2.1 *Establishment of Shoreland Set-Back Lines*

(a) In furtherance of the stated purpose of the Act it is the intent of the Legislature to authorize the Department of Natural Resources to establish shoreland construction set-back lines along the Lake Michigan shoreline. Within 12 months after the effective date of this Act the Department shall have established set-back standards. The duties of the Department shall include:

- (1) determine from a comprehensive coastal situation report and topographic survey where Lake Michigan shoreland set-back lines are necessary for the control of erosion;
- (2) provide set-back standards for shoreland development and shoreland alterations and provide procedures for affected persons to appeal the shoreland set-back standards;
- (3) record the established shoreland set-back lines in the public record of each affected governmental unit and furnish a survey of set-back lines with reference to permanently installed monuments along the shoreline;
- (4) establish a systematic method for reviewing the adequacy of the local governmental units' administration and enforcement of the set-back regulations.¹⁵⁵
- (5) establish a Lake Michigan shoreline monitoring system to maintain current information on coastal erosion, shoreland conditions and land-use changes;

prevent purely arbitrary decisions by the municipality).

153. See *supra* notes 150-152 and accompanying text.

154. See *supra* notes 150-152 and accompanying text.

155. See *infra* note 156 and accompanying text.

(6) provide for future review and revision of the set-back lines at the discretion of the department or at the written request of affected municipalities or as data indicates shoreland changes have rendered the established set-back lines ineffective for the purpose of this act;¹⁵⁶

Commentary: Section Two authorizes the Department of Natural Resources, a qualified state environmental agency, to establish set-back standards, to provide local governmental units detailed information on the standards established, and to periodically revise the set-backs to reflect changes in coastal topography. The set-back lines are a means to control commercial and private developments that cause erosion and diminish shoreland areas available for public recreation. Controlling development on the shorelands adjacent to Lake Michigan will reduce the erosion that threatens to diminish beaches and that endangers shoreland property.¹⁵⁷

Section Three:

3.1 *Administration and Enforcement of Shoreland Set-Back Regulations*

(a) The General Assembly authorizes local governmental units abutting Lake Michigan to administer and enforce shoreland set-back regulations. Each local government is required to adopt the set-back lines as established by the Department of Natural Resources not later than January 1, 1992 and such set-back lines shall be enforced by the local government in accordance with the local government's building code ordinances. In addition:

(1) the local governments may adopt set-back lines at distances greater than those established by the Department of Natural Resources. However, no set-back line shall be adopted until a public hearing has been held, including reasonable notice to abutting property owners and persons requesting notice. The governmental unit shall also provide written public notice in a newspaper of general circulation at least 20 days prior to the hearing;¹⁵⁸

(2) to aid local governments in the implementation and enforcement of the shoreland set-back lines the Department of Natural Resources shall provide an initial training program not later than April 1, 1992 and on a recurring biennial basis shall provide a continuing education program for use by the local governments affected by the set-back regulations.¹⁵⁹

156. The language of this provision is modeled after several state statutes and secondary sources. See FLA. STAT. ANN. § 161.053(2) (West 1990); Michigan Shoreland Protection and Management Act of 1970, MICH. COMP. LAWS ANN. §§ 281.631-.644 (West 1989); COASTAL SITUATION REPORT, *supra* note 14, at 185; Rieser, *supra* note 96, at 352.

157. See *supra* notes 34-47 and accompanying text.

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

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

(3) each local government shall provide evidence to the Department that the set-back lines have been adopted. If any local governmental unit fails to adopt set-back regulations in accordance with the minimum set-back line as established pursuant to Section Two, the set-back standards as established by the Department of Natural Resources shall be adopted for the local governmental unit. Sanctions imposed may include a maximum fine of \$5,000 or \$100 a day for each day in which the Shoreland Management Program has not been adopted by the local governmental unit.¹⁶⁰

Commentary: Section Three gives an intergovernmental solution to the organizational structure problem which prevented Indiana from developing a federally approved Coastal Zone Management program.¹⁶¹ The state government provides the regulatory framework and establishes a means to monitor local government adoption of the set-back standards. The local government administers and enforces the general application of the shoreland set-back regulations. Such an intergovernmental approach assures uniformity in the standards used for regulation of Indiana's Lake Michigan shorelands yet encourages grass roots participation in resolving local shoreline problems.

VI. CONCLUSION

Shoreland development is unregulated along Indiana's Lake Michigan shoreline. Yet as Indiana's shoreland developments double in the next decade, the state must regulate development in order to maximize the economic and recreational value of the shoreland areas. The proposed Model Statute balances development and conservation. In recognition of the value of Indiana's Lake Michigan coast, this note recommends that the Indiana legislature adopt a shoreland management program that codifies the public trust doctrine and establishes set-back regulations through an intergovernmental approach to shoreland management.

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160. The language of the provision draws from several different state statutes. See FLA. STAT. ANN. § 161.56 (West 1990); HAW. REV. STAT. § 205A-42 to -43.5 (1989); MICH. COMP. LAWS ANN. § 281.640-41 (West 1989).

161. See *supra* notes 133-143 and accompanying text.