The Public-Trust Doctrine and Environmental Stewardship in Coastal New Hampshire

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Abstract

Landscape ecologists have identified several logical requirements for ecosystem management tools, including applicability over broad areas, effectiveness at varying scales, and responsiveness to changing conditions. The public-trust doctrine has been postulated to meet these criteria. It is a vehicle for identifying resources that provide special public benefits, it places the stream of public benefits within its mandate under the guardianship of a public trustee, and, as part of the body of common law, the doctrine can evolve in response to new conditions and information.

This study poses several questions. What evidence is there that the public-trust doctrine can and has successfully protected public environmental interests? How have communities historically applied the doctrine within their borders? Has the public-trust doctrine evolved to fit changing conditions, and if so, did that flexibility promote or hinder public interests in the resources? To answer these questions I examined the history of public-trust resources in two New Hampshire towns--Hampton and Rye.

Throughout the doctrine's history in these towns, it has been an instrument to protect economic uses of resources with broad public benefit. What was considered useful and publically beneficial changed over time, however, and the promotion of one use, such as tourism development, precluded other uses. As a result, the doctrine's geographical reach shrank dramatically during the twentieth century, the benefit stream contracted, and public access to the coast was constricted.

The study revealed that, in some cases, there may be a difference between the functional and the legal trustee of public-trust resources and that the viewpoint of the acting trustee is critical to the effectiveness of the doctrine as a support for environmental management. Although the New Hampshire state legislature is the formal trustee, the towns are functional trustees over many public-trust resources. Therefore, local communities should be the focus of efforts to develop adequate institutional checks and balances to counter the influence of short-term interests over resource-management decisions. Townspeople need more tools to learn about the cumulative impacts of their decisions regarding valued public resources, and the impasses between the requirements of local government versus regional environmental planning must be overcome.

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Contents

Contents (Cont.)

Figures

Tables

Text:

Appendices:

Chapter 1
Introduction and Study Approach

Public and private property rights fragment the landscape[1] with physical and institutional boundaries that alter natural physical and biological flows and hinder our ability to manage ecological resources. Environmental policy instruments are needed that can help bridge these barriers and facilitate cooperation among landowners, elected officials, land management organizations, and ecologists. As an environmental advocate and policy analyst, I am particularly interested in identifying tools for protecting and managing the public interest in environmental resources across private property boundaries. For these reasons, I undertook a study of the public-trust doctrine, a legal doctrine that some scholars believe may be able to function as such a tool. I wanted to know how the doctrine behaves on an applied level and whether it met these expectations.

Introduction

In its simple form, the public-trust doctrine is a long-standing legal tradition that protects the public's rights to use surface waters and riparian and subsurface lands for navigation, commerce, and fishing. Public rights in the resources are held under the guardianship of a trustee, usually the sovereign or state. The composition of the doctrine is determined state-by-state, and in general, it does not include public title to the lands–instead, it preserves the public's right to use riparian and subsurface lands for public-trust purposes (Laitos and Tomain, 1992). Through common law, those uses are being expanded to include recreation, and even more broadly,

[1]The word "landscape" in this paper is used in the ecological sense–as a geographic unit that includes all of the interacting living and physical components within a distinct area (see Forman and Godron, 1986; and Clark, 1989).

environmental quality.[2]

Several legal scholars, Joseph Sax, David Hunter, and Alison Rieser, have argued that the public-trust doctrine is, or can be, a powerful instrument for preserving environmental resources in complex landscapes. Although the traditional scope of public-trust law is relatively narrow (defending public access to navigable waters and the lands beneath them), Joseph Sax wrote that public-trust issues occur in a much wider range of situations, and they may be involved whenever government regulation over resources comes into question. He believed the doctrine provides protection for diffuse public interests against tightly focused groups, and it has the potential to be an excellent tool for environmental advocates (Sax, 1970; Sax, 1980).

According to David Hunter, the public-trust doctrine is part of a body of legal theory that supports a land stewardship ethic. The doctrine can be used to shape the social, political, and economic reforms needed to integrate a recognition of the ecological importance of land into our property rights institutions. Hunter called for a new conception of property based on an understanding of the land's ecological roles. He argued that the scope of land managers' and owners' rights and responsibilities should be bounded by the requirement that they maintain the ecosystem's functional integrity (Hunter, 1988).

Alison Rieser argued that the preservation of naturally functioning ecosystems was a key public-trust use--and that intact ecological systems were a valued resource over which present and future generations had a property claim irrespective of existing boundaries. Rieser expressed doubt that any of the three common property rights arrays alone--collective ownership, private ownership, and government ownership–could prevent ecosystem destruction. In order to protect

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[2]*Marks v. Whitney*, 491 P.2d 374 (Cal. 1971) and others–see Chapters 2 and 3.

the public's property right in critical assets from erosion, each of the arrays should be subordinated to the public-trust doctrine (Rieser, 1991).

Although the public-trust doctrine is an abstract legal instrument, Sax, Hunter, and Rieser claimed that it can be an effective tool for integrating environmental and inter-generational concerns regarding land and resource-use decisions. This assertion riveted my attention. These scholars were saying that, from the perspective of legal theory, the public-trust doctrine could be used by advocates to integrate environmental interests into public policies that govern land use and influence private actions in order to preserve ecological resources. I wondered: if the analytical lens were shifted from a legal to an ecological perspective, would the doctrine still appear to be potent?

Ecologists have developed several logical requirements for ecosystem management policies or tools–they must be responsive on both large and small scales, be flexible in the face of changing conditions, and be able to incorporate the long time frames that biological and physical processes require (Forman, 1997; Richenbach et al., 1998; Holling and Meffe, 1996). The flexibility requirement is a particularly intriguing design criteria for an environmental management tool. Drawing an analogy between inflexible regulatory and policy instruments and building levees or stabilizing streams with dams, scientists have argued that a lack of institutional flexibility reduces the ability of a system to respond to external perturbations just as a loss in biophysical flexibility does (Holling and Meffe, 1996). In some cases, however, there may be a conflict between preserving our institutions' responsiveness to changing conditions and the preservation of critical resources over time, as will be seen in the New Hampshire case.

The following chapters on public-trust case law, in general, and New Hampshire's public-trust doctrine, in particular, present evidence that the doctrine seems to fulfill the above requirements: (i) it can be applied to broad areas that are identifiable by specific landscape characteristics established by case and statutory law; (ii) it is also responsive at both large and small scales--individuals, groups, and governments are each subject to the doctrine on both a site-specific and use-specific level; and (iii) it seems to be flexible in scope--the public-trust doctrine's reach varies from state to state and has evolved over time in the face of changing circumstances. In addition, the doctrine theoretically dictates a shift in emphasis from individual, uncoordinated actions, to a collectively mediated process for determining development activities in key areas–a possibly potent tool for strengthening environmental management institutions (Sax, 1970; Hunter, 1988; and Rieser, 1991).

In the 1996 amendment to the 1972 Coastal Zone Management Act, federal funding was authorized for states to research the public-trust doctrine and apply it to implement their coastal management programs.[3] There has been little exploration of the role of the public-trust doctrine except through the lens of legal theory, however, and the basic question remains, is the theory about its value for environmental management supported by the facts? Legal scholarship and case law aside, what evidence is there that the doctrine can and has successfully protected public environmental interests? How have communities historically applied the doctrine within their borders, and what has been the resulting physical "footprint" of the doctrine in the lands that fall under its domain? Has the interpretation of the public-trust doctrine evolved to fit changing conditions or needs, and if so, is that a strength or weakness?

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[3]Coastal zone management act of 1972, as amended through P.L. 104-150, The Coastal Zone Protection Act of 1996, section 308 [16 USC § 4156a].

To gain a comprehensive picture of how the public-trust doctrine interacts with landscape management, ecological, demographic, cultural, political, and economic factors all need to be considered--clearly beyond the scope of this study. Further, as each state in the United States has the power to shape the doctrine within its borders, exhaustive studies in a number of states are needed to form generalizable conclusions about the public-trust doctrine in the United States--also beyond the scope of this study. Instead, I look at selected variables in the coastal region of one state, New Hampshire, for evidence that communities have historically utilized the doctrine while managing resources within their borders and to identify the direct or indirect environmental impacts that the application of the doctrine has had on specific coastal sites.

New Hampshire is a particularly interesting site for a case study regarding the public-trust doctrine, because coastal resources that traditionally fall under the doctrine in the state, including the sea shore, major rivers and estuaries, great ponds, and fisheries, have historically played a key role in New Hampshire's development. The history of the doctrine can be traced back to the first English settlers in the state, and doctrine boundaries are currently the central issue in a local dispute over public access to the Atlantic beaches. The short New Hampshire coast (about eighteen miles) is geographically diverse, with beaches, marshes, rocky headlands, deep water harbors, and estuaries. The coast's physical features, natural productivity, and location have fostered dense human development, which has resulted in conflicts over public-trust resource uses. This case study looks at only the public-trust resources along New Hampshire's Atlantic shore, but similar conflicts and issues are present in the state's fresh-water, public-trust resources, as well.

The Case Study Framework

The framework for my approach to this study of the public-trust doctrine is outlined in Table A1.1 in Appendix 1. It includes my hypotheses that the public-trust doctrine can be a useful tool for integrating environmental interests in ecosystem services across public-private boundaries and that it has been successfully used for this purpose in New Hampshire by integrating public interests in public and private land-use decisions in critical coastal areas. Several assumptions underlie the study--for example, that the characteristics identified above (landscape perspective, both large and small-scale sensitivity, and flexibility) are appropriate design criteria for an environmental management institution, and that these criteria can be used to evaluate the public-trust doctrine as a useful instrument. Additional assumptions–for example, that the case study approach can yield valid insights into the strengths and weaknesses of the doctrine as a tool to support environmental management–are included in Table A1.1.

Relying on the criteria put forth above to test the hypotheses, I sought to verify that explicit linkages exist in New Hampshire between the public-trust doctrine and specific landscape characteristics, that the doctrine is controlling over individuals and groups in site- and use-specific activities, and that it has responded flexibly to changing values and conditions. I also sought to confirm whether stated public-trust goals, such as access to clean water, fisheries, and coastal recreation, have been preserved in lands in which the public-trust doctrine is controlling. To verify these indicators, I relied on town and state regulations and statutes, historical record, environmental data, and personal interviews. In addition, to guide me as I sorted through the profusion of detail available, I turned to ecological boundary analysis to isolate key factors shaping the coastal environment.

Methodology: a Boundary Analysis

Many biophysical, and political boundaries are created by human institutions, which shape the landscape through varying management practices (Knight, et al. 1998). The public-trust doctrine's potential as a tool to protect public environmental interests across boundaries has attracted scholars and conservationists. For example, the doctrine guards important human flows and activities across natural and institutional boundaries, such as the use of river corridors for transport or access to shores for fisheries and commerce. Scholars have scrutinized the public-trust doctrine through a number of lenses, such as political (a democratizing instrument [Sax, 1970]), ethical (Hunter, 1988), environmental advocacy (Rieser, 1991), policy theory (Archer, 1994), and comparative case law (Slade, et al., 1997)--but if its impact on the landscape is to be understood, it should also be studied through the lens of administrative and physical boundaries.

Awareness of and coordination of activities across political and natural boundaries are essential because the components of natural systems, such as air, water, nutrients, and species, have little respect for political boundaries, and activities on one side of a line often impact conditions and species on the other side. For example, a wetland area may be protected, but if the water flowing in and out of it is altered, or species groups are not supported by larger, transboundary populations, then the natural system within the protected area is likely to degrade and collapse. The stressed ecosystems of Florida Everglades National Park are high-profile examples of this problem.[4] Hard borders, such as those imposed by dense development around the Everglades, isolate populations and habitats, alter water regimes, make species more vulnerable to stochastic events, weaken their genetic pools, and prevent natural renewal

[4]See the *Initial Report of the Governor's Commission for a Sustainable South Florida*, http://www.sustainablesouth.org/florida (November, 1996).

processes. Therefore, although boundaries demarcating private or protected resources are often zealously guarded, impermeable boundaries are problematic if they block natural flows. It is important to remember, though, that all boundaries are human constructs, marking our perceptual distinctions about the nature of things, whether physical, biological, or political (Brunson, 1998; Holling, 1998).

The Interaction of Administrative and Physical Boundaries

All land in the United States is delineated by administrative boundaries of some kind, marking different owners, jurisdictions, goals, management philosophies, and activities. These institutional boundaries play key roles in facilitating and hindering flows across the landscape (Brunson, 1998; Holling, 1998; Forman, 1997). In New Hampshire, the coastline at the center of the public-trust dispute is under the administrative control of the private sector (private property owners), public sector (municipalities, several state agencies, and several federal agencies), and the non-governmental sector (conservation groups). None of the administrative boundaries necessarily coincide with natural biophysical boundaries. The surveyed borders are geometric and are the result of many decades of political, economic, or social contracts. The institutional boundaries behind the surveying lines and contracts are defined by statute, case law, regulations, and custom, and contain diverse intents, perceptual frameworks, and personal styles. They are implemented by various entities, operating at different levels and scales.

Although administrative boundaries are usually not assigned based on clear natural features or discontinuities, recent studies have correlated them with distinct physical ecosystem changes (Knight and Landres, 1997; Forman, 1997; Gunderson, 1995). Administrative boundaries can effectively filter, block, channel, and concentrate activities--and by extension,

animals, plants, wind, water, nutrients, fires--not unlike natural boundaries. They can make it difficult to coordinate behavior among groups and disrupt flows of information. Administrative boundaries can also delineate lines of responsibility and can be positive influences in landscape management by impeding bad policies, channeling information, and focusing accountability. For these reasons, it is critical that we understand boundaries of all types if we want to support better land stewardship (Meidinger, 1998).

The attributes of the various institutions that interact with the landscape may shape physical boundaries as much as the biophysical characteristics of the land. For example, the different management goals of entities on either side of a boundary can drive different management practices and create ecological variations in the landscape. Downtown Boston has numerous examples where different practices hasten and interrupt flows of all types. For example, at the intersection of East Berkeley and Tremont Streets, water runs rapidly off the hard surfaces north of East Berkeley Street (between Shawmut Avenue and Tremont Street) into storm drains and into Boston Harbor, carrying with it debris and pollutants. On the south side of East Berkeley Street on the same block, water percolates into the ground and either is evaporated and transpired back into the air, or slowly drains toward the sea. Surface pollutants and debris are filtered, although subsurface pollutants may still be picked up and carried to Boston Harbor. In another example, by mowing grassy strips along Riverside Drive, the Metropolitan District Commission locally facilitates simple air flows, raises temperatures, reduces humidity, and lessens species diversity. Adjacent urban gardeners create multi-tiered environments with complex air flows, lower on-site temperatures, higher humidity, and possibly greater species diversity.

All of the natural and artificial environments around us have been shaped by past conditions and activity--geology and soils, nutrient concentrations, temperature, water regimes, vegetation, and species use. They have also been shaped by the history of the human institutions that have interacted with them--governing land-use density, intensity, and type and mutating with changing values and needs. How these boundaries change over time is intimately related to how we perceive and use the land. The New Hampshire coastline today is the result of a long history of interacting physical, biological, and institutional factors. Therefore, if the public-trust doctrine has influenced institutions and behavior in the state through time, it must be possible to trace the effect of its presence in biophysical and organizational boundaries, and through that process, determine the shape and depth of its role as a tool for protecting public interests in environmental resources.

Boundary Study Attributes.

Thus, to appraise the utility of the public-trust doctrine for environmental management, I looked to ecological boundary studies for an analytical methodology. In Appendix 1, Table A1.2 (Structural Attributes that Shape Coastal Environments) and Table A1.3 (Boundary Attributes of Coastal Resources and Institutions Interacting with the Public-trust Doctrine) list some of the components of boundary analysis that I used to guide my examination of the New Hampshire coastal system. The tables relate physical boundaries and attributes with administrative boundaries and attributes. For example, Table A1.2 correlates the structural characteristics of biophysical systems (width, height, length, and texture) with administrative boundaries. For example, the inland extent of littoral sand and marsh deposits are correlated with the controlling regulatory boundaries reflecting public-trust interests. Likewise, the linear distribution of stable

versus unstable substrates on the coast (biophysical attributes) can be related to the subdivision of the coastline by public and private ownership with different management goals (administrative attributes)–in New Hampshire, stable rocky headlands are generally privately owned, whereas unstable sandy beaches are often publicly owned or ownership is being disputed.

Ecological boundaries have functional as well as structural characteristics, such as fluxes and gradients and filtering mechanisms (Forman, 1997; Freyfogle, 1998; Richenbach et al., 1998). The functional attributes of boundaries are listed in Table A1.3 of Appendix 1. They include corridors and conduits for flows (sand, water, nutrients, and species) or filtering effects, such as contrast and complementarity in contiguous habitats, or changes in the primary drivers such as the changing regional economic base. Looking at coastal New Hampshire from the perspective of the functional aspects of the system described in Table A1.3, a number of critical issues were revealed. For example, changing infrastructure technologies have facilitated human development and flows, but hindered some biophysical flows, such as the movement of water in and out of marshes or the migration of wildlife to and from the coast.

Many of the structural and functional boundary attributes described in Tables A1.2 and A1.3 are quantifiable to some extent, such as data on water and nutrient flows, spatial changes, financial flows, and economic activity. This study of the relationship between the New Hampshire public-trust doctrine and environmental management in the coastal system relies primarily on qualitative information, however. The attributes were used as conceptual guides as I traced how public-trust resources and lands have been used and viewed over time, how they have been physically altered, and how the balance of public and private property rights within lands under the public-trust domain has changed. More detailed research explicitly targeting the relationships

among biophysical and administrative boundaries has been conducted (Knight and Landres, 1998; Forman, 1997; Gunderson and Light, 1995). These studies should be expanded if we are to understand our environmental management needs.

Dissertation Outline

In the following two chapters, I look at the historical context and development of the public-trust doctrine, first in the United States, in general, and second, in New Hampshire. The first part of Chapter 2 provides background on landed property rights in the context of environmental management and stewardship in the United States. Bounded lands play a central role in a critical intellectual tension in the States--the struggle to balance individual rights with community interests. The legal system has provided little help in resolving the tension. Courts investigate and rule on the limits of property rights, but they do so primarily in the context of nuisance law--avoiding direct harm to our neighbors--and takings law. Courts generally avoid talking about individual responsibilities to the social community and natural landscape, perhaps because we have no clear or shared concept of land stewardship (Nash, 1989; Freyfogle, 1998). There is a growing articulation among resource managers, however, of the need to promote management across spatial and temporal boundaries to protect public interests in certain values–ecological, commercial, or other. The public-trust doctrine has been promoted by some scholars and policy-makers as a theoretical foundation for guarding those interests and as an instrument for mixing the realms of public and private rights.

The second part of Chapter 2 traces historical changes in the doctrine, which has evolved over time in response to shifting values and emerging needs. Originally guarding common access to navigable waters and subsurface lands, the doctrine has been expanded to protect diffuse public

interests in intact ecosystems and their associated environmental services. The doctrine's inherent flexibility--or in ecological terms, its ability to adapt to changing circumstances--is traced through the nineteenth and twentieth centuries. This common-law ability of the doctrine to evolve is considered by some scholars to be the key to its long survival and future usefulness (Sax, 1970; Slade et al., 1997).

The case study that follows contributes both basic knowledge about the history of the public-trust doctrine and the resources under its control along the New Hampshire coast and a framework for looking at the environmental impact of the public-trust doctrine in other states and regions. Much of New Hampshire's development has been linked to commodities and services provided by trust resources. In addition, there is a strong tradition of case law related to the public-trust doctrine in the state, which has been cited widely in cases in other states and in the United States Supreme Court. Nevertheless, resources over which the doctrine has been historically controlling have experienced considerable attrition in the state.

Differences between the management goals of public agencies and landowner expectations have resulted in bitter disputes over public-trust resources, including a recent case considered by the New Hampshire Supreme Court, discussed in Chapter 3, in which the boundary between public and private ownership of the beaches in the town of Rye was contested. Rather than building on the support the doctrine provides for the mixing of public and private regimes, agencies shaping the doctrine in New Hampshire have (at least temporarily) followed a more rigid course of defining hard boundaries, increasing litigation and recriminations, and weakening the overt role that the public-trust doctrine may be able to play in shaping environmental stewardship in the state.

Chapter 4 looks back at the history of the biophysical and economic changes in the lands subject to the public-trust doctrine in two towns--Hampton and Rye, New Hampshire. In it, I correlate the boundaries of the lands legally defined as within the domain of the public trust with biophysical conditions. I describe the authorities responsible for administration of the public-trust resources, as well as the primary public uses that have been protected by the doctrine in the towns. In the course of the study, continuous pressures to privatize trust resources are demonstrated, as well as changing concepts of how the resources are economically useful–with some uses precluding other uses. Although the nature of the coastline and the development patterns in the two towns are different, the doctrine seems to have served them both poorly, based on the historical erosion of public access and uses of the resources.

Chapter 5 builds on the findings of the previous chapters to evaluate the hypothesis that the public-trust doctrine has been an effective tool for facilitating environmental management objectives in New Hampshire, and by extension, the hypothesis that the public-trust doctrine is a useful tool for integrating environmental interests across boundaries. A key factor influencing the doctrine's utility emerging from this study is that the identity of the acting trustee of the resource is critical–and that the acting trustee is not necessarily the formal legal trustee. Also during the course of this study, it has become apparent that there may be a fundamental problem with flexibility as an indicator of a useful ecosystem management tool. From a narrow disciplinary perspective, whether it is legal theory or landscape ecology, flexibility appears to be a desirable characteristic, but significant changes have occurred in New Hampshire in the doctrine's legal scope and in the condition of the resources over which it is controlling as a result of its ability to evolve. Flexibility is not an unqualified virtue in this case.

Chapter 2
Property Rights, the Public-Trust Doctrine, and Environmental Stewardship

Part I: The Foundation for Conflict

To understand the struggle to balance public interests and private rights in landed property in the United States, I begin in Part I with our concept of private property, which has its roots in English common law. Property has been endowed with a special importance in the United States that can be traced from the English philosophers, to the first settlers, to the current libertarian and extreme right movements. American property rights literature is rich with information on the rights of individual landholders, but provides ambiguous information about what interests the community retains in the land and contributes poor guidance on what landowners' stewardship responsibilities are to the larger landscape.

Overview

Since the early settlements, local governmental authorities have been the principal instruments for assigning, protecting, and monitoring landed rights. In the18th and 19th centuries, when land was plentiful, communities liberally regulated private owners' land uses, primarily to prevent activities perceived as noxious to their neighbors. Nuisance law was the primary body of law used for this purpose. It balances separate and opposing property rights (Donahue, 1993). The 20th century has seen a reverse process–where the power of government to shape actions across private property boundaries has often been curtailed by the courts, particularly through takings suits. This has occurred in spite of, or perhaps because of, a growing suite of environmental regulations. Although environmental regulations can be analyzed as an extension of nuisance laws, they can also be viewed as balancing shared property rights. Viewed

as a form of shared public and private rights (the foundation of the public-trust doctrine), environment regulations gain a degree of protection from takings claims because takings suits assume an (unlawful) extension of new rights by one party and a loss of rights by another.

The courts have played a key role in shaping the bundle of rights that are included in the definition of property, although local elected and appointed governments are usually the immediate agents of environmental and land controls,. Much of the following chapter focuses on how the courts have affected public/private boundaries. It is important to remember that judges are not environmental managers. Nevertheless, in balancing claims, interpreting legislation, and scrutinizing agency actions, they have made far-reaching decisions that have affected the management of environmental resources across the public and private landscape.

Private boundaries are being defended against public environmental interests in two key ways: through takings suits and by legal requirements that the public participate in various forms of policy-making. Takings law is examined here, leaving the issue of public involvement in policy-making until Chapter 4, where it plays a pivotal role in the history of the New Hampshire public-trust resources. Both aspects limit the ability of government agencies to reshape property rights in response to new scientific and economic information and changing values. Takings claims, in particular, have been used to impose serious obstructions to efforts to ordain cross-boundary stewardship or landscape-level management and planning through legislation.

The public-trust doctrine, which provides a centuries-old theoretical basis for shared rights, has attracted the attention of environmental advocates as a way to combat takings claims. In this role, the public-trust doctrine is viewed by some scholars and environmental advocates as a means to empower government to overcome these legal barriers to landscape-level management

(Sax, 1970; Sax, 1980; Hunter, 1988; Rieser,1991; Loomis, 1995; Snape, 1996; Slade et al., 1997). In the second part of this chapter, I will look briefly at the history of the doctrine in the States, in order to understand how it has evolved and what its potential for further change may be.

Property: a "Bundle" of Rights

Lawyers commonly refer to property as a "bundle of rights" (usually equated to a bundle of sticks) that can be subdivided, concurrently owned by different people, or portioned over time to different entities (Plater, et al., 1992). Over the last few decades, environmental policy-makers have generally based their concept of property on this perspective, implementing environmental policy and controls by assigning or reassigning resource rights from open access or individual private holdings to public holdings and enforcing those rights through criminal and civil sanctions.

Clean air is a common example of an open-access resource that was transformed through legislation into a public resource, controlled by government trustees through standards, permits, and fines or other sanctions. The right to develop or use wetlands is an example of a former private property right that has been transferred to the public. Landowners may privately "own" wetlands--transfer them and exclude trespassers–but wetland regulations now constrain their withdrawal, alteration, or management options. For this part of their property, landowners have been effectively reduced to authorized users, with the use rules delineated by public oversight agencies.

Economists' views of property differ somewhat from the legal perspective, but are not at odds with it. For economists, property rights generally are entitlements that advance allocative efficiency--these entitlements should allow people to capture benefits while requiring them to bear the costs generated by their activities. By enforcing the right to exclude encroachments, legal

protection of property rights creates incentives to use resources efficiently (Pearce and Turner, 1990). More and more under the sway of economists, environmental policy-makers are now directing their attention to this definition of property, and they look to a mixture of legal and market tools to force property owners to internalize the public costs of their actions. The right to pollute air is now being partially reassigned by the public trustees (legislatures and regulatory agencies) into a private right, with costs internalized, through the implementation of tradeable pollution permits. Increasingly stiff financial penalties for infringement of environmental regulations are another means of making private actors internalize public costs. This concept of property as benefit entitlements is a two-edged sword for environmentalists, however. Although it has resulted in useful regulatory tools, a growing number of successful takings suits against environmental regulations have been based on the concept that people have been robbed of their benefit entitlements by being denied certain economic uses of their land.

Our property rights regimes are articulated primarily through case law. For example, the history of New Hampshire's public-trust doctrine presented in the following chapters relies heavily on court records. There are ramifications of our property rights being defined through this system, however, that create problems for efforts to promote environmental management across boundaries. The founding literature of our legal culture, such as the Constitution and the writings of early legal authorities, is very articulate about our rights (which tend to be spoken of as absolute) but provides poor guidance on what duties or responsibilities to the larger community may accompany those rights (Glendon, 1991). This weakness is enhanced by the adversarial nature of the courts through which case law is expressed--where generally one side wins at the other's expense. This win/lose legal culture, combined with our cultural and economic pluralism

constrains opportunities to find compromises (Glendon, 1991) and supports the assignment and enforcement of impermeable boundaries of all types.

The need to reduce conflict and facilitate agreements is becoming more acute, particularly with regard to land-use controls. Between 1930 and 1990, the U.S. population grew by 103 percent. By 2050, the Census Bureau projects that the U.S. population will increase another 50 percent. Eighty percent of this growth is projected to be in "fifth generation" edge cities or suburban villages (Richmond, 1997), sprawling into previously little developed areas. In New Hampshire, alone, the population of the state increased 26 percent between 1980 to 1996, primarily adjacent to the state's public-trust resources: coasts, waterways, and lake shores (N.H. Office of State Planning, 1997).

Not only has pressure on land and water been intensifying, but our scientific knowledge of the cumulative impacts of private activities on the land has dramatically improved, as well as our realization of our dependency on the functional roles of fragile ecosystems such as coastal wetlands and other riparian environments (Baskerville, 1974; Bormann and Likens, 1979; Mitsch and Gosselink, 1993). Integration of this new knowledge into our decision-making processes is frustrated by the existing legacy of land-development patterns, fragmented management boundaries, and compartmentalized and competing government agencies, to name just a few reasons. Therefore, serious mismatches exist among our property rights expectations, the formal institutions that manage the landscape, and our scientific understandings of the broad-scale, biophysical interdependencies of the land.

Although a growing number of laws, regulations, and judicial decisions support the public right to healthy ecosystems as an enforceable property claim that supersedes private rights, these

property-rule changes are taking place within a very contentious political process. Gary Libecap would describe the process as a battle of relative power and trade-offs among interest groups (Libecap, 1988). In towns like Rye, New Hampshire, the battle is among neighbors--ocean-front property owners against inland residents, long-term residents opposed to new-comers, those with strong political ties versus those without.

Below, I trace in broad brush some of the roots of our conflicting concepts of one type of landed property rights in the United States.

History: A Legacy of Conflict and Conscience

Our current conceptions of property and accompanying land-use controls were shaped by our colonial history. English common law formed the historical basis for the legal system in most of the United States (one state, Louisiana, has a civil law code based on the Napoleonic Code). State legislatures can and have changed common law, within the restrictions of the Constitution, and state courts have very liberally interpreted it over the decades. Nevertheless, the earliest Colonial statutes and judicial rulings regarding landed property relied on English governance (Donahue, et al., 1993).

In the early 1600s, the English Crown claimed the majority of the land that is now New England, and granted rights to settle lands to several different groups, of which the Massachusetts Bay Colony was the largest. Under the Bay Colony's self-rule charter, the early settlers and businessmen directly governed colony activities and seldom deferred to crown rights. Crown controls on property and land use existed, but monitoring settlers' activities was difficult. Conflicts of interest frequently existed between the Crown, governors, judges, and settler-entrepreneurs, and the crown representatives were unable or unwilling to enforce its property

claims effectively. Some of the earliest recorded conflicts between the New England colonists and the English kings were over settlers blatantly cutting and selling forests claimed by the king. For example, the 1691 charter of the Massachusetts Bay Colony reserved all trees twenty-four inches in diameter or more for the Royal Navy, which, in the old-growth forests of New England, comprised considerable forest holdings. Trees branded with the king's sign were openly sold on the lumber markets by settlers (Perlin, 1989).

Where local development interests were concerned, however, the local authorities were far more effective overseers. The early Massachusetts Bay Colony strictly regulated livestock grazing, where offensive industries like tanneries could be sited, where and how much sand and gravel could be removed from beaches, and what kinds of construction could occur along shores. These controls on private property were exercised "on behalf of the health, safety, morals, and general welfare of the community (*Massachusetts Ordinances of* 1641 in the *Colonial Laws of Massachusetts*, 1889)." The Bay Colony compensated landowners for lands physically taken for public uses, but nothing else (Wright, 1994), perhaps because the Colony encouraged individuals who did not like the community's laws to move on into the wilderness. Property boundaries were never impervious to regulation; the right of the Colony to regulate land use was rooted in the police power of the state, and the tradition of nuisance law (Wright, 1994).

Early courts and ordinances influenced property rights, but as individuals received grants and townships were incorporated, local governing entities were the main tools for shaping, enforcing, and monitoring rights. In most states, this is still the case--state legislatures delegate regulative and oversight authority over land use to local governments (Richmond, 1997). Courts

become involved only when disputes occur that cannot be resolved within the community governments.

The Roots of Property-Rights Theory in the United States–The Natural Rights Philosophers

U.S. property-rights theory is shaped by this early English-Colonial heritage. To trace the roots of the U.S. property-rights paradigm, historians usually start with Englishman John Locke (1632-1704) and his *Second Treatise of Government* (Wright, 1994; Glendon, 1991; Donahue et al., 1993). Locke articulated the natural-rights tradition--a favorite theme of extreme private property-rights advocates in the United States, in part because he argued that individual property rights prevail over governmental authority. In his *Second Treatise*, Locke asserts that in the state of nature, all people are created equal and free before God and each other, and possess God-given rights to "lives, liberties, and estates." Using the illustration of drawing water from a fountain, he granted property to the water to whomever was able to capture it in a pitcher. According to Locke's labor theory of property, "'tis the taking any part of what is common, and removing it out of the state Nature leaves it in, which *begins the Property;* without which the Common is of no use (Locke, 1988 ed, p. 289)".

Locke obviously appealed to the early colonial entrepreneurs. In the land- and resource-rich colonies, claims to tangible property often preceded organized local government (Meinig, 1986). His principle of determining ownership by right of appropriation was applied to most of the open-access resources in the United States--fugitive biological resources and water resources, in particular. After the Revolution, there was a move to develop United States laws based on pure natural law principles. English common law advocates won, but natural law, and in particular Locke's labor theory of property, retained a strong hold on the American psyche (Nash,

1989; Donahue et al., 1993). Although Locke believed in the need for a social contract to safeguard individual rights against the insecurities of the world, he also provided rhetorical fuel for regulatory resistance: "whenever the *Legislators endeavour to take away, and destroy the Property of the People,* . . . they put themselves into a state of War with the People. . . .(Locke, 1988 ed., p.412)."

Although Locke's writings provide fertile ground for extreme property-rights advocates, radical environmentalists (their anathema) have used Locke to argue their own case for a system of ethical stewardship: if sustenance is a human right prior to all social contracts, and a person's right to life includes the need to preserve the biophysical niches that support us all, the moral contracts we enter into to protect this right must include the preservation of ecosystem services and non-human species (Nash, 1989). Some ecological philosophers take this thought one step further and expand the concept of natural rights to include the rights of all species to the habitat and resources necessary for their own survival (Devall and Sessions, 1985; Blumm, 1992; Ehrenfeld, 1981).

In the18th century, Jean-Jacques Rousseau built on classical thought and Biblical sources to argue that property rights were subordinate to the paramount needs of the community, and property owners were trustees or stewards for the larger public good. Agreeing with Locke that all beings have a natural right to what they need for their subsistence, he took a somewhat more cynical view toward property: "The first man, who, after enclosing a piece of ground, took it into his head to say, 'This is mine,' and found people simple enough to believe him, was the real founder of civil society (Rousseau, 1910 ed, p. 202)." Rousseau had a strong influence on evolving socialist thought in Europe. European culture still tends to blur the boundaries between

public and private property far more than in the United States. Private property is frequently viewed as a communal creation rather than a natural right, and individuals have use rights of various kinds, rather than absolute rights (Freyfogle, 1998; Nash, 1989). Rousseau's concept that stewardship took precedent over individual landed rights did not find a broad constituency in America, then caught in the thrall of Manifest Destiny.

William Blackstone was much more influential than Rousseau in the United States through his *Commentaries on the Laws of England* (1791). During the late 18th and 19th centuries, Blackstone's *Commentaries* was the primary legal source book in the country. He was the only reference readily available--Thomas Jefferson recommended the *Commentaries* for legal studies, and Abraham Lincoln urged young lawyers to read and reread it. All of the founding documents of the country were written by lawyers steeped in Blackstone (Nash, 1989; Plater et al., 1992).

Influenced by Locke, Blackstone wrote that the principle goal of society or government is to protect the absolute rights of individuals. In particular, the inherent right of an Englishman to own property was sacred: property rights should not be violated even for the general good of the whole community. Blackstone believed that "[t]here is nothing which so generally strikes the imagination and engages the affections of mankind as the rights of property; or *that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe* (Blackstone, 1914 ed., p. 207 [emphasis mine]).

Blackstone acknowledged that private property was protected by and could be controlled by municipal law, but in curtailing individual rights, the intent of the laws was to regulate relationships or how people behaved with one another (i.e., nuisance law). The duties prescribed

by law were social or relative duties, not absolute or moral duties. In other words "[l]et a man, therefore be ever so abandoned in his principles, or vicious in his practice, provided he keeps his wickedness to himself, and does not offend against the rules of public decency, he is out of the reach of human laws (Blackstone, 1914 ed., p. 63)."

Foundations for Land Stewardship

Ironically, the natural rights philosophies that fueled the language of the American revolution and western expansionism and formed the basis for American property law were also integral to the development of a conservation tradition that took issue with the sanctity of private boundaries, as well as human versus non-human moral boundaries. It is no coincidence that some of the early animal rights activists and conservationists, such as Harriet Beecher Stowe, John Stewart Mill, and George T. Angell, were also prominent abolitionists (Nash, 1989). In 1859, Henry David Thoreau wrote that "If some are prosecuted for abusing children, others deserve to be prosecuted for maltreating the face of nature committed to their care (quoted from *Writings of Thoreau,* Vol. 10, p. 51 by Nash, 1989, p.37)." In 1864, George Perkins Marsh, an American diplomat, scholar and founder of the Smithsonian research program, wrote that "Man has forgotten that the earth was given to him for usufruct alone, not for consumption, still less for profligate waste (Marsh,1965 ed., p.46)." Even in the 1860s, he worried that we were literally burning our home to light it. His book, *Man and Nature,* is considered by many ecologists as the first call for a science of restoration ecology.

John Muir was an early leader of the wilderness preservation movement in the States. He was also one of the first early naturalists to champion an ecosystem view of the landscape: "When we try to pick out anything by itself, we find it hitched to everything else in the universe (Muir,

1910, p. 110, also quoted in Nash, 1989)." Muir emphasized nature's rights in his early career, but later used other arguments for conservation, such as the economic benefits of recreation, aesthetics, or watershed protection. This shift has been made by a number of environmental advocates (Nash, 1989). The advantage of shifting focus away from nature's rights to human rights is that we can avoid the unpopular task of articulating and defending what our collective responsibilities to the larger biological community may be.

Aldo Leopold, founder of the Wilderness and Wildlife Societies, president of the Ecological Society of America, and close advisor of Theodore Roosevelt and Gifford Pinchot, made this same pragmatic shift from talking about nature's rights to economic values during his career (Nash, 1989). During his life, and since his death in 1948, Leopold has been a central influence in shaping conservation policies in the States, particularly the movement to integrate ecosystem concepts into land management.

Leopold divided conservationists--regardless of their field--into two groups. "[G]roup (A) regards the land as soil, and its function as commodity-production; another group (B) regards the land as biota, and its function as something broader" (Leopold, 1949. p. 221). In his essays, Leopold saw the human-land relation as overwhelmingly economic, with people claiming privileges but not acknowledging their obligations. He wanted a land ethic that placed real property into a functioning cross-boundary community that demands obligations as well as rights and benefits (Callicott, 1998).

Leopold's most well-known essays on resource management, contained in *A Sand County Almanac*, outlined a land ethic that included the land, water, plants, animals–the entire human ecosystem (Leopold, 1949). He believed land-management policy had to be based on the reality

that the environment is indivisible-- species and substrate function together like organs in a single body, not unlike James Lovelock's *Gaia* concept (Lovelock, 1979).

In the early 1900s, Gifford Pinchot and Theodore Roosevelt introduced conservation into American politics as an issue of democracy and morality. Until then, there had been no national policy mandate in the United States for managing and protecting the vast areas of public domain. Under their leadership, millions of acres of land began to be transformed into a national trust of parks, wilderness, production forests, grazing, and mining lands under federal management, and the concept of a public trust began to appear in the enabling acts for the National Park and Fish and Wildlife Services (Shabecoff, 1993).[1]

Thoreau, Marsh, Muir, and Leopold were and are all voices for a tradition of land stewardship. Intrinsic in their work is a belief in community responsibility toward the non-human world. Current environmentalists view rights in a spectrum spanning from humanists who believe that people have a right to a healthy ecosystem and that this is also an economically efficient position--to "biocentrists," who believe that the natural ecosystem itself has rights and that we have an individual responsibility to guard those rights (Ehrenfeld, 1981; Devall and Sessions, 1985) . They share a growing interest in our need to articulate an ethical relationship with nature and community that reflects our changing scientific understanding of ecology, biological boundaries, and community.

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[1]Although the word "trust" does not to my knowledge appear in the Organic Act of 1916, wording such as the following is used: the National Park Service's "purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." This text can be accessed at http://www. aqd.nps.gov/ard/oa.htm. In a number of subsequent rulings, the courts have said that the National Park Service has been assigned certain "trust" duties with respect the resources under their control (see *The Organic Act and Stewardship of Resources within Park Boundaries*, by Michael A. Mantell and Philip C. Metzger, 1990, at http://www.usbr.gov/laws/npsoa.htm.)

The bridge from discussions about stewardship of the environment and real property to the judicial and legislative arenas is poorly constructed at best. Our environmental policies, laws, and regulations have focused on prohibitions, limits, and sanctions, or economic incentives for good behavior. Our judicial institutions have focused on strengthening security and civil liberties by protecting individual rights. All have glossed-over or neglected discussions of our individual responsibilities to the larger community on the land.

Case-Law Tension Between Public and Private Property Rights

Common-law doctrine, statutory or administrative regulations, and the Constitution all have the power to override private property rights to protect public interests. This power was widely exercised over landed private property rights in the 18th and 19th centuries through growing land law and court rulings in the name of development and the public good (Wright, 1994; Donahue, et al., 1992). The 20th century has seen the reverse, with the power of government to shape private property rights curtailed in the courts.

According to 18th and 19th century case law, even previously granted entitlements were secondary to community interests, and they did not require compensation when they were reduced or revoked. In 1837, for example, the U.S. Supreme Court ruled that, although a toll company had been given exclusive rights by the Commonwealth to build a bridge across the Charles River, that right was revocable, and competing toll bridges could be built. The Court said: "While the rights of private property are sacredly guarded, we must not forget that the community also have rights, and that the happiness and well-being of every citizen depends on their faithful

preservation."[2] In 1887, the Supreme Court ruled that even when regulations greatly depreciated property values, they remained constitutional. As long as the owners still retained physical possession of the land, the Takings Clause in the Constitution[3] did not apply–i.e., governments did not have to compensate land owners for economic losses resulting from regulations that were for the general benefit.[4]

The most famous 19th century dispute defending the public interest against a grant of private ownership was the case of the *Illinois Central Railroad Company v. the State of Illinois*.[5] This case is considered a defining public-trust case (Donahue, et al., 1993; Plater, et al., 1992; Sax, 1970), and it will be discussed further in the second half of this chapter. In this case--in which Chicago's navigable coastline was deeded by the legislature to a private railroad and then later reclaimed--the Supreme Court ruled that states have a regulatory responsibility to protect public uses of certain resources. States cannot easily transfer or end this responsibility, nor can the protected uses be curtailed for private gains.

Although the courts may have laid a foundation that supported community interests over private property interests in the 18th and 19th century, twentieth century property rights case law has vacillated between emphasizing public and private interests. Increasingly, though, the courts

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[2]*Charles River Bridge v. Warren Bridge,* 36 US 420, 548

[3]"No person shall ... be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation (Amendment V, *The Amendments to the Constitution*)." Http://lcweb2.loc.gov/const/bor.html

[4]*Muglar v. Kansas,* 123 U.S. 623 (1887).

[5]*Illinois Central Railroad Company v. the State of Illinois* 146 U.S. 387 (1892)

have leaned toward protecting private property rights against governmental regulations and actions, as will be seen in the New Hampshire public-trust case discussed in Chapter 3.

The primary means by which private property boundaries are defended against government regulations is through takings suits (Meidinger, 1998). As a result, the environment/property rights struggle in the United States is often played out in the courts. Landowners and representatives of the property-rights movement frequently use takings claims to fight regulations that are viewed as curtailing an owner's free use of the land. The threat of suits has become increasingly problematic for land-use planners, municipal regulators, and public agencies involved in managing land use.

Although property-rights regimes are defined by complex institutions and expectations, takings are based on constitutional law (the Fifth Amendment and its state equivalents); they require compensation, and are determined claim-by-claim. Most of the litigation involving public-trust doctrine is initiated by takings claims. Again, the New Hampshire case study is an example of such a challenge.

Regulatory Takings–A Defense of Private Property Boundaries

Two key U.S. Supreme Court cases established tests to determine when a taking has occurred. Before 1871, the takings clause in the Bill of Rights was applied only when the land was seized out-right by the Government through eminent domain (Plater, 1992). In 1871, in *Pumpelly v. Green Bay Co.*[6], the Supreme Court ruled that the takings clause could be invoked by a landowner even when (s)he still physically possessed the land (in the *Pumpelly* case, the land was regularly flooded by a dam). In 1922, takings were expanded beyond physical appropriation to

[6] *Pumpelly v. Green Bay Co.*, 80 U.S. 166 (1871).

include "regulatory takings" by the ruling in *Pennsylvania Coal Co. v. Mahon.*[7] The takings tests established by these two cases require assessing (1) the economic impact of the government action on the landowner, (2) the degree of interference with his/her reasonable investment-backed expectations, and (3) the spirit of government's intent in imposing the regulations (do they promote public interests, and are they equitable or do they burden some groups unfairly).

In the second (and more influential) of the cases, Pennsylvania Coal Co. sued the state for compensation because they were forbidden to mine coal where they held only subsurface rights. The company originally owned the surface land at the disputed site, but sold it for residential housing before legislation was passed forbidding companies to tunnel beneath land they did not own. Justice Holmes wrote the majority's decision in favor of the company based on economic considerations:

> [when the extent of the diminution] reaches a certain magnitude, in most if not all cases there must be an exercise of eminent domain and compensation to sustain the act.[8]

Justice Brandeis dissented, stating that the state had the right to forbid "noxious use" of the land without compensation, regardless of the economic values lost (i.e., apply nuisance law). The state's legislative action to restrict mining was

> merely the prohibition of a noxious use. The property so restricted remains in the possession of its owner. The State does not appropriate it or make any use of it. The State merely prevents the owner from making a use which interferes with the paramount rights of the public.[9]

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[7] *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1922)

[8] 260 US 393, Justice Holmes, at 413; also cited by Hunter, pg. 327.

[9] 260 US 393, Justice Brandeis, Dissenting, p. 393.

Since the *Pennsylvania Coal* suit in 1922, the Supreme Court has emphasized the use of economic tests to determine when takings occur--blending the legal and economic concepts of property into a social guarantee of private absolute entitlements and complicating the settlement of claims that involve environmental resources and invoke the public-trust doctrine (Hunter, 1988).

Over fifty years after *Pennsylvania Coal,* Justice Brandeis' opinion focusing on the State's power to prohibit private property owners from noxious uses, was cited in the 1978 dispute between the Penn Central Transportation Co. and New York City.[10] Penn Central wanted to tear down parts of their old building and build a new, 53-story office building above the station. They were forbidden to do so by the New York City Landmarks Preservation law. The railway claimed that this was a "taking" and they should be compensated. The Court sided with the City, based on the issue of "reasonable investment-backed expectations." The majority opinion held that Penn Central had no reason to have any other expectations than those that were embodied by the current building and its use, and the owners were not allowed to redevelop the property. The Court noted, however, that the New York City Landmarks Law permitted the owners of affected properties to sell the development rights they would otherwise have under the current zoning and building codes (in the Penn Central case, air rights) to adjacent properties. The adjacent property owners could use those purchased rights to exceed building limitations up to 20 percent (higher) than would otherwise be permitted by the zoning codes. The value of Penn Central's development rights were less than what the value of a 53-story office building would have been, but they were still significant (Donahue et al., 1993).

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[10] *Penn Central Transportation Co. v. City of New York,* 438 U.S. 104 (1978)

Despite this complicating issue of tradeable development rights, some scholars claim that *Penn Central v. City of New York* opened the door to preserving environmentally sensitive lands because reasonable expectations were taken to include only current use or possible uses based on the current state of the property, not its development potential (Hunter, 1988). Large areas of undeveloped lands are being protected by towns through conservation zoning. This has been challenged time and again as a taking--sometimes successfully, sometimes not. For example, in 1981, in New Hampshire, a developer sued the City of Keene for a taking after the city refused him approval for a subdivision and then subsequently zoned part of his land as a conservation area. The New Hampshire Supreme Court sided with the developer and remanded the case to a lower court for consideration as a taking.[11]

Comprehensive zoning is clearly a means by which towns can and have tried to impose land use controls to protect certain environmental amenities and flows. The right of state or local governments to impose comprehensive zoning was first challenged and upheld in 1926, in the case *Village of Euclid v. Ambler Realty Co.*[12] The ruling in this case defended the right of municipalities to shape development on private property through comprehensive landscape plans. There were restrictions in the ruling, though, that opened the door for further interpretation and disputes--zoning cannot be "arbitrary, unreasonable, or confiscatory,"[13] for instance. "Arbitrary" and "unreasonable" are highly subjective assessments. In a 1934 case,[14] the Supreme Court explicitly

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[11] *John P. Burrows et al. v. City of Keene,* 432 A.2d 15 (1981)

[12] *Village of Euclid v. Ambler Realty Co.*, 272 US 365 (1926)

[13] *Euclid v. Ambler*, 272 US 365 (1926)

[14] *Nebbia v. New York,* 291 US 502, 523 (1926)

said that "[n]either property rights nor contract rights are absolute; for government cannot exist if the citizen may at will use his property to the detriment of his fellows, or exercise his freedom of contract to work them harm. Equally fundamental with the private rights is that of the public to regulate [land use] in the common interest." These rulings are two in favor of public interests, however, among a long history of vacillation in the courts between defending private rights and public rights.

Environmental and land-use legislation and regulations restricting activities on private lands have expanded in the second half of this century (Vig and Craft, 1990). At the same time, not surprisingly, more and more regulations are found to be takings requiring that the landowner be compensated. In California in 1987, for example, a building permit requirement that a public-right-of-way along a beach be recognized was struck down, although this concerned access to public-trust resources.[15] That same year, a California Lutheran church was compensated for the period of time it was not allowed to develop flood-plain land by regulations that were later overturned.[16] In 1992, the U.S. Supreme Court referred to the *Lutheran Church* case when it decided *Lucas v. South Carolina Coastal Council.*[17]

In the Lucas case, which involved public-trust resources, David Lucas, a developer, and his wife claimed they were denied all economically viable use of their land (a taking) by state regulations that prevented them from building on their lot. The regulations were passed after they had bought the land. During the course of the suit, the regulations were revised to allow

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[15]*Nollan v. California Coastal Commission,* 484 U.S. 825 (1987)

[16]*First English Evangelical Lutheran Church of Glendale v. County of Los Angeles,* 482 U.S. 304 (1987)

[17]*Lucas v. South Carolina Coastal Council,* 505 U.S. 1003 (1992)

development in special cases, including the Lucas case. Nevertheless, the Supreme Court remanded the case to a lower court for consideration as a taking. This case was viewed by many as a blow to coastal zone management, in general, and environmental regulations in wetlands, in particular. David Lucas, himself, has since become a public champion of private property-rights advocates. The specifics of the *Lucas* case, however, such as the nature of the land itself, and the timing of the regulations, do not support a broad application of its ruling to other coastal development disputes.

Furthering the trend constraining government's ability to shape private property rights in response to new information, the Supreme Court ruled in 1994 that when developers are required to dedicate lands to offset development--for example, "no-net-loss" rules for wetlands--they may file takings claims.[18] In each of the preceding successful takings claims, the values that were recognized were those capturable by the private owner, not the value of the environmental rights and services lost to the public by developing the land. In short, from an economist's view of property, a major part of the (costs) equation is missing in the court decisions.

Although courts must (and are predisposed to) consider the economic impact of a regulation on the landowner, to my knowledge no where does it say owners have guaranteed rights to put the land to its most profitable use. If buyers have a reasonable expectation that they can put their land to a particular use when they buy it, however, then there is a great deal of case law that says a taking occurs if that use gets regulated away without other economically viable options available. Deciding exactly when diminutions in value cross over the taking line is subjective and must be done case-by-case.

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[18]*Dolan v. City of Tigard,* 512 U.S. 687 (1994).

Finding the balance between public interests and private property rights is highly political. Takings legislation was central to the 1994 Republican "Contract with America." According to the Congressional Research Service, legislation has been passed or is being considered in 44 states as part of conservative efforts to strengthen takings as a tool to restrict or roll-back environmental regulations (CRS, 1997). This legislation falls into three types: (1) the Attorney General is required to review new legislation for its takings implications (passed by three states[19]), (2) legislation is evaluated for takings claims by an assessment panel before it is passed (passed by ten states[20]), and (3) standards are established for compensating property owners once a regulation is in place (passed by four[21]). The first two types of laws are hindered by the fact that takings are generally site-specific--it is very difficult to devise general rules on when a taking occurs. The third type can result in very time-consuming and costly-to-the-states investigations and settlements. New Hampshire debated takings legislation in the 1995 and 1996 General Court sessions, but it was not enacted (CRS, 1997; Anne Renner, former NH Assistant Attorney General, personal communication, 1997).

In 1997, Republicans in Congress reintroduced the takings issue with a narrower approach that focused on limiting the steps a property owner must go through before bringing takings claims in federal court (H. R. 1534). A similar bill was approved by the Senate committee in March, 1998, and in September, 1998, has yet to be passed by the full senate. Environmentalists argued

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[19]Delaware, Indiana, and Tennessee

[20]Arizona, Idaho, Kansas, Missouri, Montana, North Dakota, Utah, Virginia, West Virginia, and Wyoming

[21]Florida, Louisiana, Mississippi, and Texas

against the bills saying they were thinly veiled threats to overwhelm local governments with costly suits against environmental laws impacting land use (Baker, 1998).

In regulatory takings cases, the courts were led by the *Penn Central* and *Pennsylvania Coal* rulings into increasingly using economic factors to assess when takings have occurred. Unfortunately, many of the social and environmental benefits that the public-trust doctrine is being used to guard are extremely difficult or impossible to quantify (free-flowing waters, ecosystem integrity, biological richness, aesthetics). As noted above, the inability of courts to factor in environmental components fully means that only part of the economic equation is being applied, and that the courts are predisposed to supporting a position on the social value of land biased to private interests. David Hunter (1988) argues that this bias imposes on society a system that favors unchecked growth and development in the landscape rather than stewardship and conservation, and this system makes it very difficult for communities to develop ecologically sensitive land-use controls. As takings court suits are the primary means by which public-trust issues are tested and balanced, a misfit set of tools are arguably being applied to clarify the public/private bounds.

According to Justice Holmes, no one view of the land is constitutionally determined.[22] "Property interests. . . are not created by the Constitution. Rather, they are created and their dimensions are defined by existing rules or understandings that stem from an independent source. . . ."[23] These rules and understandings evolve, however. As will be seen in the second part of this chapter, property regimes, such as the public-trust doctrine, can change significantly over time.

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[22]*Lochner v. New York,* 198 U.S. 45, 75 (1905); Holmes dissenting.

[23]*Board of Regents v. Roth*, 408 U.S. 564, 577 (1972); cited by Hunter, note 175.

To summarize, the threat of court suits claiming regulatory takings has become increasingly problematic in recent decades for land-use planners, municipal regulators, and public agencies involved in managing land use. Although the Takings clause was initially applied when property owners lost all physical possession of the land,[24] the courts have expanded takings in the 20th century to include the effects of government regulations on landowners.[25] Several tests have been established for regulatory takings, including how severe the economic impact of the regulatory action is on the landowner, how greatly their investment-backed expectations have been thwarted, and whether the spirit of the regulation is equitable or an unequal burden to some individuals or groups. As discussed above, there are several problems with these criteria, however. The language is deliberately vague, dictating that each case be examined individually, and requiring subjective judgements by the courts. Although economic factors are being increasingly used to assess when takings have occurred, the values that are recognized are those capturable by the private owner, not the value of the environmental rights and services lost to the public by developing the land. In other words, a public property right *(jus publicum)* in the land is not readily recognized. Finally, many of the social and environmental benefits that regulations are imposed to protect, are extremely difficult or impossible to quantify. Therefore, only the private costs of a regulatory action are considered, biasing the judgements toward preserving private benefits.

The public-trust doctrine has been invoked by public advocates as a way of re-establishing a public/private balance. By using the doctrine to claim a long-vested public property right,

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[24]*Muglar v. Kansas,* 123 U.S. 623 (1887)

[25]*Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1922)

advocates are able to force (in theory) a better accounting of public benefits lost or gained. Of course, the account books tend to say what the people who keep and read them think is useful, as is evident in the case study in Chapter 4.

Much of the preceding discussion on property rights has focused on the function of the courts in defining the boundaries between private property rights and public interests because federal and state judges have made some of the most important decisions affecting the management of environmental resources in recent decades. Cases have been brought to the courts by local, state, and federal agencies, non-governmental groups, private organizations, and individuals. Environmental laws are new, though, and legal doctrines developed for other purposes are being applied to ecosystem issues (Vig and Craft, 1990).

The Public-Trust Doctrine

The public-trust doctrine historically guarded the public's right to use coastal waters freely for fishing, commerce, and navigation. Its value to managers today is that it can be used to supersede all ownership claims, including governmental claims. Under it, the rights of the public to use certain resources can be defended, even when the lands they are on have been conveyed into private ownership or designated to restrictive public uses. Because the public-trust doctrine describes a public property-right principle, it is theoretically less vulnerable to takings challenges by property owners, although takings suits are the most common claims against the doctrine. It is also common law doctrine, which means it can be reshaped to respond to new conditions and needs (Archer et al., 1994).

Some environmental advocates believe that the doctrine mandates the government to enforce community responsibility and stewardship of common ecosystem resources (Dunning,

1981; Hunter, 1988; Loomis, 1995). Some legal scholars and resource managers regard it as a keystone for constructing institutions to protect ecosystem health. They believe the doctrine provides the theoretical, legal, and ethical foundation for regulations that place limits on the rights of individuals to make autonomous choices about how to use the land (Sax, 1970; Dunning, 1981; Hunter, 1988; and Rieser, 1991). Application of the public-trust doctrine to environmental resources has been expanding slowly in the United States, but it remains conditioned by subjective state-by-state and case-by-case applications of its principles. Whether applying the doctrine actually does facilitate the adoption of new approaches for protecting the environment is still uncertain. I examine this issue in more depth in the second part of this Chapter.

Part 2: The Evolving Public-Trust Doctrine

> *[W]hat is in the public trust interest is not a static or fixed concept but one which may change as the needs of people and the environment change.*[26]

In colonial America, the public-trust doctrine delineated a property-rights regime of shared public-private rights in navigable and tidal waters. As is discussed below, state and federal courts have slowly expanded the scope of the doctrine geographically to include fresh water resources, tidelands, and shores, as well as thematically to include a myriad of uses including environmental amenities and services. As the biogeophysical flows in our landscapes are becoming better understood, and the interdependence of ecosystem functions more clear, public sentiment is growing that property rights should be bounded by ecological considerations. Because the public-trust doctrine dictates shared ownership or responsibility over resources, and because the

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[26] *National Audubon Society v. Superior Court of Alpine County*, 658 P.2d 709 (1983).

resources it protects are characterized by change and flow, this originally water-based doctrine may be a tool to protect much broader ecosystem values and flows by shifting the emphasis on ownership rights over particular resources from private to public interests. In support of this view, a number of courts found that the government has a duty to redefine existing property rights when critical ecosystem functions are threatened by actions on private lands. Key to this expansion has been the changing definitions of the uses that are protected under the public-trust doctrine.

Introduction to the Doctrine

The public-trust doctrine comes to us from ancient, common law traditions that place some resources under the guardianship of trustees--clan leaders, the sovereign, or the state--who are responsible for maintaining and administering them for the common good. It is a social contract--a fiduciary relationship between trustees and beneficiaries with regard to a property right. Like any private trust, the trustees have duties of loyalty and can act only in the interests of the beneficiaries--not their own. Trustees can delegate oversight activities to expert agents, but they cannot defer decision-making responsibility. They have a responsibility both to preserve the resources in the trust and to maximize the productivity of those resources subject to the goals of the trust (Snape et al., 1996; Archer et al., 1994).

In addition to describing a permanent trust relationship, the public-trust doctrine also has certain other defining characteristics that makes it a potentially useful tool for environmental managers, as outlined in Table A1.1, in Appendix 1, and reiterated in Table 2.1 below. The trust covers resources that are identifiable by specific landscape characteristics, although the boundaries and attributes of trust resources may vary from state-to-state. The trust is controlling both on small and large scales--individuals, groups, and governments are all subject to the doctrine in both

their site-specific activities and broad policy actions. Finally, the trust is able to respond over time to changing needs. Thus, although it is a conservative doctrine in terms of protecting particular traditional public activities and resources, it can also be a tool to mandate the integration of new information and values into community behavior and policy.

Table 2.1
Key Characteristics of the Public-Trust Doctrine
Believed to be Useful for Environmental Management

- The public-trust doctrine describes a permanent trust relationship between the trustees (state legislatures or their designated state agencies) and the public, with the goal of preserving the trust resources and maximizing their productivity (Snape et al., 1996; Archer et al., 1994).
- The public-trust doctrine guards the existence of shared rights and obligations over trust resources--*jus publicum* and *jus privatum* (Snape et al., 1996; Archer et al., 1994; Donahue et al. 1993; Plater et al., 1992), although it is sometimes interpreted as describing a physical boundary to private title (New Hampshire Attorney General's brief 97-405).
- Resources or uses protected by the doctrine are dependent on or associated with certain identifiable physical conditions–or landscape characteristics–such as activities and resources within lands affected by the ebb and flow of the tides (Donahue et al. 1993; Plater et al., 1992).
- The trust is controlling both on small and large scales--individuals, groups, and governments are all subject to the doctrine in both their site-specific activities and broad policy actions (Snape et al., 1996; Plater et al., 1992; Rieser, 1991; Hunter, 1988).
- The trust is flexible (as is most common law) and able to respond over time to changing conditions, values, and needs (Snape et al., 1996; Archer et al., 1994; Rieser, 1991; Hunter, 1988; Sax, 1980).

Constitutionally, the individual states have the power to create and regulate property rights in the United States. Therefore, state legislatures are the formal trustees of public-trust resources. The legislatures usually delegate their oversight authority to environmental departments, agencies (such as coastal, land , and conservation commissions), municipal authorities, and in some cases to non-profit volunteer agencies, such as watershed associations (Archer et al., 1994; Slade et al., 1997).

Adjudication of environmental disputes has been the primary driver for defining the doctrine in recent years, which is being shaped through common law, legislation, regulatory

actions, and legal theory. Although case law and legal theory are shared among states, the doctrine is being limited or expanded differently in every state. Most of the conflicts invoking the doctrine have been about whether the rights of the public vis-a-vis trust resources are being harmed--including whether actions that indirectly impact the resources also harm those rights (see the Mono Lake dispute, discussed below).

Central to the legal discussions and legislative and regulatory applications of the doctrine are two different conceptions of the rights delineated by it: first, that the public-trust doctrine describes a bundle of shared rights and obligations (*jus publicum* and *jus privatum)* over certain resources , and second, that it describes a physical boundary to private title. The first understanding of shared rights and obligations rests on solid historical record, and it supports and is supported by the evolving nature of the doctrine. The second conception--that it describes physical boundaries--grows out of the trend toward simple and absolute descriptions of property rights, described earlier in this chapter, is inherently less flexible, hence less responsive to change and therefore may be less useful as a governing tool.

The doctrine's *jus publicum* is based on the obligation of the state to protect the interests of its citizens in certain resources vulnerable to private control. As the public-trust doctrine describes shared rights and responsibilities, it does not matter whether the resources are publicly or privately owned in title or whether they have been altered or not (for example, water diversions). Certain rights, limitations, and responsibilities to manage and protect public rights in trust resources are levied on all parties involved. This publicly held property interest is put forward by coastal legal experts as particularly useful for coastal resource managers and environmental oversight agencies. As representatives of a vested owner (the trustee), they can regulate activities

affecting the resources much more easily than through the antagonistic process of state police powers (Slade et al., 1997).

A Brief History of the Public-Trust Doctrine

The public-trust doctrine is an age-old legal tradition that has survived, in part, because it protects valuable economic resources on which communities depended (for example, coastal waterways for transport), and, in part, because the doctrine has been capable of being adapted to apply to new needs and conditions (for example, its expansion to be controlling over inland waterways–see below) (Slade et al. 1997; Donahue et al., 1993; Plater et al., 1992; Sax, 1980).

Most public-trust literature traces the first formal record of the public-trust doctrine back to the *Institutes and Digest of Justinian*, written about 530 A.D., which codified Roman law. The *Institutes* were based on the second century *Institutes and Journal of Gaius*, which, in turn, were based on the Greek philosophy of natural law (Slade et al., 1997; Donahue et al., 1993). The *Institutes* were an effort to classify lands and resources rationally. Things that could be bought, sold, and inherited were recognized as private property. Things that could not be classified in this way fell into the commons (*res communes)* like temples, public buildings, or wildlife. Certain resources, by law of nature, were considered part of the commons. Tidelands, navigable waters, and their shores were traditionally in the *res communes*[27]. In the *Institutes,* the public had rights along the shores to fish, cross land or water, build cottages and wharfs, pull up boats, dry nets, and other related activities. These were rights of use, not ownership. If a shelter was built, the builder

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[27]"By natural law, these things are common to all: air, running water, the sea, and as a consequence the shores of the sea. All rivers and harbors are public; consequently the right of fishing in a harbor and in rivers is common to everyone. All use of river banks is public . . . like the use of the river itself; and so everyone is free to put in at the bank . . . just as everyone is free to navigate the stream (*Institutes of Justinian,* 2.1.1, T. Cooper, Trans., 1852 quoted in Donahue et al., 1993)."

could use it as long as it stood, but the land remained under the title of the original owner, whether it was the state or an individual (Slade et al., 1997; Donahue et al., 1993). This tradition of use rights, not ownership, remains central to the doctrine today, as will be seen in the New Hampshire case study in Chapter Four.

In theory, the public-trust doctrine came to England with the Roman conquest. Its relationship to pre-existing Pictish, Celtic, and Norse custom and common law is unexplored, although they may well have had a similar tradition. English common law, formalized in the Magna Carta, recognized the coasts, navigable rivers, and tidal lands as inherently public, and title to these resources were divided into the two parts--*jus privatum* and *jus publicum.*[28] *Jus privatum* belonged first and foremost to the sovereign. Private proprietary rights could be granted by the king to individuals or interests, but the *jus privatum* remained subservient to the *jus publicum.* The *jus publicum* was held by the sovereign for the public benefit and could not be granted away. Parliament had authority to regulate activities in the affected areas, such as fishing, levying taxes, or controlling safety (Slade et al., 1997).

Scholarly sources are ambiguous as to exactly what resources and uses were protected in the public trust. The following quote from the English *Hargrave Law Tracts* describes the limitations of the *jus privatum*, using a highway as an example "[T]he *jus privatum* of the owner or proprietor is charged with and subject to that *jus publicum* which belongs to the King's subjects; as the soil of an highway is, which though in point of property it may be a private man's freehold, yet it is charged with a public interest of the people which may not be prejudiced or

[28]*Shively v. Bowlby,* 152 US 331, 336 (1894) citing Lord Chief Justice Hale, *De Jure Maris.*

damnified[29]." A stream bed might have been used just as well to explain the division of rights, but was not. The important issue was not exactly what resources were covered under the doctrine, but whether certain shared uses, considered necessary for the community's general well-being, were protected. Generally, these were shared uses of common resources, such as waterways or fishing grounds–resources that may be rival, but difficult to exclude, and essential to the survival strategies of a broad range of people.

English common law was imported in the 1600s to the future United States as the judicial foundation of the early English colonies. Under the doctrine, each settlement held its tidal and navigable waters and the land beneath them in common for public use. The Massachusetts Bay Colony's Ordinances of 1641 (revised in 1647) extended private ownership along the coast to the low-tide mark to encourage wharf-building, but the public retained the right to use areas beneath tidal high waters for fishing, hunting, and navigation. In the Ordinances, the public could cross private land to exercise those rights. The issue of boundaries will be discussed further below; the Massachusetts Ordinances will be discussed in Chapter 3.

Colonial grants transferred trust lands from the crown to private holdings, but they were always conditioned. For example, when the Duke of York was granted what afterwards became New York, New Jersey, Martha's Vineyard, and Nantucket, traditional trust resources were conveyed in trust to him to be administered for the common use--not as private property that could be divided and sold for his personal benefit.[30] In part, an economic argument was used by judges and scholars to justify setting aside these lands--these areas were unsuited for commercial

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[29]*Shively v. Bowlby,* 152 US 331, 336, citing *Hargrave Law Tracts 25, 36*.

[30]*Martin v. Waddell* 41 US 16 Pet. 367 [10:997] (1842).

agriculture using traditional technologies and had low value for privatization. They believed far greater social and economic benefits were gained by protecting them as open-access resources, particularly for transport purposes (Slade et al., 1997). Only in cases such as in the Massachusetts Ordinances, where significant private profits could be made through activities that served public purposes (building piers) with little associated public loss, were rights granted to private owners.

After the American Revolution, the rights and responsibilities of the Crown and Parliament passed to the individual states through the Tenth Amendment of the Constitution, except those explicitly given over to the federal government . As a result, public-trust resources remain under the guardianship of state legislatures, which shape the doctrine individualistically state-by-state, and may delegate their trust responsibilities to various administrative agencies.[31] Although state legislatures or their delegates are the primary trustees in terms of legal theory, other governing agents may in fact be far more influential in managing public-trust resources–as is the case in New Hampshire.

Geographic and Thematic Expansion

The Ordinance of 1787 on The Northwest Territorial Government extended the legal framework of rights established in the original thirteen states to all additional states formed from new territories "on an equal footing with the original states in all respects whatever." The

[31]Vast public land holdings in the west, including water and mineral resources, administered by the federal government, are an area of considerable contention as a result. The Sagebrush Rebellion of the late 1970's and early 1980s and the States Rights Rebellion of the 1990s are based on the claim that public resources are under the authority of state governments and should not be held as federal lands.

Northwest Ordinance also specifically placed previously unreserved lands and resources into the public fund, and it made all passable waterways small or large "forever free".[32]

The Ordinance clearly geographically expanded the public-trust doctrine westward, but it also expanded it thematically. Before the Ordinance, the only resources unambiguously protected by the doctrine were shores, tidelands, and tidal rivers. Several of the original states also included great ponds, lakes, and large rivers.[33] The Northwest Ordinance explicitly included all major inland waterways "and the waters between." It moved the doctrine from covering just tidal rivers (the navigable rivers in England) to any waterway that was in-fact navigable. In short, if you could float a canoe or a raft on any part of a water body during high water, it was navigable. The Ordinance was the first major formal record in the United States of the doctrine's dynamic and expanding nature (Plater et al., 1992).

The expansion of the public-trust doctrine was challenged and upheld in 1851, in a battle over liability for a boating accident on Lake Ontario.[34] A steamboat, the Genesee Chief, hit and sank a freight sloop. Under nautical law, the steamboat should have yielded to the sailboat. The owners challenged the validity of applying U.S. nautical law, however, because the Great Lakes are not tidal waters. The court ruled that anything navigable-in-fact fell within public jurisdiction and that lands beneath navigable fresh water are also within the public trust up to the ordinary high water mark. Under strict interpretation, navigability became the test for fresh water resources

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[32]The text of the Northwest Ordinance can be found at http://www.law.ou.edu/ordinanc.html

[33]New Hampshire, Maine, and Massachusetts.

[34]*The Propeller Genesee Chief v. Fitzhugh* 53 US 12 How. 443 [13:1058] (1851)

protected by the doctrine (Slade et al., 1997). Later expansions discussed below, included tributaries to navigable waters and further--watersheds feeding navigable waters.

All U.S. courts have acknowledged the existence of the public-trust doctrine since the Northwest Ordinance. It is considered a binding legal principle (Archer et al., 1994)--although the boundaries and delineation of permitted uses vary considerably. A note on the physical boundaries of the public-trust, including tables showing the diverse legal boundaries in 25 states and three territories, is included in Appendix 2. It is important to note that the public-trust doctrine protects public access and uses to resources, but it does not explicitly conserve those resources. As a result, the protected uses may contribute to the erosion of the underlying resources, as the New Hampshire case in Chapter 4 illustrates. We have only recently begun to realize that the resources the doctrine protects are exhaustible.

The keystone case for the public-trust doctrine in the United States is considered by virtually every source that follows to be the 1892 Supreme Court ruling on a dispute between the Illinois Central Railroad and the State of Illinois.[35] To promote economic development, the 1869 Illinois State Legislature granted one thousand acres of Lake Michigan shore lands and bottom land to the Illinois Central Railroad--virtually the entire Chicago waterfront. In 1873, the legislature regretted the transfer and reclaimed the land. The railroad fought the state, took the case to the U.S. Supreme Court, and lost. The Court voided the grant because it said it impaired the public interest in public-trust lands by privatizing the navigable coast. In the decision, the Court ruled that a state could not divest itself of its responsibilities to guard the public trust by alienating lands within the trust domain. This case established both that the states have a

[35] *Illinois Central Railroad Co. v. Illinois*, 146 US 387 (1892)

responsibility to protect people's common heritage, and that there are constraints on the ability of state trustees to dispose of those trust responsibilities regardless of the political climate.[36] Any title, public or private, to trust resources is "a title different in character . . . . It is a title held in trust for the people of the State."[37] Interestingly, the *Illinois* decision also stated that the public-trust doctrine did not apply inland,[38] lending fuel to further debates over the doctrine's scope.

Changing Uses

In 1853, a court in Michigan linked the protective scope or boundary of the public-trust doctrine to public uses, which could change: "the servitude of the public interest depends. . .upon the purpose for which the public requires the use of its streams.[39]" In 1863, a Massachusetts court considered it obvious that many uses of fresh water (not just fishing, hunting, and navigation) were included under public-trust protection: "It would scarcely be necessary to mention bathing, or the use of the waters for washing, or watering cattle, preparation of flax, or other agricultural uses, to all which uses a large body of water. . .would usually be applied."[40] In 1898, a Massachusetts court reiterated this flexibility: "The uses which the public might make of [Great Ponds] were not limited to those named in the ordinance or in the Body of Liberties . . . .The ponds, like any other property, could be applied to such uses as from time to time they became capable of."[41]

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[36] *Illinois Central Railroad Co. v. Illinois*, 146 US 387, at 437

[37] *Illinois Central Railroad Co. v. Illinois*, 146 US 387, at 452

[38] *Illinois Central Railroad Co. v. Illinois*, 146 US 387

[39] *Moore v. Sanborne*, 2 Mch 519, at 525 (1853)

[40] *Inhabitants of W. Roxbury v. Stoddard*, 89 Mas 158, 167 (1863)

[41] *Slater v. Gunn*, 170 Mas 501, 514 (1898)

Each state determines which uses it protects. In 1894, while considering a dispute over tidelands in the Columbia River, the Supreme Court reviewed the boundaries of the public-trust doctrine in the 13 original states and concluded "there is no universal and uniform law on the subject, but that each state has dealt with the lands under the tide waters within its borders according to its own views of justice and policy . . . as it considered for the best interests of the public."[42] (State authority is subservient, however, to the federal navigational servitude in applicable waters.) In this ruling, the Court again used an economic argument, in part--wetlands are of little or no value because they are "incapable of cultivation or improvement,"[43] whereas they can have high value to commerce and fisheries. "Their improvement by individuals, when permitted, is incidental or subordinate to the public use and right."[44] Almost one hundred years later, another suit decided by the Supreme Court reaffirmed the authority of the individual states to define the limits and uses of the lands held in public trust.[45]

Most states regulate to greater or lesser degrees activities upland and inland of trust resources in order to protect trust rights. New Jersey has explicitly expanded the public trust domain to include dry sand areas on beaches (regardless of ownership),[46] on the basis that these areas are needed by coastal users to enjoy their trust rights of walking, sunning, and swimming (Slade, et al., 1997; Archer, et al., 1994). California (through the Mono Lake case discussed

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[42] *Shively v. Bowlby*, 152 U.S. 341 (1894)

[43] *Shively v. Bowlby* 152 U.S. 341, 352

[44] *Shively v. Bowlby* 152 U.S. 341, 352.

[45] *Phillips Petroleum Co. v. Mississippi*, 484 U.S. 469, 484 (1988)

[46] *Matthews v. Bay Head Improvement Association*, 471 A.2d 355 [N.J. 1984]

below) has included non-navigable wetland areas and their proximate watersheds if they effect the myriad uses of public trust resources, including wildlife conservation; and Massachusetts, although assuming a conservative stance toward the doctrine along the coast, has acknowledged that public-trust interests and uses include the enjoyment of parks far inland.[47]

An Expansion of Uses to Include Ecosystem Integrity

According to Slade (1997), the flexibility of the public-trust doctrine is the heart of its survival for more than 1,500 years. Strip away its ability to evolve in response to changing information, conditions, and values, and the trust would die. The 1894 *Shively v. Bowlby* case reiterated that the doctrine's purpose was to ensure the resources in question were put to their highest and best uses (Archer et al., 1994). Eighty years later, the 1971 California case, *Marks v. Whitney,* opened the doctrine up to include dramatically new uses: "the State is not burdened with an outmoded classification favoring one mode of utilization over another."[48]

Marks v. Whitney is viewed by many scholars (and is cited in most of the following court cases) as establishing that ecological integrity is a public property right (Hunter, 1988; Rieser, 1991; Sax, 1970; Plater, 1993; Donahue, 1993). In this dispute, Marks wanted to fill some tidal lands that he owned. Whitney claimed that Marks would be cutting off his rights of access as a member of the public if Marks were allowed to fill them. The California court decided that "The public uses to which tidelands are subject are sufficiently flexible to encompass changing public

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[47]*Gould v. Greylock Reservation Commission,* 215 N. E. 2d 114 (1966)

[48]*Marks v. Whitney,* 491 P.2d 374, 380 (1971)

needs"[49] and preservation was a valid public use included within the trust. "A use encompassed within the trust...is preservation of these lands in their natural state . . . for scientific study, for open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area."[50] The court did not cite an authority--only the "growing public recognition" that preservation of natural ecological systems was critical.[51]

The following year (1972), a Wisconsin court came to the same conclusion when land-owners (the Justs) wanted to fill some wetlands.[52] The Justs purchased 36 acres of shoreline property. They divided it into six lots, sold five, and kept one, which they began to fill. There was a zoning ordinance, however, that required a wetlands-fill permit for this lot. The County refused to issue a permit to the Justs, and the Justs claimed that the ordinance was unconstitutional. The Wisconsin Supreme Court sided with the County. The case was described by the court as a "conflict between the public interest in stopping the despoliation of natural resources, which our citizens until recently have taken as inevitable and for granted, and an owner's asserted right to use his property as he wishes."[53]

The *Just v. Marinette County* decision contained several important aspects. First, the public-trust doctrine protects more than the traditional resources understood to be under its protection. The ecological system that supports trust resources is integral to them and their

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[49]*Marks v. Whitney,* 491 P.2d 374, 380.

[50]*Marks v. Whitney,* 491 P.2d 374, 380.

[51]*Marks v. Whitney,* 491 P.2d 374, 380 (1971)

[52]*Just v. Marinette County,* 201 N.W. 2d 761 (1972)

continued value--and can be included in the trust. For example, because swamps and wetlands are essential to maintain water quality in lakes and streams, they can be part of the trust. Second, the court decided that losses in land value due to regulations against developing wetlands did not have to be compensated:

> The Justs argue their property has been severely depreciated in value. But this depreciation of value is not based on the use of the land in its natural state but on what the land would be worth if it could be filled and used for the location of a dwelling. . . . [V]alue based upon changing the character of the land at the expense of harm to public rights is not an essential factor or controlling.[54]

Third, very importantly, the court found that the natural ecological character and roles of the land should be protected, and landowners did not have an unlimited right to change them:

> An owner of land has no absolute and unlimited right to change the essential natural character of his land so as to use it for a purpose for which it was unsuited in its natural state and which injures the rights of others.[55]

This approach was reaffirmed in a number of cases that follow. Two cases in New Hampshire, discussed in Chapter 3, cited and echoed this ruling: *Sibson v. State* (115 N.H. 124 [1975]) and *State of New Hampshire Wetlands Board v. Marshall* (127 N.H. 240 [1985]).

In 1983, long-held municipal rights were revised to accommodate new uses and ecological values in a fight between the National Audubon Society and ultimately the City of Los Angeles.[56] In this decision, despite decades of established water rights to the Mono Lake system, the California Supreme Court ordered the City of Los Angeles to reduce its annual water extraction from Mono Lake and its tributary streams by 60,000 acre feet. A major goal of the ruling was to

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[54]*Just v. Marinette County*, 201 N. W. 2d 761, p. 767 (1972).

[55]*Just v. Marinette County*, 201 N.W. 2d 76, 768.

[56]*National Audubon Society v. Superior Court of Alpine County* 658 P.2d 723

restore and preserve the former lake and riverain ecosystems in the area. As a result, water was reallocated from "high-value" urban uses to "low-value" environmental uses. No compensation for the reduced rights was awarded. The public-trust doctrine was explicitly used as the instrument to integrate the new values and newly perceived costs--environmental, economic, and aesthetic--thus to challenge the old property-rights regime (Loomis, 1995). This case extended activities that can be regulated under the trust in California to include not only direct uses of trust resources, but also activities that caused harm to protected uses (Hunter, 1988; Reiser, 1991; Loomis, 1995).

In two other cases, one in 1979 and the other in 1988,[57] the United States Supreme Court agreed that the trust could be extended over lands based on their functional links to other ecosystems of value. In particular, the *Phillips Petroleum Co. v. Mississippi* dispute over trust resources had nothing to do with navigation, and, in fact, replaced navigability tests with ecological tests for determining the doctrine's boundaries. The *Phillips* case was a suit over title to 42 acres of land under Bayou LaCrois and numerous small drainage streams--not navigable, but lowlands influenced by the tides. The 1973 Mississippi Coastal Wetlands Protection Act set the boundary of trust lands at the high water mark. Mississippi's coastal wetlands protection program was based on funding from revenues from a leasing program (Archer et al., 1994). Phillips Petroleum and Cinque Bambine Partnership traced their ownership titles to the wetlands back to Spanish land grants and fought the leasing requirement. The United States Supreme Court ruled that Mississippi had received title to the lands when it became a state, even though the waters were not navigable, and that the public-trust doctrine applied:

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[57] *Kaiser Aetna v. U.S.*, 444 U.S. 164 (1979) and *Phillips Petroleum Co. v. Mississippi*, 484 U.S. 469 (1988).

> Admittedly, there is a difference in degree between the waters in this case [brackish wetlands], and non-navigable waters on the seashore that are affected by the tide. But there is no difference in kind. For in the end, all tide waters are connected to the sea: the waters in this case, for example, by a navigable, tidal river. Perhaps the lands at issue here differ in some ways from tidelands directly adjacent to the sea; nonetheless, they still share those "geographical, chemical and environmental" qualities that make lands beneath tidal waters unique.[58]

This majority ruling unambiguously used ecological criteria (however broad) to determine the boundaries of trust lands. The court went on to say that it was clear that the domain of the public trust was not limited to lands under navigable waters, but included many other uses, including bathing, swimming, recreation, fishing and mineral development.

Needless-to-say, there was strong dissent in the court. Justices O'Connors, Stevens, and Scalia dissented, saying that the test of waters and lands affected by the tide created the potential to upset many existing property titles. This concern is widely shared, particularly in cases where the natural line has been obliterated, perhaps by decades-old fill and construction, but the land is still considered public-trust land (Connors and High, 1985). Nevertheless the majority ruling was explicit that if this scope of the doctrine were not recognized, many previously settled expectations would be disrupted far more.

In 1989, a Vermont court reviewed the public-trust doctrine and concluded: "Despite its antediluvian nature, . . . the public trust doctrine retains an undiminished vitality. The doctrine is not fixed or static, but one to be molded and extended [by the legislature and courts] to meet changing conditions and the needs of the public it was created to benefit."[59]

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[58]*Phillips Petroleum*, 484 U.S. 469, p. 481.

[59]*State of Vermont and City of Burlington v. Central Vermont Railway*, 153 Vt. 337 (1989).

An Ethical Extension

Property-rights institutions are changing. Property interests that private landowners in the United States previously considered entirely in their control, have been transferred by the courts to the public trust domain (Connors and High, 1985). Legislation such as CERCLA and the Clean Water Act have obligated state and federal authorities to sue private and public agents for damages to public-trust resources. The Clean Water Act, in particular, emphasizes that both public and private entities have a legal obligation to preserve common water resources for the public good.[60] This growing suite of legislation, regulations, and judicial decisions support the public's right to healthy ecosystems as an enforceable property claim. But more than an enforceable property claim, it is an ethical extension.

Alison Rieser and David Hunter believe that the doctrine is a key tool for enforcing environmental stewardship. Rieser predicts it will soon be expanded by the courts and resource managers to include old growth forests, mountains, wilderness, and wildlife (Rieser, 1991). The 1995 Supreme Court finding in *Sweet Home Chapter of Communities for a Great Oregon v. Babbitt*[61] seems to bear her out. Although the ruling focused on the definition of "take" or "harm" to a species, the courts found that the Government has the right and public obligation to protect the habitat or ecosystem niches of endangered and threatened species even when they are found on private land. By extension, private land owners share this same responsibility. The court

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[60]The Clean Water Act, U.S. Code Title 33–Navigation and Navigable Waters: Water Pollution Prevention and Control (33 U.S.C.A. §§ 1251 to 1387).

[61]*Sweet Home Chapter of Communities for a Great Oregon v. Babbitt,* 515 U.S. 687 (1995).

unequivocally ruled that endangered-species habitat regulations are not takings--the ability of conservation agencies to enforce this ruling parcel-by-parcel is another matter.

In response to the finding in *Babbitt v. Sweet Home Chapter*, legislatures in a number of states have considered legislation that would curtail the power of the ESA by requiring benefit-cost analysis to justify listings or limit wildlife protection requirements on private lands--where more than 90 percent of the listed endangered or threatened species in the United States are located (Gilhuly, et al., 1995). The current status of these bills is unknown, but if passed, they are certain to spur more suits.

The geographical, thematic, and ethical extension of the public-trust doctrine has occurred primarily through judicial rulings rather than through more democratic processes, such as legislative, administrative, or community-based actions. Ironically, as mentioned earlier, Joseph Sax saw the adjudication of public-trust issues by the courts as a potentially democratizing force (Sax, 1970). Natural-resource decision-making processes do not easily integrate public interests that are diffuse spatially or thematically, or are of inter-generational concern. "Behind-door" concessions to development interests, unequal access to and influence over policy-makers, and decisions characterized by regional or disciplinary parochialism are some of the rampant weaknesses of the system (Hunter, 1988). Both Hunter and Sax believed that the common-law shaping of the public-trust doctrine was a particularly potent vehicle to counteract private power, vested interests, and inadequate consideration of the especially public value of certain resources. As will be seen in Chapter 4, this belief is not necessarily borne out in practice.

Revisiting the Study Framework

Table 2.2 Case Framework (Table A1.1) for the General Study of the Public-Trust Doctrine (PTD)				
	Goals and Hypotheses	**Assumptions**	**Indicators**	**Verification**
General Study	The PTD can be a useful tool for integrating environmental interests across boundaries while meeting several ecosystem management criteria (Forman, 1997; Richenbach et al., 1998.)	The indicators chosen are appropriate (*landscape perspective, small-scale sensitivity, and flexibility to integrate changing information and priorities*).	*The PTD is responsive on a landscape level* (acts on a broad biophysical and social pattern), is *responsive on a small-scale* (small actions affect larger systems), and is *able to adapt to changing information and conditions.*	The PTD applies to areas identifiable by specific landscape characteristics. It is controlling over individuals and groups in site- and use-specific activities, and it has to responded flexibly to changing values and conditions.

Table 2.2 reiterates part of the framework I am applying to this assessment of the public-trust doctrine. My hypothesis is that the public-trust doctrine can be a useful tool to integrate environmental interests across boundaries, using several ecosystem management criteria as indicators: landscape perspective, small-scale responsiveness, and flexibility. As the doctrine is shaped individually by the states through case law and by the authority of the state legislatures, landscape perspective, and small-scale responsiveness are best looked at on the state level. The Tables in Appendix 2 on the riparian boundaries of the public-trust doctrine illustrate the variation in the landscape indicators for the public-trust doctrine that are used in the various states.

As will be seen in the discussion of New Hampshire's public-trust doctrine in the following chapters, the resources over which the doctrine is controlling are usually identifiable by specific landscape characteristics. In addition, small-scale site- and use-specific activities by individuals and groups have been both constrained and facilitated over time in particular areas by the existence and public interpretation of the doctrine.

The flexibility of the doctrine to respond to changing information, conditions, and interests is evident in the geographic and thematic expansions outlined previously in this chapter. To summarize, the first expansion in the United States occurred when the sovereign rights and responsibilities established through English law were transferred to the individual states. Included in this was the sovereign duty to guard the public trust. The Northwest Ordinance extended the legal framework of rights established in the original thirteen states to all additional states formed from new territories on an equal footing. The equal footing clause was interpreted to expand the public-trust doctrine westward and inland, which also expanded it thematically beyond tidal waters to include all navigable waters (Plater et al., 1992; Snape et al., 1996; Archer et al., 1994; Slade et al., 1997; Donahue et al., 1993). In 1853, the doctrine was linked to protecting uses, which can change.[62] In 1863, recreation was included as a valid public activity protected by the trust (not just directly productive economic uses such as fishing, hunting and commerce).[63] In 1898, a Massachusetts court introduced a flexibility that could respond as well to changing technology when it ruled that the uses protected by the public-trust were not limited to those explicitly named in an ordinance, but could change over time as capabilities changed.[64] In the 1970s, case law again reiterated that the doctrine was not locked into one particular definition of acceptable uses over any other, and protecting ecological integrity was recognized as a bona fide public property right protected by the doctrine. In addition, case law included under the protection of the public-trust doctrine the ecological systems that support trust uses (Hunter, 1988; Rieser, 1991; Sax, 1970;

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[62] *Moore v. Sanborne*, 2 Mch 519, at 525 (1853)

[63] *Inhabitants of W. Roxbury v. Stoddard*, 89 Mas 158, 167 (1863)

[64] *Slater v. Gunn*, 170 Mas 501, 514 (1898)

Plater, 1993; Donahue, 1993; Loomis, 1995).[65] This set of judicial decisions, among others, seems to support the doctrine's flexibility to respond to changing needs, and, in particular, to support the concept of the doctrine as a useful tool to defend the public's right to healthy ecosystems as an enforceable property claim.

There are, however, two flaws in this approach to protecting ecosystems with the doctrine. The first is that the doctrine clearly protects public access to and uses of resources, but there is little or no evidence that it protects the resources themselves, except indirectly (if the valued resources disappear, than access and use rights are meaningless). The second flaw is the very attribute that scholars have hailed as resting at the heart of the doctrine's strength and value–its flexibility to expand its protective authority in response new scientific information or changing community needs (Slade et al., 1997; Hunter, 1988; Rieser, 1991). Shifting concepts of what is economically useful, unequal access to and influence over policy-makers, and parochial decisions are rampant within the system, making the public-trust doctrine responsive to current political conditions rather than long-term ecosystem stability. As will be seen in the case study in Chapter 4, the flexibility of the doctrine to allow changes in the permitted uses has resulted in precluding other valued public uses, reduced future use options, and led to the erosion of the ecological resource base.

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[65] *Marks v. Whitney*, 491 P.2d 374 (1971); *Just v. Marinette County*, 201 N.W. 2d 761 (1972); *Sibson v. State of New Hampshire*, 336 A.2d 239); *National Audubon Society v. Superior Court of Alpine County* 658 P.2d 723; *Phillips Petroleum Co. v. Mississippi*, 484 U.S. 469 (1988).

Chapter 3

The Public-Trust Doctrine in New Hampshire Coastal Lands

In the case law used to define the scope of the public-trust doctrine in the United States, one decision concerning coastal resources in New Hampshire (N.H.) has been widely cited: *Howard W. Sibson et al. v State of New Hampshire*[1] (*Sibson v. N.H.*). This case tested Sibson's claim that an unconstitutional taking had occurred when he was denied a permit to fill his land--a saltmarsh located immediately landward of Foss Beach in the town of Rye, New Hampshire. The case weighed Sibson's private costs and expectations against public benefits or gains, including the benefits derived from preserving ecosystem function. The judges' ruled in favor of the state, recognizing that the public held rights in the critical coastal wetland functions that Sibson sought to destroy. This case, and other New Hampshire public-trust cases, are discussed below. These cases have been widely cited as authorities for the jurisdiction of the doctrine over ecosystem resources, but the reach of the public-trust doctrine in New Hampshire is far from settled.

Background

New Hampshire's outer coast is only about 18 miles in length. Seventy-five percent of the extreme outer coast is publicly held by the state and towns. The rest is in private hands. Residential, commercial, and recreational users compete for access to the outer coast, and protecting joint access is a critical concern for the state. Title boundaries on the extreme coast are vague, however, and private owners are currently contesting public access rights.

According to State law (RSA 483-C, II), passed in 1995, the lands and resources along New Hampshire's coast that are washed by the "ebb and flow of the tide" are public-trust

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[1] *Sibson v. N.H.*, 115 N.H. 124 (1975)

resources and governed by the doctrine. The law specifies that the high-water mark of the highest of the high tides, or the metonic tide[2], is the seaward boundary of all private property rights in New Hampshire (RSA 483-C, Sections II and V). Florida and Hawaii are the only other 'highest-of-the-high tide' states (Appendix 2, Table A2.1a).

Inland, by statute (RSA 271:20; RSA 483-A, B) and by historical precedent, many fresh water systems also fall within the public trust, including rivers and creeks down to the fourth order, and great ponds and lakes over 10 acres. Chapter 148 of the New Hampshire Laws of 1990 specifically refers to the jurisdiction of the public-trust doctrine over surface and subsurface water bodies in the state. RSA 481:1 establishes the state as trustee of all the water lying in its boundaries. In August 1990, the Department of Environmental Services published a list of 738 natural and man-made water bodies in the state controlled by the doctrine (this list does not include streams, rivers, or ground waters, although they are also under the doctrine according to the above statutes). According to the Attorney General's office, the doctrine protects navigation, fishing, swimming, recreation, and control for water storage; it also extends to preserving these waters in their natural state for wildlife habitat, aesthetics, and scientific study.[3] The institutional structures governing these resources are the same as those that have been or are being shaped on the coast.

Three distinct types of geographical areas on the NH coast fall within the tidal reach of the trust: (1) Portsmouth Harbor, a large commercial shipping port, (2) the outer coast composed of rocky headlands and barrier dune-back marsh systems in Rye, North Hampton, Hampton, and

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[2]The highest of the spring tides, occurring in a 19 year cycle.

[3]Anne Renner, Assistance Attorney General, personal conversation.

Seabrook, and (3) an extensive estuary and tidal river system comprised of Great and Little Bays and their tributaries. I focus in this study on the outer-coast resources of two towns–Hampton and Rye. Together, these two towns control the majority of New Hampshire's coastline. In addition, the *Sibson* case and the recent public-trust suit (*Purdie et al. v. Attorney General*) involved sites in Rye, and the Hampton beaches and marshes have been historically important to the state's economy (discussed in Chapter 4).

Although *Sibson v. New Hampshire* and a case that followed it and cited it--*Claridge v. N.H. Wetlands Board* (See Appendix 3, Table A3.2)--are disputes over resources on the outer coasts, they have been cited in New Hampshire's inland cases and in other states as authorities for the expansion of the public-trust doctrine to the more general protection of ecosystem resources. There is little evidence in New Hampshire that the doctrine reaches beyond water and riparian resources, however, even though the New Hampshire cases have been used to strengthen that precedent. There is no direct statement of policy in the state defining the reach of the public-trust doctrine in inland areas nor are there any clear directives for regulating the use public-trust resources.

The 1995 law, RSA 483-C, defined the scope of the public-trust doctrine on the coast in terms of a specific "line in the sand" below which the State holds fee simple title and above which private property begins. This law was immediately challenged in a class action suit brought by private land owners along the New Hampshire coast. Since then, the Town of Rye, the New Hampshire Attorney General's office, and coastal landowners have been locked in an acrimonious dispute over the exact boundary the public trust. The suit did not question the existence of public-trust resources; it attacked the physical boundary specified by the law. In April, 1997, the

statute was declared unconstitutional by a Superior Court Judge.[4] The New Hampshire Attorney General's office appealed the lower court's decision in the State Supreme Court. In arguments, the Attorney General has characterized the doctrine as defining a physical line located at the highest of the high tides, which separates public and private property interests. The attorney for the Town of Rye has identified the issue as one of shared title rights (*jus publicum* and *jus privatum)* over the resources.[5] In August, 1999, the N.H. Supreme Court ruled against the state.

History: A Legacy of Confusion Between English Common Law and the Massachusetts Ordinances of 1641

The boundary between private and public rights along the New Hampshire coast has been confused since the political struggles of the 1600's. The lands forming New Hampshire were included in the charter of the Plymouth Council, which organized and financed much of the early settlement of the Massachusetts Bay Colony and surrounding areas. The settlements were governed by English common law (McClintock, 1889). As discussed in Chapter Two, English law recognized public-trust rights on and beside navigable waters up to the high water mark. These rights were held in trust by the sovereign.

In 1635, the Plymouth Council returned control of its grants to the king, but the Massachusetts Bay Colony refused to recognize the king's authority. In 1641, the Bay Colony governors claimed all of the Plymouth Council's former land grants in Massachusetts, New Hampshire and Maine, in theory making them subject to the laws of the Massachusetts General Court. Although some of the Puritan settlers of New Hampshire supported Boston's claims,

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[4]Rockingham Superior Court, 95-E-0455.9

[5]*G. William Purdie et al. v. Attorney General.* State of New Hampshire Supreme Court, No. 97-405. Brief for the Town of Rye.

many New Hampshire settlers never agreed to be part of the Bay Colony (Belknap, 1831; McClintock, 1889; Perlin, 1990). In 1679, restoration of the monarchy in England reduced the Puritans' power, and a separate government was re-established in New Hampshire. As a result of this brief annexation, New Hampshire courts have been torn between following English common law, which sets public-trust boundaries at the high water mark, and Massachusetts law, which under the Ordinances of 1641-1647 conveyed public-trust lands into private hands down to the low water mark--ostensibly to promote development along the shore (Connor, 1986).

In general, the Ordinances prohibited all use of certain fragile lands, regulated where offensive industries could be sited, and granted shore lands into private hands for building piers and fish weirs (Wright, 1994). The first version of the Ordinances stated that

> "Every inhabitant that is an howse holder . . . shall have free fishing and fowling in any great ponds and bayes, coves, and rivers, so farre as the sea ebbes and flowes. . .(*Colonial Laws of Massachusetts* at 37, No. 16)."

In 1647, the Massachusetts General Court expanded the ordinance, however, essentially "privatizing" the shore by giving adjacent landowners rights to the low-water mark or one hundred rods from the high-water mark (whichever was shorter) (*Colonial Laws of Massachusetts* at 170). The New Hampshire General Assembly never formally adopted the Bay Colony Ordinances (Baldwin, 1984). The Ordinances are still part of the common law in Maine and Massachusetts, however. They are the only "low-water-mark" states in the country (Appendix 2, Table A2.1a).

Five disputes recorded in nineteenth century case law reflect the see-sawing of the New Hampshire courts between emphasizing public or private rights in trust lands, as well as between

locating the boundary according to English or Massachusetts law. Table A3.1 in Appendix 3 (Nineteenth Century Disputes over Public-Trust Resources) summarizes the five cases and the private or public rights they advance. Regardless of whether the rulings recognize the Massachusetts Ordinances, the cases share the finding that public easements exist adjacent to water--although each for different purposes and to different geographic extents. It is this precedent of shared-use rights that appears to have been mislaid in the current coastal dispute, which focuses instead on who holds fee title to the land.

Sibson v. New Hampshire *and the Case Framework*

Before the current dispute in Rye, the most widely-known public-trust case in New Hampshire was *Howard W. Sibson et al. v State of New Hampshire.*[6] In 1968, Howard and Olivia Sibson bought six acres of land zoned for residential development on Ocean Boulevard (Route 1A) in Rye. Howard Sibson was a realtor, and the area was a prime location for both seasonal and permanent houses. Their years of struggle with coastal authorities and special boards to fill and develop the land were documented through several court cases. The final case, *Sibson v. State of New Hampshire* (1975),[7] discussed in more detail below, resulted in the ruling that has been cited in public-trust suits in New Hampshire and a number of other States.

The Sibson suits and several cases that followed citing *Sibson v. New Hampshire* as an authority are summarized in Table A3.2 in Appendix 3. Each case in Table A3.2 were disputes over rights to develop lands in which the doctrine was claimed to be controlling. Most of the suits cite Sibson as an authority with regard to determining state jurisdiction and deciding when a

[6]115 N.H. 124 (1975)
[7]115 N.H. 124 (1975)

taking had occurred. For example, in *Treat et al. v. New Hampshire*,[8] *Sibson v. New Hampshire* was cited because it provided guidance on when compensation was due: "A reasonable solution . . . can be arrived at by comparing the injury to the landowner in not being paid with the injury to the public in being required to pay for [any] diminution in value."[9] Two of the cases, *John F. Claridge et al. v. N. H. Wetlands Board*[10] and *Donna E. Rowe v. Town of North Hampton,*[11] specifically cite *Sibson v. N.H.* as an authority for protecting the natural character of land and preserving the unique nature of a vanishing resource (coastal marshes). Figure 3.1 is a photograph of Foss Beach, just seaward of the former Sibson land. Figures 3.2a and b and 3.3 are photographs of the sites of the Sibson and Claridge disputes–both involving the right to fill coastal wetlands (all figures are located at the end of the chapter).

Relying only on the legal record of Sibson and other cases in New Hampshire (Tables A3.1 and A3.2 in Appendix 3), several conditions of the case framework described in Chapter 1, appear to be met. To illustrate this, the framework in the specific context of the New Hampshire case is outlined in Table 3.1, below.

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[8]*Treat et al. v. N. H.* 369 A.2d 214
[9]369 A.2d 214 at 217
[10]485 A.2d 287
[11]553 A.2d 1335

Table 3.1

Case Framework:
The New Hampshire Public-Trust Doctrine (PTD)

	Goals and Hypotheses	Indicators	Verification
General Study	The PTD can be a useful tool for integrating environmental interests across boundaries while meeting several ecosystem management criteria.[12]	*The PTD is responsive on a landscape level* (It acts on a broad biophysical and social system.)–The PTD is controlling over public and private actions in riparian lands and waters throughout NH. *The PTD is responsive on a small-scale.* (Small actions affect larger systems.)–The PTD is controlling over site-specific actions by individuals and groups in NH by the authority of common law and statute. *The PTD is able to adapt to changing information and conditions*--The PTD has triggered legal rulings that have expanded the protected public uses from navigation and fishing to recreation and ecosystem services, as recognition of the importance of these have grown in the state.	*The PTD applies to areas identifiable by specific landscape characteristics*–The PTD is controlling over lakes, ponds, river and streams up to the high water mark, and lands subject to water's ebb and flow. *The PTD is controlling over individuals and groups in site- and use-specific activities, and it is able to respond to changing values and conditions*–Tables 3.1 and 3.3 record common law cases detailing site- and use-specific activities. Trust authority has been clearly designated by the legislature to state agencies such as the Dept. of Environmental Services through RSA 271 and RSA 483.

To summarize, the New Hampshire public-trust doctrine appears to have been consistently regarded in the courts as an important and viable common law principle in the state. Although the interpretation of the physical boundaries of the resources over which it has been controlling have changed over the years, the lands have been generally identifiable by specific landscape characteristics, such as riparian lands subject to the reach of high water. Individual property rights suits have been both successfully pressed and successfully defeated in the interest of protecting public rights in trust resources (Tables A3.1 and A3.2, Appendix 3). Flexibility of the

[12]Forman, 1997; Richenbach et al., 1998

doctrine has been demonstrated, as protected uses have changed and expanded through the years from navigation and fishing to aesthetics and the protection of ecosystem services (see the *Sibson* discussion below). Finally, authority over public-trust resources appears to have been clearly vested by the New Hampshire legislature through a number of statutes in state agencies such as the Department of Environmental Services. That authority has been monitored and defended by the state Attorney General's office, as demonstrated by the suits.

The Sibsons Against the State

Howard and Olivia Sibson paid $18,500 for the land on Ocean Boulevard and immediately surveyed it into eleven lots in 1968. The entire parcel lay on the edge of Awcomin Marsh, below the highest high tide line. An artificial rock and cobble berm beside the road protected the land from the open ocean. Long before, *Concord Co. v. Robertson*[13] (Table A3.1, Appendix 3) established that public ownership of New Hampshire waters, including along coasts and estuaries, extended to the highest high water line. The Sibsons knew that activities on the land were under the permitting authority of the Port Authority—the agency in charge of oversight of coastal public-trust lands.[14] Given the history of dense development along the outer coast, however, their subdivision expectations were not unusual.

Shortly after they bought the land, the Sibsons applied to the Port Authority for a permit to fill part of the marsh to build a house. In the early 1960s, the state had dumped dredging spoils from Rye Harbor on the marsh lands adjacent to the Sibsons' parcel (NRCS, 1996). When the Sibsons bought the land, however, members of the community, legislators, and environmental

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[13]*Concord Co. v. Robertson* 66 NH 1 at 27 [1889].

[14]William Jenness, Building Inspector, Rye, N.H., personal communication.

managers were no longer sanguine about filling in the marshes, and wetland regulations controlling fill operations had been passed.[15] The Sibsons' permit was denied.

Awcomin Marsh

Awcomin Marsh, like other New England salt marshes, is among the most productive ecosystems in the world. It is dominated by several species of salt tolerant plants: tall and dwarf cord grass (*Spartina alternaflora)*, salt-meadow grass (*Spartina patens*), spike grass (*Distichlis spicata*), and salt sedge (*Juncas geradi*). Scientists estimate that, on average, salt marshes produce up to 30 metric tons of plant material per acre (Mitsch and Gosselink, 1993)–which is why they were so valuable to the early settlers in the region (see Chapter Four).

Biomass accumulates both above and below ground, and almost three-quarters of the detritus becomes a food source for microbial grazers (Mitsch and Gosselink, 1993). A substantial portion of the living and dead organic matter is exported into adjacent estuaries and other coastal ecosystems, feeding the extensive downstream communities that form the mainstay of New England's fisheries. Numerous species of estuarine wildlife, including mollusks, crabs, and fish are found in the substratum and ponded areas in the marsh, and Awcomin plays a supporting role in the Atlantic Flyway as a temporary or permanent home for swimming, wading, and song birds.[16]

The tides flood Awcomin Marsh twice daily. Even when the tides are too low to flood the surface of the marsh, the soil is saturated and seawater percolates up through the substratum peat (Figures 3.2 a and b, the Sibson site, and 3.4 a and b, Awcomin Marsh). In its natural state, the marsh is not suited for conventional house construction. Construction is curtailed both to avoid

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[15]William Jenness, personal communication.

[16]Rich Cook, NH. Audubon Society and personal observation.

disturbing critical marsh functions, such as flood control and fisheries habitat, and because there are serious problems with waste water drainage–this part of Rye is not connected to a public sewer system (Town of Rye, 1982). Waste from both the homes around the marsh and boats in the harbor has contaminated the adjacent clam flats with coliform bacteria--they are currently closed to fishing (NRCS, 1996).

The Court Rulings

When the Port Authority denied the Sibsons a permit to fill part of the marsh in 1969, the Sibsons appealed the decision.[17] The N.H. Supreme Court acknowledged that the State had the right to regulate activities in coastal marshes to protect public interests, such as marine fisheries and wildlife, but the Court ruled that the Port Authority did not have jurisdiction over the particular land in question, based on the wording of the state statute and the special characteristics of the site. The Sibsons legally filled about two acres of the marsh--without a permit--and built a house.

While the case was being litigated, the Town of Rye changed its zoning regulations. Lots measuring 10,000 square feet were permitted when the Sibsons bought the land. The new regulations required 30,000 square-foot lots, limiting the possible subdivision to a maximum of four lots. Howard Sibson sued the Port Authority again in 1971 for compensation for a "taking." He argued that because the Authority had previously overstepped the bounds of its jurisdiction, he had been tied-up in court, during which time he had lost the opportunity to develop the land as he had planned. Sibson claimed that had he been able to divide their parcel into 11 house lots, the land would have had a total value of $158,000. After the zoning change, it had a maximum value

[17] *Sibson v. N.H.*, 110 NH 8 (1969).

of only $40,000. The N.H. Supreme Court ruled that no compensable taking had occurred: ". . . a lessening of the value of private property resulting from proper exercise of police power . . . in promotion of the general welfare, . . . would not be compensable."[18]

In 1970, the State Legislature amended the wetlands statute, making it clearly applicable to the Sibsons' corner of Awcomin Marsh, and a Special Board under the new N.H. Wetlands Board succeeded the Port Authority in jurisdiction over the marsh. In 1972, a storm damaged the Sibsons' house and the ocean flooded their land. They sold the house and filled land for $75,000. Howard Sibson then applied to the Special Board for a permit to fill four additional acres of marsh in order to create more buildable lots. The Board granted them permission to fill a strip of the marsh adjacent to the previously filled land, but denied their request to fill the remaining lands.

The Special Board denied the request to fill the marsh for ecological reasons:[19]

- Awcomin marsh would lose at least four percent of its net productivity, with uncalculated nutrient losses to the coastal marine communities;
- Due to spillover effects, such as siltation, adjacent lands claimed by the State and private abutters would be damaged;
- The Marsh's function as a pollution buffer would be reduced;
- An unspecified portion of the clam brood stock, which replenishes clam flats elsewhere along the coast, would be lost; and
- Traditional public uses of the Marsh, such as haying, hunting, and clamming, would be lost forever.

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[18]*Sibson et al. v. New Hampshire* 111 NH 305 at 307 (1971)
[19]Respondant's Brief, N.H. Supreme Court No. 6904, June Term, 1974

The Sibsons did not contest any of these findings, but in 1974 they went to court again to appeal the denial of the permit. By then, Sibson estimated that the value of the four acres, if filled, would be greater than $178,000; he claimed the State's denial of the permit required compensation. In part because Howard Sibson was in the real estate business, members of the Wetlands Board and the State Attorney General's Office (under Warren Rudman) felt they had to take a strong stand against any compensation being due.[20] If a precedent were set that compensation could be granted based on the development potential of filled land, the Board calculated it could cost the people of New Hampshire a thousand times Sibson's estimated dollar loss to protect the 4,500 acres of saltmarsh still existing in coastal New Hampshire.[21] In addition, new scientific knowledge about the environmental values of wetlands, and new trends in judicial thinking regarding the public-trust doctrine--particularly the findings in *Just v. Marinette County*[22]--buttressed their arguments.[23] The key points of the State's defense against Sibson focus on the takings questions raised by the suit, however, not the public-trust doctrine.[24]

1. Denial of a permit to fill salt marsh is not compensable under the law when the denial is reasonably related to the prevention of public harm.

2. The N.H. Supreme Court should adopt the doctrine put forward in *Just v. Marinette* that a landowner does not have unlimited rights to alter the essential natural characteristics of the land--or, conversely, that the only uses that are constitutionally protected are uses that can be made of the land in its natural state.

3. The destruction of speculative values in land held for development purposes is not a deprivation of use that is constitutionally protected against as a taking, and the

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[20]William Jenness, Town of Rye Building Inspector.
[21]Respondant's Brief, N.H. Supreme Court No. 6904, June Term, 1974.
[22]56 Wis. 2d 7, 201 N.W. 2d 761 (1972).
[23]Respondant's Brief, N.H. Supreme Court No. 6904, June Term, 1974.
[24]*Sibson v. State of New Hampshire* 336 A.2d 239 [1975]

takings tests urged by the Sibsons based on the criteria established in *Pennsylvania Coal Co. v. Mahon* (see Chapter 2) should not be applied.

The New Hampshire Supreme Court agreed with the State Attorney General's Office and ruled that Sibson was denied the permit because the proposed fill "would do irreparable damage to an already dangerously diminished and irreplaceable natural asset."[25] The takings criteria established by *Pennsylvania Coal Co. v. Mahon*[26] required that the court not ignore the owners' economic losses, however. The Court decision states that although the unfilled part of the marsh had little value to the Sibsons, and the filled marsh had significant development value, this had to be balanced against the importance of the public benefit to be gained. In this case, the importance of wetlands to public health and welfare clearly outweighed the owners' speculative losses and there was no taking.

In his presentation, Attorney General Rudman had maintained that only economic uses based on the natural qualities of the ecosystem were constitutionally protected. "An owner of land has no absolute and unlimited right to change the essential natural character of his land, so as to use it for a purpose for which it is unsuited in its natural state and which injures the rights of others."[27] In its ruling, the Court agreed--regulations guarding natural resources were designed to prevent changes in the land's basic character.[28]

This case (*Sibson v. State of New Hampshire*, 115 NH 124, 1975), has since been cited by legal scholars (Hunter, 1988; Reiser,1991) as an example of the public-trust doctrine being confirmed and expanded to protect ecosystem functions. The case has also been cited as an

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[25]*Sibson v. State of New Hampshire*, 115 NH 124, 336 A.2d 239 at 240 (1975)
[26]*Pennsylvania Coal Co. v. Mahon* 260 U.S. 393.
[27]*Sibson* at 243, quoting *Just v. Marinette County*, 201 N.W. 2d 761 at 768
[28]*Sibson v. State of New Hampshire*, 336 A.2d 239 1975

authority in a number of states for clarifying the difference between the police power of the state to regulate land use and takings. Weighing public benefits or gains (including preserving ecosystem function) against private costs and expectations was put forward as a key test to establish the difference. Thus, two interesting property rights issues were debated in the Sibson case. First, the takings line between the non-compensable police power of the state to regulate land use versus compensable eminent-domain takings was examined--and the public interest in preserving ecosystem functions was found to be a necessary part of the equation on the side of non-compensable regulation. Second, the State of New Hampshire, and by extension the public, claimed a property interest in wetlands and ecosystem functions through the public-trust doctrine, implying that deeds over certain types of land were limited by shared-use rights.

1. *Sibson and Takings*

The New Hampshire Supreme Court ruled that denial of the fill permits was a valid exercise of police power–not a taking. Police power refers to the right of state legislatures and agencies to regulate land use for the general welfare. Takings or eminent domain refer to the appropriation of property by the state for public benefit or convenience; takings require compensation under the Fifth Amendment. Police power carries with it no obligation by the state to pay landowners for lost rights.

To distinguish a valid use of police power, three tests, based on the New Hampshire legal tradition, were applied in Sibson, and all three tests were met:[29]

1. Did the regulation (under which a permit to fill was denied) protect public health, safety, or welfare by prohibiting land uses that could harm the public, or did it principally create a public benefit at the expense of the owner?

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[29]*Sibson v. State of New Hampshire* 115 NH 124 [1975]

2. Was the harm real? Were there specific biological characteristics that needed to be preserved in the marsh or were the concerns simply aesthetic?

3. Was the denial of the permit to fill the remaining land necessary or could a lesser action have sufficed to accomplish the same goal of protecting the marsh?

In addition, two tests based on the criteria established in *Pennsylvania Coal Co. v. Mason* were applied by the N.H. Supreme Court to determine whether a taking had occurred:

1. Were the owners deprived of all reasonable use of their land?

2. Or did the Board's action result in a significant reduction in the value of the land?

Before Sibson, New Hampshire takings decisions generally relied on the "loss of all reasonable use" test, rather than reduction in the value of the land.[30] The problem with this test is that reasonable use is a highly subjective concept and can change over time, as the history of Hampton and Rye in Chapter Four demonstrates. Both tests also consider only easily measurable short-term impacts on the owner. In disputes involving critical environmental concerns, these impacts must be balanced against diffuse, long-term, and often incremental public impacts.

In addition, takings tests were generally used to weigh the property concerns of one owner or class of owners over another (Kennedy, 1995). Negotiating the balance between two owners or classes of owners is similar to striking a Coasian bargain. The problem with common pool biotic resources--in this case, coastal marshes--is that there is no owner of the "downstream" resources. The state's public-trust responsibility over common pool resources can be a tool to remedy this problem. The attorneys for the state argued for the resources, saying that "the public's rights to the portion of food from the coastal fishery produced by nutrients from the marsh for all time [had to be balanced] against a quick, speculative profit for Petitioners in this

[30]Respondent's Brief, N.H. Supreme Court No. 6904, June Term, 1974.

present era in which the temporal economy regards land as more valuable as a commodity than as a producer of food."[31]

The N.H. Attorney General also looked at "reasonable uses" of land. He concluded that reasonable uses meant those to which it can be put in its natural state. The ruling cited *Just v. Marinette County*, which stated three years earlier that landowners did not have the right to change the essential natural character of their land if it injured the rights of others.[32] The values or profits to be balanced are only those that can be derived from the land in its natural state. Thus, subdivision for development is not a constitutionally protected right.

2. *Sibson and Property Title*

There was some uncertainty in the records as to whether the Sibsons held clear title to the land. The Sibsons' attorneys argued that, by long standing convention, they did. As in virtually all other N.H. saltmarshes, however, there was no clear historical title associated with the deed. Sibson's title to the marsh was supported by a chain of deeds dating back to 1850 that passed "saltmarsh at Ragged Neck, Rye". The boundaries of the parcel were determined by an arbitrary survey conducted in 1968 when the land was transferred to Sibson.

Historically, coastal saltmarshes were held by the local government. In the 1640's, rights to harvest the salt hay were parceled out to individuals for free, but there were common law limitations on their ability to exclude other people from the marshes. In 1794, laws were passed in New Hampshire explicitly stating that the only trespass recognized in marshes was when the "flattsweed" was carried off--all other uses, such as hunting, clamming, fishing, and boating,

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[31]Respondent's Brief, 1974, p. 30-31.
[32]56 Wis.2d 7 at 17, 1972

remained open to the public. In addition, use-rights grants had to be used for the public good (Belknap, 1831). Thus, although private ownership rights were created when the usufruct rights to salt hay were assigned to individuals, public ownership had precedent. As late as the 1890's, private property rights in the salt marshes were still considered usufruct rights only (Parsons, 1905).

In all of Sibson's suits, the Court ignored the question of his title to the marsh land, although it did recognize the State's long-standing interest in and public responsibility to protect coastal ecosystems. The 1969 Sibson case recognized the state's "dominant servitude" in coastal areas, and asserted that landowners in these areas never possessed rights that would compromise this trust. Nevertheless, the question of the nature of land titles in coastal lands was dodged.

The Current Dispute on the Outer Coast

The current dispute over the location of the public-trust boundary is also centered in the Town of Rye. Rye's coastal dunes were developed decades ago, and the back marshes have been partly filled (See Figures 4.2 and 4.3 in the next Chapter). The marshes that remain cannot be developed and are privately held under current use assessments or as town conservation lands. All of the landowners challenging the current law are in Rye, and reside either on Jenness, Sawyer, or Wallis Sands beaches. The landowners contest the right of the public to use the "dry sand" areas of the beaches.

There are a number of reasons why landowners in Rye are protesting the law, and not landowners in other areas:

1. Rye is a generally an upper-middle income town, with significant private residential investments along the coast. (Twenty-five percent of the coastal land owners in Rye have joined the suit. The average lot value of the suit participants is about $285,000 in

the affected area, actually somewhat below the average coastal lot value of $313,000. Lot sizes are usually less than an acre.[33])

2. Participants in the suit are well-connected in state politics. For example, the mother of Judd Gregg, former governor and current US senator, is participating; and the wife of John Chandler, a state senator for over 20 years, was one of the original claimants--their children have continued the suit since her death.[34]

3. Rye may be particularly vulnerable to rising population pressures in the state. Although the population of Rye has risen only three percent between 1980-1997 (the Pease Air Force Base in Portsmouth shut down in the early 1990s), Rockingham County has grown 37 percent and New Hampshire has grown 27 percent. The residential towns immediately to the west of Rye--Exeter, Newfields, Greenland, and Stratham--have grown between 16 and 115 percent during that period (Table A3.3, Appendix 3). Summer pressures on the beach areas of the town are intense and growing.

4. In neighboring Hampton, the front dune area affected by the law is unambiguously owned by the State. In the back dunes, the majority of the land was town-owned until recently, and leased for commercial purposes or cottages. There are some small houses, particularly in the area called The Willows, that are perched on the edge of the mean tide line, and located entirely below the metonic tide line (they flood during extreme tides and storms). These people have not joined the suit. (See Figures 4.14a and b.)

5. In Seabrook to the south, by deed, the beach and what remains of the front dunes are owned by the town to a line six feet from the seaward cottages. In the back dunes and marsh, a 1.25 mile safety radius around the Seabrook Nuclear Plant has been set aside as conservation lands by the town and the utility. There are a few small cottages in the back dune-Cross Beach area that are located below the metonic line (they flood during extreme tides and storms), but no effort has been made to involve these landowners in the suit.

History of the Case

There are at least two versions of the events that catalyzed the current dispute. (1) State officials, participants in the suit, and court documents explain that homeowners posted "No

[33]This information was compiled from the tax maps and assessment records in the Selectmen's Office, Town of Rye.

[34]William Jenness, Town of Rye Building Inspector.

Trespassing" signs on the beaches in response to inconsiderate beach-goers encroaching on their homes. Mrs. Chandler, the elderly wife of Sen. John Chandler, was the most noted, posting signs on Jenness State Beach. Community members demanded the signs be taken down, and petitioned the legislature to pass a law protecting their access to the beach. (2) One of the community members who initiated the petitions requesting that the legislature protect beach access said that the petitions were actually in response to an existing bill being considered by the legislature that set the upper boundary of public rights at the mean high tide, and would permit only "fishing, fowling, and navigation" in the area. The bill was brought to the community's attention by an informational meeting held by the Rye town selectmen. Some community members believed the draft bill (and the no trespassing signs) were instigated by coastal landowners who had heard of the late 1980s court decision in Maine that affirmed the authority of the 1641-1647 Ordinances–*Bell et al. v. Town of Wells*. In Maine, coastal landowners hold fee simple title down to the mean low-water mark. Recreation (i.e., swimming, sunbathing, and strolling) is not a public right, although there is a public easement up to the mean high tide for "fishing, fowling, and navigation".[35]

A bill resembling the Maine law was introduced into the New Hampshire House in 1993 (House Bill 154) and was killed in the first week of 1994. According to the House Journal ". . . [the] public outcry of segments of the New Hampshire beach-using citizens so confused the issue that the subcommittee (after a series of public hearings, receipt of numerous protesting letters and petitions) decided not to recommend the bill (11-0 vote)."[36]

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[35]*Bell, et al. v. Town of Wells, et al.* 510 A.2d 509 (1986).
[36]House Journal, January 5, 1994, p. 43.

In 1994, the legislature requested that the Supreme Court render an opinion on how the boundary should be set. The Court returned the opinion that no clear boundary had ever been determined and that the right to set the boundaries of the public trust lay in the legislature--as the governing public body or guardian of the public trust. A new bill was drafted by the House Committee for Resources, Recreation and Development. The committee chose the metonic tide line because members felt anything less would result in a loss of long-standing public rights. The bill was introduced and passed in 1995. A class action suit was filed by some of the coastal land owners in spring 1996, challenging the law as an unconstitutional taking of private property. In April, 1997, a Superior Court judge agreed with the landowners, ruling that the mean high tide line is the boundary between public and private lands. In October, 1997, the Attorney General filed an appeal with the Supreme Court.

The exact difference between mean high tide and the metonic tide must be determined site-by-site. Tidal heights vary constantly at each location according to the on-shore and off-shore slope of the land (which changes seasonally in sandy areas like the beaches in question), prevailing current, wave, and wind conditions, aspect, even the relative positions of sun, moon and earth. According to Robert Moynihan,[37] who is a surveyor, there is no common understanding in New Hampshire on how to locate the boundary between public and private interests. According to tidal datum obtained along the Piscataqua River and provided by him as an exhibit to the court,[38] mean high water is about eight feet above the mean low water level, mean "highest" water about 10 feet, and estimated highest water about 12 feet above mean low

[37]Professor of Civil Technology, Thompson School for Applied Science at the University of New Hampshire

[38]Objection to Motion for Summary Judgment, Rockingham Superior Court, 95-E-0455.9

water, excluding storm events. In a low-profile terrain, these changes can result in considerable differences in the amount of land inundated, depending on the suite of other influencing factors--in some cases, flooding hundreds or thousands of feet inland. One of the land owners participating in the suit has just finished raising his sea wall between 17 and 18.5 feet above the sand, with footing blocks set 1.5 to 2 feet into the sand to order to meet NOAA height recommendations. The tide regularly washes the bottom of his wall. Thus, although this owner is suing for beach ownership, the seawall effectively stops the tide and delineates both the mean high and metonic tides--regardless of the outcome, all of the beach in front of his house probably falls within the public domain (Figures 3.5a and b). Slightly to the north on the same beach, however, surveyors determined mean high tide and metonic tide lines that would grant both beach-goers and the homeowners ample dry sand areas and have little impact on public access (Figure 3.6).

The Impact on Private Coastal Landowners

Exactly where the line is drawn may ironically have least impact on the coastal landowners. Most of their deeds currently say simply that their land ends "at the Atlantic Ocean" or "at the sea". Only deeds that are recently redrafted say something else, such as "approximate high water of the sea" or "low-water mark". Most of the landowners said they believed they owned seaward to where the dry sand meets the wet sand--a very mobile boundary. Virtually all the properties use points on the permanent sea walls to delineate the dimensions of the lots, however. In many of these areas, the metonic line effectively occurs where the tide meets the sea walls. If the public trust line moves seaward, property owners presumably would have to have their land re-surveyed and deeds rewritten.

Paying land taxes is common proof of ownership. According to both the town assessors and the landowners, coastal property owners do not pay taxes on the beach land that they claim. Coastal owners are assessed a premium for being next to the ocean, however, which some may interpret as paying taxes on the beach in the absence of defined boundaries. On a small side street–"F" Street--running from Ocean Boulevard to the sea in Rye, three small lots progressing toward the sea are assessed at $19 per square foot (/sf), $29/sf, and $50/sf[39]. The first two lots have triple the road frontage as the ocean-side lot--presumably adding value that is not shared by the $50/sf lot. This skew in assessment values will not change under the current law; the question is open as to whether landowners would be asked to pay taxes on the beach land if the law is changed. Figures 3.7a and 3.7b are tax maps from the Town of Rye covering portions of Wallis Sands and Jenness Beaches. Hard boundaries delineate the lots (sometimes specifically marked by survey markers on seawalls), while clear areas of beach are drawn between the lots and the sea.

The provision of public services may be another indication of ownership. The beaches are currently patrolled by town lifeguards (in the summer) and the police all year. According to Bradley Loomis, Chief of Police in Rye, the police department receives up to a dozen calls each summer from beachfront residents asking for help removing people from the beach in front of the seawalls. He explained that the officers responding will speak to the people on the beach, and ask them if they would mind moving, but they do not force anyone to leave because they do not believe they have that authority (i.e., the public has a right to be there). Occasionally the department gets calls complaining of people on the landward side of the seawalls. In that case,

[39]Data based on Town of Rye tax maps and 1996 tax rolls kept by the Selectmen's Office.

they treat the matter as a trespass and require people to move.[40] Police responsibilities have not changed with the current law, but, in theory, they would change if the trust line is moved seaward.

Regardless of where the line is drawn in the sand, the use rights of the adjacent private property owners are unaltered, with the exception of being able to exclude people from the beach. Coastal activities within 100 feet of the high waterline are strictly regulated under state law (RSA 483-A). Permits must be obtained from the Department of Environmental Services (DES) for all construction, dredging and filling activities, and DES water quality regulations apply. Very few (if any) landowners on the outer coast will find regulations lifted on any significant part of their property. The use rights they are accustomed to exercising will remain. According to the Attorney General's office and *Concord Manufacturing v. Robertson*,[41] oceanfront property owners, like all owners of private property adjacent to public trust lands, have all the rights of the public plus some the general public does not. For example, coastal owners have the right to store boats on the beach, or build wharfs and piers (if they have permits). These rights are alienable--the landowner can "sever, and sell or lease" them.[42] All of these existing riparian rights remain unchanged, regardless of where the line is drawn.

Errors in Interpretation

After at least six years of trying to define a physical line between public and private rights, the boundary is still unclear. A considerable amount of time, energy, and money has been expended, with few constructive results. I believe there has been a misinterpretation of--or emphasis on an unproductive interpretation of--the nature of the public trust doctrine and what it

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[40]Rockingham County 95-E-0455.
[41]66 NH 1 (1889). See Table 3.1, Appendix 3.
[42]*Concord Manufacturing* (66 NH 1 at 20).

protects, both on the part of the Superior Court judge who overturned the law, and members of the Attorney General's office, who wrote it and defended it.

When the Superior Court judge ruled in favor of the landowners against the state in April, 1997, he said that the N.H. Supreme Court had "intentionally avoid[ed] the task of stating the historical definition of 'high water mark'." In part, he felt this was because the boundary should be determined through litigation in the trial courts.[43] The judge then set the boundary at the mean high tide based on the number of other states that use mean high tide and interpreting New Hampshire cases as permitting that definition. Unfortunately, the authority to establish public-trust boundaries lies only with the legislatures as the guardians of the public trust, not the courts, and each state legislature has the authority to define it as they wish (Chapter 2).

An additional problem in the case has been the framing of the dispute by the parties (with the exception of the Town of Rye) as one about who (singularly) possesses fee simple title to the beach, rather than a shared title comprised of both public and private rights. This may have happened because most of the litigants in the case reside landward of Wallis Sands and Jenness State Beaches to which the State claims the proprietary rights of a private landowner. The mis-framing is also likely rooted in the specific history of the trust resources in New Hampshire, which originally were owned as common lands by the towns (Chapter 4).

When the State Assistant Attorney General who helped the legislative committee draft the final bill was asked if the public-trust doctrine protected lands or uses, she replied: "That's the beauty of it. It protects land. In one statute, you can protect it all,[44]" but there is no strong

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[43]Order on the Parties' Motions for Summary Judgement, April 4, 1997, p.4.

[44]Personal conversation Dec. 12, 1996.

evidence that this is so. As discussed in Chapter 2, based on a review of the literature and case precedent for the public-trust doctrine, I find that the public-trust doctrine guards essential public uses. In order to protect these uses, lands subject to the public trust are vested with two titles, one dominant, the other subservient–the *jus publicum* being dominant, and the *jus privatum,* subservient (Slade et al., 1990, Donahue et al. 1994).

Regardless of these disagreements over what the doctrine's boundaries are and what it protects, New Hampshire's public-trust doctrine is clearly a vital part of New Hampshire's common law. Applying the indicators listed in Table 3.1 for judging whether the doctrine can be a useful tool for integrating environmental interests across the landscape--and looking only at the various court cases and their immediate context described in the preceding pages–I believe that the doctrine has been effectively used to defend public interests in certain lands and resources. It has also been used as an explicit tool for defending public rights to intact natural ecosystems. In the *Sibson* case, in particular, the public-trust doctrine was an instrument for balancing the diffuse long-term public benefits of preserving ecological services against the more easily measurable short-term benefits of private appropriation of a valued ecosystem by landowners.

In the preceding, I characterized New Hampshire's public-trust doctrine as it has been expressed through the court room. In the following chapter (Chapter 4), I shift the lens from court cases to how the doctrine has been historically expressed in two of New Hampshire's coastal towns. The historical confusion in New Hampshire regarding the doctrine (believing it defines controlling interests over land rather than protects uses) lends the doctrine to examination on a landscape level. Using the boundary attributes described in Chapter 1, I have compiled a brief environmental history of the trust lands in Hampton and Rye. I have looked for what the

doctrine's physical "footprint"may be–its relation, if any, to natural geophysical forms, how it has been reflected in town planning and development, how the uses of protected resources have changed over time, and how changing uses have, in turn, altered the resources. Focusing on the land (and how it has changed), helped me step back from theoretical constructs of how the doctrine and institutions that shape it ought to behave and gain an indirect view of how they actually have behaved.

Chapter 3

Figures

Figure 3.1
Foss Beach, Rye, New Hampshire
This lies just seaward of the *Sibsen v. N.H.* site.
Note the riprap barrier in the foreground.
(Photograph: J. Moore)

Figures 3.2a and b

Site of the *Sibson v. New Hampshire* lawsuit. In Figure 3.2a, Ocean Boulevard is immediately to the right, Awcomin Marsh to the left. Figure 3.2b is taken looking across Awcomin Marsh. The siting of the houses on fill can be clearly seen. All of the houses next to this marsh use on-site septic systems for waste disposal. (Photographs: J. Moore)

Figure 3.3
Site of *Claridge et al. v. N.H. Wetlands Board*

The land Claridge wanted to fill is in the center of the photograph between the small Japanese red maple and the partially obscured white house. *Phragmites* in the rear of the marsh and the vegetation in the foreground (terrestrial exotic species) are evidence of degradation of the marsh (Photograph: J. Moore).

Figure 3.4a
Awcomin Marsh, Rye, N.H.
Late-spring, mid-way between high and low tides (Photograph: J. Moore)

Figure 3.4b
Awcomin Marsh at the same location (wider lens)
Winter, 30 minutes past high tide (Photograph: J. Moore)

Figure 3.5a
The seawall belonging to one of the plaintiffs in *Purdie et al. v. Attorney General.* The site is on Jenness Beach. Note the coarse sand/active wave deposit at the base of the wall. (Photographs by J. Moore)

Figure 3.5b
The same sea wall being rebuilt, looking south from the entrance of Jenness State Beach. Note the wave-washed sand up to the base of the wall.

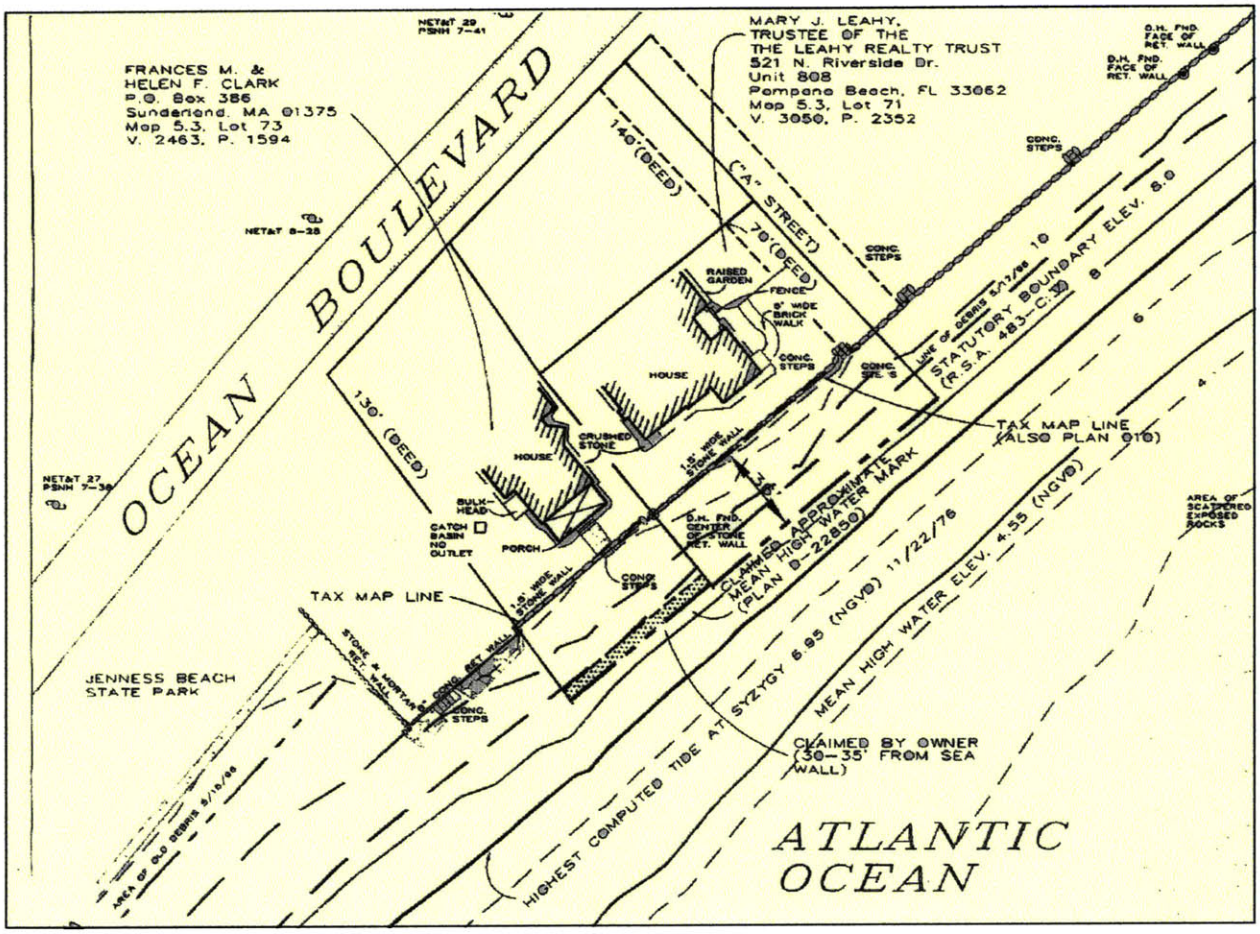

Figure 3.6
Tide Lines on Jenness State Beach

Source: Brief for the Town of Rye, *Purdie et al. v. Attorney General, 97-405*

Note: This site plan locates both the highest computed metonic tide (claimed by the State as the boundary of the public-trust doctrine) based on past data for this location and the mean high tide (claimed by the land owners as the boundary). There is a 2.4 meter difference.

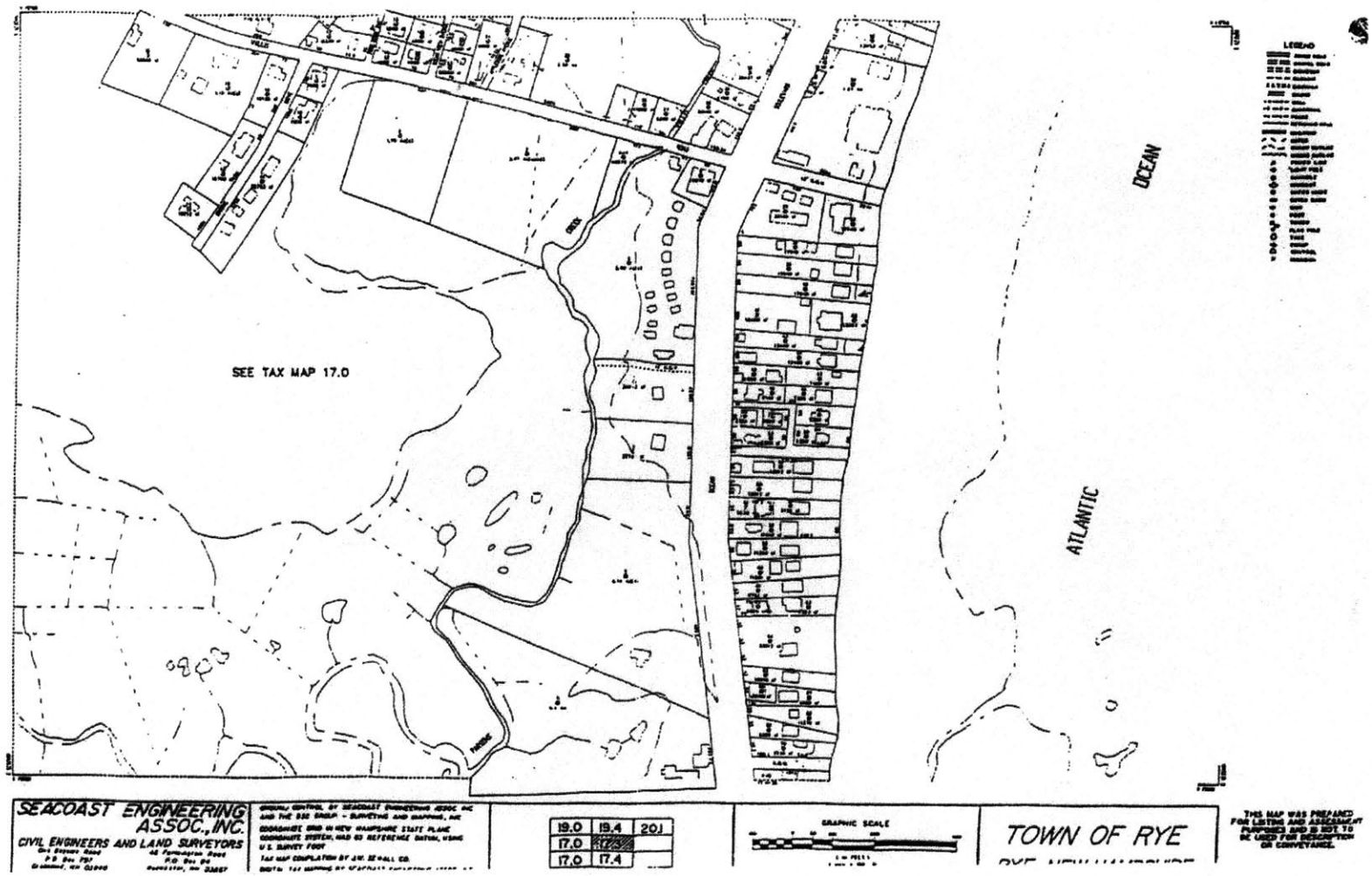

Figure 3.7a: Tax map of part of Wallis Sands Beach. Note the clear area of beach drawn between the house boundaries and the sea and the indeterminate boundaries of most of the land in the marsh.

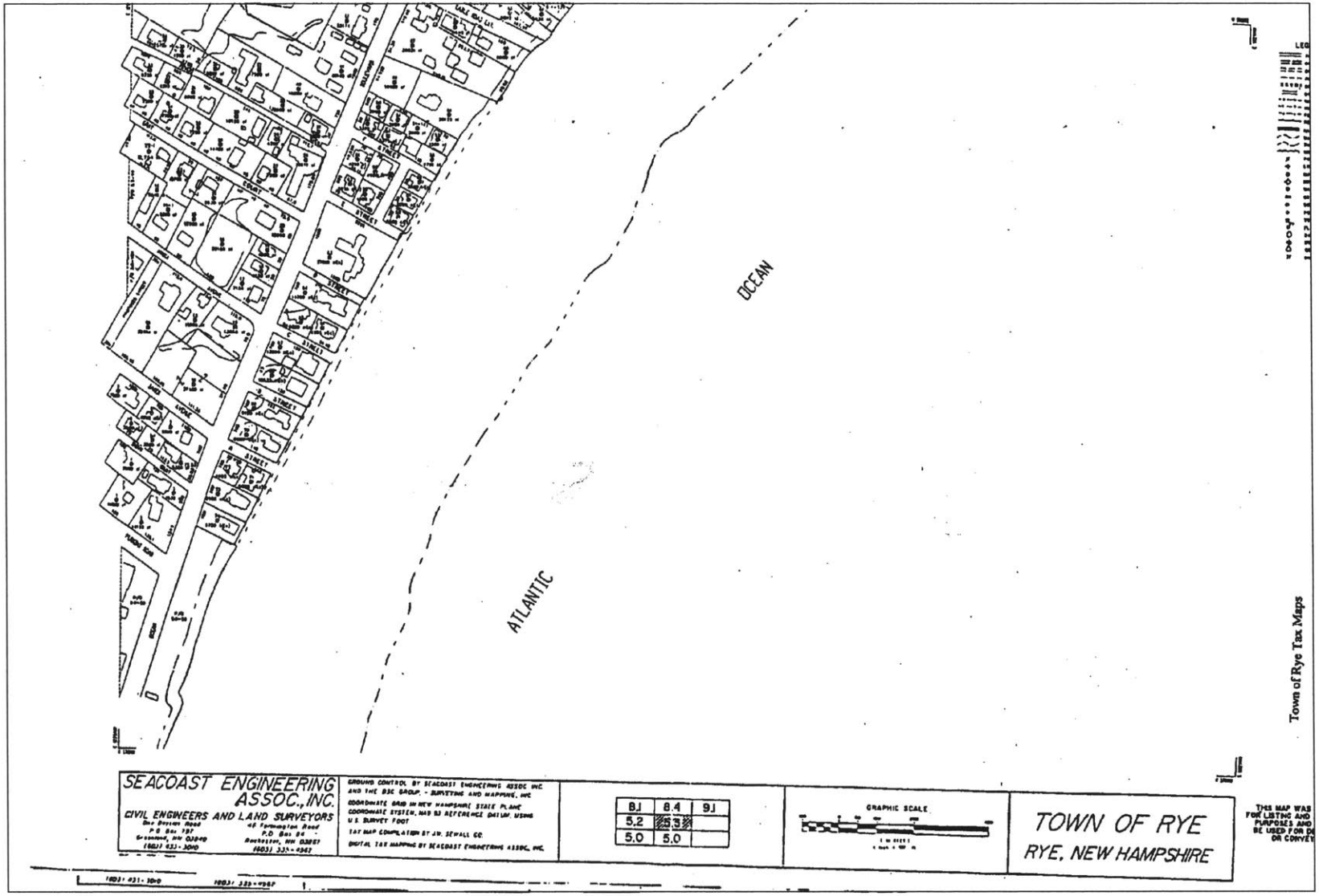

Figure 3.7b: Town of Rye tax map of the north end of Jenness State Beach. Note the clear area of beach drawn between the house boundaries and the water's edge.

Chapter 4

A Land-Use History of the Coastal Public-Trust Resources in Hampton and Rye, New Hampshire

In this chapter, I trace the history of coastal resources that have been considered within the domain of the public trust, now or sometime in the past, in two New Hampshire towns, Hampton and Rye. This study provides the clues as to how the doctrine has functioned "on the ground" as opposed to its role in case law or property-rights theory, and identifies the institutions that would need to be included in a more complete examination of the "institutional boundary" function of the doctrine discussed in Chapter One. Table 4.1 reiterates the types of attributes I looked at, borrowing from ecological boundary analysis. I found town histories particularly useful, because it was by looking at how these resources were used and altered over time that I could understand why the resource is shaped as it is today.

In Hampton and Rye, defense of the public's right of access to the coast has vacillated over the years between vigilant and lax--responding to an evolving economy, growing population, and changing values. In the 17th, 18th, and 19th centuries, towns and individuals carefully guarded and managed the common benefits of the marshes and beaches. In late 19th and 20th centuries, either through inattentiveness or active collusion on the part of town and state authorities, drives to privatize these resources were largely successful. During the entire period, the town governments dominated management of coastal areas within their borders. The current dispute over ownership of the beach is the latest chapter in a centuries-old story.

Table 4.1
Attributes of Coastal Resources and Institutions Interacting with the Public-Trust Doctrine (PTD)

Functional Attributes of Ecological Boundaries	Biophysical Attributes in PTD Lands	Institutional Attributes Regarding PTD Lands and Resources
Resource Structure	Biophysical nature of the public-trust (PT) lands including flows across them: ***Geophysical*** characteristics (general geology, soils, topography, aspect, coastal depositional and erosional characteristics). *(Data sources: surficial geology, topological maps, soil capability maps).* ***Biological***: characteristics of critical habitat in PT lands *(open space–critical habitat maps).*	Historical scope and change in the resources under the PTD--- including changes in the statutory, regulatory, and customary boundaries, patterns of land ownership, and public and private management entities or agencies involved. *(Data sources: historical maps of the coast; town and state records, historical works including photos, interviews).*
Fluxes and Gradients	Condition of the existing corridors and conduits for flows--are they intact or altered (sand, water, nutrients, species). Human patterns of movement, use, and access, particularly the relationship of physical structures to the ecological gradients *(example: the relationship of roads and sea walls to salt marsh health).*	Progression of development in space and time *(example: historical maps and images; formation or organizational extensions of authority; changes in the nature of resource use).* Relationships among people interacting with the resource, particularly political cooperation, information exchange, and shared or conflicting goals.
Filtering Mechanisms (Vector and Context Specific)	Conditions hindering and facilitating protection of the natural resource. Contrast and complementarity in contiguous habitats, changes in gradients, seasonal changes, and changes in foraging habits (*example: increasing urbanization and segmentation of the landscape, changes in recreational goals, changing infrastructure technology including energy, transportation, and coastal engineering–permitting new uses).*	Conflict or complementarity in overlapping institutions that support or hinder various uses. Changes in the controlling agencies (*example: shifts in jurisdiction from the towns to State Environmental Authorities; lack of cooperation between zoning boards and conservation commissions*). Changes in the primary drivers (*such as, population and changes in the regional economy*).
Ecological Effects Within and Beyond the PTD Zone	Short-term, small scale effects: changes in vegetation from saline to fresh water types, changing water quality, site erosion. Long-term, large scale effects: permanent changes in land cover, irreversible habitat loss, changes in water regimes, loss of natural services along the coast (fisheries, recreation, flood buffers, etc.).	Short-term small-scale effects: public access, protection and restoration of some natural areas, cooperation or antagonism among affected parties. Long-term, large scale effects: changes in land use (urbanization of the immediate shore); budgetary impacts on towns and state--structure/framework of land management agencies; public awareness of coastal environmental concerns.

Source: Adapted from boundary attributes described by Knight and Landres, 1998; Forman, 1997.

The two towns, Hampton and Rye, have related, but different, stories to tell. Rye controls the longest stretch of New Hampshire's coast, but Rye's historical records are limited. Hampton has far more detailed and accessible records. Culturally, the towns are very different and have been since the 1600s. Although Rye began as a settlement of Anglican entrepreneurs, and Hampton as an extension of sober Massachusetts Puritanism, Hampton has long taken a more "entrepreneurial" view towards its coastal resources. Rye assumed a suburban "by-water" path, and although it has some lower-end housing along the coast, Rye Beach is a district of elegant old and new mansions and upper-middle class homes. Hampton has not participated in the current public-trust suit that has embroiled Rye. The question of who "owned" the beaches in Hampton (town and state) was settled through a series of court rulings in the first half of the 20th century.

The type and progression of resource development on the outer coast has been shaped by the region's surficial geology (combined with the changing regional economy). The coast is composed of rocky headlands, barrier beaches, and back marshes and has been called barrens or wasteland throughout much of its European history (Dow, 1893; Parsons, 1905). Old maps indicate that settlement was a slow, parcel-by-parcel, progression to the sea (Figures 4.1a, b, c, and d).[1] New maps show a dense concentration of urban and suburban development along the shore (Figures 4.2a, b, and c). Investments in changing transportation and water supply and sanitation infrastructure permitted and facilitated this change, as well as a regional shift from a natural resource-based economy, to an industry-based one, and then to the current service, small industry, and tourism-based economy (Heffernan, et al., 1996; Meinig, 1986; Steinberg, 1994).

[1]All figures are at the end of the chapter.

The natural dune system is now gone and artificial barriers to the sea are in place–some requiring significant and continuing engineering efforts, such as the 20-foot-high sea wall on North Beach in Hampton (Kimball Chase, 1986). Natural flows or exchanges between the land and sea of water, sand and sediments, and wildlife species have been disrupted or destroyed, and degraded salt marshes are partially filled. Marsh restoration is now underway at several locations as a collaborative effort between town, state, federal, and non-governmental organizations (NRCS, 1996). Demand for open space and recreational water sports is growing,[2] while landowners still want privacy and control over their property. The result is a potpourri of intense pressure to privatize public-trust resources by coastal property owners, strong community support for government regulation to protect public interests, and increased congestion along the outer coast.

An Impermanent Resource

The New Hampshire coastline is a small, discrete watershed within the much larger Gulf of Maine watershed. The 18 miles of the state's outer coast is shaped by a progression of peninsulas and arching sand and sediment bays that stretch from Casco Bay, Maine to Boston, Massachusetts. Glacial till, stratified sand and gravel, marine muds, and eroded metamorphic rocks all form the visible landscape (See Figure 4.3 a, b, and c).

The deposits that shape the coast are highly mobile. Winter and spring, sand and mud are eroded by strong wind and waves; late spring, summer, and early fall, the beaches are built back up by small waves carrying debris on-shore. Throughout the year, long-shore currents carry and

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[2]N.H. State tourism reports on-line http://oz.plymouth.edu/~trav0/inhs (Mark Okrant, Director, Institute for N.H. Studies, Plymouth State College).

redeposit sands in a generally (but not exclusively) southward moving action (Conklin, 1995; Kimball Clark, 1986). The coast is also slowly shifting landward, although there is little data on the rate of shift. The Master's report in *The Town of New Castle v. Dorothy H. Rand* noted that the high water mark was 35 feet lower (or "easterly") in 1926 than it was in 1957.[3] At the turn of the century, the stumps of a drowned forest could be seen at the lowest of low tides off-shore from Jenness Beach. Local tree species grow in fresh water environments–this flooded forest was once a considerable distance inland. A combination of sea-rise and erosion are probably responsible for the coastal shifts.

People have known that Hampton's and Rye's beaches and marshes were ephemeral resources throughout recorded history. According to the town histories, the mobility of beach and marsh deposits caused little concern until the early 1900s. As areas dominated by the ebb and flow of the tides, they fell under the domain of the public-trust doctrine (see Chapter 3)–and being both valuable and unstable, they were held in their natural state and managed as common resources (Dow, 1893; Parsons, 1905; Randall, 1989). Current New Hampshire law (RSA 483C) establishes the trust boundary at the metonic tide, which, on average, is about eight feet above mean sea level,[4] although the line must be determined site-by-site based on the substrate and lay of the land. That means the trust domain is roughly outlined on the *Exeter Quadrangle* topographic maps by the first elevation line--3 meters above mean sea level (Figure 4.2a and b). Virtually all of the lands characterized as unconsolidated beach and salt marsh deposits by surficial

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[3]Rockingham Superior Court Equity No. 9723, Master's Report, page 2.

[4]*G. William Purdie, et al. v. Attorney General*. State of New Hampshire Supreme Court. 1997 Term. No. 97-405. Brief for the Town of Rye.

geologists[5] would fall under the trust (some till, fill, and rocky areas are also included--Figure 4.3 a, b, and c).

Much of this area is now densely developed. In Hampton, a long barrier dune faces the sea. The back dunes have been leveled, filled, protected with riprap[6] or seawalls and made into parking lots, marinas, fish piers, tourist-oriented commercial development, and housing. The outlet of the Hampton River Estuary has been permanently stabilized with long riprap breakwaters (Figure 4.15a). A large tidal basin bounded by extensive clam flats and saltmarshes fed by the Blackwater, Hampton, and Browns Rivers lies behind the backdune area. Tidal creeks bisect the marshes, carrying nutrients and sediments into the flats, and providing rich spawning ground for many marine species, particularly shellfish. In some areas, due to the flat terrain, a line can be drawn over three miles inland before the land rises to three meters above mean high water.[7] In Rye, by Rye Harbor and Little Harbor, there are similar, but much smaller, systems of marshes, flats, and tidal creeks.

History of the Lands Under the Domain of the Public-Trust in Hampton and Rye

In the following pages, a pattern will emerge of a historical oscillation between communities vigorously fighting to preserve the public nature of coastal trust resources versus public inattention and/or active encouragement of private encroachment on the resources. It is a complicated story underlain by growing population pressures, changes in the regional economy, evolving infrastructure, and shaped, no doubt, by strong individuals--although that part of the

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[5]Surficial geology is the study of unconsolidated deposits overlying bedrock, usually alluvial or glacial in origin.

[6]Riprap barriers consist of large stones or concrete blocks piled together.

[7]Per the Exeter Quadrangle, USGS Topographic Map, 42070-H7-TM-025.

history is mostly invisible. Interestingly, there appears to have been a better understanding of the need to preserve the natural dune and marsh systems through public regulation in the 1600s and 1700s than there was in the 1800s and 1900s until the 1960s--by which time the destruction of the dunes was virtually complete and the salt marshes were seriously degraded.

To piece together the story, I have relied on extensive town histories, written by Joseph Dow (*History of the Town of Hampton, New Hampshire*, 1893) and Peter Randall (*Hampton, A Century of Town and Beach*, 1988), a less thorough town history by Langdon Parsons (*History of the Town of Rye, New Hampshire*, 1905), cross-checked with other New Hampshire histories, town reports, ordinances, court records, interviews, and maps and photographs in the archives of the New Hampshire Historical Society.

The first English settlement in New Hampshire was a small fishing and trading post built in Little Harbor in Rye about 1624 (Belknap, 1831, Parsons, 1905). The settlers were Anglican adventurers and entrepreneurs, sent by the Plymouth Company–a group of wealthy lords and businessmen appointed by the English king to oversee the opening up and extraction of resources from New England. The outer coast was protected by an extensive barrier dune system, backed by thousands of acres of salt marsh that stretched from the headlands south of the Piscataqua Estuary into Massachusetts (Conklin, 1995). The site had fish, access to the inland up the estuary, and adjacent marshes with ample hay for fodder. Rights to use the land were passed in a series of land grants that changed hands and reverted back to the Company or Crown several times. The settlement struggled, supported itself by farming, but remained primarily oriented toward local extraction and trade overseas. In time, the city of Portsmouth and town of New

Castle became the loci of business and trade, and the town of Rye was formed from the inland farming community (Dow, 1893; Parsons, 1905).

A few miles south of this settlement, Hampton was founded by Puritans sent north in 1638 by the Massachusetts Bay Colony to lay claim to what they believed were lands granted to the Colony. The Hampton site was chosen because of its expanse of salt marshes (which provided fodder for livestock), the short estuary of the Hampton River (rich with fin and shellfish), and its pine forests (an excellent source of lumber) (Dow, 1893).

Like Rye, the Hampton settlement was built in-land, where the substrate was stable and arable, there was fresh water, and some protection from storms. The outer coast remained mostly wild. Although a horse or cart track existed along the outer coast since the 1640s (Dow, 1893), it does not appear on early maps–perhaps because the track went along the beaches when it could (the hard-packed sand is a good traveling surface). Formal roads ran parallel to the coast several miles inland or were perpendicular to the sea (Figures 4.1a, b, c, and d).

Both the Puritans and the Anglicans brought with them the English legal tradition of the tidal commons being held by the government in the public trust (see Chapter 2) and early maps and town records refer to most of Hampton's outer coast as the Great Ox Common and Huckleberry Flats--unsettled, commonly held areas, with clear rules established by the proprietors (or landowners) for collecting seaweed, distributing marsh hay, and pasturing livestock. Beach access was difficult, the area was highly vulnerable to wind, waves, and tides, but the fin fish, shell fish, and marsh grasses gathered there were critical to the survival of the settlement (Dow, 1893; Randall, 1988). Early usufruct rights over the estuary and tidal river resources are recorded in the

Exeter, New Hampshire provincial papers (it begins: "That all creekes are free. . . ").[8] Residents quickly built landings for boats, had an extensive shore fishery, and hunted sea birds--which the area was still famous for into the twentieth century (Provincial Papers, 1867; Dow, 1893; Parsons, 1905; and Randall, 1988). Early construction on the beaches and marshes was restricted to fish houses for storing boats and tackle, boat landings, and hay straddles for curing salt hay. All construction had to be approved either by the town selectmen or in town meeting, and the land beneath the buildings remained in common ownership. The buildings themselves were privately owned and could be transferred, so long as they were actively used for fishing (Dow, 1893; *Hampton v. Richard Palmer et al.*, 1959; Randall, 1988[9]). The coastal lands stayed within the public domain for about 350 years.

The Great Ox Common stretched from the Hampton River, northwest to the juncture of the Brown's River, and east along the edge of the marshes to the coast just south of Winnacunnet Road (Figure 4.1a) (Dow, 1893). In short, the Common encompassed the areas delineated as tidal marsh and beach deposits on the surficial geology maps, with the exception of Boar's Head which is a highland formed from a glacial drumlin (Figure 4.3a). Huckleberry Flats lay immediately to the north, and in the area underlain by marine muds, supported high marsh vegetation. (High marsh areas are subject to flooding during extreme tides and storms and are not necessarily part of the public-trust domain.) Most of the Flats were low-lying salt marsh and sand hills, however, and subject to the tides (Figure 4.3a and b). On March 23, 1641, the Hampton proprietors agreed to set apart Huckleberry Flats and the Great Ox Common as a public resource

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[8]Provincial Papers, 1867, p. 141 quoting court records dated October 2, 1640

[9]*Hampton v. Richard Palmer et al.*, 102 N.H. 127 (1959).

from that day "to the world's end" (Dow, 1893, p. 40). Members of the community could freely launch boats, fish, hunt, and collect seaweed (used for mulch, fertilizer, and housing insulation) from the coast (*Hampton v. Palmer, et al.*; *Knowles v. Dow*[10]). Salt hay from the marshes was divided among the proprietors in proportion to the investment they each had made in the community. In 1680, however, the salt marsh was divided into unfenced shares, with lots assigned to individuals on six-year rotations (Dow, 1893; Randall, 1988).

In 1693, the first complaints were noted in town records that some people were trying to fence-in parts of the commons. The fences were torn down and fines were imposed by the town (Dow, 1893). In February, 1706, landowners voted in town meeting that they would share the cost of prosecutions against trespassers trying to claim the commons. In 1708, perhaps in response to the policing problems, perhaps because of changes in the economic value of marsh hay,[11] shares in higher parts of the marshes stopped rotating, were permanently assigned, and began to be taxed (Dow, 1893). The boundaries within the marshes remained indistinct, however, with most of the titles passing through quitclaim deeds to this day.[12] This was the beginning of privatization of the common lands.

The beach and lower marshes remained in the public domain. The beach, in particular, was guarded as a barrier between the marshes and the sea, but livestock were a constant threat to dune stability. In 1718, fences were built along the beach by the town to keep animals from eating beach-grasses and trampling the dunes. Nevertheless, large areas behind North Beach and

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[10]*Knowles v. Dow*, 22 N.H. 387 (1851); *Hampton v. Palmer* 102 N.H. 127 (1959).

[11]I have not been able to find any explanation of why this change was made.

[12]Quitclaim deeds are used when title is so confused, a title history cannot be clearly traced. Ownership is transferred by the previous owner simply giving up claim to the land.

Huckleberry Flats were flooded by high tides in 1723, creating a permanent salt pond (Meadow Pond) behind the beach. In 1733, the salt flats and hummocks of Huckleberry Flats were divided among several proprietors in exchange for their pledge to build and maintain fences to keep cattle from the dunes. In 1747, the titles were formalized by the town, and cutting any vegetation between the lots and the ocean was forbidden without the majority consent of the town landowners. Town records were explicit that if the sea encroached further landward, the boundaries of the marsh shares would retreat the same distance to the west (Dow, 1893). These efforts were not enough. In 1746, records show that men were appointed to set up gates across any roads or paths leading to North Beach; in 1755, men were again chosen to mind the fences and gates protecting the beaches, impound cattle, and fine the owners of errant livestock. Likewise, fines were imposed for cutting beach grass or peas on the beach, or carrying away sand without the selectmen's consent (Dow, 1893).

In the early 1800s, the New Hampshire seacoast towns supplied large amounts of fish to inland communities and overseas (Heffernan and Stecker, 1996). The first inn on the beach was built next to fish houses on Hampton's north beach in 1800 to provide lodging for fishmongers coming from a distance (Figure 4.4b). A second house was built about 1806 at the base of Boar's Head on land that had been privatized through the division of shares (Figure 4.5). The first hotel was opened in 1820 on Boar's Head to serve the growing number of hunting and fishing parties that were coming to the region. Within 10 years, two more hotels were built and inns appeared further up the coast (Dow, 1893, Parsons, 1905). One of the new hotels, the Hampton Beach Hotel, was advertized in the 1820's as "one of the finest facilities for fishing and

fowling that can be found in the United States (brochure in the New Hampshire Historical Society archives)." The incentives for privatization were growing.

On March 30, 1846, a special town resolution was passed to reiterate the public nature of the beach lands: "Whereas, the inhabitants of Hampton, from the commencement of its settlement, reserved for their convenience and as we believe for the convenience of future generations, a certain part of their territory, lying and bounded upon the sea-shore, as we believe, its whole length from one extremity to the other, without any individual reservation whatever, . . . [and] that they [the town] have ever exercised exclusive jurisdiction over the same . . . ." The resolution noted that individuals had tried to enclose and claim parts of the commons, and that if the town lapsed in enforcing the lands' public nature, the voters feared the outer coast would be developed "from one end to the other (Dow, 1893, 508, quoting the town record)".

Rye's coastline is rockier than Hampton's, but the beaches and marshes were subjected to similar pressures during this period. The growing recreational interest in the outer coast led to the construction of several elegant Victorian resort hotels next to the sea in Rye. By the mid-eighteen hundreds, Rye and Hampton had became fashionable summer vacation spots for wealthy urbanites from Boston, New York, and other eastern cities (Dow, 1893, Parson, 1905).

In 1866, Hampton's town selectmen inquired about their legal rights against squatters once again. "Day houses" or "summer houses" were springing up along the beach. In theory, people did not sleep in them, but used them during the day for shelter or picnicking (Randall, 1988). Camping became fashionable in the mid-1800s, however, and the distinction between long-term camps and squatters began to blur (Figure 4.6). John Greenleaf Whittier wrote an evocative poem in 1867, describing the open--but not unpopulated--spaces of Hampton Beach

(See selected verses of the "The Tent on the Beach"in Appendix 4). By 1878, sixty to seventy small houses and "shanties" had been put up along the sands (Dow, 1893, Randall, 1988). In 1878, another resolution was passed in town meeting stating that the Beach was reserved for the public good, and that town authorities had no right to sell or lease any portion of the lands (Dow, 1893, p. 509). The selectmen were authorized to remove most of the houses and sue those who refused to move (Randall, 1988, p. 319; *Town v. Hill et al.*[13]). The defendants settled out of court, and agreed to remove the houses. By the time Joseph Dow was finishing his history of the town in 1892, the case was back in court because many of the squatters refused to move (Dow, 1893). The outcome of that particular case is unknown, but the town did eventually prove its ownership of the lands in court.[14]

The Changing Infrastructure and Regional Economy

The pressures on the lands that fall under the public trust were intensified as the population rose in the region, the regional economic base changed from farming to industry and services, and changes in transportation made the area more accessible. Farming had formed the economic base of most of New Hampshire's coastal towns throughout much of their history, but farming was always augmented with other forms of income–particularly fisheries and shipping (Randall, 1988; Steinberg, 1994; Heffernan and Stecker, 1996). By 1800, however, the fisheries were in noticeable decline, and by 1900, the clam flats, hake, haddock, and mackerel were exhausted (Dow, 1893; Randall, 1988). Haying in the marshes and some fishing and did continue,

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[13]*Town v. Edson Hill, Albert Daniels, and Bushrod W. Hill,* Rockingham District Court, Equity Division, 1879)

[14]*Hampton v. Palmer, et al.,* 102 N.H. 127 (1959)

however. Figures 4.7a and b are photographs of haystacks in the marshes taken about the turn of the century (1900).

The coastal communities actively searched for other forms of income. The growth of tourism through the 1800s and 1900s provided welcome capital inflows to Rye and Hampton. It was linked to the growth of industrial cities to the west and south, such as Manchester, Lowell, Haverhill, and Boston, to an increase in people's leisure time (Steinberg, 1994; Heffernan and Stecker, 1996), and to changes in the coast's transportation infrastructure.

Building a Coastal Road

The first formal town record of investment in a road parallel to the coast (though somewhat inland) was in 1810 (Dow, 1893). In 1821, a coastal path from Winnacunnet Road (perpendicular to the coast) and Boar's Head was improved to encourage hunting and fishing touring parties along the beaches. At that time, boats were the main means of travel up and down the coast. In the 1830s, steamboats plied the coast from Portsmouth to Hampton Beach, bringing tourists, and providing meals and music while they cruised (Randall, 1988). In the 1840s the railway was expanded to Exeter and Portsmouth, and hotels were built in Hampton and Rye for wealthy vacationers (Dow, 1893; Parsons, 1905; Randall 1988; Steinberg, 1994; Heffernan and Stecker, 1996). In the 1850s, roads were improved again, and stagecoaches carried tourists from Portsmouth and Exeter to the growing number of hotels and rooming houses along the coast. Buggy rides on the sands were a particularly popular past-time (Figure 4.6) (Dow, 1893; Parsons, 1905).

By the 1880s, the beaches were the towns' largest source of income. After the fisheries collapsed, tourism was their only industry, aside from residual farming, which was being

undersold by inexpensive crops from the midwest (Heffernan and Stecker, 1996). In 1888, plans were made to lay out a road from Great Boar's Head, past the fish houses and day houses on the beach in Hampton, to Little Boar's Head on the Rye line where summer homes were being built (Figure 4.8 is a photograph of some of the large summer homes that were being built on the Rye coast near the turn of the century). This facilitated a two-way traffic between the farmers and fishermen in Hampton, and the wealthy vacationers in North Hampton and Rye, who Hampton hoped to lure to the businesses and entertainment in Hampton. The road was funded by Hampton, North Hampton, and the State (Randall, 1988).

A series of fires destroyed several of the more fashionable hotels in Hampton and Rye in the late 1800s, and many of the wealthier patrons were lured farther on into the White Mountains to hotels like Bretton Woods and into Maine (Heffernan and Stecker, 1996). In Rye, some of the ex-hotel land stood idle for several years, until the market for summer cottages grew. The land was divided and sold to individual owners, beginning in the early 1900s. (The tax map in Figure 3.7b shows lands and streets that were created on the land of Ocean House, one of the defunct hotels). The combination of the loss of the upper-class hotels with collapsing fisheries and cheap farm produce coming in from the West, turned some in Hampton and the State toward developing a more broad-based tourism clientele for the coast--particularly for the workers in the nearby industrial towns and cities in New Hampshire and Massachusetts (Steinberg, 1994; Dow, 1893; Randall, 1988). A new road along the outer coast was part of this plan.

Peter Randall quoted a correspondent for the *Hampton Union* who predicted in 1895 that land along the road would become valuable (and available) for summer homes. The advantage of permitting the construction of permanent summer homes was that it would "keep the entire

frontage free from encumbrances and elements of the baser sort (Randall, 1988, p. 36)." In other words, townspeople hoped that the ocean front would become a middle class residential area in order to police the tenters and squatters springing up on the dunes. In 1896, townspeople voted in Hampton town meeting to place stone posts marking all land east of the coastal road as public domain and opening the land to the west of the road to development (Randall, 1988).

1897: Irrevocable Changes in the Coastal Public-trust Resources

In April, 1897, the Hampton town meeting passed two measures that irrevocably changed access to and, indirectly, the physical nature of the public-trust lands along the entire coast. First, the Exeter Street Railway (a private electric trolley line being extended to the outer coast) was made property tax-exempt to help the company recoup the costs of laying tracks and stringing power lines to and along the shore. In its first year of service (1897-1898), 554,849 people rode the trolley to and from Hampton Beach (Randall, 1988).

In the second motion, a 99-year lease was given to the Hampton Beach Improvement Company (HBIC) with permission to develop the sand dune region between the great marsh and the sea–i.e., the central dune area of the former Great Ox Common.[15] HBIC was a private company, formed by nine local men, whose only obligations to the town were to pay a $500 a year rental fee, arrange to have buildings put up as soon as possible with some quality control on

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[15] The Resolution adopted was as follows: *Whereas the land owned by the town extending from the Island Path to the river mouth not being utilized and will not be for any town purpose nor yield any income to the town and whereas said land being so well located and so convenient for cottage purposes under the new Exeter Street Railway travel, it is capable of yielding a large income to the town and greatly increase taxable property and whereas there are responsible parties ready and willing to lease and improve the same for the town's interest therefore resolved that the Selectmen be instructed to lease the same to the Hampton Beach Improvement Company at such rental and under such conditions as will be for the best interest of the town and for the most valuable improvements of said land and that said Selectmen be instructed to lay out a road in a Southerly direction to [the] River parallel to the beach hill and to do what is necessary to improve said land* (quoted in Randall, 1988, p. 41)."

the construction, maintain the smaller roads and sidewalks, and not allow liquor at the beach (Randall, 1988; HBIC court cases[16]). The last condition was virtually ignored (Randall, 1988). In return, the town laid out a road on the back side of the dunes, provided police, fire, and sewer services, and for the first few decades built and maintained seawalls. The ostensible purpose of the lease was to increase the use the town-owned resources to generate income through permits and fees, develop taxable property (Randall, 1988), and to control the rampant problem of squatters on the sands. The town also gained jobs and an outlet for its agricultural products. The HBIC sold building rights, arranged the construction of commercial buildings and cottages, and collected rent in return. That arrangement remained in place for the entire 99 years of the lease, although the HBIC payment to the town slowly increased to $6,000 per year for the last decade of the lease (Randall, 1988, *Hampton v. HBIC [1966]*).

The struggles between the town and the HBIC began almost immediately. In 1901, members of the community complained that the foredunes--which were east of the road and not part of the lease--were being leveled by the company. Figure 4.9 shows Hampton Beach in front of the HBIC-leased lands about 1898. In it, some of the dunes have been flattened and planted with grass. By the time a resolution was passed in town meeting forbidding removal of the dunes, they were already gone. A seawall then had to be built to protect the road and buildings to the west. About 1911, the town began directly leasing lands in the "Plantation" area beneath Boar's Head, in order to retain better control of development and capture more of the financial

[16]*Hampton Beach Improvement Co. v. Hampton*, 77 N.H. 373 (1914), and *Hampton v. Hampton Beach Improvement Company*, 107 N.H. 89 (1966).

returns. By 1916, the town was leasing 560 lots between the Hampton River and the North Hampton line (not including the HBIC land) (Randall, 1988).

The HBIC lease clearly had become very lucrative--one Sunday in summer of 1914, 20,000 people were counted at the beach in front of or adjacent to the HBIC area (Randall, 1988). The selectmen tried to break the HBIC lease twice (in 1912 and 1953), but failed.[17] Between 1912 and 1914, Hampton collected $50,600 in taxes from leaseholders on HBIC lands, but had to refund it in 1915, when the state Supreme Court sided with HBIC, declaring the original lease valid.[18] In 1953, the town went to court again. Selectman Lawrence C. Hackett calculated that if the lease could be broken, Hampton would realize $2.3 million plus interest over the remaining 44 years of the lease. In Fall, 1966, the Supreme Court again declared the original lease valid and dismissed the case (Randall, 1988).[19]

When the HBIC lease was signed in 1897, the entire area south of Highland Avenue in Hampton was sand and marsh. Within 10 years, the dunes were fully developed, though many of the houses had to be built on stilts. A bridge was constructed across the river and marshes to the south, opening up a convenient route to the beach from Massachusetts. Street cars ran every half hour bringing thousands of visitors from the Merrimack Valley cities (Randall, 1988). The Exeter Street Railway was liquidated in 1927 (done-in by the car) but in the thirty years it operated, the entire outer coast of New Hampshire was transformed.

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[17]*Hampton Beach Improvement Co. v. Hampton*, 77 N.H. 373 (1914), and *Hampton v. Hampton Beach Improvement Company*, 107 N.H. 89 (1966).

[18]*Hampton Beach Improvement Co. v. Hampton*, 77 N.H. 373 (1914).

[19]*Hampton v. Hampton Beach Improvement Company*, 107 N.H. 89 (1966).

Ocean Boulevard

In 1899, with rising number of cars and other traffic along the coast, the New Hampshire legislature authorized the building of a macadam road along the outer coast from New Castle, through Rye and Hampton, to the Massachusetts line.[20] The road was surveyed, and in 1901, $20,000 was appropriated to build the road, with an additional $5,000 to be paid out in damages to the landowners affected.[21] The report on the road filed with the Secretary of State stated that the purpose of the road was to "[secure] to our people for all time, a free access to all points of the coast. . . . [and that] the completion of this highway would place our coast line in such a condition that people could never be deprived of its advantages."[22] Where the road followed the immediate coast, Governor's Council resolutions stated that the state right-of-way included the land between the road and the sea.[23] The road was laid out "with its westerly line close to the high water mark, long the easterly side of the land. . . .[I]t was the reputation of the community that the 1900 layout ran along the beach between the high and low water mark." [24] Encouraging tourism and coastal development[25] was the motivation for the road, but the authorizing language used was clearly such that public-trust interests were intended to be promoted and protected. Nevertheless, the traffic and opportunities brought by Ocean Boulevard became incentives for the

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[20]Chapter 89 of the New Hampshire Session Laws, 1899.

[21]Senate Journals, 1899, 1901

[22]*State of New Hampshire v. Carroll Jonathan Brown.* Superior Court Equity Suit, April Term, 1955, p. 4.

[23]*State of New Hampshire v. Carroll Jonathan Brown.*

[24]*State of New Hampshire v. William Goss Brown and Carroll Jonathan Brown.* Equity Suit #9369. April, 1955, p.2.

[25]The report cited in Note 3, above, went on to say that "The beautiful drives that would be afforded by this highway would be of great material advantage to the summer business of our state (p.4)."

continued erosion of public interests in and access to the coast. Because of the dynamic nature of the shore, the first seawalls were built to protect the road soon after it was finished (Parsons, 1905; Randall, 1988). People moved quickly to claim the remaining dunes between the road and the sea in both Hampton and Rye.[26] [27]

White Rocks Island and Hampton's Shifting Sands

The story of the development and demise of White Rocks Island in Hampton is an illustration of the absence of forward-thinking on the part of the town in the face of immediate financial gain from the public-trust lands. Hampton Beach is a barrier island--a large, long, unstable sand dune, cut at the southern end by the Hampton River--a fact both capitalized on and ignored by residents. The Hampton River channel naturally changes its path through the dunes in response to offshore currents, storms, and tidal action. Since records were kept in 1776, the river mouth has shifted as much as 2,300' E-W and 1,700' N-S (Randall, 1988). Bound Rock, a rock which marked the southeastern boundary of the town in the 1600s, was once in the river channel (Dow, 1893). Another ledge of rocks, called White Rocks, lay slightly north of Bound Rock. Currently, White Rocks ledge is on the south side of the channel, forming Beckman's Point, and Bound Rock is several blocks inland on the south side of the river--which is why part of the northern peninsula of Seabrook is actually part of Hampton (See Figure 4.2a). Figure 4.10 outlines variations in the channel between 1855 and 1931, and compares them with the current stabilized shore line.

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[26]*Hampton v. Palmer, et al.,* 102 N.H. 127 (1959); *State v. Brown and Brown,* # 9369 (1955) ; *New Castle v. Rand,* Rockingham Superior Court Equity No. 9723 (1958); *Purdy et al. v. State,* #97-405 (1997))

[27]*Journal of the New Hampshire Senate,* Thursday, April 30, 1931, p. 429.

In 1882, at a time when White Rocks was located about equidistant from either shore, Frank Beckman built a "gunning and fishing camp" out on the ledges. In the 1890s, shifting sands connected the rocks to the main beach to the north. The newly created land was claimed by squatters-rights by Beckman and others who built shacks on it for fishing and clamming. The town of Hampton claimed it as an extension of the beach, however, and in the 1903 town meeting the squatters were ordered to remove their houses by September 1 or pay rent to the town. Some people paid the rent, but Beckman did not and his cottage was torn down. He sued the town, won, and was allowed to rebuild, because the rocks were judged not part of the beach, but unclaimed land with no title history.[28] The fact that they were clearly subject to the tides was ignored. The other squatters lost. Figures 4.11a and b are photographs taken on White Rocks Island. The first photograph was taken about the late 1890's, when the sand bar had formed, but before any houses were built. Beckman's shack can be seen in the distance. The second photograph was taken a few years later. A number of cottages have sprung up, but Beckman's shack is missing from the end of the point.

With the town's title to any new dry sands secured (and having witnessed the stunning success of the HBIC lands), town officials laid out and began renting house lots on the sand spits. By 1910, there were 70 active leases in the area, with streets, sewers, and water mains. In 1914, the river changed course again, and 18 lots were destroyed. By November, 1928, only Frank Beckman's shack on the ledge of rocks remained (Randall, 1988). Between 1911 and 1928, erosion took an estimated fifty acres of land in the ephemeral sand areas–some 200 house lots,

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[28]*Frank Beckman v. Town of Hampton,* 74 N.H. 48 (1906).

including streets, and water and sanitation infrastructure. During those years, the town spent $50,000 on breakwaters (Randall, 1988; *Annual Reports of the Town of Rye).*

The Transfer of the Beaches to State Ownership

As the dunes were flattened to build roads, parking areas, and houses, the protective buffer against the sea was lost. The expense of maintaining the seawalls was high and a series of storms led the town to deed the beach front over to the State of New Hampshire.

During a winter storm in 1931, 30 to 40 homes were flooded in the South Beach area, and 15 were swept away. On North Beach, waves tore up Ocean Boulevard and damaged houses. In response, the state legislature passed a bill saying that the state would build breakwaters in return for a quitclaim deed to all the land east of the Boulevard.[29] In theory, the authorizing legislation of the Boulevard (discussed above) already placed the beaches under state jurisdiction, but that was being actively challenged in Rye.[30] In 1933, the Hampton town meeting approved the transfer to the State[31] and the State began constructing the sea walls with the help of the Army Corps of Engineers. The various day-houses and cottages that had sprung up along North Beach were finally removed by the state, except for the fish houses (and those cottages masquerading as fish houses), because they were still protected by the public-trust doctrine which granted rights to individuals to care for and launch fishing boats from the buildings (Figure 4.12) (Randall, 1988; *Hampton v. Palmer*, et al, [1959]).[32]

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[29]Senate Bill No. 77 and House Joint Resolution No. 25 (1931).

[30]*State of New Hampshire v. William Goss Brown and Carroll Jonathan Brown.* Equity Suit #9369. April, 1955

[31]*1934 Minutes of the Town Clerk, Hampton, New Hampshire.*

[32]*Hampton v. Palmer et al.,* 102 N.H. 127 (1959).

In the late 1940s, a landowner abutting the beach, Alfred Nason, tried to build a cottage adjacent to his house on former fish house land, claiming that he had bought the land when he had bought the fish house that had stood on it. The town sued and won. Superior Court Master Grinnell acknowledged the basis for confusion: though the land was public, "[a]s time went on, the owners of the fish houses conveyed their property. Their methods of conveyance varied. Some owners attempted to convey the land by quitclaim deed and in the settlements of estates the fish houses were variously included in the inventories filed–some as real estate, some as real property. . . ."[33] To eliminate this particular encroachment on the public resource, the State and Hampton agreed that most of the remaining fish houses should be torn down, excepting two that were still being actively used for commercial fishing purposes (*Hampton v. Palmer, et al. [1959];* Randall, 1988*)*.

A number of the old fish houses still stand on the Rye and North Hampton line, because individuals were successfully able to claim title to the area between Ocean Boulevard and the sea[34] (Figures 4.13a and b). It is important to note that the coastline in this area by its nature attracts fewer tourists than Hampton's shore. Thus, one can argue that town officials would not be as highly motivated to preserve the public spaces as in Hampton. In addition, Rye has had a different community of residents, with strong political connections, that have sought a different kind of development along the coast (as is the case in the current court case). Middle and upper class "cottages" were already numerous on Wallis Sands and Rye Beach at the time of the

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[33]*Alfred B. Nason v. Town of Hampton,* Equity Suit.

[34]*State of New Hampshire v. William Goss Brown and Carroll Jonathan Brown.* Equity Suit #9369. April, 1955.

completion of Parson's history in 1905 (Parson, 1905). In the Rye case, *State v. Brown*, which culminated in 1953, the Browns successfully challenged the State's claim to the lands between Ocean Boulevard and the sea. As part of the documentation for the case, note was made of a letter written in 1933 from the State Commissioner of Transportation suggesting that the Browns build on the contested land (east of Ocean Boulevard) in order to settle title. They did, the buildings remained unchallenged by the town or state, and by the 1950s the dunes were officially privatized.[35] The same family of Browns are litigants in the current suit over beach rights.

In Rye, today, a large part of the community feel that a privileged few are trying to close the coast by means of the current court suit.[36] Affidavits by Rye townspeople have been filed with the court testifying that they and their parents had free use of the dry sand beach throughout their lives--long before many of the current houses were built on the flattened fore-dunes.[37] The town of Rye has taken an active position with the state on the public nature of the coastal lands, but, unlike the state, they have filed a brief that asserts that title in the lands below the metonic tide is a shared public/private title (*jus publicum/jus privatum).*[38] The brief filed by Rye was the primary brief to recognize that the public-trust domain as one of shared rights–the others treated it as an "either/or" title in their briefs.

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[35]*State v. Brown*, Equity Suit #9369.

[36]N.H. Representative Ruth Lang, personal conversation.

[37]*G. William Purdie, et al. v. Attorney General.* State of New Hampshire Supreme Court, No. 97-405. Brief for the State of New Hampshire.

[38]Brief for the Town of Rye. *Purdie et al. v. Attorney General.* 97-405.

The Final Privatization of Hampton's Leased Lands

Hampton has now privatized almost all of its common coastal lands. In 1962, in response to a petition from the beach precinct, the town appointed a committee to consider whether the leased lands should be sold–there were about 400 town lessees on or adjacent to the beach, not including the HBIC lands (Randall, 1988). If the town kept the land, it could retain control over the development and transfer of the lands, and it could continue to get income from the leases. Conversely, if it sold the lands, control would be reduced, but the town would reap an immediate windfall. There is no readily accessible record of the discussions that took place at the time regarding the permanent surrendering of trust lands, but it must have been controversial because the committee recommended against selling in 1963, and the town-held leases were extended. In 1970, the town voted to allow the HBIC lessees to extend their leases with the town beyond the 1997-end of the HBIC lease (Randall, 1988), presumably to encourage continued investment in the property. The townspeople voted that the selectmen could sell the town-leased lots at the 1968 land valuation. In 1972, the town voted that the land should be sold at current market value, but it continued to vacillate–in 1974, the town meeting ordered the selectmen to halt any sales in progress (Randall, 1988). In the 1982 town meeting, the town adopted a four-part report that recommended sale of the land at 30 percent of fair-market value–recognizing the leaseholders' long-standing interests, setting up a Real Estate Commission and appraisal process, and provision of town-financed mortgages at a concessionary rate for 20 years. In 1982, 650 lots went up for sale. The sale of HBIC lots was included in this arrangement, and although they were suspended for several years in the mid-eighties, HBIC sales were resumed in 1988 (Randall, 1988).

By the end of 1998, 65 lots in the beach precinct remained as lease-holds, with the lease payment equal to the taxes on the land plus two percent of the land's value. The 1997 financial statement for the town reported about $95,000 in income from leased town lands. The Real Estate Trust Fund contained $13,456,000, all of which came from the sale of beach properties. The Fund earned about $838,000 in interest, of which about $826,000 was transferred to the General Fund to reduce property taxes. Thus, income from the sale of lands held in the public trust since the 1630s now subsidizes town operations.[39] Although the town master plan recommends designating part of the Fund for preserving and enhancing open space and public-trust resources, this has not happened (Town of Hampton, 1995; Hampton Town Planner, personal communication).

Town Zoning and Public-Trust Resources

Town planning and zoning did not come easily to the New Hampshire coast. Their absence during critical years of coastal development has influenced the shape and nature of the public-trust resources more than their presence now can. With a strong private constituency of businesses and individuals invested in what were once public trust lands, Hampton and Rye are generally limited to defending and mitigating past decisions.

In 1937, when Hampton voted against setting up a zoning board, a prominent citizen baldly stated that "the greatest stagnation in Hampton Beach would be a zoning board (Randall, 1988, p. 161, quoting Joseph Dudley)." In 1949, when a zoning board was finally established in

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[39] *1997 Annual Report of the Town of Hampton, New Hampshire,* and Angela A. Boucher, Deputy Assessor, personal conversation.

Hampton (1953, in Rye),[40] the dunes were already leveled, sea walls built, many acres of tidal wetland filled, and the central beach areas had become a dense conglomeration of large and small cottages and odd businesses. Zoning districts were generally drawn to accommodate uses already in existence (Town of Hampton, 1995; Town of Rye, 1998).

In both Hampton and Rye, the outer coast, including lands defined on the surficial geology maps as sand and salt marsh, has been far more densely built-up than the inland areas. The lot-size requirements are dramatically lower in these areas, businesses are more likely to be interspersed with residences, and the number of permitted living units on a lot are higher in coastal areas than inland (Town of Hampton, 1995; Town of Rye, 1998).

In both towns, the coastal areas (extending to the upland boundaries of the salt marshes) are identified by Flood Insurance Rate Maps[41]as special Flood Hazard Zones. Although undeveloped land in these zones is generally precluded from development by wetlands conservation ordinances (Town of Hampton, 1998; Town of Rye, 1998), most of the coastal Flood Hazard Zone is already developed. Buildings in these areas are supposed to be constructed on pilings or anchored with columns, and able to withstand storm wave battering, however.

Hampton's zoning ordinances instruct that all new construction in the Flood Hazard Zone should be located landward of the reach of the mean high tide (Town of Hampton, 1998, p. 64). This places Hampton squarely in non-compliance with the State law, which locates the boundary of state property interests at the metonic tide line. In contrast, Rye ordinances use the extreme

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[40]The Rye Beach Precinct, in the southeast corner of town, has long been the focus of 'up-scale' large-lot development. The Precinct initiated localized zoning in 1937 (Town of Rye, 1998).

[41]Prepared by the Federal Emergency Management Agency–Federal Insurance Administration, 1987, available in the Rye and Hampton, NH Town Halls.

high tide (in other words, the metonic tide) as the delineator (Town of Rye, 1997, p. 20).[42] The Hampton Zoning board has not considered changing the codes.[43] In the area of Hampton called the Willows, the tides regularly flow beneath houses, which are raised slightly on stilts and/or sit on fill (Figures 4.14a and b). Although these houses and land have been privately owned for several decades, at least,[44] they are on public-trust land claimed by the state[45]--a fact ignored by all concerned.

In April, 1998, a five-year maintenance permit was granted to residents at the south end of Hampton Beach to re-grade the dunes, although alterations to the dunes are forbidden in high flood hazard areas (Town of Hampton, 1998). Residents complained that the dunes had grown from virtually flat to 14 feet high in the last decade, ruining their beach views and silting into their yards. The Conservation Commission instead recommended planting beach grass to stabilize the dunes and to preserve them as a sea barrier, but town residents opposed this on the basis that the state would then claim exclusive management rights to the dunes as conservation areas. The dunes have since been reduced in height (Heilshorn, 1998).

In Hampton, the core dune area and former HBIC lands are zoned for Seasonal Businesses. Most of the great marsh is zoned for Seasonal Residential (RCS), and the remaining beach areas are zoned "Residence A (RA) or Residence B (RB)" which are distinguished by lot size and building size minimums, and permitted activities (For example, RB lots can be smaller

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[42]It is important to note, however, that the *Town of Rye Master Plan* (1998) refers to state ownership below the "mean high tide" (p. 6-2)–i.e. not the state's position of the highest of the high tides.

[43]Per Tracy Lang, Hampton Town Planner, personal communication.

[44]Per the tax maps, Town of Hampton.

[45]David Hartman, Director of the N.H. Coastal Program, personal communication.

than RA lots –10,000 square feet as opposed to 15,000 square feet--and RB zoning permits multi-family housing, hotels, tourist services, etc.). There are no town conservation or public recreation zones, although much of the land falls within state wetland conservation districts (see below). In March, 1998, some of the former RCS and Seasonal Business (BS) areas were rezoned to RB, reflecting the trend in recent years for cottage and business conversions to year-round operation. Rezoned lots that are smaller than permitted are "grandfathered" (RCS and BS allow 6,000 and 5,000 square foot lots) (Town of Hampton, 1998). In some cases, this rezoning could potentially result in more permissive uses–such as allowing multi-family residences, hotels, motels, bathhouses, etc. in RCS zones where they previously were not. In each of these zones, 85 percent of the lot is allowed to be impervious surface (roofs, patios, driveways, sidewalks) promoting considerable run-off along the coast, which has negative impact on the receiving waters. As discussed below, there are contamination problems in the inter-tidal zones from storm run-off, and many of the shellfish beds–long a key public-trust resource–are closed.

Development along the Rye coast is less dense, with more open-space preservation–reflecting its different history and make-up from Hampton. The entire coast from Odiorne point south to Rye Beach District is regulated separately from the inland areas because development and redevelopment pressures are very high. The majority of the land abutting the beaches is zoned "General Residence (G)"--duplexes are permitted, the lot minimum is 44,000 square feet (88,000 for a duplex), and impermeable surfaces cannot be more than 50 percent of the lot (still high, but considerably less than Hampton). Elsewhere in Rye, lots are required to be one acre or larger. Businesses are not permitted, although there are small (grandfathered) in-holdings where there are stores, restaurants, and hotels. The majority of the marshes backing the

beaches are zoned as Conservation District, or Public Recreation and Conservation District, with two notable exceptions: the marshland south of Rye Harbor and behind Jenness Beach (Eel Pond area) are zoned "Single Residence". The outer edges of Foss Beach, parts of Wallis Sands, and Rye Harbor are zoned for Public Recreation (although Jenness Beach is a State Beach, it is not included in this zoning).

In both towns, the salt marshes lie within state Wetland Conservation Districts. The exact boundaries of the tidal wetlands have to be determined site-by-site, based on soils and vegetation, but the delineated zones follow the same general outlines defined earlier as within the public trust (underlain by marsh deposits and seaward of the three-meter elevation line). Rye ordinances explicitly define the edge of the marsh as the place reached by the highest flooding of the tides (Town of Rye, 1997, 301.7). Permits must be obtained from the N.H. Wetlands Board (under the Department of Environmental Services), and approved by the town Conservation Commissions, to conduct any dredging, filling, or construction within the districts or their buffers. In theory, the only activities permitted are those that protect the public values of the wetlands (aesthetic, flood protection, aquifer recharge, wildlife habitat, and recreation). Gathering marsh hay and seaweed debris for fertilizer is still allowed in both towns, but rare.

Large parts of the tidal marshes in both towns are owned by the towns or various conservation organizations such as the Society for the Protection of N.H. Forests, Audubon Society of N.H., N.H. Fish and Game, and others. Many of these holdings are either not mapped on the town maps or are indicated with dotted lines, as exact locations and dimensions are often unknown, and title is passed by quitclaim deeds only. Despite the protected status of the marshes, however, many are damaged and seriously degraded (discussed below).

In summary, zoning came too late to preserve most of the natural resources that once existed along the coast. Overall, Rye's zoning codes reflect the public nature and environmental fragility of outer coast resources to a much higher degree than does Hampton's. The towns' ordinances reflect the "built-out" nature of the entire New Hampshire coastline, and actively preserve the current character of the area either through specific ordinances or "grandfathering". In both towns, the public values in the resources are threatened, either through continued efforts to privatize them (the current court case), or through erosion and degradation from overuse, development encroachment, or "run-off" causing problems such as nutrient loading, contamination, and freshening.

Run-off, Pollution, and the Clam Flats

The right to fish and swim in tidal waters is an intimate part of New Hampshire public-trust rights (see Chapter 3). These rights are compromised, however, by other activities in and adjacent to public trust lands that generate contaminated run-off. The problem has been endemic for many years. Dense development in the former dune areas and headlands is a particularly serious problem. The rapidly draining, sandy or rocky substrate has very low ability to trap and store nutrients. These areas usually abut wetlands. Any surface or subsurface contamination migrates very quickly into the receiving waters–be it ocean, stream, or marsh. On soil-based, development suitability maps, the entire outer coast is either rated unsuitable for development (Rye, 1998) or diplomatically not rated at all (Hampton, 1995).

In the same town meeting in 1933 that Hampton voted to turn the beaches over to the State, townspeople also approved building a new sewer for the beach district. Before this time, a number of buildings had only outhouses, and about 1000 hotels, rooming houses, restaurants, and

cottages were connected to a pipe system that pumped raw sewage about 300 yards off-shore. Under certain conditions, sewage was thrown up in windrows on the sand (Randall, 1988). A state-of-the-art sewage treatment system was built in the early 1930s and has been expanded and renovated several times since, but contaminated outflows still remain a problem (DES, 1997).

Rye has not been exempt from near-shore contamination, either. Although there is little detail regarding the issue, the southeast corner of Rye (Rye and Jenness Beach districts) established a private sewer system that piped raw sewage into the sea until the early 1990s, with significant off-shore bacterial contamination (Town of Rye, 1982). In 1990 to1992, residences in the area were connected to the Hampton sewer and wastewater treatment system. Most homes and businesses along the Rye coast still rely on individual on-site septic systems, however, which are very difficult to police, and located in highly permeable soils. This includes homes built on the barrier beaches at Wallis Sands and Jenness Beach (foci of the current court suit), and west of Ocean Boulevard from Wallis Sands to Foss Beach and Awcomin Marsh (site of the Sibson suit– see Figures 3.2 a and b).

In 1996, the New Hampshire Department of Environmental Services (DES), in partnership with the New Hampshire Estuaries Project, conducted a coastal survey to identify sources of bacterial pollution (DES, 1997). Researchers used counts of *E. coli* as an indicator of the presence of untreated, uncontrolled sources of effluent. It was chosen for several reasons: (1) *E. coli* is a primary subset of fecal coliform, and measurements of one are a good measure of the other, (2) the presence or absence of fecal coliform is used to classify shellfish beds, and (3) restoring public shellfish resources are a key goal of the New Hampshire Estuaries Project (DES, 1997; Chris Nash, NH Estuaries Project, personal communication).

Of the three key shellfish bed areas along the outer coast, two are closed (Little Harbor and Rye Harbor), and parts of the third (Hampton Harbor) are open only under dry conditions. In order to open shellfish beds, EPA standards set the required mean of the fecal coliform count in water samples at or below a most probable number (MPN) of 14/100ml. In addition, not more than 10 percent of the samples can have a MPN at or above 43/100ml (DES, 1996). One restaurant is the apparent source of considerable contamination in an arm of Little Harbor (*E. coli* counts between 33,800/100ml and >2,000,000/100ml from discharge linked to it). Once this source is corrected, parts of the Harbor may be opened for clamming–400 acres of fishing ground potentially could eventually be available (DES, 1996). Surface run-off from adjacent areas such as the condominium complex at Wentworth-By-The-Sea must be continually monitored, however. Rye Harbor is closed, and will likely remain so indefinitely because of the low quality of a tidal creek that flows into it and because of the number of boats moored there (DES, 1996). Two clam flats (66 acres) are open in Hampton Harbor when there has been less than 0.1" rain in last five days (allowing time for the harbor to flush and the clams to purge). The flats can only be fished between November 1 and May 31, because there are too many boats in the summer and there are high bacteria counts in October (when it is still warm enough for bacteria to proliferate and vegetation is largely dormant and unable to filter the water). Three other flats in the Harbor (100 acres) are closed because of a waste water treatment plant and other non-point outflows, including off-shore from the Willows, the area where houses are built on the marsh (Figures 4.15a and b) (DES, 1996).

DES also tested catch basins for the storm drains along Hampton Beach. Although some of these drain into Hampton Harbor, most drain directly into the sea. Two catch basins east of

Ocean Boulevard, adjacent to the main beach in Hampton, had background counts of *E. coli* that were too high to measure, one had a count of >200,000/100ml, and one had a count of 80,000/100ml. Other basins along the same stretch of beach stank, but had lower counts. North Beach was significantly better than South Beach with counts in two basins of 420 and 900/100ml (DES, 1996).

Inevitably, outflows from these drains must be affecting the receiving waters. The worst outflows are during heavy rains. Fortunately, people are most likely to be swimming near these outflows when the weather is dry. Leaks in the sewer mains, illegal hook-ups, leaching from on-site disposal systems, and poor habits by people on the streets (such as discarded food, dog wastes, and other forms of dumping) could all be to blame for the localized high *E. coli* counts. DES does not know the exact source of the problems (DES, 1997). Close cooperation between the N.H. Department of Environmental Services and the individual town Departments of Public Works will be needed to trace the problems and enforce corrections.

Salt Marsh Restoration: Nutrient and Water Flows

In 1993, the Natural Resources Conservation Service (formerly the U.S. Soil Conservation Service) conducted an inventory of New Hampshire's salt marshes (NRCS, 1996). It was a joint study with N.H. Audubon, the N.H. Department of Environmental Services (the Wetlands Bureau), Rockingham County, and the University of New Hampshire Jackson Estuarine Laboratory. Based on soil surveys, they found that about 6,200 acres of salt marsh still remain in the state, of which about 1,000 acres are seriously degraded. Most of the marshes are located along the 18 miles of the outer coast (there are some salt marshes in the Great Bay, Piscataqua, and Cocheco River estuaries). The majority of the marshes that are degraded and dying were

found in Hampton and Rye, all due to non-natural obstructions in tidal flow (NRCS, 1996). The impact of the degrading marshes has a cascading effect on public-trust resources, as the marshes are nurseries and key habitat for a number of valued finfish and shellfish (Conklin, 1995).

The primary ways in which the marshes are affected are constricted outlets, filling, draining, nutrient loading, changes in the sediment regimes, invasive plants, and freshening (changes in the saline/fresh water balance, particularly from the combined effect of blockages and increased surface run-off in developed areas–see Figure 4.13b). In the spring and summer, *Phragmites australis* (Phragmites), *Lythrum salicaria* (loosestrife), and/or *Typha augustifolia* (cattails) are present in several of the salt marshes in Rye and Hampton.[46] These species indicate that the flow of salt water is constrained and that the marshes have freshened.

Ocean Boulevard is the single largest barrier to nutrient and tidal water exchange on the coast. Town road crossings also affect flows, and to a lesser degree, the railroad and private roads (NRCS, 1996). The surficial geological maps (Figures 4.3a, b, and c) indicate areas where flows have been blocked by fill. In addition, bridge spans constrain tides when the culverts beneath them are too small (Figures 4.13a and b).

In Rye, Parsons Creek by Odiorne Point, parts of the marsh to the southwest of Rye Harbor, Eel Pond, and Bass Beach were all found to be seriously degraded. Eel Pond, which is behind Jenness Beach–where some of the plaintiffs in the current suit live--was judged to be too degraded to restore (NRCS, 1996).[47] Awcomin Marsh (Figures 3.4a and b), the site of the disputed land in the Sibson court case) was the subject of a large restoration project in the 1980s

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[46]Personal observation

[47] See http://nh.nrcs.usda.gov/saltrest.html

and is now relatively healthy. Since flows have been restored in Awcomin, *Phragmites* has given way to salt marsh vegetation.[48] The southwest side of Rye Harbor received new culverts and ditches between 1994 and 1997 and is being monitored for recovery. Parson's Creek Marsh behind Wallis Sands (where many of the landowners participating in the current public-trust suit live) received new culverts and tidal-creek bank stabilization in 1997-1998. The in-flow into the marsh behind Bass Beach has been significantly enlarged. An example of the change in water exchange brought about by Ocean Boulevard at Bass Beach can be seen by comparing Figures 4.13a and b. All of the projects above are the result of cooperative efforts (technical and financial) among the town, the state (N.H. Department of Transportation and N.H. Coastal Program), Rockingham County (Planning and Conservation Commissions), the federal government (NRCS, Fish and Wildlife Service, and the EPA).

The salt marsh areas in greatest distress in Hampton are the Meadow Pond area (formerly Huckleberry Flats) behind North Beach, parts of the Little River marsh on the northeastern line, and the area of the Great Marsh west of the abandoned railroad (NRCS, 1996). In 1996-1997, this marsh was opened up to tidal flow with a new culvert, funded in part by the Federal Emergency Management Agency because of its location in a highly flood susceptible area.[49] *Phragmites* is now dying-off and being replaced naturally by salt-marsh vegetation.

The Little River marsh has a more complicated outlet regime: two natural outlets existed, a southern one in Hampton through the dunes, and a northern one in No. Hampton. The North Hampton outlet has a culvert that is too small for adequate water exchange, and the southern

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[48]See http://nh.nrcs.usda.gov/saltrest.html regarding this and the following restoration projects.

[49]See http://nh.nrcs.usda.gov/saltrest.html

outlet is blocked with sand, but has the potential to breach and cause damage to adjacent landowners. Currently, the marsh is badly degraded. The state unequivocally considers these lands under the domain of the public-trust doctrine. Representatives of the Coastal Program and Dept. of Environmental Services have found it politically expedient to downplay the state claim of ownership in the last few years while working with adjacent landowners. Instead, it has applied the existing wetlands statutes to authorize activities in the marshes and has focused on negotiating cooperative relationships among the participants.[50]

In 1998, 125 residents and agency representatives attended a meeting brought together by the No. Hampton conservation commission to discuss the Little River restoration. The purpose was to present a plan by the NRCS and Army Corps of Engineers to install large culverts at the northern outlet to increase flows, and presumably restore the marsh while reducing flood risks. The abutting landowners support the project. The Hampton and No. Hampton selectmen and conservation commissions have approved the project, and funding and technical assistance is being pieced together from federal (Army Corps of Engineers, NRCS, Fish and Wildlife, EPA), State (Dept. of Transportation, Office of State Planning, Wetlands Bureau), and local non-profit organizations. The N.H. Audubon Society has been asked by the State to be the overall manager of the Little River marsh restoration process.[51]

Impact of the Current Dispute in the Courts Over Public-Trust Boundaries

The public-trust resources on the New Hampshire coast have long been under intense development pressure and demand for increased privatization. Whether the current dispute is

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[50]Richard Cook, N.H. Audubon Society, personal communication.

[51]Richard Cook, N.H. Audubon Society, personal communication and http://nrcs.usda.gov.

resolved in favor of a metonic tideline or the mean high tide will have small impact on management of the coastline. No spatial analysis has been performed in either town or by the state to determine the amount of land area that lies below the metonic or mean high tide lines, so that there is no information available on the exact extent of beaches, number of homes, or quantity of acres in the back marshes that are considered within the public-trust domain. Virtually all of the information is qualitative. Under the metonic ruling, some additional acres of back marsh or abutting uplands will fall under coastal wetland regulations that previously did not. Marsh owners have not joined the suit, even though privately-owned lands fall below the public-trust line (some of the participants in the suit also own marshlands, however.)

No economic analysis has been performed by the towns or state to estimate how defining one tide line or another will impact the tax structure of the towns or tourism revenues. For example, a home owner two blocks away from the sea has already stated she will appeal her assessment if access to the beach is restricted. Conversely, if the public-trust line is reassigned seaward, coastal owners would essentially gain a private beach for much of each day. If that happens, towns will no doubt have to re-examine near-coast and coastal property assessments.

About 16 percent of seacoast jobs are supported by tourism,[52] so that there could be some impact on the regional economy if the line is reassigned seaward. It is likely to be slight, however. A few restaurants and convenience markets along Rte. 1A in Rye may be affected, but most of the tourist services are located in Hampton where the beaches are unaffected because the State has title and coastal access is not compromised. Congestion in Hampton might increase if the dry

[52]N.H. State tourism reports on-line http://oz.plymouth.edu/~trav0/inhs (Mark Okrant, Director, Institute for N.H. Studies, Plymouth State College).

sand areas of Rye are closed. Beach patrolling and enforcement expenses could also rise in each of the towns, particularly if police are required to enforce no trespassing signs on the beaches.

Implications for Environmental Management

As the population continues to rise along the coast, development and recreational pressures will inevitably rise as well. Placing the public trust line at the metonic tide expands the lands to which the public has free access, and it also expands the lands explicitly subject to state and town wetland and coastal regulations. This could create more opportunities for public agents to manage, monitor, and regulate human behavior that affect coastal water quality, erosion, habitat, wildlife, and aesthetics. The impacts on the outer coast would be minimal, however. The ability of public agencies to protect fragile areas in the marshes and estuaries would be enhanced, but only by the extension of current wetlands ordinances further inland.

Conclusions Based on the Land-Use History

I started this exploration of the public-trust doctrine in Hampton and Rye by looking at what was literally on the ground within the area affected by the reach of the tides. A complex story has evolved regarding how the doctrine has actually interacted with resource management in those towns. Several key points emerged.

First, logically, there is a direct correlation between areas legally defined as within the domain of the public trust and particular geophysical conditions. They are areas underlain primarily by sand and marsh deposits, but which also include some wave-washed till and bedrock headlands. They are dynamic–naturally moving and changing in response to water and wind–and therefore not suitable for most types of building and development. The biological and physical resources are fragile, but highly productive–originally supporting whole communities with fish,

shell fish, and fodder–and are integral habitat for important fisheries and other biological resources off-site. People are drawn to these systems for their beauty and for relaxation. This was true under the land-use conditions of the 1600s, and it is true today. For all these reasons, there has been an obvious physical and economic utility to preserving the doctrine of the public trust as controlling in these areas.

Second, the towns appear to be the primary directing influence on how these resources have been used, protected, and developed. By "the towns," I mean the local governing and administrative bodies in the town–first, the yearly town meeting of all the voting residents, second, the selectmen, and third, the appointed agents of the selectmen or town meeting, such as the guardians of the beaches in the 1600s and 1700s, or the zoning and building commissioners today. Although state and federal agencies have grown in their oversight ability since the 1960s, and key ecosystem restoration efforts are occurring as complex joint negotiated efforts among local, state, and federal agencies, non-profit groups, and land owners, the town governments remain the principle actors in resource management. The towns laid the foundation that shapes the current resources, and the towns still have the primary power and responsibility to guide and monitor landowners and other individuals' behavior with regard to the preservation and management of the resource. Any further institutional study of the doctrine in New Hampshire requires a focus first on the towns, second on the state, and last, on the federal institutions that interact with the resources within the doctrine's domain.

Third, the doctrine has always primarily protected public uses that are economic in nature. That fact is particularly obvious in Hampton's history of the resources. The uses changed over time. First, they were natural resource-based–haying, fishing, transport. Then, they slowly

reoriented to tourism. Now, the focus appears to be on privatization and tax-revenue increases or (in the case of Hampton's Real Estate Fund) tax abatement. Each change in the dominant concept of what was useful (which won the most votes in town meeting), however, precluded other views of what was useful. For example, building Ocean Boulevard promoted human flows north and south on the coast, but severely constrained salt water flows in and out of the marshes–eradicating nurseries for fish and shellfish. Once the HBIC lands were leased and infrastructure investments made, reversal to a natural dune system, which protects wildlife and aesthetic values became unlikely or impossible.

The boundary analysis is incomplete. Nevertheless, the exercise of shifting the lens from case law and property-rights theory to an ecological and environmental history viewpoint has revealed a dramatically different image of how the public-trust doctrine has functioned "on the ground." In the following chapter, I look back at the concept of the public-trust doctrine as an environmental management tool, discussed in Chapters 1 and 2, in the specific context of the New Hampshire case. I also re-evaluate the utility of using ecological boundary analysis for the study of the doctrine.

Chapter 4

Figures

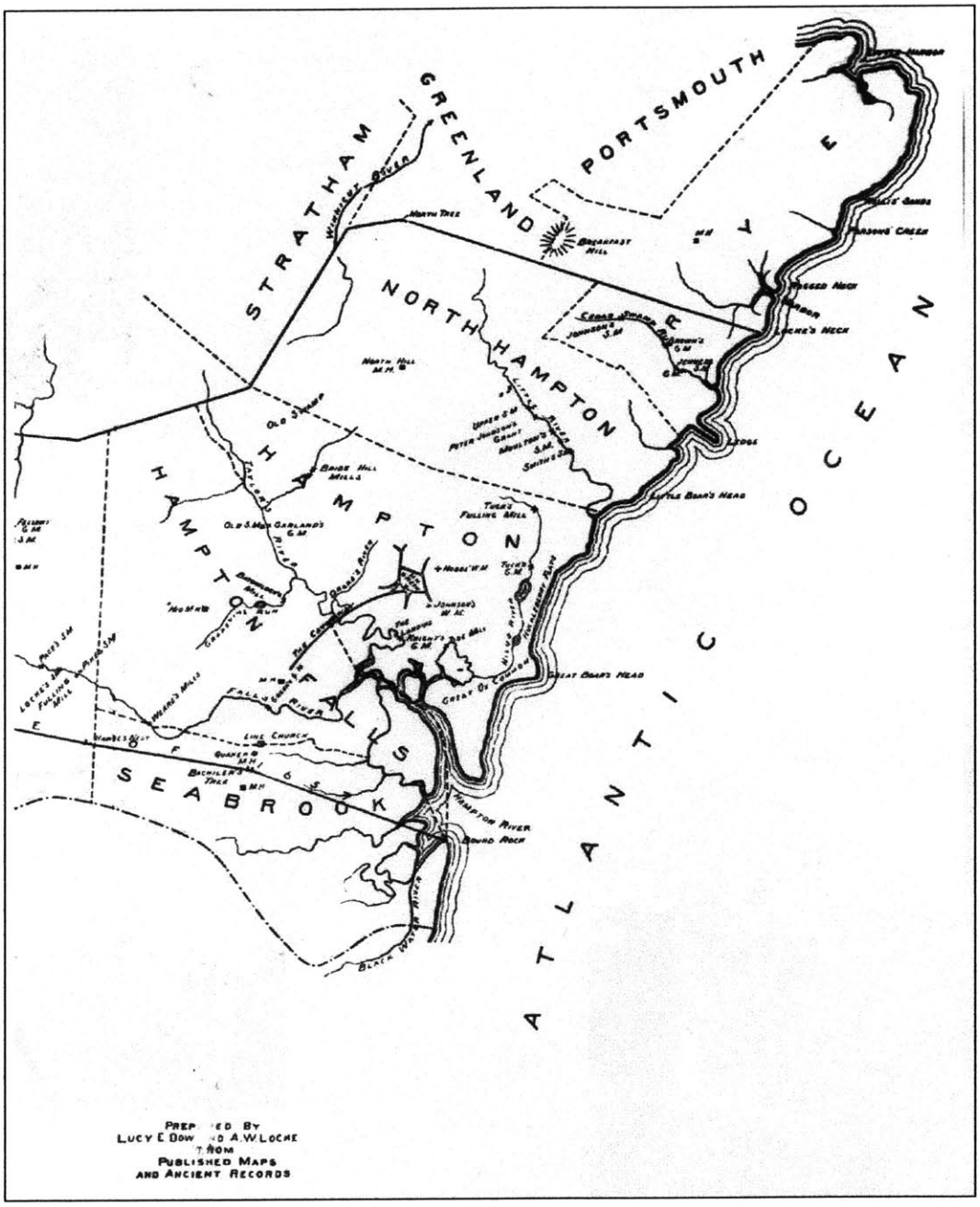


Figure 4.1a
Current towns overlaid with the lines of early land patents
Settlements as of 1638
Source: Courtesy of the New Hampshire Historical Society

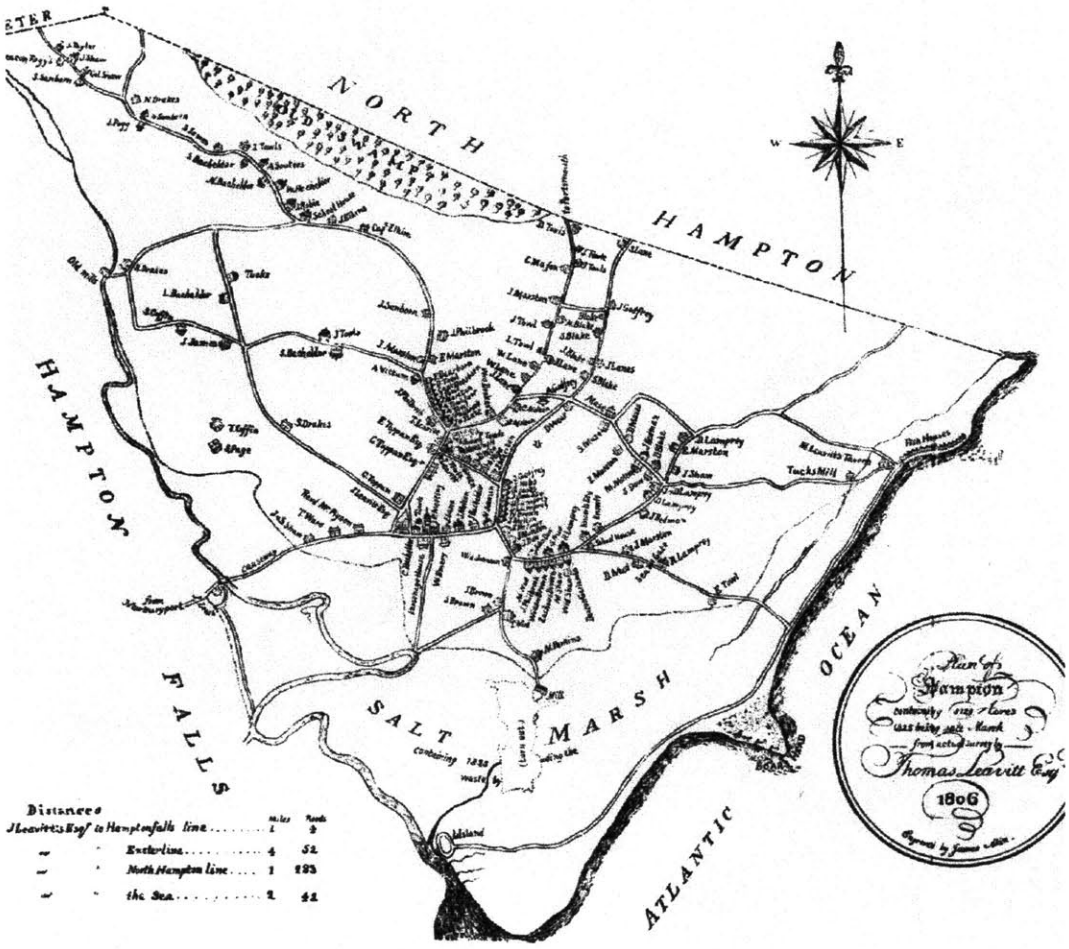


Figure 4.1b
Map of Hampton in the early 1800s.
Note the cart-way parallel to the beach and the area called the "Fish Houses" in the northeast corner.
Source: Courtesy of the New Hampshire Historical Society.

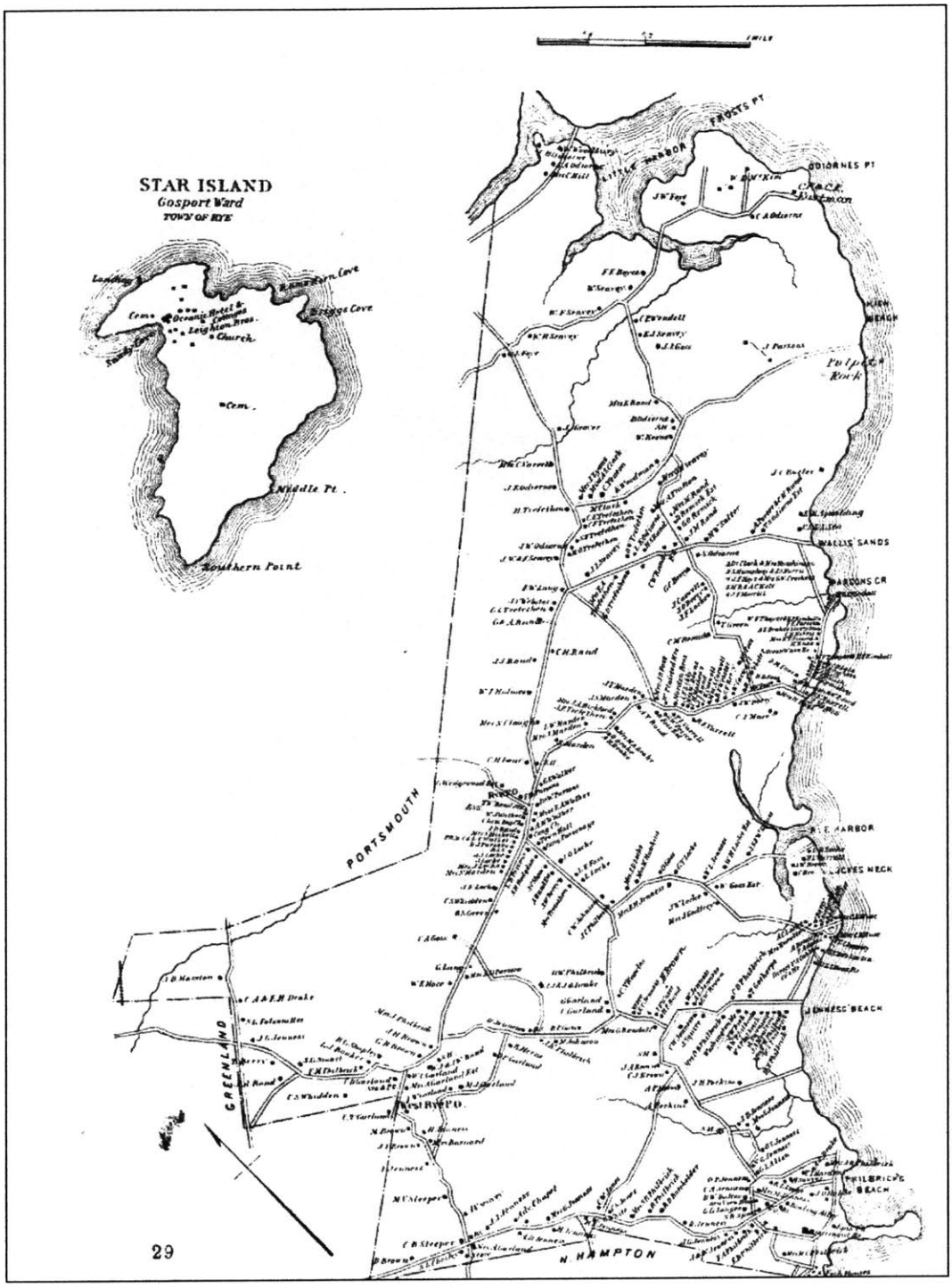


Figure 4.1c
Town of Rye, 1859
Source: Courtesy of the N.H. Historical Society

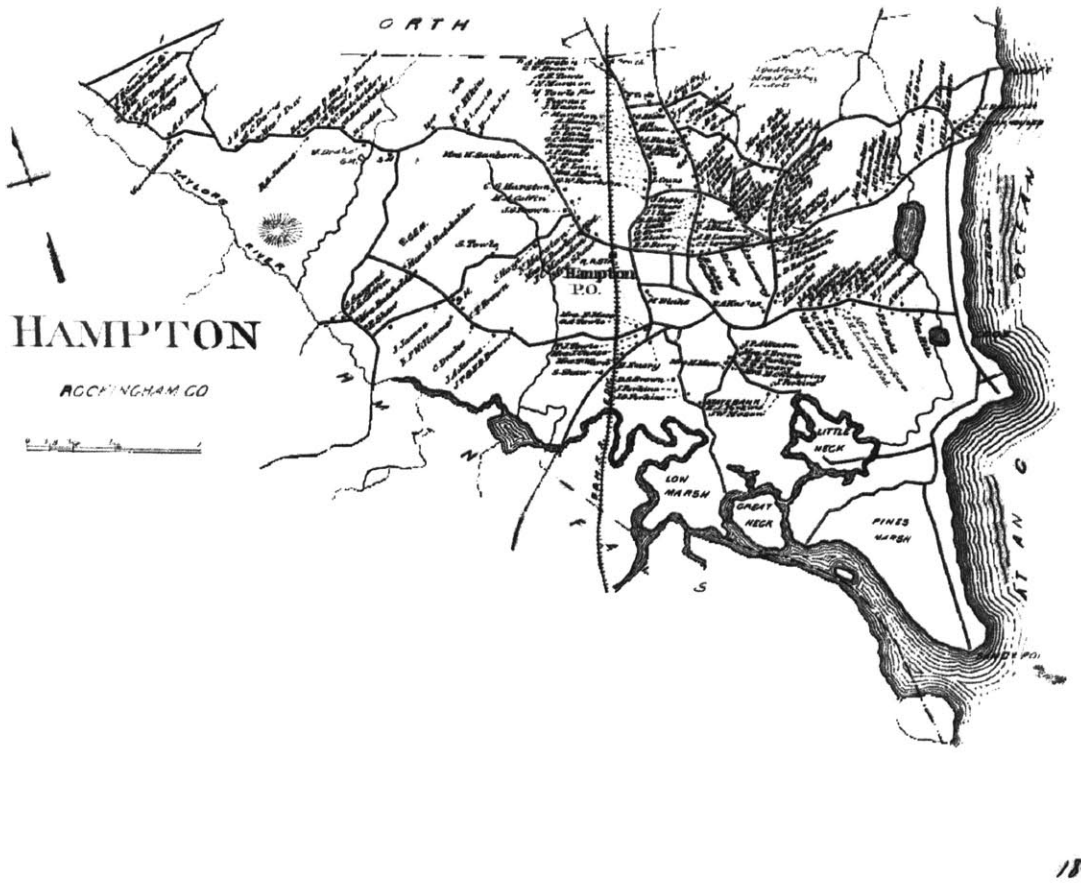


Figure 4.1d
Hampton circa 1892.
Note the lack of formal development on the coast, except for the cluster of fish houses in the northeast.
Source: Courtesy of the New Hampshire Historical Society

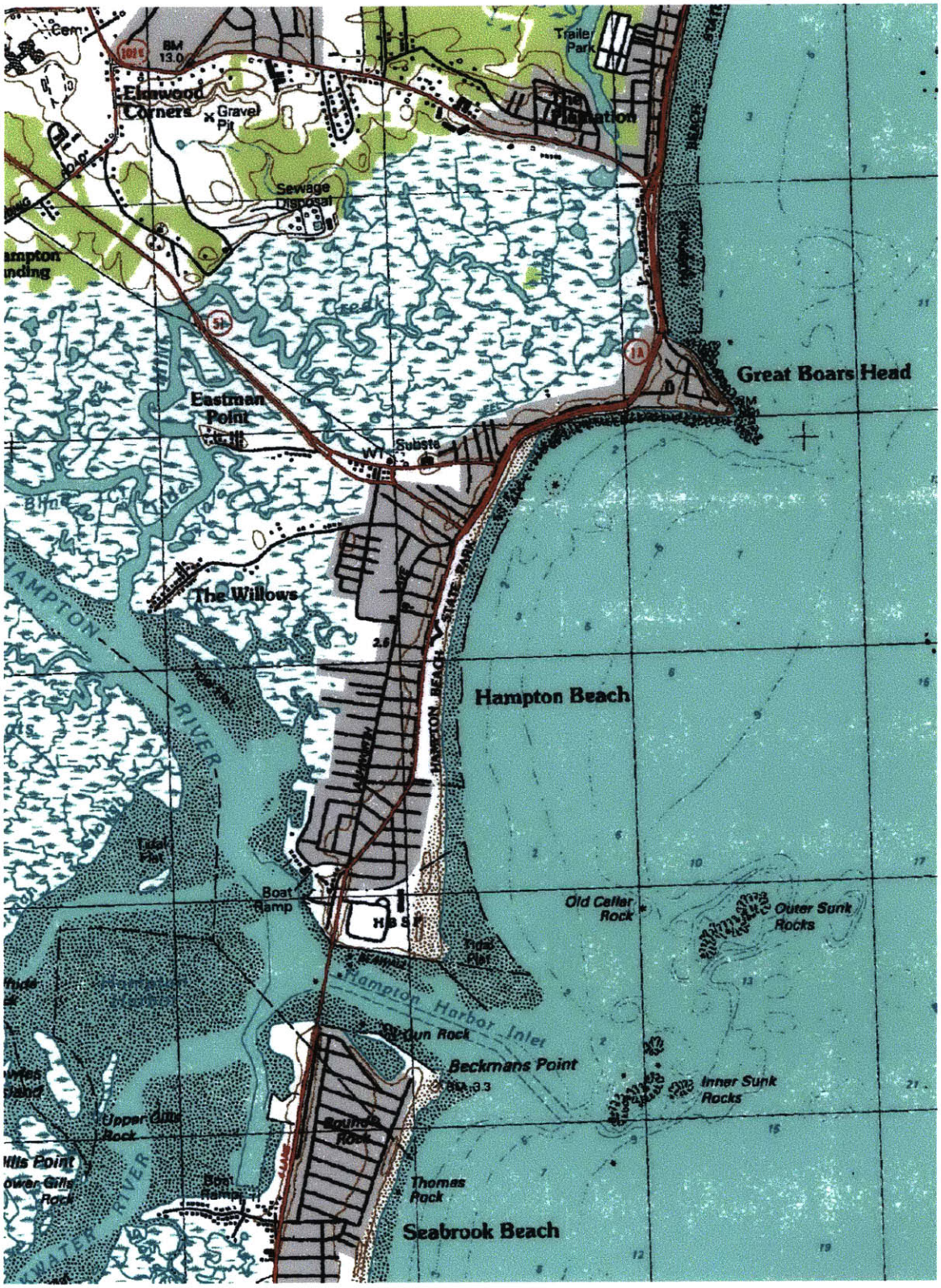


Figure 4.2a
Topographical Map of Hampton from Seabrook to North Beach
(Source: U.S. Geological Survey, *Exeter Quadrangle*, 1985)

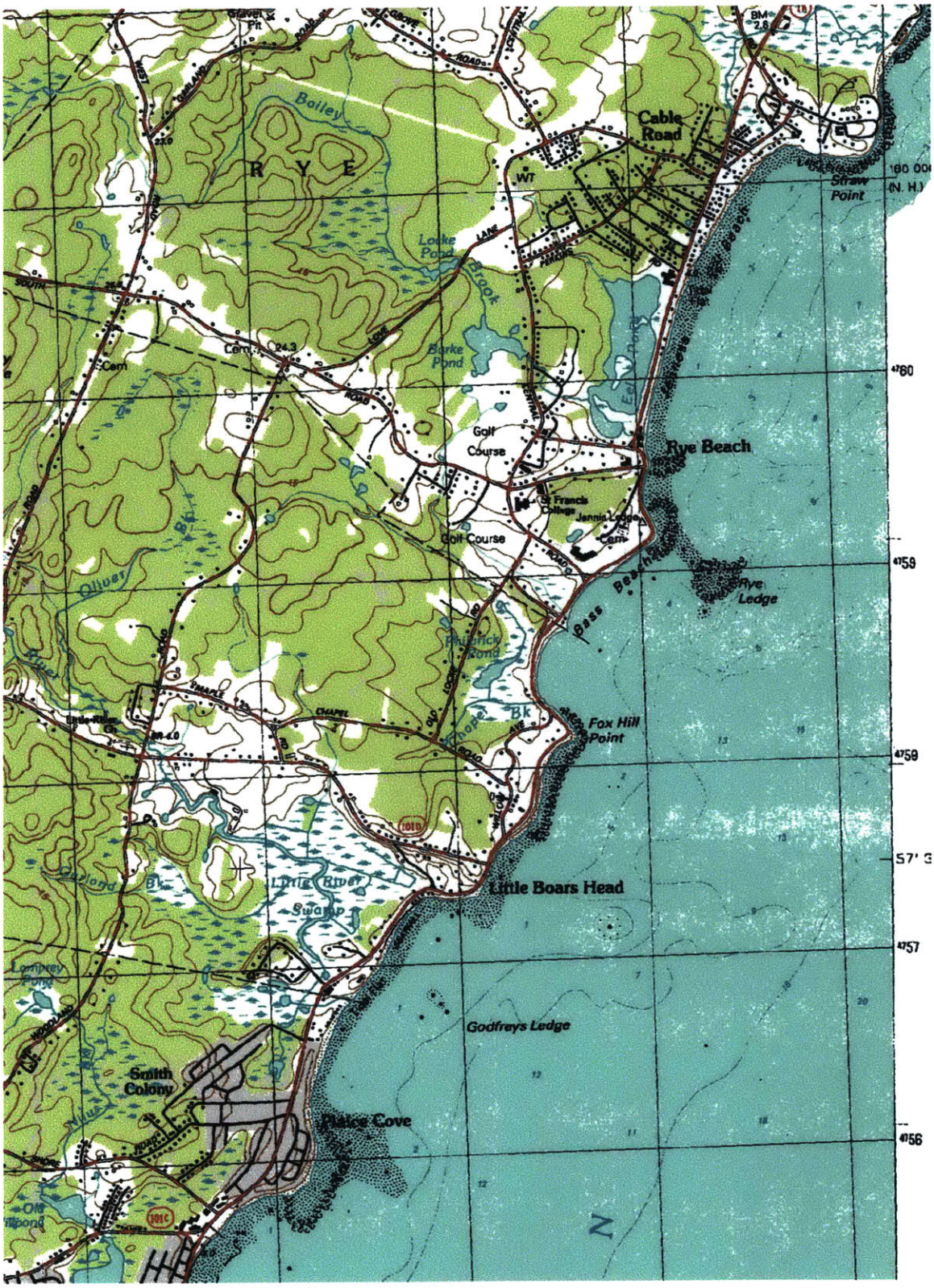


Figure 4.2b
Topographic Map of Hampton's North Beach to Rye's Straw Point
(Source: U.S.Geological Survey, *Exeter Quadrangle*, 1985)

Figure 4.2c
Topographical Map of Rye, from Rye Harbor to Odiorne State Park
(Source: U.S. Geological Survey, *Kittery Quadrangle*, 1989)

Figure 4.3a
Surficial Geology of the Hampton Coastline, Hampton Harbor to North Beach
Source: *Surficial Geologic Map of the Hampton 7.5 minute Quadrangle, New Hampshire–Massachusetts.* USGS Open File Report (color added)

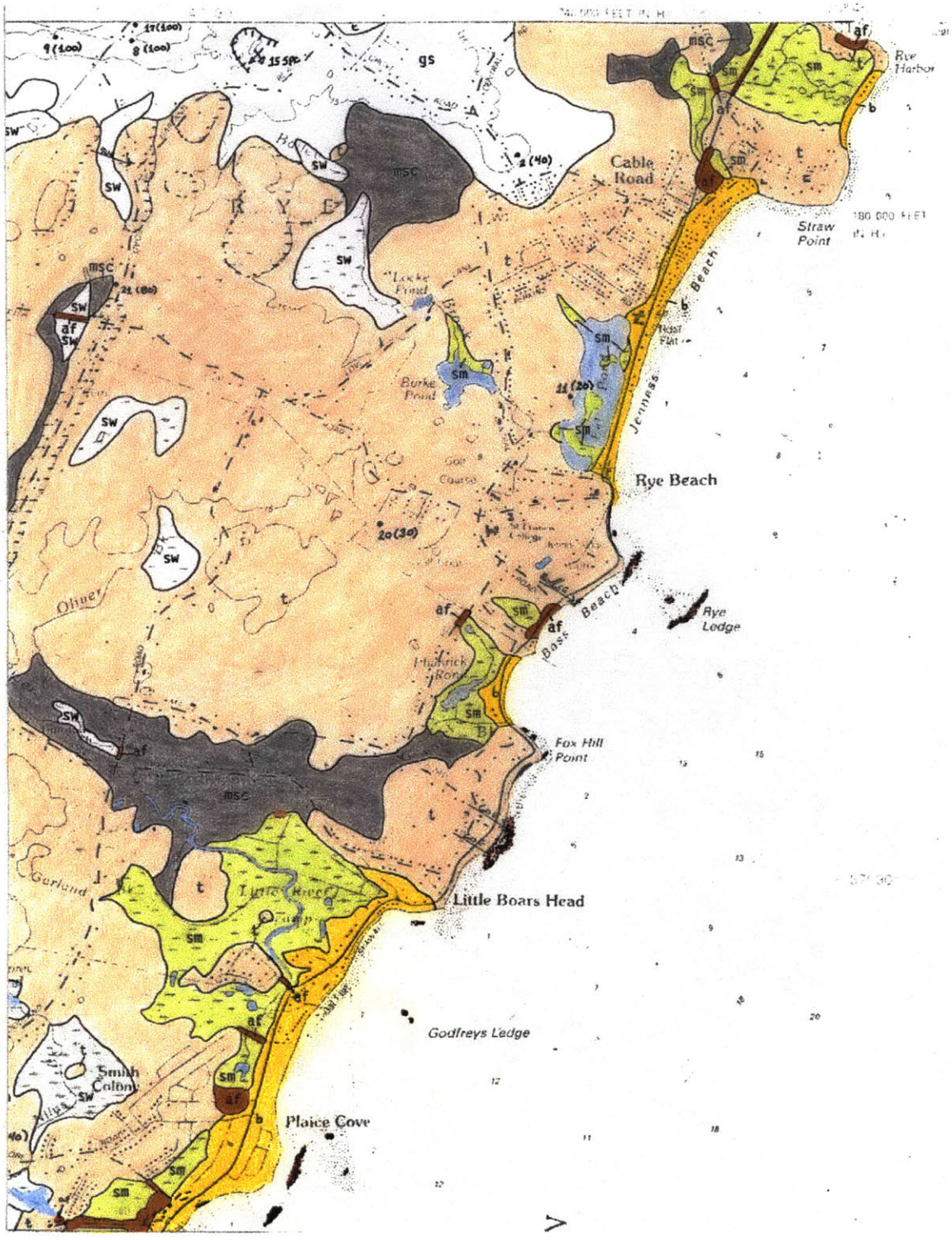
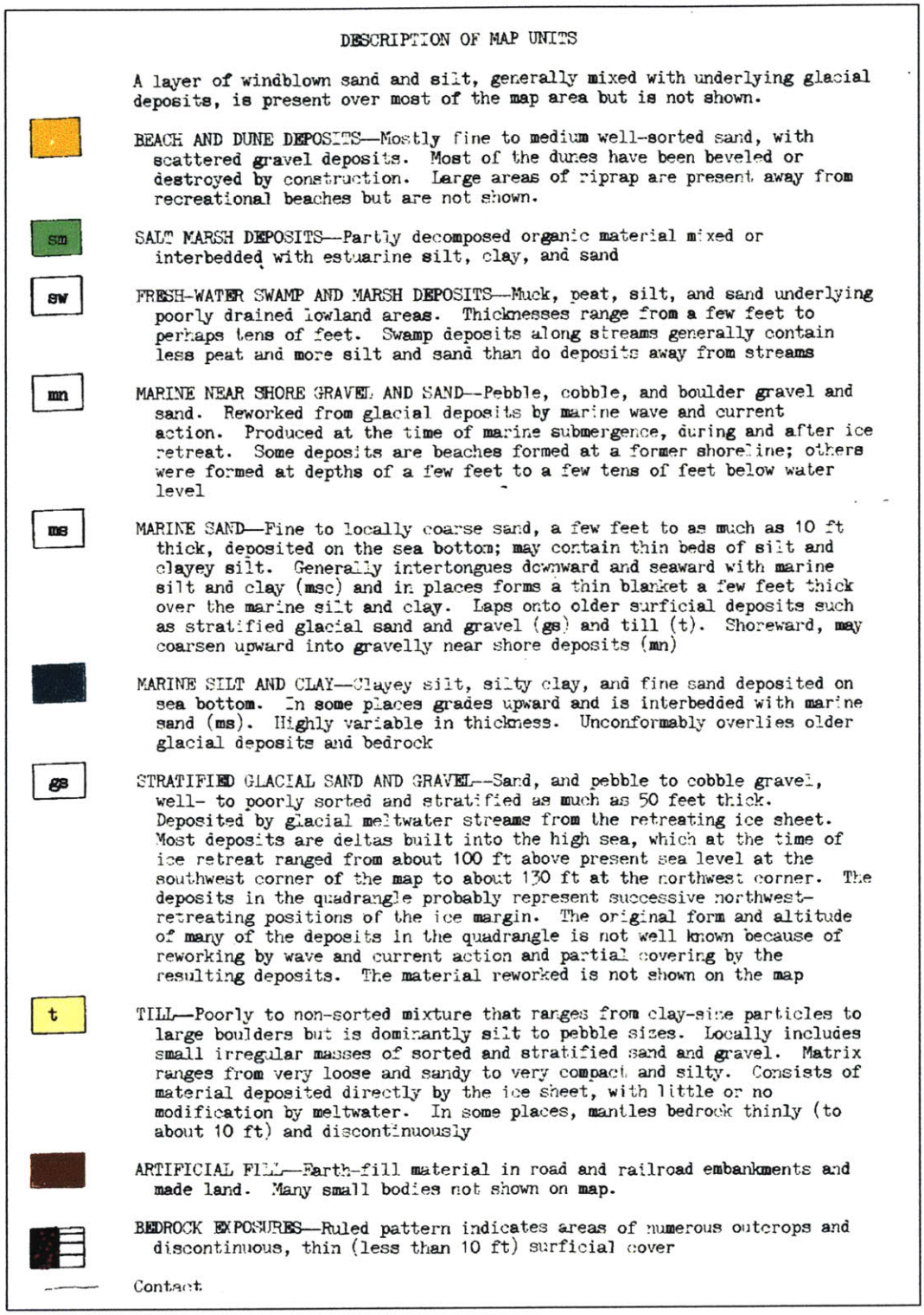


Figure 4.3b
Surficial Geologic Map of the Hampton Quadrangle
North Beach to Rye Harbor
Source: USGS Open-File Report 89-430 (color added).

Key to Figures 4.3a and 4.3b



Source: USGS Open-File Report 89-430.

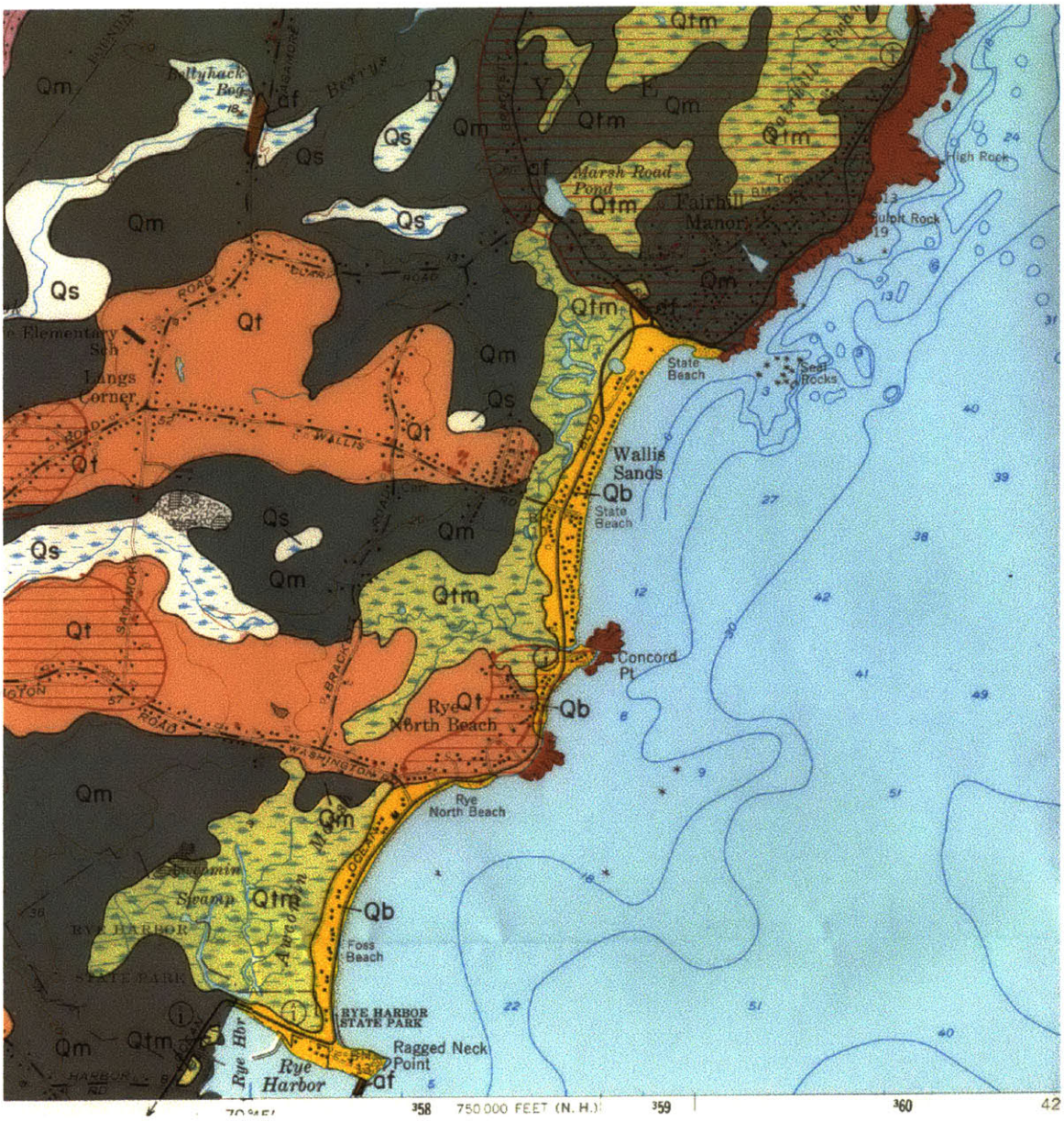
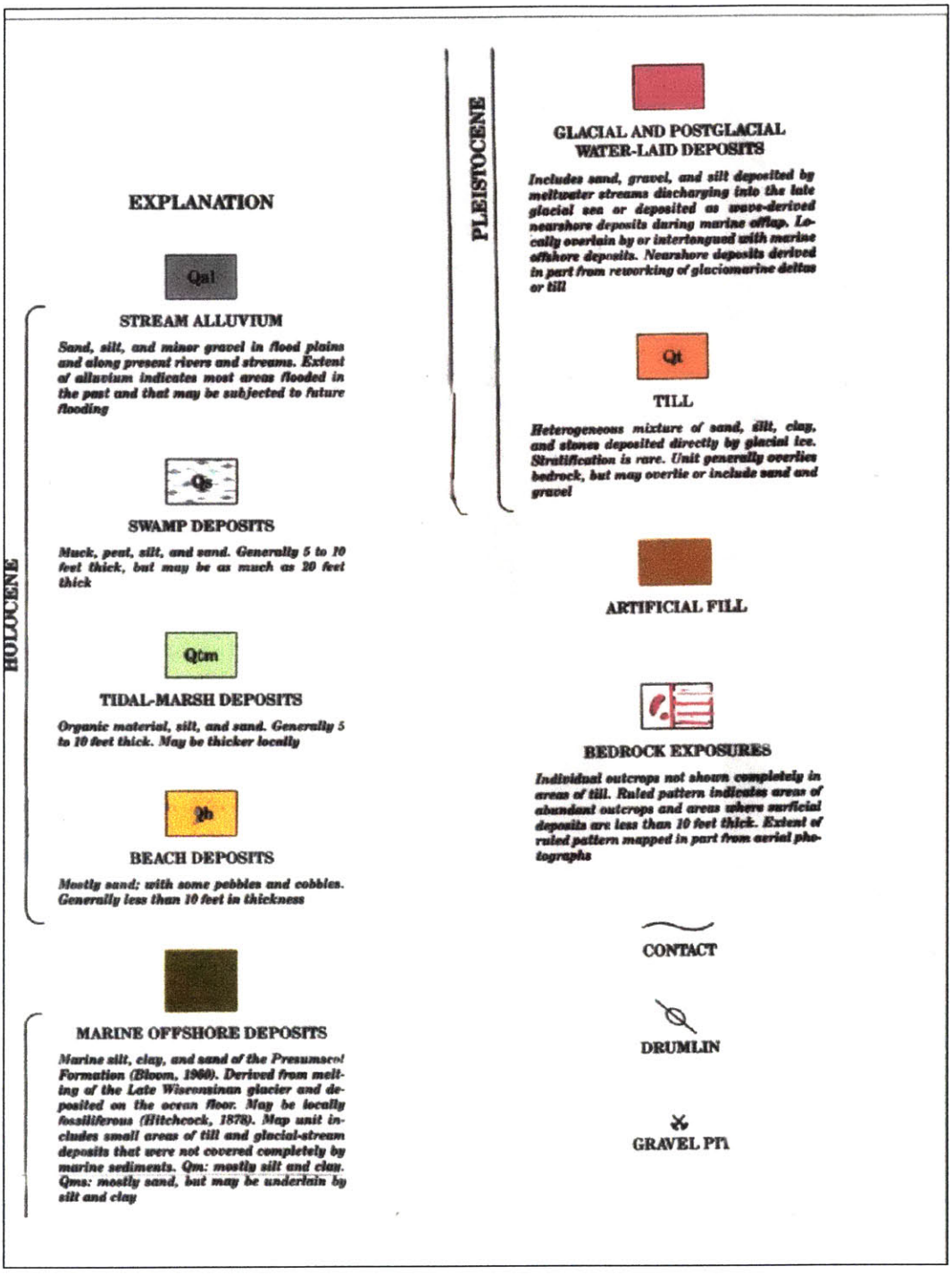


Figure 4.3c
Surficial Geology of the Portsmouth Quadrangle
Including Wallis Sands State Beach and Foss Beach.
Note the extensive development on the dunes.

Source: *Surficial Geologic Map of the Portsmouth and Kittery Quadrangles, Rockingham County, New Hampshire (1992).* N. H. Department of Environmental Services. SG-6.

Key to Figure 4.3c



Source: *Surficial Geologic Map of the Portsmouth and Kittery Quadrangles, Rockingham County, New Hampshire.* SG-6.

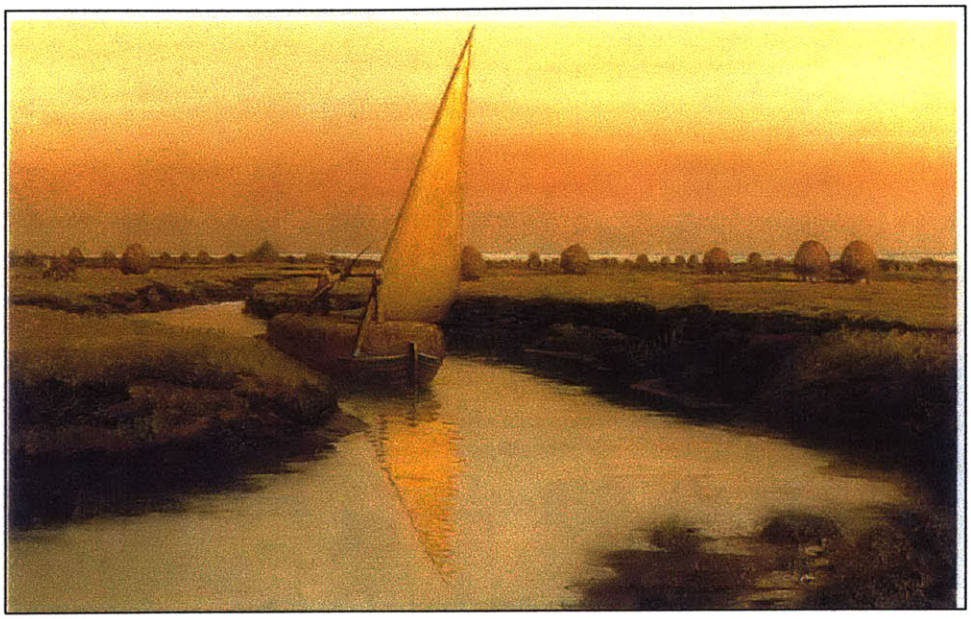


Figure 4.4a
Gundalow carrying hay through the Hampton Marshes
Painting by Charles Turner (1773-1857)
Source: copied from Randall (1988). Original in the possession of the Hampton Historical Society.

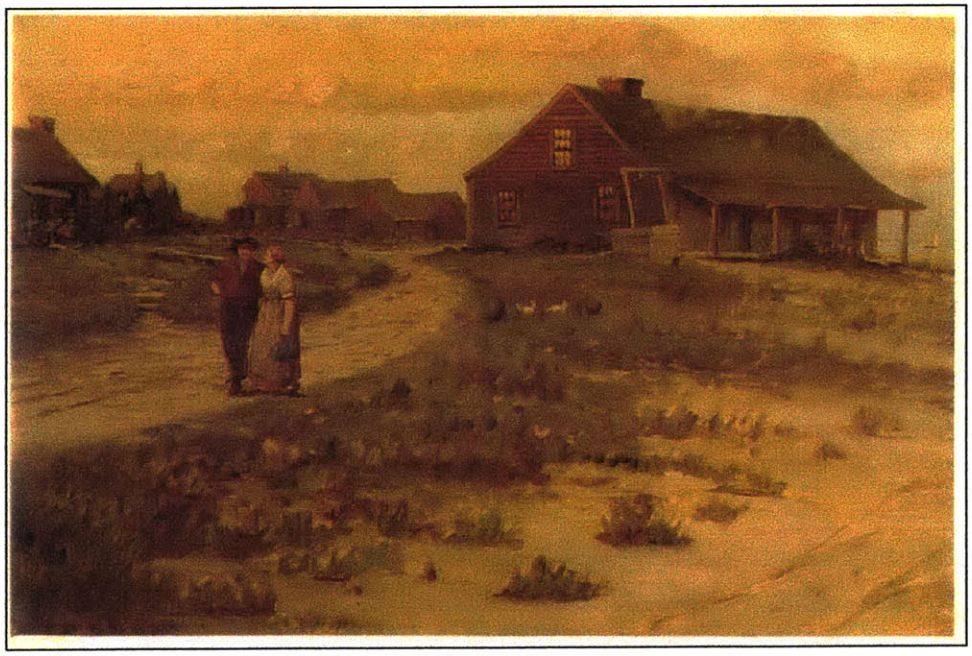


Figure 4.4b
Fishhouses and Moulton House, North Beach, Hampton
Painter by Charles Turner
Source: copied from Randall (1988). Original owned by the Hampton Historical Society.

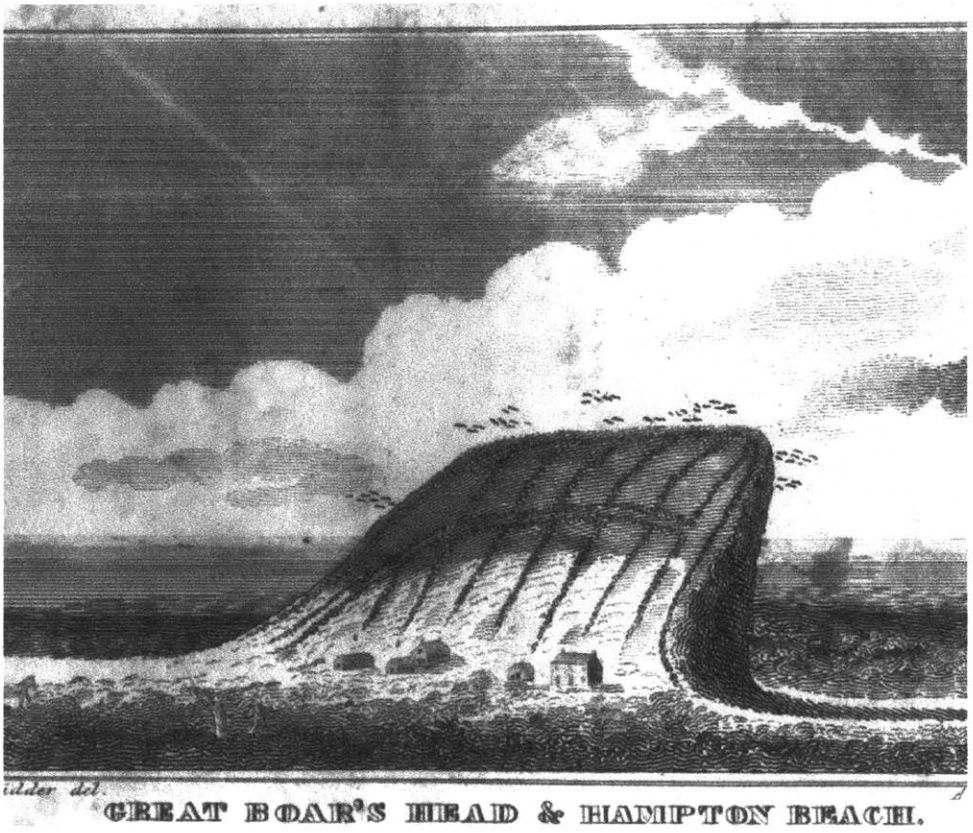


Figure 4.5
Inkdrawing of Great Boar's Head before 1820.
Note the Inn at the base and the division of the heights into shares.
Source: The New Hampshire Historical Society

Figure 4.6
Hampton Beach and Boar's Head c. 1860
Painting by F.W. Fuller (Reprinted from Randall, 1989).
Original painting owned by the Hampton Historical Society

Figures 4.7a and b
Haystacks in the Marshes c. 1890-1900
Note the hay is raised up on stilts to keep it above the flood tides .

Figure 4.8
Summer Houses on North Rye Beach c. 1890

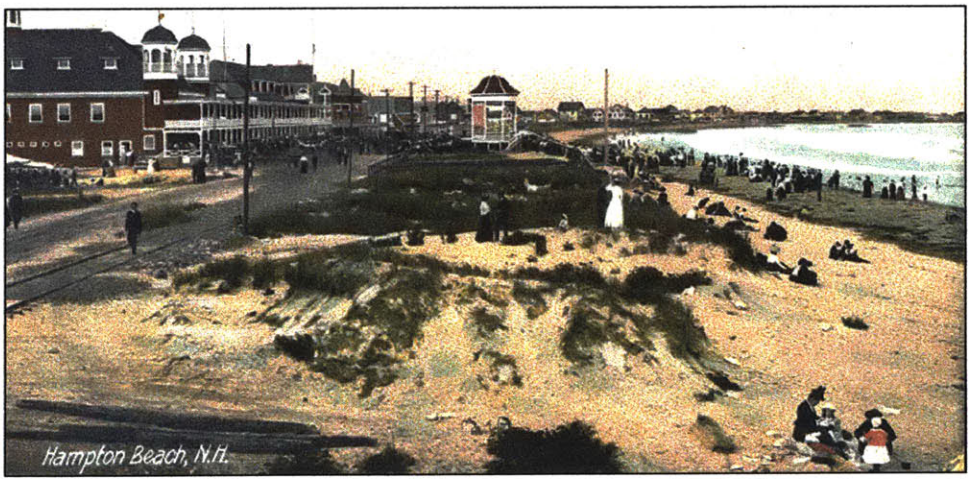


Figure 4.9
Hampton Beach Looking North Along the Fore dunes c. 1898
Note the trolley tracks on the left and the flattened dunes planted with grass.

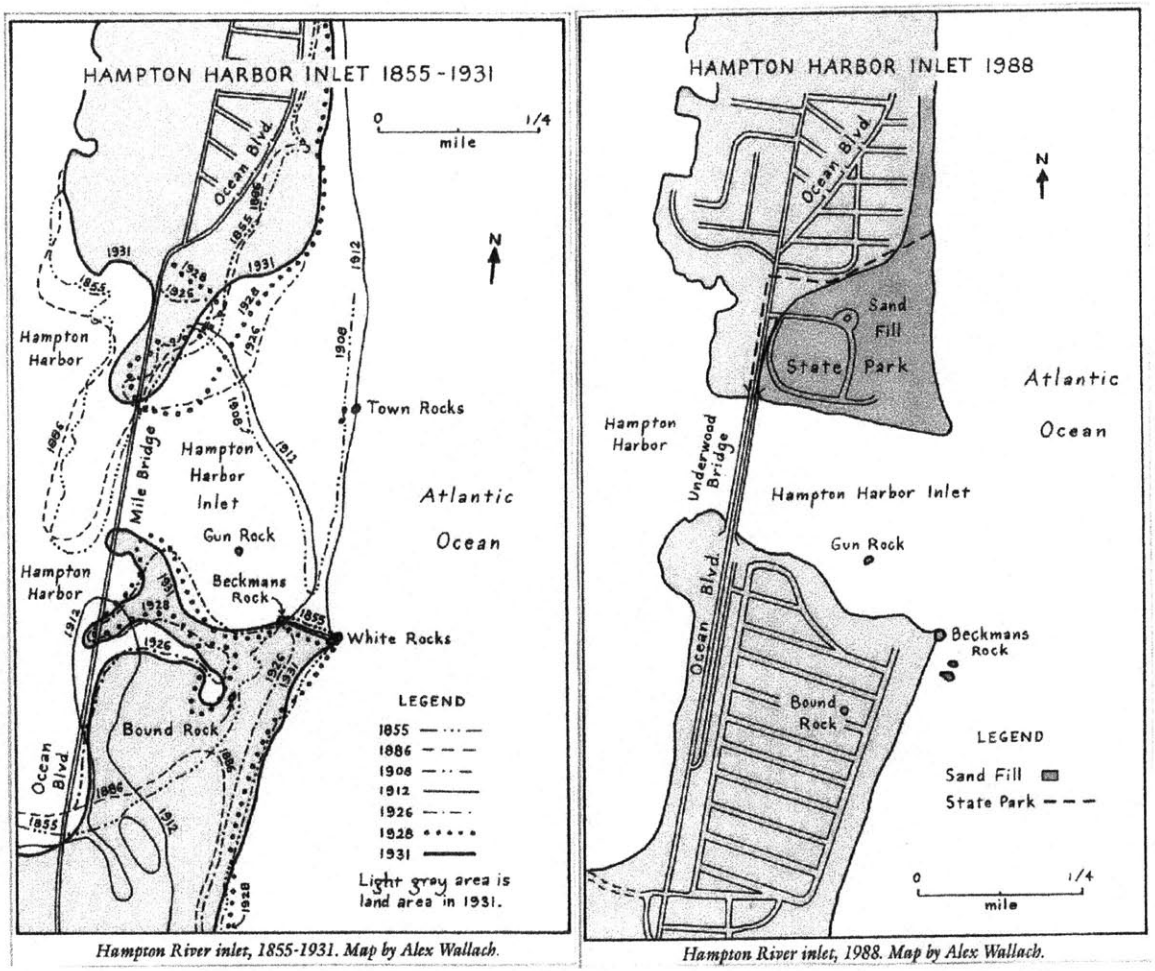


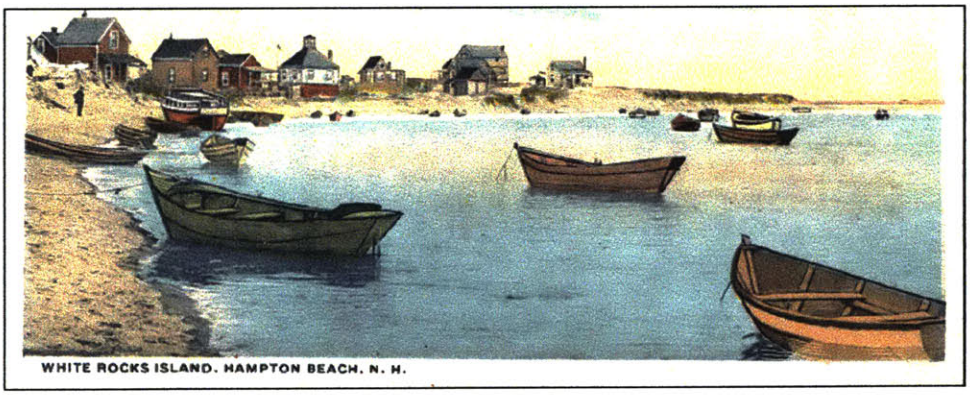
Figure 4.10

Changes in the Boundaries of the Hampton River inlet before 1931, compared with a map of the current stabilized inlet (Source: Randall, 1989).

Mouth of Hampton River, White Rocks, Hampton Beach, N. H.

Figures 4.11a and b

White Rocks Island Hampton Beach in the late 1890s (above) and early 1900s (below). Frank Beckman's "cottage" stands at the end of the point in the earlier photograph, but is missing in the photograph below.



WHITE ROCKS ISLAND. HAMPTON BEACH. N. H.

Figure 4.12
Fish houses on North Beach, Hampton c. 1890

Source: Photograph from Teschek (1997)

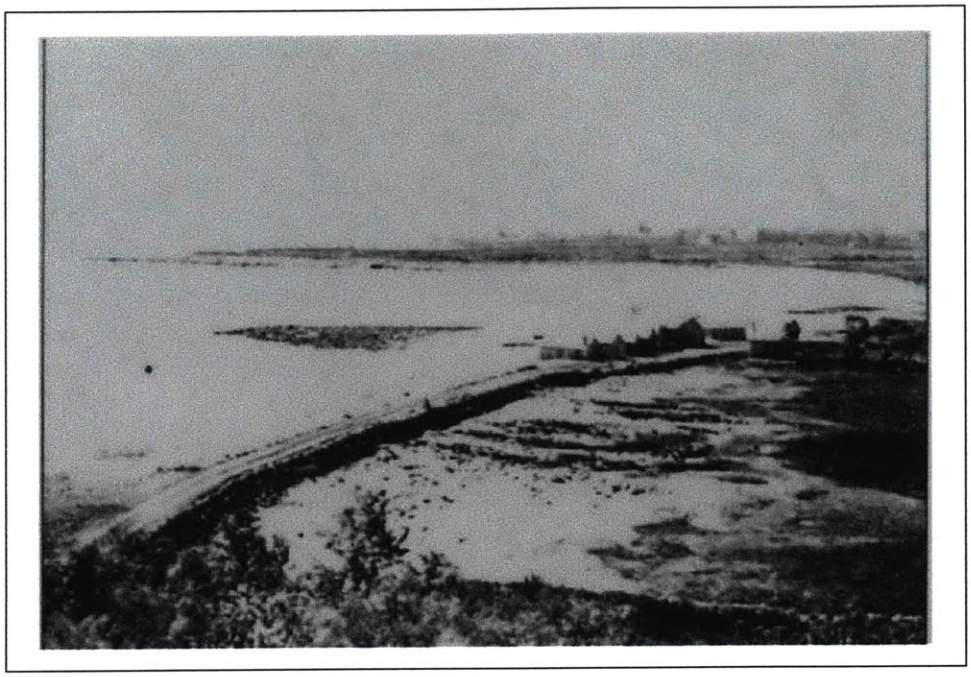


Figure 4.13a
Bass Beach c. 1900, Rye-No.Hampton Line
Note the fishhouses and the free low of water beneath the road.
Source: Photograph from Varrell (1995)

Figure 4.13b
Same location as above (from a slightly different angle)
Note the converted fishhouses and virtually complete obstruction of water flow.
The marsh to the right is the site of a current marsh restoration project (Photograph: J. Moore).

Figure 4.14 a and b

Houses on the marsh in Hampton.

Note the flow of water below the houses. These homes are all located below the syzygy tide line.

(Photographs: J. Moore)

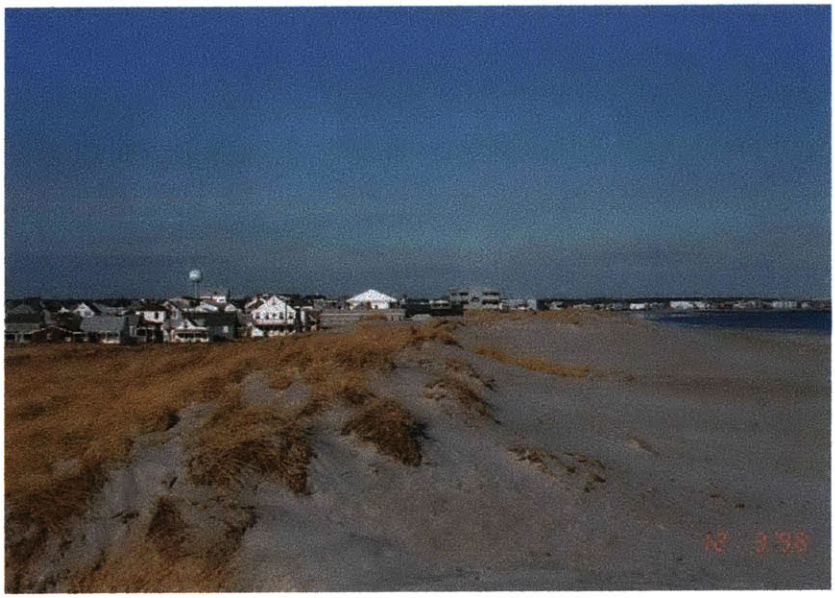


Figure 4.15a and b
Hampton State Beach
The south end of the beach is stabilized with riprap breakwaters (top), and the dunes in the bottom picture once stretched the length of the beach.
(Photographs: J. Moore)

Chapter 5

Boundaries to the Public Trust

The public-trust doctrine has been postulated by environmental advocates and legal scholars to be a tool for protecting and guiding the management of critical environmental resources at an ecosystem level. As I discussed in Chapter 1, landscape ecologists have proposed several logical requirements for an ecosystem management tool: (1) it can be applied to broad areas that are identifiable by specific landscape characteristics, backed by case and statutory law; (2) it is responsive on a small scale--individuals, groups, and governments are each subject to the doctrine on both a site-specific and use-specific level; and (3) it is flexible and responsive to changing conditions and new information (Forman, 1997; Richenbach et al., 1998). The public-trust doctrine is put forward as a useful environmental management tool in Chapters 2 and 3 because (1) it is a legal vehicle for identifying resources that provide special public benefits, (2) it provides the authority for trustees to require that individuals and groups preserve those resources and be accountable for actions within them, and (3) it places the stream of public benefits within its mandate under the guardianship of a public trustee, in perpetuity, and at the same time, as part of the body of common law, it can evolve in response to new conditions and information (Slade et al., 1997; Donahue et al., 1993; Plater et al., 1992). In addition, the doctrine is described as a mechanism for preserving essential environmental interests across institutional and physical boundaries (Rieser, 1991; Hunter, 1988; Sax, 1980).

Chapters 3 and 4 examined the history of public-trust resources in two New Hampshire towns--Hampton and Rye. Rye was discussed primarily in the context of the current dispute over the boundaries of public-trust resources, and Hampton was considered through the perspective of

changes in the uses of public-trust resources over time. In both cases, I wanted to see how New Hampshire's public-trust doctrine behaved on an operational level and whether it fulfilled advocates' expectations. In both towns, the doctrine has fallen somewhat short of preserving either traditional community uses or the physical resources under its domain.

The New Hampshire Findings

Several questions were explored during the course of this study:

- What evidence is there that the doctrine can and has successfully protected public environmental interests?
- How have communities historically applied the doctrine within their borders, and what has been the resulting ecological "footprint" of the doctrine in the lands that fall under its domain?
- Has the interpretation of the public-trust doctrine evolved to fit changing conditions or needs, and if so, did that flexibility promote or hinder public interests in the resources?

To examine the doctrine "on the ground," I looked to ecology as an analytical discipline. Ecosystem science (particularly landscape ecology) places the object or process being examined within its biophysical context–including the larger suite of human needs, activities, and values (Richenbach et al., 1998). Ecosystem science also strives to understand how the pattern of relationships surrounding the object of study influence it. Boundary analysis, from the subdiscipline of landscape ecology, seems particularly applicable to studies of the public-trust doctrine, because--as discussed in Chapter 2--the doctrine is a mechanism for guarding human flows and activities across natural and administrative boundaries. Using the language of boundary analysis, I argue that the existence of the public-trust doctrine influences fluxes and gradients in the biophysical flows along the shore by supporting patterns of movement, use, and access. It

also filters influences, such as the types of public activities permitted within and adjacent to public-trust resources. Table A1.3 in Appendix 1 (Some Boundary Attributes of Coastal Resources and Institutions Interacting with the Public-Trust Doctrine) and Table 4.1 in Chapter 4 (Attributes of Coastal Resources and Institutions Interacting with the Public-Trust Doctrine) describe in more detail the association between these functional attributes of ecological boundaries and the physical and institutional attributes of public-trust resources.

Viewed through the analytical lens of ecological boundaries, the record of the public-trust doctrine in New Hampshire failed to support several assertions made by scholars, discussed in Chapter 2. For example, there is little evidence in the state that the doctrine has functioned as a tool to preserve the land's natural integrity (Hunter, 1988; *Just v. Marinette*, 201 N.W. 2d 761; *Sibson v. New Hampshire*, 115 N.H. 124). The native dune system has been almost completely eliminated, salt marshes have been freshened and filled, and contamination and loss of habitat have severely damaged commercial fisheries. Although an argument can be made that public interests in trust resources have been preserved indirectly--property taxes have been reduced by the sale of trust lands, and community development has been enhanced--the erosion of public rights of access to the resources and the loss of options for future uses within those areas have both been significant.

Throughout the doctrine's history in New Hampshire, it has been interpreted as an instrument that protects economic uses with broad public benefit. Alison Rieser argued that allowing the public to hold a property right in collectively valued resources ensures that the self-interested behavior of individual economic actors will not destroy them (Rieser, 1991). This claim rests on an assumption that the resources are managed by altruistic (collective) trustees with long-

term vision. As the Hampton case showed, this may not be the case. What was considered useful and publically beneficial changed over time. In addition, the promotion of one use by the town trustees (development by the Hampton Beach Investment Company, for example) precluded other uses (enjoyment of natural areas, fishing, hunting). As a result, the geographical reach of the doctrine has shrunk dramatically during the twentieth century, the benefit stream has contracted, and public access to the coast has been constricted.

Thus, despite a strong legal and cultural tradition recognizing the public-trust doctrine's reach over coastal resources in New Hampshire, close scrutiny of the doctrine's application reveals a slow attrition in its scope. This erosion has been cumulative–it has occurred over time and has had several causes.[1] The lack of effectiveness of the public trust to prevent this cumulative result puts in question its usefulness for environmental advocates.

Our primary environmental problems today (ozone depletion, climate change, loss of biodiversity, and habitat destruction) are all cumulative in nature (EPA, 1990). These critical problems share a common characteristic with the cumulative degradation of public-trust resources along New Hampshire's coastline--a mismatch between the temporal and spatial scales at which conscious management decisions are made and the scales at which the impacts of those decisions are felt. For example, New Hampshire's historical deference to the authority of the towns localizes and fragments regional land-use decisions. In addition, towns have usually acted in response to immediate political, economic, and social conditions (reflected in investments, zoning and building codes, and permitting). Towns are not required to reflect the long-term

[1]The EPA defines cumulative impacts as those that result from the incremental impact of an action--added to other past, present, and future actions. Each action or change may be individually minor but collectively significant (EPA, 1990, p.13).

planning and environmental protection desires of the surrounding areas in their decisions, even though their actions may have long-term regional impacts.

This mismatch between decisions-making and impacts calls for more mechanisms to integrate the spatial or temporal boundaries of impacts with the analytical scope or boundaries of the decision-makers and their decisions. This need is particularly strong in the case of actions that may influence the essential environmental resources that the public-trust doctrine is posited to protect. The current study does not identify answers to this problem, but it does point to some of the components that must be considered when searching for solutions to the mismatch.

It is important to note that the fact that the public-trust doctrine is a legal instrument, applied through the courts, contributes to the mismatch. The courts could potentially impose a broader framework to their analysis (integrating more regional perspectives and longer time horizons), but problems are often looked at piecemeal (case-by-case). One result is that judgements vacillate over time. For example, Table A3.1 in Appendix 3, Nineteenth Century Disputes over Public-Trust Resources in New Hampshire Case Law, documents the swing between recognizing the authority of the Massachusetts Ordinances and rejecting it–which meant a considerable vacillation in the recognized boundaries of trust resources. More recently, New Hampshire residents Sibson, Claridge, and Marshall all fought and lost against the presence of shared public-private rights on their coastal land (Table A3.2 in Appendix 3, *Sibson v. N.H.* and Ensuing cases), but the plaintiffs in *G. William Purdie et al. v. Attorney General* (N.H. No. 97-405) won recognition for the dominance of private property-rights to the mean high tide. The critical difference among the cases (legal technicalities aside) was the time period in which they occurred and the accompanying array of interacting social, economic, and political influences. As

the diagrams below show (based on the case study in Chapter 4), the judiciary is only a small part of the influences shaping the public-trust doctrine and resources. A number of interacting and bounded agents need to be appreciated to understand the complex system shaping the public-trust doctrine.

The Institutional Matrix of New Hampshire's Coastal Public-Trust Resources

Public-trust resources exist within a complex matrix of interactive and additive relationships. Selecting appropriate analytical boundaries is hard–it was difficult to set conceptual boundaries around this study; likewise, it is difficult for stakeholders to set temporal and geographic boundaries for the purposes of analyzing impacts, setting management goals, and making decisions. In Figures 5.1, 5.2, and 5.3[2] a few of these relationships are summarily diagramed. Figure 5.1 outlines some of the physical change agents shaping public-trust resources. They are divided into two categories: anthropogenic (on the left) and natural (on the right) change agents. A key anthropogenic change agent is shoreline development; a key natural change agent is coastal weather-driven processes. Arguably each side is driven by population and technical changes (on the left) and global climate (on the right). Anthropogenic and natural agents affect the resources differently--sometimes additively, sometimes negating each other. What is poorly shown in this diagram is the extent to which anthropogenic change agents strongly influence the response of the biophysical system to changes caused by natural agents. For example, storms battering against physical investments on the coast spur seawall-building, which hastens erosion, or salt marsh freshening limits the ability of vegetation to withstand sudden salt water immersions.

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[2]The figures are located at the end of the chapter.

Environmental responses to change agents are integrated, and effects are difficult to predict when a number of variables are interacting. Likewise, the economic and social institutions that both drive and respond to anthropogenic change agents are also coordinated. So, just as an ecologist must scrutinize regional biophysical systems to understand the influences shaping the object under study, environmental policy analysts also must look at the regional institutions and organizations that facilitate, monitor, or control activities in the resource–even though these institutions may seem to bear only indirect relationship to each other and to the environment.

Figures 5.2 and 5.3 focus on the institutional context of the public-trust resources (the anthropogenic side of Figure 5.1). The lines and valves in each of the two inter-related diagrams reflect the interaction of institutional or physical boundaries, filtering and facilitating flows. Interactions across each of these boundaries influence the character and beneficiaries of public resources.

Figure 5.2 outlines the institutional context, and hence, the management influences, on public-trust resources. There are four key components.

1) The Organizational Context. Town and state government, non-governmental organizations, and informal groups influence the shaping of what is included within public-trust resources, the rules regarding permissible uses, and how these rules are enforced. The organizations involved in management determine who is represented in the decisions, the time frames and breadth of analysis included in decision-making, and the process by which decisions are made and enforced.

2) The Agreed Rules. Formal and informal rules governing public-trust resources are shaped by organizations, but also have a life of their own--influencing what organizations exist and often outliving individual agencies. These rules shape the boundaries of individual and organizational behavior in relation to the public-trust resources, conditioned by the management capabilities and financial resources available to organizations to implement and enforce the rules.

3) Technical Resources and Innovations. These resources and innovations were shown in the case to have a far greater influence on public-trust resources than previously acknowledged. For example, technical innovations determined the types of economic utilization possible. Industrialization in the inland cities, piped clean water supplies, and the development of electrified mass-transit were required before extensive development in the public-trust lands was feasible. The diagram links the technical resources with Rules, because technical opportunities drive the need for new rules (such as long-term leases), and new rules make investments in new technologies feasible (surrendering beach rights to the state made it possible for Hampton to tap into the Army Corps of Engineers' coastal armoring techniques).

4) Financial Resources and the Regional Economy. These lie at the base of the diagram. They include the income base of the town residents, town revenues, investment opportunities, and regional inputs and pressures. The community economic conditions motivate the activities that shape the resources, such as resource extraction (fishing or dredging), development, preservation, and the like. The resource management choices made, however, also influence the economic base. Current and future economic options, returns, direct costs, and externalities associated with the resource are determined by the community's past and present actions.

Each of these components can also be subdivided into additional illustrations of complex interactions. The next diagram (Figure 5.3) briefly outlines influences within the Organizational Context box in Figure 5.2. The foundation of the management of the public-trust resources, and hence implementation of the doctrine, is the town. The towns shape public-trust resources through land-use decisions, economic development, including infrastructure investment and planning, conservation planning, and monitoring and enforcement of regulations (for example, the failure to enforce protection of the natural barrier dune system–an early regulatory goal of the towns--led directly and indirectly to extensive coastal armoring and privatization of the dunes).

The towns are comprised of town residents and other landowners (including seasonal residents) acting through elected selectmen and other appointed or elected officials, and through the broad democratic forum of the town meeting. Town meetings tend to focus on short-term

economic concerns, and decision-making processes are capturable through means that are not entirely transparent. The assignment of a 99-year lease to key trust lands in Hampton under favorable terms to a few entrepreneurs is an example of a decision being made in town meeting through unclear process (at least in hind-sight). Collective understanding of the short and long-term implications of issues and decisions in the towns is critical.

Advocacy groups that are mandated to incorporate broader space and time horizons into their decisions, such as conservation commissions, regional environmental groups like New Hampshire Audubon, watershed associations, and regional and town planning commissions, have a critical role to play in educating town residents about the cumulative and unforeseen impacts of their actions. The judiciary has a pivotal role in protecting trust resources, as well. Court rulings shape the boundaries of behavior, management options, and individual and community expectations about rights and activities protected by the trust. The judiciary would also appear to have an advantage in the mismatch between the scales of management institutions and long-term environmental changes. When judges deliberate, they are empowered to look at past and present experience throughout the country. Rulings are subject to individual interpretations and political ideology, however, and the rulings' influence on activities in the resource is indirect–filtered by the behavior of other organizations and individuals. In some cases, the courts may even disrupt or nullify the actions of the trustees. Although this could be a check in support of conserving the trust, it is not necessarily always so–as in the case of *Purdie et al. v. Attorney General* (No. 97-405) in which the court ruled that the state legislature's assignment of trust boundaries was a taking of private property.

The Bounds of Decisions Versus Their Cumulative Impact

Figures 5.1, 5.2, and 5.3 indicate the contextual complexity of public-trust management. Tracing through time the succession of key decisions by the towns regarding the public-trust resources shows how decisions that appear to be bounded or contained, in fact, may lead to cumulative changes far beyond the initial intent. For example, residents voted in town meeting to grant temporary exclusive use rights to certain public-trust resources in exchange for private investments of labor or goods. These grants evolved over time into permanent private holdings.

Chapters 3 and 4 trace the history of public-trust resources in the two towns in some detail. The progression in the erosion of the scope of the public trust in Hampton in the 1600s to 1800s is summarized below. The historical details regarding the management of the outer coast in Rye are far scantier than Hampton, but where they are available, they reflect a similar story. In both towns, townspeople initially had usufruct rights on the beaches and in the marshes, including free passage, fishing, hunting, and gathering seaweed. In both towns, special usufruct privileges were granted to adjacent landowners who built and maintained fences to keep cattle from eroding the barrier dunes.

Rye has a rockier shore than Hampton, which meant that permanent buildings could be constructed along more of the coast without extensive sea-wall engineering, and private enclosure of the coastal areas may have occurred earlier than in Hampton. The town of Rye has, on occasion, fought against this erosion of public rights, but the New Hampshire courts have supported private enclosure in at least two crucial rulings--*New Hampshire v. Brown et al.*, Equity Suit #9369 (1955) and *Purdie et al. v. Attorney General*, No. 97-405 (1999). Rye still attracts higher-income vacationers and permanent residents than Hampton, while Hampton still

focuses development on its outer coast to attract workers from the regional cities. Shrinking public resources, problems with access to trust resources, bacterial contamination of fisheries, freshening and filling of the marshes have plagued both towns, however, and the public-trust doctrine seems to have done little to aid efforts in either town to prevent this degradation.

The history of the trust's contraction is easily traced with greater detail in Hampton. The marshes were divided into private shares that shifted hands every six years as early as 1680. By 1708, shares in the high marsh stopped rotating, were assigned permanently, and taxed. In 1733, usufruct rights in the Huckleberry Flats were divided among adjacent landowners in exchange for building and maintaining fences to protect the dunes from cattle. In 1747, the usufruct titles were formalized into deeded rights by the town, although the land between the fences and the sea remained common. In 1800, the first inn was built on the beach for inland fishmongers coming to the fish houses to buy saltfish. In 1806, the first house was built, and by the 1830s there were at least three sizeable hotels on the shore. In 1846, a special town resolution was passed to reiterate the public nature of the beach lands, but by 1878, there were sixty to seventy small houses built on the sands. That same year, another resolution was passed in Hampton's town meeting, publically to record the common nature of the lands, but by the late 1800s, public subsidies were used to support private enclosure of the public-trust areas--by funding roads and providing concessionary tax and rental rates to key entrepreneurs. The decisions in 1897 to grant a 99-year lease to the Hampton Beach Improvement Company and to permit an electric trolley line on the shore irreversibly changed the character of the entire New Hampshire coast--changed the seasonal population density, created demand for more roads and sea walls, water supply and sewers, and

thus changed the natural movements of sand and water, contaminated fisheries, and altered nutrient flows. (Chapter 4 traces this progression into the 1990s.)

Although each step toward the privatization of the commons appeared to be bounded by time or geographical limits, privatization was seldom reversed, and the expansion of private rights in common resources progressed inexorably. The physical impacts on the resources included loss of open space (congestion), loss of productive ecosystems (marsh and fisheries habitat), beach erosion, and pollution. These were accompanied by higher economic costs–a loss of amenities such as flood control, combined with a need for continual capital inputs to maintain the status quo (seawalls, sewers, roads, police, health, and fire services, etc.). When the first marsh shares were privatized in Hampton in the early 1700s, no one foresaw the shape of the resources 200 years later. Nor did the townspeople who voted for building Ocean Boulevard likely intend to be voting for the vast seawalls that now protect it or for the costs of restoring marsh flows beneath it.

The barriers to a better understanding of the wide-ranging impacts of our decisions regarding public trust resources have three characteristics: (1) time displacements (past liabilities and future conditions are not considered or understood); (2) spatial displacements (the actions in one area directly or indirectly impact adjacent areas); and (3) knowledge gaps (the impact of an activity in the wider system is not well understood–for example, the relationship between seawalls and mass sediment flows). The most difficult barriers to cope with are time and ignorance. We will never have 20-20 future vision, but there are some models we can turn to on how to extend our decision-making framework. The Clean Water Act requires states to prepare nonpoint source management plans that span administrative and technical boundaries. The National Estuary

Program supports close working partnerships among non-governmental organizations, towns, state, private landowners through joint information-gathering, projections, and common management plans that use ecological not administrative boundaries. The National Environmental Protection Act provides for environmental impact assessments (EIAs) that consider past, present, and foreseeable future actions and require integration of the concerns of various stakeholders (of course, judges are not required to perform environmental impact analyses of their rulings) (Irwin and Rodes, 1992).

Theoretically, these are good tools for mitigating the cumulative impacts of decisions. The core of the cumulative impact problem in New Hampshire coastal towns, however, is how to extend the analytical framework of the town meeting–the time frame considered in the decisions and the additive impacts that may result. (Votes at town meetings are not subject to environmental impact assessments any more than court rulings are). Perhaps in part to circumvent this problem, a regional shift is occurring, in which state governments are claiming more authority in resource management--the 1995 New Hampshire public-trust legislation (RSA 483-C) is an example, although it was eventually ruled a taking. In addition, the role of regional planning commissions, which integrate long-range environmental concerns into their recommendations, is actively growing in New Hampshire, but town participation in the Commissions is still voluntary.

Recognizing the Functional Trustee

Identifying the actual trustee of the resource is key to understanding how trust resources will be managed, because the trustee defines what economic interests are defended and time-frames considered. Although the State Legislature is the formal trustee of public-trust resources

in New Hampshire, both the towns and the courts have superceded its authority over trust resources for years. Under the guardianship of the towns, access to and activities within the public-trust domain by influential beneficiaries have been preserved, but public benefit flows have not been protected, nor have the physical resources been conserved. With the trusteeship captured by the towns, Joseph Sax's theory that the public-trust doctrine functions as a bulwark protecting common assets against co-option by strong interest groups has not been borne out. The focus of the town trustees has been short-term issues, and their management decisions have been subject to the political power struggles within the communities–thus, the usefulness of the doctrine as a tool has been inhibited by the characteristics of this trustee.

The fact that the public-trust doctrine is also a flexible instrument (capturable by organized interest groups and responsive to short-term vision) has further reduced its effectiveness under town guardianship. Flexibility is a key institutional characteristic of both the common-law doctrine of the public trust (Slade et al. 1997) and the proposed design criteria for environmental management tools (Richenbach et al., 1998; Forman, 1997). Considered within the conceptual bounds of each discipline, flexibility refers to the ability of the institutional tool to adapt and change in response to changing conditions and values--a desirable quality. When flexibility is re-examined in the specific context of coastal stewardship–which is influenced by interest groups with short-term goals--flexibility as a management tool criteria must be placed in the context of solid checks and balances by organizations representing broader and more resource-conservative interests.

The New Hampshire case has shown that the pressures and perspectives of the acting trustee are critical to the effectiveness or usefulness of the public-trust doctrine as an

environmental management tool. The acting trustee must be mandated to preserve the capital and retain a long-term vision. It must also somehow be attentive to new information about (unforeseen) system responses or community needs and have adequate checks and balances in place to counter the influence of short-term interests. The acting trustee responsibilities, therefore probably cannot be placed solely be in the hands of either a political body or the judiciary, but mediated by or shared with groups mandated to preserve capital and retain long-term vision–much like land trusts.

Fiduciary trusts may be useful models for overcoming some of the time-based barriers to the preservation of trust resources. Applying the fiduciary trust requirement that the principle resources held in trust be conserved could impose a different type analysis on resource decisions–one that might force transcending the institutional and technical barriers to addressing cumulative effects on the resource.

In short, the trustees must be able to wield a broad brush, hold individuals, groups, and governments accountable, scrutinize activities impacting public-trust resources from the perspective of past, present and future actions, and integrate new information about systems relationships and community needs (not much to ask). Obviously, working partnerships must be forged that span administrative and technical boundaries. These already exist in various forms, such as the New Hampshire Coastal Commissions and the Resource Conservation Districts, but these are advisory organizations and do not have direct management and enforcement capabilities.

In New Hampshire, the primary acting trustees will remain the towns for the foreseeable future, which raises a number of questions. What are the legal implications of a dichotomy between the legal (state legislature) and acting (town government) trustees? Is this situation

unique to New Hampshire? (I suspect not.) Long-term vision is a criteria for the trustee, but in a democratic process, whose long-term vision? How can consensus be reached without eroding the resource base further while it is being sought? How can townspeople learn more about the cumulative impacts of their decisions regarding valuable public resources, and then how can they translate what they know into financial and policy priorities? How can the impasses between the needs of local government, versus regional environmental and planning needs be overcome?

Conclusion

The public-trust doctrine cannot in itself protect valued resources–it is only a support beam for the process. A step toward protecting trust resources would be to clarify within our communities what our assumptions are about what is valued--what resources and uses are valued and what time frames and geographic boundaries are necessary to understand and protect the valued components. Shared knowledge at the town resident level is also needed regarding what the vulnerable components of the resources are, and what types of repeated actions are likely to cause unwanted results (Irwin and Rodes, 1992).

Environmental management, including management of public-trust resources, requires us to assimilate a broad array of changing information, actions, and actors through time. Our current institutional structures and practices, however, do not easily integrate and respond to the complex changing matrix we exist within. We need to overcome the barriers to recognizing and meeting the needs of local communities, while committing ourselves to meeting our critical regional and global environmental planning needs. We also need to understand how past, present, and future actions be integrated into our decision-making processes; how future developments can be anticipated; and how the additive impact of our actions can be foreseen.

Figure 5.1
Natural and Anthropogenic Agents of Change
in Coastal Public-Trust Resources

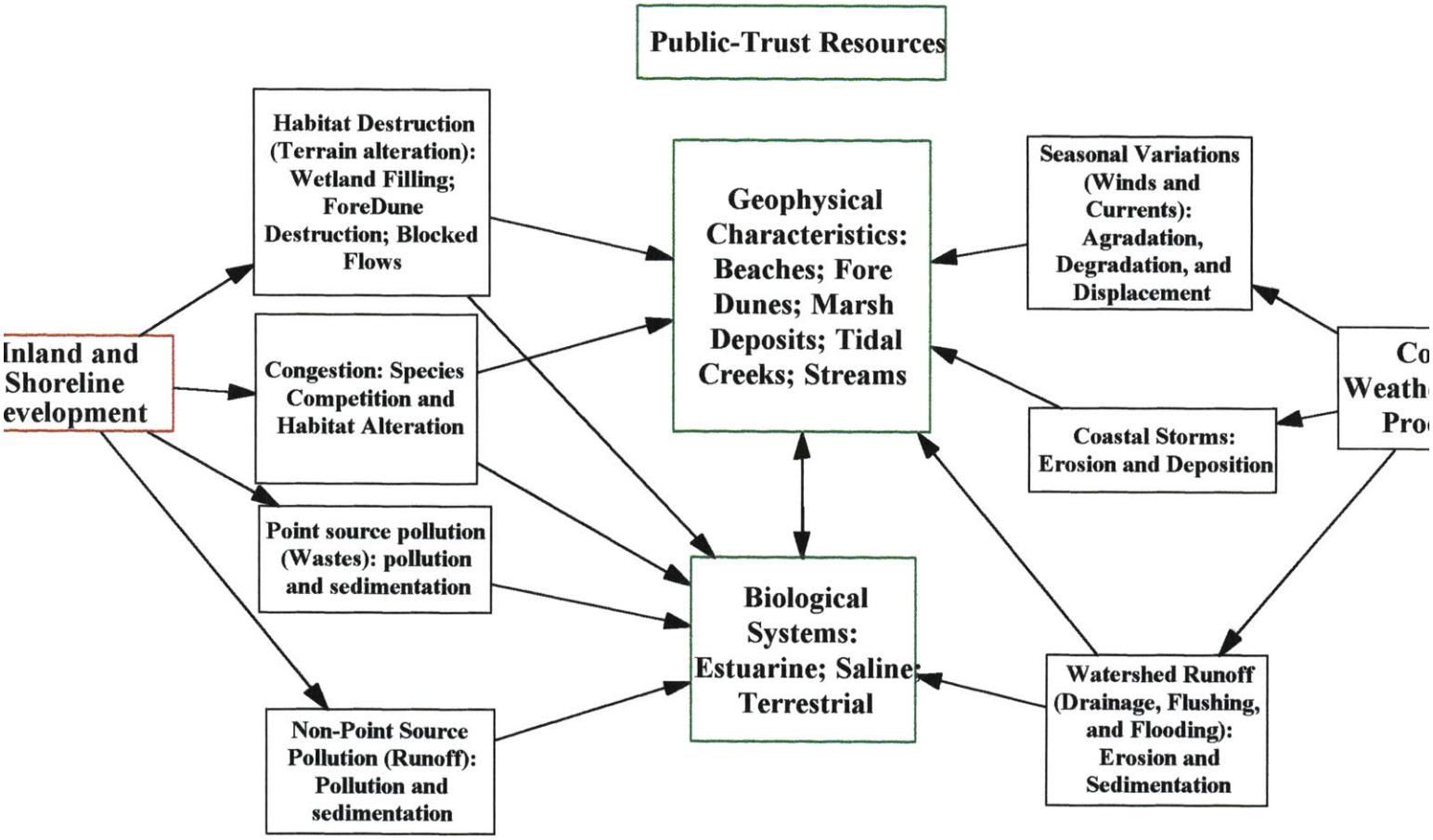


Figure 5.2
The Institutional Environment of New Hampshire's Public-trust Resources

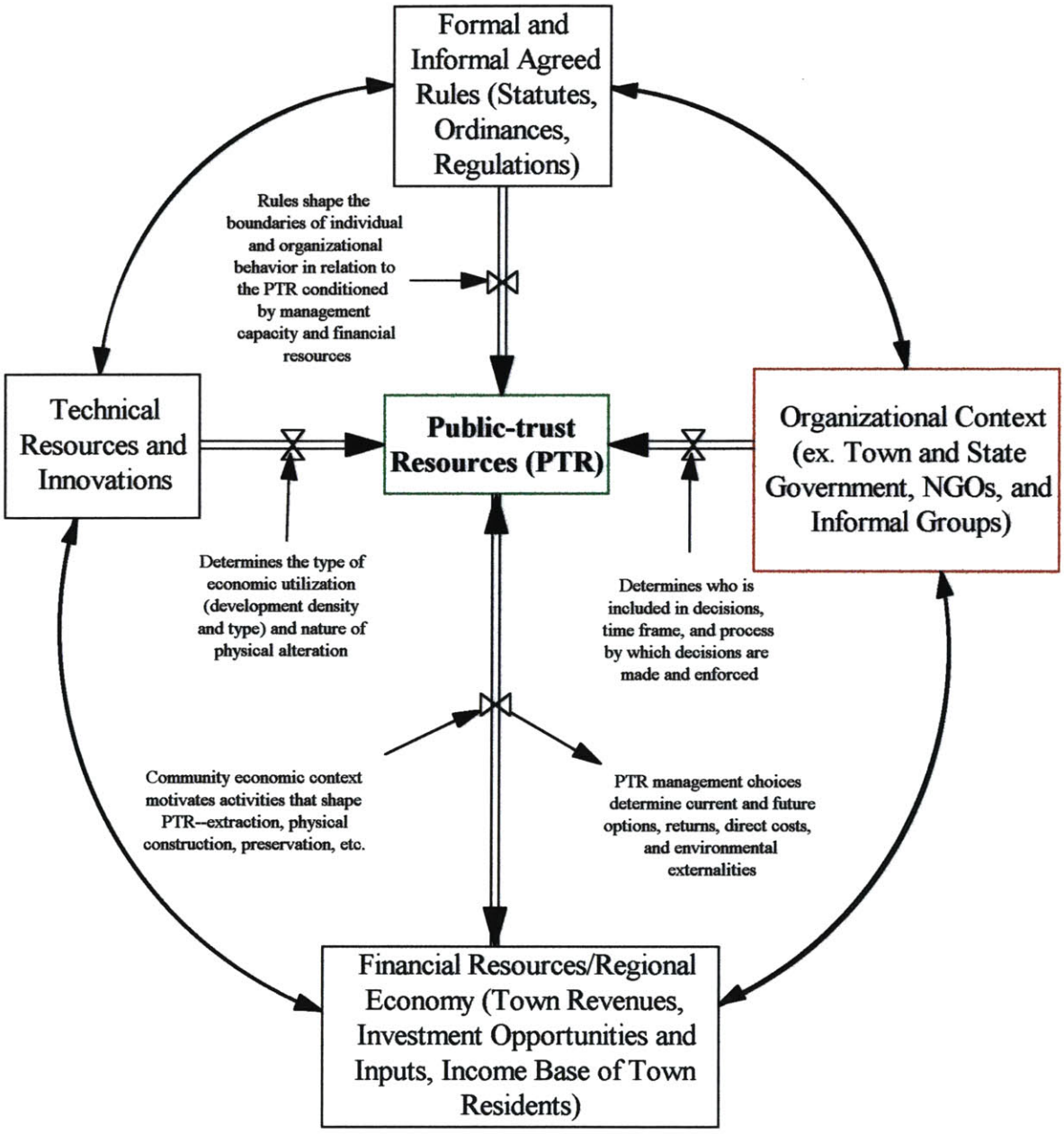
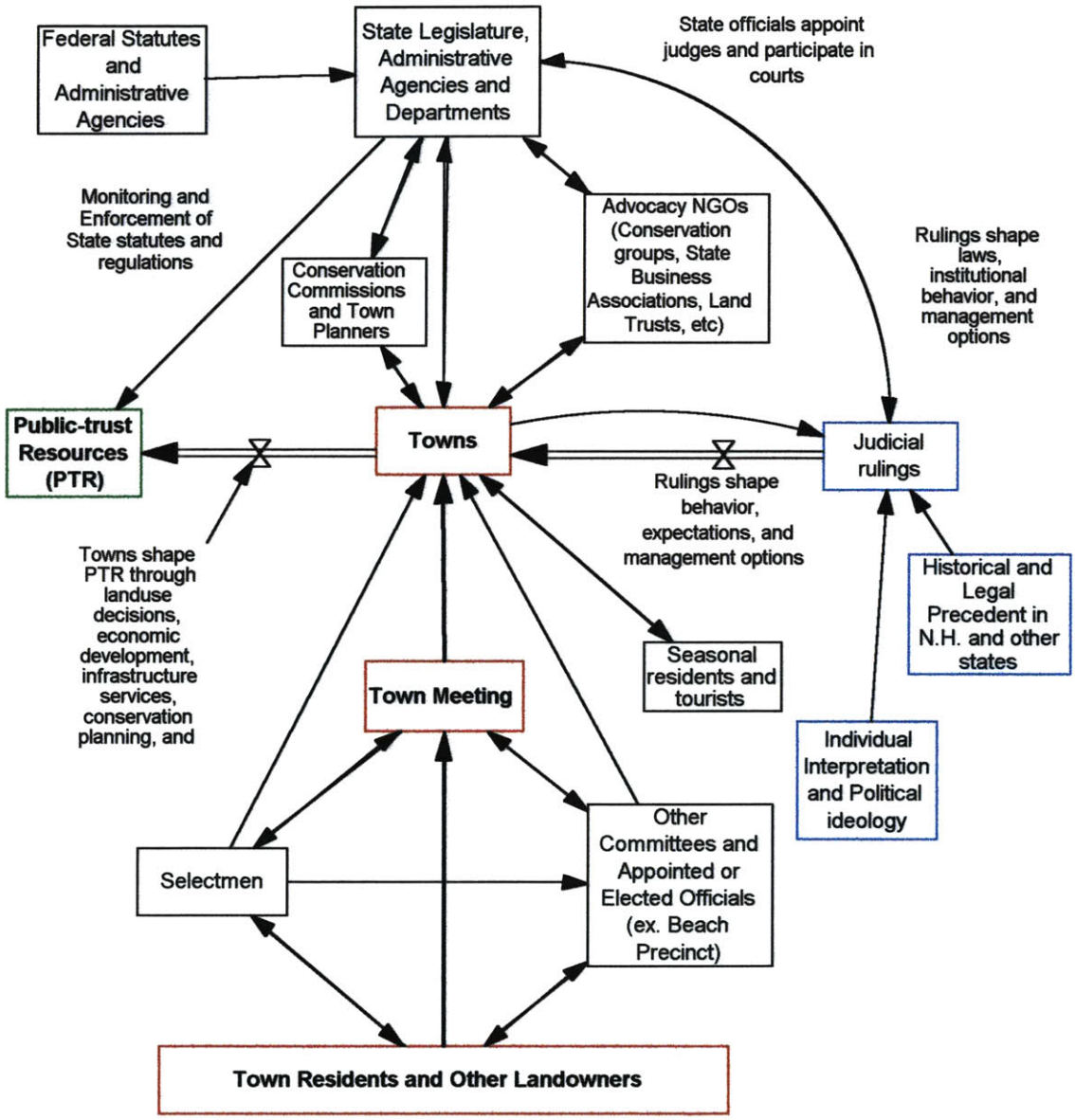


Figure 5.3
The Organizational Context of New Hampshire's Public Trust Resources



Appendix 1

Case Framework:

The New Hampshire Public-Trust Doctrine

Tables

Table A1.1
Case Framework
The New Hampshire Public-Trust Doctrine (PTD)

	Goals and Hypotheses	Assumptions	Indicators	Verification
Rationale[1]	The public and private boundaries of our landscape management system hinders our ability to control environmental degradation.	Ecosystem degradation is shaped by "the tyranny of small choices." A goal of many environmental management policies is to integrate uncoordinated human land-use choices.		
Purpose	Environmental policy tools need to be identified that can guide individual and collective actions across property boundaries.	Degradation of sensitive areas can be mitigated by incorporating public property interests in environmental resources into individual and collective land-use choices.		
General Study	The PTD is a useful tool for integrating environmental interests across boundaries while meeting several ecosystem management criteria.[2]	The requirements for environmental management tools identified by landscape ecologists *(landscape perspective, small-scale sensitivity, and flexibility to integrate changing information and priorities*) are valid institutional design criteria and can be used to evaluate the PTD as an environmental management instrument.	The PTD is responsive on a landscape level (acts across broad biophysical and social domains), is responsive on a small-scale, and adapts in the face of changing information and conditions.	The PTD applies to areas identifiable by specific landscape characteristics. It is controlling over individuals and groups in site- and use-specific activities, and it is able to respond flexibly to changing values and conditions.

Table A1.1
Case Framework
The New Hampshire Public-Trust Doctrine (PTD)

	Goals and Hypotheses	Assumptions	Indicators	Verification
Case Study	The public-trust doctrine has been an effective tool for facilitating environmental management objectives on New Hampshire's outer coast, by conserving short-term and long-term public interests in public and private land use decisions in critical areas.	The key criteria for ecosystem management tools are valid (*landscape perspective, small-scale sensitivity, and flexibility*). To determine the "usefulness" of the doctrine as an environmental policy tool, historical evidence of its integration into the activities of regional and local institutions, and individuals' behavior is necessary. Valid conclusions regarding the strengths and weaknesses of the doctrine as an environmental policy tool can be reached through the case study approach.	Explicit linkages exist between the state-based PTD and criteria for ecosystem management tools discussed above (*landscape perspective, small-scale sensitivity, and flexibility*). Governing authorities over public-trust resources are clearly defined, and there is a long-term record of their activities vis à vis the resources. Public environmental values and services are protected and conserved in lands in which the PTD is controlling.	Resources within the public trust are clearly identifiable through statutes, maps, etc. Town and state records recognize specific activities permitted within the public-trust. Interpretation of the PTD has evolved in response to changing community values--verified by historical record. Environmental resources recognized to be of high value within the domain of the PTD are explicitly conserved in a form consistent with stated public-trust goals.

1. Source: Adapted from the Logical Framework used by the World Bank for Project Preparation.

2. Forman, 1997; Richenbach, et al., 1998.

Table A1.2
Examples of Structural Attributes that Shape Coastal Environments

Attribute	Physical Characteristics	Related Biophysical Boundaries	Related Administrative Boundaries
Width	Inland extent of dune deposits, rocky barriers, salt water penetration, and storm reach.	Inland limits (or successional habitats) for coastal plant and animal species in response to water and salinity regimes, and nutrient and energy exchange. Seaward limits (or successional habitats) for human activities, such as agriculture, shore-based recreation, building, and seawall and road construction.	The geographic reach of political and administrative jurisdictions and controlling statutory and regulatory boundaries. Variation and segmentation in economic activities relying on and shaping coastal resources; likewise, variation and segmentation in their supporting political and cultural institutions .
Height (vertical profile)	Coastal topography (rate of rise) and geomorphological characteristics affecting surface and subsurface flows.	Topography (plus permeability, aspect, prevailing winds, etc.) determines the inward reach of the waves and tides. Habitats are vertically zoned above the sea floor.	Administrative jurisdictions--both vertically divided and overlapping. Examples: separate town, state and federal agencies oversee surface water quality, ground water quality, wastewater, and wetlands.
Length	Geomorphology: exposure to and inherent vulnerability to erosional and depositional forces (wind, waves, currents), resulting in natural barriers or conduits to sand, water, and biological flows.	Areas of stable vs. unstable substrates, exposed vs. protected environments resulting in different competing human and natural habitats.	Administrative segmentation of the coast (town boundaries). Subdivision into private and public ownership with different management goals. Special physical and regulatory controls instituted to promote or hinder ("stabilize") flows.

Table A1.2
Examples of Structural Attributes that Shape Coastal Environments

Attribute	Physical Characteristics	Related Biophysical Boundaries	Related Administrative Boundaries
Texture (porosity and contrast)	Variation and contrast in the natural and artificial environment that facilitates or hinders specific flows: i.e. temperature differences, changes in water, soil, and species regimes.	Interface, competition, and conflict created among species, and selective species flows from one natural area to another. Varying types of development and property ownership (residential, commercial, natural, etc.) in response to changes in the substrate--creating natural and artificial barriers to human and non-human species.	Organizational overlaps, contrasting management goals and cultures, gaps in resource management, conflicts, cooperation, and redundancies among administrative entities.

Table A1.3
Some Boundary Attributes of Coastal Resources and Institutions Interacting with the Public-Trust Doctrine (PTD)

Functional Attributes of Ecological Boundaries[1]	Biophysical Attributes Shaping PTD Lands and Resources	Administrative Attributes Shaping the Use of PTD Lands and Resources	Biophysical and Administrative Attributes Shaping Coastal PT Lands and Resources in New Hampshire
Boundary Structure	Biophysical nature of the PT lands including flows across them: ***Geophysical*** characteristics: general geology, soils, topography, aspect, coastal depositional and erosional characteristics. ***Biological***: plant and animal species of interest to conservation and wildlife management agencies that are dependent on PT lands.	Historical scope and change in the PTD. Statutory, regulatory, and customary boundaries--definition and scope. Patterns of land ownership, and public and private management entities involved.	***Geophysical:*** Historical change or stasis in the physical vertical and horizontal profile of the coast. Changes in water regimes at the fresh/salt water interfaces. Direct relationship between the physical substrate and scope of PTD. ***Biological***: Historical change in the stratification of terrestrial vs. aquatic vegetation and wildlife. Changein populations and distribution of key species, such as shellfish and mosquitoes. *Administrative:* Historical change in the boundaries and scope of resources under the PTD, including patterns of land ownership and governing authorities.
Fluxes and Gradients	Existence of corridors and conduits for flows: sand, water, nutrients, species. Species (including human) patterns of movement, use, and access regulated by land forms and gradients. Interaction of physical development with ecological gradients (example: relationship of roads and sea walls to nutrient, water, water, and species movements).	Progression of development in space and time. Changing structure of the governing units over time and across space. Progression in the value of land with relation to the sea.	Growing spatial extent and density of development on NH's outer coast (i.e. increasing human gradient on the landscape, dramatic seasonal fluxes). Increasing barriers to salt and fresh water mixing and exchange (landfill, sea walls, channeling). Increased on-shore and off-shore pollution from urban surface and sub-surface run-off. Increased property values with proximity to the sea.

Table A1.3
Some Boundary Attributes of Coastal Resources and Institutions Interacting with the Public-Trust Doctrine (PTD)

Functional Attributes of Ecological Boundaries[1]	Biophysical Attributes Shaping PTD Lands and Resources	Administrative Attributes Shaping the Use of PTD Lands and Resources	Biophysical and Administrative Attributes Shaping Coastal PT Lands and Resources in New Hampshire
Filtering Mechanisms (Vector and Context Specific)	Conditions hindering and facilitating flows--contrast and complementarity in contiguous habitats, changes in gradients, and physical barriers. Changes over time--seasonal changes, spatial changes. Changes in foraging habits (the biological and human economy).	Conflict or complementarity in overlapping institutions that support or hinder various uses. Changes in the controlling agencies (ex.: shifts in jurisdiction from town to state.) Changes in the primary drivers such as population pressures, changing infrastructure, and changing coastal economic base.	Land-use decisions in the control of town meetings, town selectmen, and appointees--restricting regional or state administration of the public-trust. Changing infrastructure technologies facilitate human development and flows. Increased development--reducing natural biological and physical filtering mechanisms. Evolution of the regional economy from a natural resource to service- and tourism- based economy. Increased privatization of public-trust resources constraining physical/environmental management and use options.

Table A1.3
Some Boundary Attributes of Coastal Resources and Institutions Interacting with the Public-Trust Doctrine (PTD)

Functional Attributes of Ecological Boundaries[1]	Biophysical Attributes Shaping PTD Lands and Resources	Administrative Attributes Shaping the Use of PTD Lands and Resources	Biophysical and Administrative Attributes Shaping Coastal PT Lands and Resources in New Hampshire
Ecological Effects Within and Beyond the PTD Zone	Short-term, small scale effects reflected in vegetation cover, water quality, game animal data Long-term, large scale effects reflected in land use, habitat loss, changes in water regimes	Short-term small-scale effects: public access, degradation, protection and restoration of some natural areas, cooperation or antagonism among affected parties; political concern. Long-term, large scale effects: changes in land cover and use on the shore, and changes in the quality of natural services along the coast (fisheries, recreation, flood buffers, etc.). Long-term evolution of regulatory frameworks, agency coverage, and public awareness of coastal environmental services and concerns.	Irreversible changes attributable to public-trust purposes: changes in marsh vegetation, expanding rights-of-way for roads, altered flow patterns, changing salinity and moisture regimes. Increased nutrient loading in near-shore and off-shore environments. Natural beach replenishment processes disrupted, with increased economic costs. Population growth resulting in increased year-round and seasonal activities in coastal PT environments and increased pressures to privatize the lands. Collapse of commercial fisheries in the estuaries and mud flats and off-shore. Pressure on town and state environmental oversight agencies. Legal battles over private vs. public access and management of PT resources. Changes in valuation of recreation and environmental services.

1. Knight and Landres, 1998; Forman, 1997.

Appendix 2

Physical Boundaries to the Coastal Public-Trust Resources

Physical Boundaries to the Coastal Public-Trust Resources

The public-trust doctrine has always been vague about the physical boundaries of the resources it protects. Table A2.1a and Table A2.2 show the state variation in shoreline boundaries, for both ocean and freshwater shores (Table A2.1b defines some of the terms used to describe boundaries). The line of public interest begins variously at the metonic tide line, vegetation lines, mean high tides, mean low tides, ordinary high or low marks, or it can vary in practice. Often there is no physical demarcation, the boundary may change over time, and it almost always is difficult to measure. When the scope of trust resources is extended to include less traditional resources, such as critical watersheds, confusion and ambiguity abound.

The location of boundaries is less volatile an issue when the public-trust doctrine defines a shared interest. In cases like that of New Hampshire, where the trust has been used to delineate a hard boundary between public and private ownership, the exact placement of the line can be inflammatory. Deeded boundaries in New Hampshire are located variously at the "natural mean high water mark,"[1] the metonic high tide,[2] and "the Atlantic Ocean."[3] Most states use the mean high tide line to demarcate lands over which the doctrine is controlling. Seaward of the tide lines, there is an undisputed shared jurisdiction between the states and the federal government to the three nautical mile limit or the international boundary (as in the case of the Great Lakes states).

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[1] *State v. Stafford*, 99 NH 92 (1952) at 105

[2] N.H. RSA 483-C II

[3] Littoral homeowner deeds (See Table A3.4)

Since early English law, the boundaries of the resources under the domain of the public-trust doctrine have been described as flexible and changing: ". . . [T]he title of the riparian[4] owner follows the shoreline under what has been graphically called 'a moveable freehold.'"[5] The primary reason for this flexibility has been the physical characteristics of the resources it protects--erosion and accretion constantly reshape shorelines, rivers meander and change course, and the amplitude of tides is variable in both the short and long term. Any time a waterline is used to determine a boundary, it is a temporary boundary at best. Further complicating the location of the boundary, there is considerable legal precedent that altering the natural conditions with fill or sea walls does not affect the boundary--i.e. the former location of the natural boundary is used to locate the line of the trust (Slade, et al., 1997, Connors, 1985). States vary in whether and when they recognize filled lands as alienated from the trust. All states require permits or licenses for people to fill trust lands. For example, a fill permit must be obtained from the N.H. Wetlands Board per N.H. Rev. Stat. Ann. § 482:41-e and f. When a fill permit has been legally obtained, some of the previously public rights may have been ceded in New Hampshire, but this is unclear and untried. A lot of land was filled long before state laws were passed requiring permits. Whether there is shared title over those lands is an almost bottomless legal quandary (Slade et al., 1997; Connors et al., 1985).

In all states, riparian owners have special rights. In particular, they are guaranteed access to the water, including the right to build wharfs out into it. Riparian rights become more varied

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[4]Technically, "riparian" refers to the banks of fresh waters, while "littoral" refers to the shores of tidal waters (seas and estuaries). In much of the literature, however, the two are combined, and "riparian" is used for both cases.

[5]Slade, et al., 1997, citing Halsbury *Laws of England*, Vol., 28, 361

and complex when there are changes in the dry land through deposits or erosion (sudden or gradual). "The rights of littoral [and riparian] owners on public waters are [however]. . . always subject to the paramount right of the State to control them reasonably in the interests of navigation, fishing and other public purposes. In other words, the rights of these owners are burdened with a servitude in favor of the State. . . ."[6]

[6] *Opinion of the Justices,* 649 A 2d. 604 at 609 (NH 1994).

Table A2.1a Seaward (Tidal) Boundaries of the *Jus Privatum*				
The High Water Line[1]			**Low Water Line[2]**	
Ordinary High Water Mark	**Mean High Tide (Usually averaged over 18.6 years[3])**	**Other (Higher than ordinary or mean high tide)**	**Mean Low Tide**	**Low Water Mark**
Alabama, Connecticut, Delaware, Florida, Rhode Island	California, New Jersey, North Carolina, South Carolina, Washington, Maryland, Mississippi, Alaska, Territories (Guam, Samoa, Virgin Islands)	Georgia (upper limit of the salt marshes--higher than mean high tide), New Hampshire (metonic high tide), Texas (higher high tide), Louisiana (winter high tide), Hawaii (vegetation line), New York (vegetation line)	Maine and Massachusetts (or 100 rods from mean high tide, which ever is less)	Delaware, Pennsylvania, Virginia, Washington

Source: The information in this table was compiled from Archer, et al. (1996), Slade et al. (1997), *Shively v. Bowlby* 152 US 331, 336 (1894)

[1]For definitions of the water lines see Table A2.1b which follows.

[2]Public trust rights --*jus publicum*--are retained up to the "ordinary high water mark" (Slade et al., 1997).

[3]Slade et al. 1997.

Table A2.1b Shoreline Tidal Measurements used to determine boundaries of the public trust	
Boundary Definitions	
Description	**Definition**
Storm Tide	Maximum level reached during storm surges in a specified period of years (1-year, 50 -year, 100-year storms)
Average Metonic High Water	The average height of the metonic high tide over several 18.6-year cycles
Mean Higher High Water	The 18.6-year (19 year) average height of higher high tides in a mixed tidal regime[1]
Mean High Water	The 18.6-year average height of high tide
Mean Low Water	The 18.6-year average of low tide
Mean Lower Low Water	The 18.6 -year average height of lower low tide in mixed tidal regimes.

Source: Based on Clark, 1989.

1. In mixed tidal regimes, there are two high and two low tides each day at different heights.

Table A2.2
Freshwater (Non-tidal Rivers and Lakes) Boundaries of the *Jus Privatum*

Ordinary High Water Mark	Ordinary Low Water Mark	Bottom land or to Center of the river or stream	Varies in Practice	Other
Alaska, California (rivers), Iowa, Florida, Idaho, Michigan (lakes), New Hampshire (ponds greater than 10 acres), North Carolina, Oregon, Washington	Alabama, California, Louisiana (navigable), Minnesota, New York (large water bodies), Pennsylvania, Massachusetts and Wisconsin (navigable streams and lakes), Texas (the state can make bottom land grants), and Vermont	Connecticut, Massachusetts and Wisconsin (non-navigable streams and lakes), Maryland, Maine, Michigan (rivers), Mississippi, New Hampshire (rivers and small ponds), New Jersey, New York (small bodies), South Carolina	Ohio, Illinois and Vermont ("water's edge"), Hawaii (determined deed-by-deed)	Illinois ("water's edge"), Pennsylvania (revokable grants), Virginia (unresolved)

Sources: Archer, 1997; Slade et al., 1997.

Appendix 3

The Public-Trust Doctrine in New Hampshire Coastal Lands

Tables

Table A3.1
19th Century Disputes Over Public Trust Resources
Recorded in NH Case Law

Date	Citation and Location	Description	Private Rights	Public Rights
1834	*Perley v. Langley* (7 NH 233 [1834]) Sanbornton	Langley took dirt from the edge of Sanbornton Bay, crossing Perley's land to do so, as people had been accustomed to do for decades. Perley protested.	The court ignored the question of whether the dirt came from a common resource, and decided Langley had trespassed.	The court stated that the town had a right to prescribe a public easement over the accustomed path, independent of the question of whether the public had rights to a common productive resource.
1845	*Nudd v. Hobbs* (17 NH 524 [1845] Hampton	Hobbs broke into and crossed Nudd's land to take seaweed from the shore, claiming custom and a long-standing public right-of-way. Hobbs protested.	The court granted the rockweed and seaweed on the shore to Nudd--saying that the public could not make profit in someone's land--thereby implicitly --but not explicitly--recognizing Nudd's ownership.	The court recognized a public right-of-way to and along the shore based on custom, but explicitly no public right to take seaweed, and implicitly, no title to the shore (i.e., the court followed the Massachusetts standard).
1851	*Knowles v. Dow* (22 NH 387 [1851]) Hampton	By long custom in the town, Dow was using Knowles' land to haul, pile, and then carry away flatsweed and seaweed. The actual area in dispute was the sand dunes–i.e. the dry sand area.	In a jury verdict--upheld in the NH Supreme Court--Knowles could not prevent the public from using the dunes for this purpose.	Although Knowles recognized Dow's right to collect seaweed and flatsweed below high water, he claimed sole rights in the dunes. The court recognized the public's right to use the dunes above high water (i.e. the question of ownership was unsettled, but the court leaned to the more liberal English interpretation of public rights).

Table A3.1
19th Century Disputes Over Public Trust Resources
Recorded in NH Case Law

Date	Citation and Location	Description	Private Rights	Public Rights
1862	*Clement v. Burns* (43 NH 609 [1862]) Dover	Burns used a road laid out by the town across Clement's land next to the Cocheco River (below the high water mark), and he used Clement's wharf to bring in mud. Some of the mud fell below the wharf on top of manure stored there by Clement. Removing the mud, he removed some of the manure. Clement protested.	The court decided that Clement owned the land and resources down to the low water mark, and that Burns owed him manure.	Although private ownership extends to the low-water mark, a public easement exists below the high-water mark. Dow could use both the road and the wharf (the 1647 Massachusetts Ordinance applied).
1889	*Concord Manufacturing Co. V. Robertson* (66 NH 1 [1889]) Concord	Concord Manufacturing Company claimed that Robertson was diverting water from their mill pond by cutting and removing ice from the mill pond in the winter.	Concord Manufacturing could only claim use rights to the pond; it could not claim private ownership of the pond, nor prevent public access to it.	Tide waters and large ponds (over 10 acres) are held by the state in trust for the public use. The public could cut and remove ice. The court explicitly stated that the 1647 Massachusetts Ordinance regarding ownership of the shore was not in force in N.H. (66 NH 1 at 27)

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
Howard W. Sibson v. State of New Hampshire (259 A.2d 397)	11/28/69	NH Supreme Court	Sibson appealed denial by the Port Authority of a permit to fill 2 acres of salt marsh. The appeal won. The court ruled that the Port Authority did not have jurisdiction because of certain physical characteristics of the site, although it was adjacent to lands under state jurisdiction.	This case was related to and preceding the key *Sibson* case cited below.	Justice Lampron writing; Grimes concurring	George Pappagianis
Howard W. Sibson et al. v State of New Hampshire (282 A.2d 664)	10/5/71	NH Supreme Court	Sibson sued for compensation for a "taking". Town zoning regarding parcel size was changed while he was appealing the case above, preventing him from subdividing the property as he had planned. No (compensable) taking was found, because any lessening of property value resulted from 'a proper exercise of police power in the promotion of the general welfare'--thus not compensable.	This case was related to and preceding the key *Sibson* case cited below.	Lampron writing; Grimes concurring.	Warren B. Rudman

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
Howard W. Sibson et al. v State of New Hampshire (336 A.2d 239)	3/31/75	NH Supreme Court	Sibson wanted to fill 4 additional acres of salt marsh. The permit was denied because the proposed fill "would do irreparable damage to an already dangerously diminished and irreplaceable natural asset (240)." Sibson claimed a taking. Although the judicial referee found that "[t]he unfilled portion of the marsh is of practically no pecuniary value to the plaintiffs (240)," the court found no taking. "An owner of land has no absolute and unlimited right to change the essential natural character of his land, so as to use it for a purpose for which it is unsuited in its natural state and which injures the rights of others. (*Sibson* at 243, quoting *Just v. Marinette County,* 201 N.W. 2d 761 at 768)." Grimes dissented. He felt a taking had occurred and he feared the decision destroyed "private ownership in all undeveloped property in [the] state (243)."	Final Sibson case, cited as an authority in the following cases, particularly in 2 key areas: weighing private costs and expectations against public benefits or gains (including preserving ecosystem function), and balancing individual rights to property against the police power of the state. This case recognized that wetlands perform functions critical to public health and welfare, and that regulations guarding these environmental resources are designed to prevent changes to the land's basic character that are against the public interest.	Griffith writing. Grimes consenting in part and dissenting in part.	Warren B. Rudman

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
Metzger et al. v. Town of Brentwood 343 A.2d 24	5/30/75	NH	Metzger was denied a building permit on a road the town did not consider a public right of way. The Supreme Court agreed that landowners did not have the public road frontage required by town ordinance but remanded the case back to the Superior Court to determine whether a taking had occurred.	*Sibson* was cited as establishing part of the information needed to eventually settle the issue: "Does the . . . zoning ordinance which prohibits the plaintiffs from building on their property promote public health, safety and the general welfare? (28)"	Kennison, Chief Justice	Private law firms argued each side.
Town of Hampton v. Special Board of the State of New Hampshire (365 A.2d 741)	10/29/76	NH Supreme Court	The Town of Hampton appealed a Water Resources Board denial of a permit to fill 3/4 acre of saltmarsh in the Hampton River estuary for a public purpose (sewer repair and a parking lot). Appeal denied. The Board's decision was not unlawful, unreasonable, or unjust. Filling the marsh would "destroy forever the productivity of the marsh and its life; and this loss would be detrimental to the public (742)."	*Sibson* was the sole case cited as an authority for the decision.	Grimes, writing; all concurred.	David H. Souter

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
Treat et al. v. State of New Hampshire (369 A.2d 214)	1/31/77	NH Supreme Court	Regulation by the highway commissioner of a private right-of way abutting a limited access highway facility was challenged. The highway commissioner was found to have the right to regulate access to the highway in the interest of public safety, and that these regulations were not a taking. The Court stated that establishing a "compensable taking" precedent would have unduly burdened the public while building other limited-access highways.	*Sibson* was cited as providing guidance in balancing whether payment should be made: "A reasonable solution . . . can be arrived at by comparing the injury to the landowner in not being paid with the injury to the public in being required to pay for [any] diminution in value (217)."	Grimes writing; Chief Justice Kennison and Justice Grimes dissenting.	Private law firms argued each side.

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
James M. Metzger et al. v. Town of Brentwood (374 A.2d 954)	6/7/77	NH	Metzger appealed the Superior Court decision that the denial of his building permit by the town zoning board was not a taking as it promoted public health, safety and general welfare. On appeal, the Supreme Court held that the permit denial was unconstitutional: citizens must be protected from unreasonable restrictions on the right to use their land (Const. pt.1, art.2); police power and the right to private property are interdependent--one qualifying and limiting the other; and legitimate public purposes gained by imposing the police power should be balanced against harm to citizens.	*Sibson* was cited by Justice Grimes because it "recognized that the validity of a regulation is determined by balancing the importance of the public benefit against the seriousness of the restriction on private rights." *Sibson* was also cited in the dissenting statement that for an unconstitutional taking to occur, the land must be rendered worthless by the ordinance--which had not happened.	Grimes writing; Kennison dissenting.	Private law firms argued each side.

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
State of New Hampshire v. McCarthy et al. (379 A.2d 1251)	10/24/77	NH Supreme Court	The State wanted landowners to remove fill placed on lands adjacent to tidal waters. The lands were no longer capable of supporting any of the required vegetation to place it under the State's jurisdiction, however. The Court ruled that the land was no longer in the state's jurisdiction, and the fill did not need to be removed. The state's jurisdiction (or the extent of lands under the public-trust doctrine) is clearly stated: "any rights the state may have [to regulate activities on tidal lands] end at mean high tide (1253)."	*Sibson* was cited as an authority for the validity of the statute regulating tidal waters and adjacent lands. In this case, the land was ruled not subject to state control because it was not subject to tidal action, and the vegetation named in the controlling statute could not grow on the land--regardless of whether it once could (before filling).	Grimes writing; Kennison dissenting.	David H. Souter

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
State of NH v. Francis D. Shanahan (389 A.2d 937)	7/18/78	NH Supreme Court	The Court ruled on a matter of law regarding a condemnation proceeding--whether someone was entitled for compensation because curbing was installed curtailing access to his service station. The case was remanded to the lower court. The service station entitled to compensation for the impaired access only if the impairment was substantial; otherwise, the diminution in the property's value was a general, noncompensable loss.	*Sibson* was cited as an authority: "No set formula exists to determine when regulation ends and taking begins. . . . [T]he difference between a noncompensable exercise of the police power and a compensable exercise of the eminent domain power is one of degree of harm to the property owner. To be compensable, the damage must be substantial. . . tantamount to deprivations of use or enjoyment of property'(939)". *Treat v. State* (above) was also cited in this discussion (pp. 216, 217).	Bois, writing; all concurred.	David H. Souter

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
John P. Burrows et al. v. City of Keene (432 A.2d 15)	6/26/81	NH Supreme Court	Developers sought review of the city's denial of approval for a subdivision that included wetlands. During the appeal, the city revised its zoning ordinances placing part of the land in a conservation zone. The owners (developers) claimed inverse condemnation, entitling them to payment for damages. The court agreed, saying Keene sought to place the financial burden on preserving open space--a public value--on a private owner. "Instead of acquiring the plaintiff's land by paying just compensation as required by our constitution. . .the city. . .elected to accomplish its purpose by regulating the use of the property so as to prohibit all "normal private development (21)." The case was remanded.	*Sibson* was cited: "Reasonable regulations that prevent an owner from using his land in such a way that it causes injury to others or deprives them of the reasonable use of their land may not require compensation." 19 This case was different from *Sibson*, however, because it involved development of "an average woodland"--"a use of the property traditionally not deemed injurious to the public 21." The Court was attempting to clarify the line between a valid non-compensable police action and a compensable taking based on the value of the economic uses of the land open to the landowner.	Grimes, Chief Justice writing; all concurred.	Private law firms argued each side.

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
Richard Loundsbury et al. v. City of Keene (453 A.2d 1278)	12/10/82	NH Supreme Court	Dispute over a sign ordinance requiring that some business signs be removed. The Court ruled that if nonconforming signs were neither nuisances nor health and safety hazards (only unaesthetic), their forced removal would be unconstitutional (The State Constitution provides for peoples' right to acquire, possess and protect property, even if the uses are nonconforming-- Const. Pt. I, Arts 2, 12 [1279].) The case was remanded.	*Sibson* was cited as an authority for the statement that towns may proscribe harmful property-related activity without providing compensation (1280). The Court went on to say, however, that "if reasonable public purpose for the ordinance existed, [the] town could require compliance with [the] ordinance with provision for just compensation... (1278)".	Bois, writing; all concurred.	Private law firms argued each side.

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
John F. Claridge et al. v. New Hampshire Wetlands Board (485 A. 2d 287)	11/30/84	NH Supreme Court	The Claridges appealed a decision by the Wetlands Board denying them a permit to fill their land. The Court found that the land continued to have some economic value, that the fill would diminish its ecological value, and that the act of the Board was not a compensable taking because filling the land imposed harm to the public. Specifically, the Court stated that filling the saltmarsh would destroy much of the ecological value of the land by "irreparably diminish[ing] the marsh's nutrient-producing capability for coastal habitats and marine fisheries (292)." In addition, the Claridges had purchased the land with notice of the statutory impediments on their development rights, therefore, they could "justify few, if any legitimate investment-backed expectations of development rights which rise to the level of constitutionally protected property rights (291)."	*Sibson* was cited as an authority for the ruling that denying the permit was a valid exercise of police power and does not require compensation, and that development of the wetlands was harmful to the public because of the unique nature of the vanishing resource (290) (*Just v. Marinette County* was also cited).	Batchelder, writing; King and Douglas filed a concurring opinion	Gregory Smith and George Dana Bisbee, Asst. Atty. Gen.

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
State of New Hampshire Wetlands Board v. Charlotte Marshall et al. (500 A.2d 685)	8/16/85	NH Supreme Court	The State Wetlands Board denied a permit to fill saltmarsh belonging to a realty trust. The realty appealed, and filled part of the marsh while appealing. The Superior Court affirmed permit denial and assigned $7,000 in penalties. Marshall appealed again. The Supreme Court held that (1) the Wetlands Board had jurisdiction because of the land characteristics; (2) it was not a "taking" because the property was purchased after the statutes regulating wetlands had gone into effect and the owners had been informed of them; and (3) the assessment of penalties was proper. Marshall et al. were ordered to remove the fill.	*Sibson* was cited as an authority for determining whether the land was subject to the oversight of the Wetlands Board, and whether the denial of the permit was a taking w/o compensation in violation of the 5th and 14th Amendments of the Federal Constitution and Par. 1, Art. 12 of the State Constitution (689). *Claridge* (above) was also mentioned. As in the two previous cases, Marshall et al. retained the same property value and landuse after the Board's ruling as before--hence, no taking.	Douglas, writing all concurred.	Stephen E. Merrill and George Dana Bisbee, Asst. Atty. Gen.

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
Roland M. Soucy et al. v. State of New Hampshire (506 A. 2d 288)	12/5/85	NH Supreme Court	The owners of an apartment building damaged by fire were prevented by a court order from repairing the building until after the jury could inspect it in an arson prosecution. The owners claimed this was a "taking". The court held that it was not a compensable taking, and the owners could not recover damages. "He who will live by society must let society live by him, when it requires it (291)."	*Sibson* was cited as an authority for the statement "Reasonable regulations that prevent an owner from using his land in such a way that it causes injury to others or deprives them of the reasonable use of their land may not require compensation. . . . There can be no set test to determine when regulation goes too far and becomes a taking. Each case must be determined under its own circumstances. The purpose of the regulation is an element to be considered. . . . (290) " *(Burrows v. City of Keene at 19-20 was also cited).*	Souter, writing; the rest concurred.	Stephen E. Merrill and Peter C. Scott, Asst. Atty. Gen.

Table A3.2
Sibson v. NH* and Ensuing New Hampshire Cases Citing *Sibson v. NH
(115NH124)

Name of Case	Date decided	Court	Case	Relation to *Sibson* Case	Justices writing	Attorney General
Donna E. Rowe v. Town of North Hampton (553 A.2d 1335)	2/6/89	NH Supreme Court	Rowe applied for a zoning variance from a wetlands ordinance in order to build a house and septic system in a wetland area. The permit was denied; she appealed. The Court ruled the zoning board's denial was lawful and not unreasonable, and that there was no taking. Zoning variances have 5 requirements: (1) denial of a variance would impose undue hardship, (2) no diminution of value in the surrounding properties would occur, (3) the proposed use is not contrary to the spirit of the variance, (4) the variance would benefit the public interest, and (5) the variance "would do substantial justice (1333)." *"The uniqueness of the land, not the owner's situation, determines whether hardship exists* (1331)." That is, there must be some special condition of the land that makes it unsuitable for the uses for which it was zoned.	*Sibson* provided the rationale for the ruling: "no taking occurs where the public policy advanced by a regulation that is particularly important and the landowner's action would substantially change the essential natural character of [the] land so as to use it for a purpose for which it was unsuited in its natural state and which injures the rights of others (*Sibson* at 243) (1335)."	Batchelder writing; all concurred.	Private law firms argued each side.

Table A3.3
Population Change in Selected Towns, Rockingham County, New Hampshire
1900-1997 (Estimated)

City or Town	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	1997 est.	1980-1997 % Change
Exeter	4922	4897	4605	4872	5398	5664	7243	8892	11024	12481	12811	16
Greenland	607	575	623	577	696	719	1196	1784	2129	2768	2904	36
Hampton	**1209**	**1215**	**1251**	**1507**	**2137**	**2847**	**5379**	**8011**	**10493**	**12278**	**12608**	**20**
Hampton Falls	560	552	483	481	493	629	885	1254	1372	1503	1635	19
New Castle	581	624	428	378	542	583	823	975	936	840	835	<11>
Newfields	647	503	470	376	417	469	737	843	817	888	1031	26
Newington	390	296	398	381	418	494	1045	798	716	990	712	<0.5>
Newmarket	2892	3348	3181	2511	2640	2709	3153	3361	4290	7157	7349	71
No. Hampton	812	783	677	695	818	1104	1910	3259	3425	3637	3838	12
Portsmouth	10637	11269	13569	14495	14821	18830	26900	25717	26254	25925	22655	<13>
Rye	**1142**	**1014**	**1196**	**1081**	**1246**	**1982**	**3244**	**4083**	**4508**	**4612**	**4658**	**3**
Seabrook	1497	1425	1537	1666	1782	1788	2209	3053	5917	6503	6691	13
Stratham	718	602	542	552	634	759	1033	1512	2507	4955	5393	115
Rockingham County Total	51118	521188		53750	58142	70059	98642	138950	190345	245845	261634	37
New Hampshire	410938	430376	442716	463898	491320	533110	606921	737681	920610	1109252	1173000	27

* Source: Office of State Planning (OSP) http:// www.state.nh.us/osp/planning/SDC

Projected population increase in Rockingham County 2000-2020 = 285,142 to 400,848 (40%)
Projected population increase in New Hampshire 2000-2020 = 1,228,797 to 1,527,878 (24%)

Table A3.4
A Sample of Public/Private Boundaries in the Disputed Coastal Area

Boundaries and Public Access According to Recent Deeds					Private Property Boundaries and Public Access According to Owners	
Date of Record	**Owner**	**Approximate Location**	**Ocean-side Boundary**	**Public Interests or Rights of Way Noted on Deed**	**Boundary of Private Property**	**Public Access or Uses**
1942	Anderson, Abbie-Jane, Tr. et al.	1236 Ocean Blvd. (Wallis Sands)	The Ocean	None	Seaward end of the dry sand beach, marked by a sharp drop to lower wet coarse sand (not wind blown) about 50' from the seawall [Ruth Spurr]	Sunbathing permitted (Spurr and Anderson). People told to move (Poore). Some problem with public trespass (using private outdoor shower and crossing land to get to the beach).
1988	Azzi, Victor	1100 Old Ocean Blvd. (Wallis Sands)	Approximate high water of the Atlantic Ocean	None	MHT (60' to 70' seaward of the seawall).	Sunbathing, swimming, and walking permitted. Occasionally ask people to leave.
1979 w/ amend-ment in 1996	Beattie, James	1126 Ocean Blvd. (Wallis Sands)	Atlantic Ocean	None	To the seaward boundary of dry, loose sand--about 30' to 50' from the seawall	Walking or sunbathing permitted unless it interferes with the owners' use–but has never asked anyone to move.
1995	Brown Southworth, Evelyn and John D. Southworth	2326, 2330 Ocean Blvd. (Jenness Beach)	Atlantic Ocean	None	MHT	People use the beach in front of the seawall.
1988	Brown, Carolyn	2316 Ocean Blvd. (Jenness Beach)	Low-water mark of the sea	None	MHT (71.5' east of the seawall)	Public uses the land below the seawall to MHT to sun, walk, play.

Table A3.4
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Boundaries and Public Access According to Recent Deeds					Private Property Boundaries and Public Access According to Owners	
Date of Record	**Owner**	**Approximate Location**	**Ocean-side Boundary**	**Public Interests or Rights of Way Noted on Deed**	**Boundary of Private Property**	**Public Access or Uses**
1960	Brown, James D.	2310, 2320 Ocean Blvd. (Jenness Beach) (including former salt marsh in part)	The sea (or Atlantic Ocean) Together with all rights title and interest in the land down to the low-water mark.	None	Mean high tide per court case *State of NH v. Brown* (1952). MHT measured at 67' (2320) and 72.5 (2310).	Public permitted to sunbathe (swim), walk, and picnic. (They have never asked the public to leave.)
1963	Brown Oliver, Louise	2290, 2300, 2306 Ocean Blvd. (Jenness Beach)	The sea (or Atlantic Ocean) Together with all rights title and interest in the land down to the low-water mark.	None	MHT	Land is adjacent to the State beach. Public uses the dry sand area for sunbathing, swimming, walking, etc. Has spoken publically against public use.
1991	Brown, Michael W.	1134 Ocean Blvd. (Wallis Sands)	Atlantic Ocean	None	Beach is private in front of the seawall down to where wet sand begins.	Walking, sunbathing permitted except when family wants to use the beach--he has told people to leave.
1985, 1986, 1987, 1992	Brown Ambrose, Nancy, and Philip and William Stephen Brown	Jenness Beach (location uncertain--4 deeds)	The sea	None	East of the seawall to MHT (ave. 67')	Sunbathing, games and sports east of the seawall.

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Boundaries and Public Access According to Recent Deeds					Private Property Boundaries and Public Access According to Owners	
Date of Record	**Owner**	**Approximate Location**	**Ocean-side Boundary**	**Public Interests or Rights of Way Noted on Deed**	**Boundary of Private Property**	**Public Access or Uses**
1983	Clark, Frances and Helen	2260 Ocean Blvd. (Jenness Beach)	The Atlantic Ocean (Changed in 1921 from "the sea beach")	No building within 20' of the sea beach	The entire dry sand area is claimed, extending 30' to 35' in front of the seawall, the boundary marked by a dry seaweed "line".	People are permitted to sit, sunbathe and play on the beach, but not interfere with the Clarks' use. On an average summer weekend, 10-25 people per day use the beach.
1967	Colby, Parker, Eleanor, James, Rosalie, Henry and Mary	1130 Ocean Blvd. (Wallis Sands)	Atlantic	None	The beach is private; 'line is where seaweed, dead fish, and other debris are located.'	Sunbathing at the edge of wet sand is permitted (2-6 people daily). Have asked people to leave; have called police (vehicles are on the beach).
1994	Crandall, Robert R. And Virginia J.	1286 (1180) Ocean Blvd. (Wallis Sands)	Atlantic Ocean	None	Seaward edge of the loose, dry sand area	Walking (up to 300 people/day), sunbathing, swimming, volleyball, picnicking by the public observed or permitted by owners. Public has trespassed on house deck (sunbathing), insisting it was public along with the beach.
	Devaney, Michael R.	1122 Ocean Blvd. (Wallis Sands)			Seaward edge of the dry sand where the seaweed accumulates (approx. 40' form seawall).	Public use permitted with certain conditions (no trash, etc.)

Table A3.4
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Boundaries and Public Access According to Recent Deeds					Private Property Boundaries and Public Access According to Owners	
Date of Record	**Owner**	**Approximate Location**	**Ocean-side Boundary**	**Public Interests or Rights of Way Noted on Deed**	**Boundary of Private Property**	**Public Access or Uses**
1995	Gregg, Catherine W.	1232 Ocean Blvd. (Wallis Sands)	Atlantic Ocean	8 foot right of way for foot traffic, along the southerly boundary, from the Atlantic to the westerly boundary	Line of wet/dry sand, approx. 30' to 40' from seawall.	Public sunbathes, picnics, waslks, swims on and from the beach. Occasionally landowner has requested more consideration from groups.
1946	Griffin, Sarah Lee	1242 Ocean Blvd. (Wallis Sands)	Sea beach and Atlantic Ocean	Passway on the southerly boundary	Beach is private to the MHT, approx. 50' from the seawall.	Public uses beach close to high tide line. Use is discouraged.
1958	Katz, James and Dorothy	1146 Ocean Blvd. (Wallis Sands)	The ocean, proceeding easterly from survey marker inland	None		Public uses soft sand beach in front of the wall; owner expressed some fear of telling people to move.
	Anagnost, Richard and William Kelley (Orwood Condo Assoc.)	1080 ocean Blvd. (Wallis Sands)			Mean high tide (MHT)	No public use permitted.

Table A3.4
A Sample of Public/Private Boundaries in the Disputed Coastal Area

Boundaries and Public Access According to Recent Deeds					Private Property Boundaries and Public Access According to Owners	
Date of Record	**Owner**	**Approximate Location**	**Ocean-side Boundary**	**Public Interests or Rights of Way Noted on Deed**	**Boundary of Private Property**	**Public Access or Uses**
1994	Leahey, Mary	2254 Ocean Blvd. (Jenness Beach)	Northern point from a marker on the sea wall, 35' more or less to the mean high tide, south 98' more or less to a point opposite a marker in the sea wall.	None		
1974	Loughlin, Mary R and Nancy Conboy	1118 Ocean Blvd. (Wallis Sands) marshland to the west	The Atlantic Ocean	None	Boundary of the wet/dry sand	Walking on the beach permitted above high tide; drinking not permitted.
1995	MacLeod, William S. And Beverly J.	1174 Ocean Blvd. (Wallis Sands)	The Atlantic Ocean	None		
1992	McAlpin, George and Barbara	1230 Ocean Blvd. (Wallis Sands)	Atlantic Ocean	None		
1985	Miller, Stephen C. And Alice T.	1270 Ocean Blvd., Rye (Wallis Sands)	Atlantic Ocean	None		

Table A3.4
A Sample of Public/Private Boundaries in the Disputed Coastal Area

Boundaries and Public Access According to Recent Deeds					Private Property Boundaries and Public Access According to Owners	
Date of Record	**Owner**	**Approximate Location**	**Ocean-side Boundary**	**Public Interests or Rights of Way Noted on Deed**	**Boundary of Private Property**	**Public Access or Uses**
1973	Piotrowski, Joseph and Virginia	1142 Ocean Blvd. (Wallis Sands)	Atlantic Ocean	None	Edge of the wet sand/	Walking permitted; sunbathing discouraged.
1977	Purdie, William and Donna	1154 Ocean Blvd. (Wallis Sands)	Atlantic Ocean	None	Seaward end of the dry sand, marked by wet/coarse sand.	Walking and sunbathing (2-4 people daily).
	Radie, Robert A. (Orwood Condo Assoc.)	1080 Ocean Blvd. (Wallis Sands)			The mean high tide.	The beach is private.
1982	Richards, G. Bradley and James K. McKiniry	1154 Ocean Blvd. (Wallis Sands)	Mean high water mark	None	The mean high tide line defined as the edge of dry sand beach bounded by wet/coarse sand (changed in 1982 from "the Atlantic Ocean."	Public has owner's permission to walk the beach and sun-bathe (infrequent)
1969	Schwartz, Alvin and Patricia	1304 Ocean Blvd. (Wallis Sands)	Atlantic Ocean	None		
1984	Tosi, Laurence A.	74 Old Beach Rd. (Jenness Beach)	Atlantic Ocean and into the ocean as far as the rights extend	25' right-of- way along the northern boundary; disputed right-of-way through the land		

Table A3.4
A Sample of Public/Private Boundaries in the Disputed Coastal Area

Boundaries and Public Access According to Recent Deeds					Private Property Boundaries and Public Access According to Owners	
Date of Record	**Owner**	**Approximate Location**	**Ocean-side Boundary**	**Public Interests or Rights of Way Noted on Deed**	**Boundary of Private Property**	**Public Access or Uses**
1995	Yoken, Michael A. And Kimberly B.	1108 Ocean Blvd. (Wallis Sands)	The ocean	None	Boundary is at the seaward edge of the dry sand.	Beach is private. Occasional public use by permission only.

Source: Compiled from Selectmen's records, Town of Rye, NH and the affidavits of the individual landowners, Daniel J. Mullen, surveyor, and Martha T. Nickerson in the State's brief (*Purdie v. State of NH*, Rockingham Superior Court, 95-E-0455.9).

Selected Passages from "The Tent on the Beach"

. . . .
When heat as of a tropic clime,
Burned all our inland valleys through,
Three friends, the guests of summer time,
Pitched their white tent where sea-winds blew.
Behind them, the marshes, seamed and crossed
With narrow creeks, and flower-embossed,
Stretched to the dark oak wood, whose leafy arms
Screened from the stormy East the pleasant inland farms.

At full of tide their bolder shore
Of sun-bleached sand the waters beat;
At ebb, a smooth and glistening floor
They touched with light, receding feet.
Northward a green bluff broke the chain
Of sand-hills; southward stretched a plain
Of salt grass, with a river winding down
Sail-whitened, and beyond the steeples of the town,
. . . .
Untouched as yet by wealth and pride,
That virgin innocence of beach;
No shingly monster, hundred-eyed,
Stared its gray sand-birds out of reach;
Unhoused, save where, at intervals,
The white tents showed their canvas walls,
Where brief sojourners, in the cool soft air,
Forgot their inland heats, hard toil, and year-long care.

Sometimes along the wheel-deep sand
A one-horse wagon slowly crawled,
Deep laden with a youthful band,
Whose look some homestead old recalled;
. . . .
The clanging sea-fowl came and went,
The hunter's gun in the marshes rang;
At nightfall from a neighboring tent
A flute-voiced woman sweetly sang.
Loose-haired, barefooted, hand-in-hand,
Young girls went tripping down the sand;
And youths and maidens, sitting in the moon,
Dreamed o'er the old fond dream from
which we wake too soon.
. . . .

John Greenleaf Whittier, 1867, reprinted in *The Poetical Works of John Greenleaf Whittier*, 1894

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