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Improving Maine's Beaches : Recommendations of the Southern Maine Beach Stakeholder Group

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Improving Maine's Beaches

Recommendations
of the
Southern Maine
Beach Stakeholder Group

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John Greene*
Town of Cape Elizabeth

Barry S. Timson*
Town of Scarborough

Tad Redway, Town Planner*
Old Orchard Beach

Richard Roedner, City Planner*
City of Saco

Richard Belanger, Dir. of Parks & Recreation*
Bob Hamlin, City Planner
City of Biddeford

Jane Duncan, Town Manager
Scott Dombrowski, CEO
W. Parker Dwelley*
Town of Kennebunkport

Mark Jacobson, CEO*
Judy Bernstein, Town Planner
Town of Kennebunk

J. T. Lockman, Town Planner *
Town of Wells

Bruce Locke, Town Manager
Paul Lempke, CEO*
Bruce Smith, former CEO*
Town of Ogunquit

Wayne Marshall, Town Planner
Mark A. Badger, CEO*
Town of York

Philip McCarthy, Town Manager
Town of Kittery

Bill Emerson*
Small Point

Jody Jones*
Jennifer B. Cost
Maine Audubon Society

Michael Severance*
Kennebunk-Kennebunkport Chamber of Commerce

Ben Baldwin*
Dr. Donald E. Holdsworth
S O S Wells

Bonnie Lewis-Titcomb*
S O S Camp Ellis

Alison Rieser
Maine Law School

Elizabeth Scott-Graham*
Kent Kirkpatrick
Wells National Estuarine Research Reserve

Dan Fleishman
Southern Maine Regional Planning Commission

Phil Bozenhard*
Maine Dept. of Inland Fisheries and Wildlife

Robert Marvinney*
Joe Kelley*
Maine Geological Survey

Paul VanCott*
Jeff Madore*
Doug Burdick
Dan Prichard
Maine Dept. of Environmental Protection

Bill Ferdinand*
Lou Sidell
State Planning Office

Jonathan Reitman, facilitator
Brunswick

* denotes member of the stakeholder group

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Cover Photo: Old Orchard Beach

EXECUTIVE SUMMARY

This report describes current beach management issues of concern to the citizens of southern Maine and provides some recommendations on how to address these issues. These recommendations were developed by a stakeholder group composed of property owners, business interests, environmental interests, municipal officials and Maine State agencies.

Issues

Beach Erosion —

Beaches are formed by dynamic geological processes, so they change constantly. Many of our beaches are responding to sea level rise and coastal storms by moving inland, which erodes the beach front in some places and increases the beach in other places. Erosion has also been increased by human activities, such as jetties and sea walls, and these are more difficult for natural processes to mitigate. We can not halt the rise of the sea or the assault of northeast storms, but we can minimize risk of losing property and natural resources as a result of the landward movement of the shoreline and human activities along the coast. In order to make better informed decisions on beach management, we need to maintain complete information on the geologic changes to the beaches. There is sporadic information available now, but this needs to be completed and maintained on a regular basis.

Beaches in Wells and Camp Ellis in Saco have experienced a great deal of beach erosion that has already caused the loss of property and continues to threaten more losses. Immediate attention is needed for each of these situations to investigate and implement solutions that will avoid the future loss of property and natural resources.

Property at Risk —

Some structures built on or near the sand dune system are at risk of being lost during storms or over time due to beach erosion. There are guidelines in State and municipal law for the location and design of structures in these areas. Yet many structures do not conform to these guidelines because they were built before adoption of these regulations, which puts them at higher risk. More effort is needed to raise awareness of these risks and to help municipalities and landowners reduce these risks.

Wildlife Habitat —

Maine is home to two endangered bird species -- piping plovers and least terns -- that nest in the coastal beach dune system during the spring and summer. There are human activities that occur on beaches that threaten the productivity of these birds. The Maine Department of Inland Fisheries and Wildlife and the Maine Audubon Society have been working to protect the beach habitat of these birds through voluntary actions and state regulatory programs. These efforts have improved the population of the plovers, but

there remains more work to be done to protect habitat and build sustainable bird populations.

Public Use of Beaches —

The contribution of coastal beaches to the tourist economy in southern Maine is considered to be quite large, but it has not been recently quantified. Putting a value to this economic activity would help public officials to make decisions on expenditures of public funds to protect and restore this resource. Some shorefront property owners have also raised concerns about ownership and public use of private beaches. To resolve and avoid conflicts between land owners and the public, we need to find ways to address the needs of property owners and the public users of beaches.

Regulation of Activities in Sand Dunes —

Many human activities in the sand dune system are regulated by the State under the Natural Resources Protection Act and by municipal ordinances. There are some inconsistencies between state and local laws that apply to beaches. Since the concerns and possible solutions to these inconsistencies differ among places along the coast, we need to address these management issues on a more regional scale, rather than adopting statewide changes.

Recommendations

- ❖ *The Governor should convene stakeholders in Camp Ellis and Drakes Island/Wells Beach to take quick actions to stabilize and restore these beach systems for the near term, until longer term solutions can be devised through the beach management plans described below.*
- ❖ *The Maine Geological Survey should maintain geologic information for each beach system in southern Maine for use in beach management planning. The Council on Environmental Monitoring and Assessment should coordinate this task with other beach monitoring efforts.*
- ❖ *The Maine Dept. of Inland Fisheries and Wildlife and the Maine Audubon Society should continue their efforts to measure populations of plovers and terns. This monitoring effort should include the use of local volunteers for field surveys. The Council on Environmental Monitoring and Assessment should coordinate this task with other beach monitoring efforts.*
- ❖ *The State Planning Office and Maine Emergency Management Agency should measure and publish property losses and injuries caused by coastal storms. They should also work with municipalities to measure the number of structures in coastal hazard areas that comply with the NFIP coastal construction standards.*
- ❖ *The State Planning Office should work with municipalities and businesses to conduct a census of beach users and prepare an evaluation of economic value of the beaches.*

❖ *The **Department of Environmental Protection and the Wells National Estuarine Research Reserve** should investigate the need for a program to monitor water quality of beaches in southern Maine.*

❖ *The **Southern Maine Regional Planning Commission** should provide information on beach management to municipal officials.*

❖ *The **Wells National Estuarine Research Reserve** should publish, and distribute to landowners and beach users, information on coastal erosion risks and bird habitat.*

❖ *The **State Planning Office** should work with the real estate and banking associations to develop a proposal to have the presently required disclosure of flood risks to potential buyers of coastal property earlier in the real estate transfer process, and to disclose some measure of coastal erosion risks.*

❖ ***Municipalities and State agencies** should work with stakeholders, including land owners, environmental groups and business interests, to develop regional beach management plans that establish goals, policies and recommend regulations that will guide how the beach resource will be managed. The **Maine Department of Environmental Protection and the State Planning Office** should participate in the development of the beach management plans to ensure that the proposed policies and regulations are consistent with the intent of state law, such as the Natural Resources Protection Act, and to monitor the results of the plans. The DEP could, if warranted, change the administrative rules, recommend changes to state law, or delegate some authority to municipal or quasi-municipal authority that has established capacity to administer this law.*

❖ *The **Southern Maine Regional Planning Commission** should provide technical and organizational assistance for developing regional beach management plans and serve as a liaison to State agencies.*

INTRODUCTION

In the eyes of many, Maine is defined by its long and irregular coastline. Although there are more than 3,000 miles of tidally influenced shoreline, some of the most valued parcels are the sand beaches in southern Maine. The beaches from Kittery to Georgetown, which are less than 50 miles in combined length, are the focus of summer visitors and local residents during the warm months, and are increasingly used for year round residences. In addition, the beaches are home to a variety of important wildlife, including two endangered species of birds. Thus, a very small percentage of our long coastline is of disproportionate value to the State.

The use and protection of our valuable beaches are long standing issues in Maine. Some beach issues were addressed in 1979 when the Governor created the Advisory Committee on Coastal Development and Conservation in response to coastal storms that destroyed a great deal of property. The Committee issued a set of recommendations to protect shorefront property. The recommendations included helping municipalities participate in the National Flood Insurance Program, adopting rules to address construction in sand dune systems, restricting construction of seawalls, and creating a division of marine geology within the Maine Geological Survey. By taking these actions over the past twenty years, we have improved our understanding of the geology in these areas, and we have better protected coastal property from storm damage.

Yet in spite of these increased efforts, many issues around the use and protection of beaches remain with us today. Some shorefront properties remain at risk because they are not addressed by State and municipal rules for construction in sand dunes. Indeed, some structures built to protect property or improve navigation can increase the risk of erosion of beaches. Moreover, wildlife habitat in sand dunes is still at risk from development and beach users, despite greater protection efforts. Finally, some shorefront property owners are concerned about the extent of public use of beaches that have been traditionally open to the public.

This report describes the current beach management issues that are of concern to the citizens of southern Maine and provides some recommendations on how to address these issues. The recommendations have been developed by a stakeholder group composed of property owners, business interests, environmental interests, municipal officials and Maine State agencies. The participants in this stakeholder group are noted in the Acknowledgment. The participation of the stakeholders in this process indicates that there is great deal of interest in working together to address these issues and improve Maine's beaches for everyone.

CURRENT ISSUES

Beach Erosion —

Despite claims to the contrary, our beaches are neither fragile nor unchanging environments. Geological research has demonstrated that our beaches formed when the level of the ocean in the Gulf of Maine slowed down its post-glacial rise about 5,000 years ago. Since then, all our beaches expanded into their present location and extensive salt marshes established themselves in the sheltered regions landward of the beach formations. Scientific measurements suggest that during this century the level of the sea has risen faster than any time since the formation of the beaches, and many of our shorelines are responding by moving inland. Some beach erosion may be attributable to sea-level rise and its more conspicuous partner, winter storms. Our beaches were formed by such dynamic processes though, and they recover from these natural events. Erosion has also been increased by human activities, such as jetties and sea walls, and these are more difficult for natural processes to mitigate. There is nothing we can do to halt the rise of the sea or the assault of northeast storms, but there are ways to minimize risk of losing property and natural resources as a result of the landward movement of the shoreline and human activities along the coast. To protect the great natural resource that our beach systems represent to the State, we need to constructively address the problem of erosion. Otherwise, we can expect to watch our beaches literally wash away.

Information on beach size and shape is important to understanding how beaches are changing over time, to identify areas where these changes may cause problems, and to decide what actions can be taken to address the problem. Unfortunately, this information has been gathered sporadically in the past. A few beaches have been measured for their profile in connection with specific development projects, and the offshore areas were recently surveyed for the three large beach systems (Saco Bay, Kennebec River mouth, and Wells embayment). We need to develop a more complete database of beach profile information that is regularly maintained to track the geologic changes over time.

There are some beach areas that have experienced relatively more erosion due to human activities. Drakes Island/Wells Beach in Wells and Camp Ellis in Saco have experienced a great deal of beach erosion that has already caused the loss of property and continues to threaten more losses. The residents of these areas have been working to find solutions to their beach erosion problems for many years, yet little progress has been made in stemming the losses. Beach replenishment has often been suggested to counteract the erosion, and there may be other solutions for each of these situations as well. Immediate attention is needed for each of these situations to investigate and implement solutions that will avoid the future loss of property and natural resources

Property at Risk —

Structures built on or near the sand dune system are at risk of being lost during storms or over time due to beach erosion. There have been two federal disaster declarations caused by coastal storms since 1991. A storm in April, 1996 caused over \$500,000 in public property damage in coastal towns. In October, 1996, a coastal storm occurred that was estimated to be greater than a 500-year rain event and set a new record for rainfall. The extensive flooding caused over \$26 million in public and private property damage.

There are standards for the location and design of structures in these areas in State and municipal law. Most significantly, the National Flood Insurance Program (NFIP) provides flood insurance to land owners in municipalities that adopt and enforce an ordinance that is consistent with national minimum standards. The NFIP is administered in Maine by the State Planning Office and, all coastal towns in southern Maine are participating in the NFIP. Yet many structures do not conform to the NFIP guidelines because they were built before adoption of these regulations, which puts them at particular risk. The Community Rating System under the NFIP attempts to bring these structures into compliance by offering discounts on flood insurance on properties in municipalities that take additional preventive and corrective measures. Some towns have implemented more measures to reduce the risk of loss than others. More effort is needed to raise awareness of these risks and to help municipalities and landowners reduce these risks.

Wildlife Habitat —

Maine is home to two endangered bird species that nest in the coastal beach dune system during the spring and summer. Piping Plovers are listed as endangered by the U.S. Fish and Wildlife Service and the State of Maine. Least terns are listed as endangered by the State of Maine. Unfortunately, there are many human activities that occur on beaches that threaten the productivity of these birds. Development activities in the sand dune system can destroy bird habitat by removing sand and vegetation needed for nesting. As noted above, structures to protect human uses of the beach, such as sea walls and jetties, disrupt natural patterns of sand transport and remove habitat for these birds. Beach users have also disturbed nesting birds and destroyed nest sites.

The Maine Dept. of Inland Fisheries and Wildlife and the Maine Audubon Society have been working to protect the beach habitat of these birds by fencing and monitoring nesting areas, working with nearby landowners to protect bird habitat, and educating beach users about the needs of the birds. These voluntary efforts are supplemented by the Sand Dune Rules under the Natural Resources Protection Act and the Endangered Species Act which regulate activities that impact the habitats of these birds. Through these efforts, the population of the piping plovers has improved. Nevertheless, these bird species remain on the endangered species list, more effort is needed to protect their habitat and build sustainable bird populations.

Public Use of Beaches —

The contribution of coastal beaches to the tourist economy in southern Maine is considered to be quite large, but it has not been recently quantified. Putting a value to this economic activity would help public officials to make decisions on expenditures of public funds to protect and restore this resource.

Much of the economic value of the beach is connected to public use of beaches. Public ownership and public access rights are in dispute in some beaches. In addition, some shorefront property owners and beach users have raised concerns about crowding, litter, and disruptive behavior by the public which infringes on enjoyment of the beach. The level of concern varies among the beaches, but in some places the shorefront property owners are so upset that they are limiting public access to privately owned beaches in order to protect their property interests. Limiting traditional public access to beaches has a strong impact on local economies, so solutions need to be found that address the needs of local property owners and public users of the beaches.

Regulation of Activities in Sand Dunes —

Many human activities in the sand dune system are regulated by the State under the Natural Resources Protection Act (38 MRSA § 480-A et seq.) and municipalities under ordinances adopted to comply with the Mandatory Shoreland Zoning Act (38 MRSA § 435 et seq.). The limited discussion among the stakeholders revealed that there are some inconsistencies between these laws. It was apparent that this stakeholder group would not achieve consensus on the need for a major revision of these laws to reconcile these inconsistencies. The stakeholders agree, however, that development of regional beach management plans could be used as a forum to address specific regulatory issues in the context of a broader effort to better manage the use of these resources.

RECOMMENDATIONS

The Stakeholders reviewed a good deal of information and discussed the issues that need to be addressed in order to improve Maine's beaches. As the group had many different interests represented, the ideas for how beaches could be improved ranged widely and sometimes conflicted with one another. Indeed, one person's view of an improvement is another person's step backwards. Through all this discussion, however, the Stakeholders reached consensus around some actions that should be taken to address the most pressing needs of Maine's valuable beaches.

A. Urgent Situations

❖ *The Governor should convene stakeholders in Camp Ellis and Drakes Island/ Wells Beach to take quick actions to stabilize and restore these beach systems for the near term, until longer term solutions can be devised through the beach management plans described below.*

The municipalities of Saco and Wells have been wrestling with solutions to their beach erosion problems for many years. They both have recently developed ideas to replenish their beaches with sand and to alter structures that affect sand transport. These ideas need to be discussed with state and federal agencies and the ideas that have the support of these organizations should be put into action. To move this negotiation process along, a group of stakeholders for each beach should be convened, including landowners, municipal officials, DEP, MGS and the Army Corps of Engineers and others. These groups could also merge at some point in order to negotiate more effectively with federal agencies. The goal of these stakeholders is to reach agreement on a short term agenda for action to address the erosion of these beaches, and then to take these actions as quickly as possible. The long term restoration of the beaches should be addressed by the regional beach management plans, described below.

B. Measuring Progress

As the Stakeholders discussed the various issues, it became clear that more information is needed on the status and trends of beaches in order to make intelligent decisions on actions that should be taken to improve this resource. Moreover, as we take actions to protect or restore beaches, we want to be able to track the impact of these actions on the beach. The group therefore strongly recommends that the State monitor some key indicators of the status and trends of Maine's beaches. It is noted that the indicators for beach profiles, economic valuation and water quality will require new efforts and funding.

1. Beach profiles

❖ *The Maine Geological Survey should maintain geologic information for each of the beach systems in southern Maine for use in beach management planning. The Council on Environmental Monitoring and Assessment should coordinate this task with other beach monitoring efforts.*

As noted in the Issues section, information on beach dynamics is important for understanding what needs to be done to address beach erosion problems. The information should consist of the following:

- a. Measure the height of the sand dunes and width of the dry beach on a spring high tide once or twice a year. If possible, topographic profiles should be done in the beginning of spring and end of summer to best characterize conditions following erosion in the winter and growth in the summer.
- b. Measure the offshore bathymetric profile at least once every five years. This is especially true if material is dredged from offshore to replenish beaches.

It is not practical to survey each beach and offshore region often, and each beach ought to be planned separately for its special needs. Aerial photography could easily document the dune-vegetation line annually, and in-the-field profiling used selectively. An aerial survey of the largest beach systems costs about \$15,000-20,000 and analysis about twice that amount. Field surveying of the 20 or so beaches in southern Maine could involve many people, or new GPS equipment and fewer people. For State personnel to profile the beaches, the cost for an average beach with sets comprising 4 or 5 profile lines would be around \$500 per beach, which includes personnel time for two staff to conduct the profiles, time for one staff to compile and analyze the data, and travel costs. So, to profile all the beaches with State personnel would cost about \$10,000 for each complete profile set. Consultants could do the profiling as well for similar or higher costs. To account for seasonal variations it is necessary to profile beaches periodically over the course of a year. Four times a year would be the minimum, but more frequent profiles would better show the seasonal variation.

Alternatively, local volunteers could be trained to do beach profiling with inexpensive, reliable equipment, and to funnel the data to the Maine Geological Survey for compilation. This volunteer beach profiling could be linked with the wildlife and water quality monitoring described below, thereby forming a coordinated beach monitoring program for each beach system. The Council on Environmental Monitoring Assessment (CEMA) is charged with coordinating the various volunteer monitoring efforts in the State, and this group could be used to devise such a program on a regular basis. There remain costs to the Maine Geological Survey associated with this approach. Training sessions would be needed for volunteers, but these could be organized in such a way that most volunteers could be trained in one or two sessions at \$500 each. Data would still need to be compiled and analyzed by the Maine Geological Survey for about \$100-150 per beach profile set. With this approach, profiling all 20 beaches could cost about \$2,000-\$3,000 each time.

Possible sources of funds and staff assistance for this work are the Maine Outdoor Heritage Fund, the University of Maine, the Maine/New Hampshire SeaGrant program, the Maine Coastal Program, and beach associations.

2. Wildlife populations

❖ *The Maine Dept. of Inland Fisheries and Wildlife and the Maine Audubon Society should continue their efforts to measure populations of plovers and terns. This monitoring effort should include the use of local volunteers for field surveys. The Council on Environmental Monitoring and Assessment should coordinate this task with other beach monitoring efforts.*

The Maine Department of Inland Fisheries and Wildlife (DIFW) and the Maine Audubon Society have been collecting information on shorebirds for many years. This program has resulted in dependable information on the bird populations, especially the endangered piping plovers and least tern, which allows us to understand whether we are making progress in protecting these species. Expanded use of volunteers could advance this effort and beach front property owners and municipal conservation commissions are likely sources of volunteers. Expanding volunteer monitoring would require staff to recruit, train and coordinate volunteers. The Council on Environmental Monitoring and Assessment (CEMA) was established to coordinate and expand this type of work in Maine. This group should be used to link this monitoring effort with the beach profiles and water quality monitoring described in this section. Funding for this task should be sought from the Maine Outdoor Heritage Fund or the Maine Coastal Program.

3. Property at risk

❖ *The State Planning Office and Maine Emergency Management Agency should measure and publish property losses and injuries caused by coastal storms. They should also work with municipalities to measure the number of structures in coastal hazard areas that comply with the NFIP coastal construction standards.*

The Federal Emergency Management Agency (FEMA) is responsible for responding to federal disasters and administering the National Flood Insurance Program. FEMA and its Maine counterpart -- MEMA -- maintain records on property losses caused by storm events. This information can be used to determine whether the State is adequately protecting property from coastal disasters.

In addition, FEMA and the State Planning Office (SPO) record municipal performance in the National Flood Insurance Program (NFIP). The NFIP includes coastal construction standards that are administered through municipal land use ordinances. SPO should work with coastal municipalities to track construction in coastal flood hazard areas to determine the status and trends for compliance with NFIP coastal construction standards. In some places, tracking historical losses should be measured as well.

Sources of funding for this work are hazard mitigation funds under the Federal Emergency Management Act and the Maine Coastal Program.

4. Economic value

❖ *The State Planning Office should work with municipalities and businesses to conduct a census of beach users and prepare an evaluation of economic value of the beaches.*

There is little information available on the number and characteristics of beach users in Maine, and the economic impact of beaches on the communities and the State. This information could be used by public officials to evaluate the costs and benefits of taking actions to improve beach conditions. There are a number of ways of estimating economic value, and the cost of these methods varies with the scope and degree of accuracy. The Stakeholders did not reach consensus on which specific measures should be used, but agreed that this study should be conducted.

The State Planning Office has discussed this recommendation with professor Charles Colgan at the University of Southern Maine. Professor Colgan intends to devise a methodology to measure economic value of beaches, and to test this methodology on a beach in 1998. Based on this test, the methodology can be modified and applied to other beaches as funding allows. Funding for this study should be shared by State, municipalities and businesses that depend on beaches. Federal funding also may be available through the NOAA Sea Grant program at the University of Maine.

5. Water quality

❖ *The Department of Environmental Protection and the Wells National Estuarine Research Reserve should investigate the need for a program to monitor water quality of beaches in southern Maine.*

Water quality information is important because it determines the health risk of swimming at Maine's beaches. Pathogen contamination seems to be the greatest public health concern at this time, but other concerns could arise in the future. There is no program to regularly monitor water quality at swimming beaches in Maine. However, DEP monitors water quality to investigate water quality complaints at beaches, and a number of volunteer monitoring groups have formed along the coast that conduct water quality monitoring primarily for shellfish harvesting areas. The Wells Reserve has trained volunteers in environmental monitoring as well. Moreover, as national attention to this issue is increasing, the U.S. EPA is seeking to develop a beach monitoring programs in all coastal states.

Monitoring swimming beaches could occur in two ways. A state or local government program could hire staff to conduct the sampling and lab tests. Alternatively, existing volunteer monitoring programs could be expanded to include regular monitoring of swimming beaches. The Council on Environmental Monitoring and Assessment could help coordinate this effort with similar efforts in the State, including the beach profiles and wildlife monitoring described above. Funding for this effort should be shared between state and municipal governments

C. Education

1. Municipal officials

❖ *The Southern Maine Regional Planning Commission should provide information on beach management to municipal officials.*

Many decisions about the use and protection of beaches are made by municipal officials who lack information and expertise on beach issues. Towns often do not hire experts to advise them on these issues when they are considering changes to their comprehensive plans or municipal ordinances. The Southern Maine Regional Planning Commission (SMRPC) is designed to provide this type of technical guidance to municipal officials. SMRPC should therefore offer information on beach management to municipal officials in all coastal beach towns with beaches. SMRPC should also coordinate with the Greater Portland Council of Governments in providing this information to towns that are in that region.

Through written materials or workshops, the information should address coastal erosion; wildlife habitat identification and protection; economic value of beaches; beach ownership and access rights; and sample ordinance provisions. This effort should use existing staff from State agencies and environmental organizations such as Maine Audubon and the Wells Reserve. Funding for developing and presenting this information should be shared by the Maine Coastal Program and municipalities.

2. Landowners and beach users

❖ *The Wells National Estuarine Research Reserve should publish, and distribute to landowners and beach users, information on coastal erosion risks and bird habitat.*

Landowners and beach users are not entirely aware of how their individual actions impact the beach resource. The Wells Reserve is well qualified to produce public information brochures and signs to build awareness. This public awareness program would complement the efforts of the SMRPC to educate municipal officials with similar information. Funding for this public education campaign should be shared by towns, businesses that depend on the beaches, the Maine Coastal Program, and the Wells Reserve.

❖ *The State Planning Office should work with the real estate and banking associations to develop a proposal to have the presently required disclosure of flood risks to potential buyers of coastal property earlier in the real estate transfer process, and to disclose some measure of coastal erosion risks.*

This recommendation is aimed at improving the awareness of potential coastal property owners of flood and coastal erosion risks. This recommendation did not receive consensus support of the stakeholder group. There are some stakeholders who believe that disclosure of coastal erosion risks is unnecessary intrusion by government into private real estate transactions.

Under current law, the flood hazard status of property must be disclosed to a property buyer within a reasonable time before the transfer of the property. In practice, this disclosure usually occurs on or just before the time of closing, so little attention is paid to this issue. Moreover, there is no information disclosed on the vulnerability of a property to erosion. As a result, investments are sometimes made in coastal property that are at higher risk of loss due to flooding or erosion, and indeed some properties have suffered these avoidable losses. To improve awareness of potential coastal property owners about these risks, the State should find ways to disclose this information to a potential buyer before a purchase and sale agreement is executed. Once alerted to the general risks of the coast, land buyers can certainly investigate the site further on their own. The details of this proposal need to be discussed further with the real estate and banking interests in the State. As detailed information on the erosion is not available for every parcel on the coast, and erosion rates change over time, this information should be limited to more generalized statements about historical changes to the coast. More specific information may become available in developing the beach management plans described below.

D. Beach Management Planning

❖ *Municipalities and State agencies should work with stakeholders, including land owners, environmental groups and business interests, to develop regional beach management plans that establish goals, policies and recommend regulations that will guide how the beach resource will be managed. The **Maine Department of Environmental Protection and the State Planning Office** should participate in the development of the beach management plans to ensure that the proposed policies and regulations are consistent with the intent of state law, such as the Natural Resources Protection Act, and to monitor the results of the plans. The DEP could, if warranted, change the administrative rules, recommend changes to state law, or delegate some authority to municipal or quasi-municipal authority that has established capacity to administer this law.*

❖ *The **Southern Maine Regional Planning Commission** should provide technical and organizational assistance for developing regional beach management plans and serve as a liaison to State agencies.*

The stakeholders group agreed that the State policies on beaches (e.g., sand dune rules and shoreland zoning) do not recognize differences in the conditions of local beaches in terms of existing development, wildlife needs, property at risk and public access. In addition, some beaches may require long term management measures to deal with chronic problems, such as coastal erosion and wildlife habitat protection. To address the problems posed by broad statewide regulation, the stakeholder group recommends that a comprehensive beach management plan be developed for each distinct beach system in southern Maine.

The State does not currently provide guidance to towns on beach management. Towns and land owners are not fully aware of the issues and the possible solutions that have been used elsewhere and could be used in Maine. Many other states have a great deal of experience with these issues

and have developed guidance to help municipalities manage beaches, so we can use that experience to develop guidance for Maine.

The regional planning process is not intended to create a regulatory authority that issues new rules. Rather, it is a way for regional stakeholders to voluntarily decide together how a beach will be managed. The stakeholder group considered creating a regional commission to manage all the beaches, but this idea was rejected because it was viewed as an unnecessary and costly additional layer of authority. The group also considered designating one State agency as the lead for beach management planning, but decided that this effort would be better managed by a regional entity that is closer to the resource and the people being managed.

The beach management plans should be developed by a group of stakeholders in each beach region including, but not limited to, state and municipal representatives, land owners, environmental interests, and business interests. State agencies should be available as a resource for technical information and assistance, and the groups should seek the participation of the relevant federal agencies, such as the U.S. Environmental Protection Agency, U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service. There should also be opportunities for public participation and input throughout the planning process. To further establish the state and municipal partnership, multi-year funding for beach management planning should be shared between the municipalities and the Maine Coastal Program.

The planning process should develop the information upon which goals, policies, and actions (including regulations) are established to meet the particular needs and circumstances of each beach system. Each group of stakeholders should address the following issues in developing a beach management plan:

- ♦ *Restoring or maintaining existing beaches.* Based on available geologic information, set measurable objectives for beach profiles and develop ways achieve these profiles. This could include a protocol for replenishing beaches and changes to structures that interfere with sand transport.
- ♦ *Reducing risks to property.* Set measurable objectives for reducing damage to coastal property. Take actions to improve the design and location of existing and new structures in coastal hazard areas so that they avoid or withstand damage from coastal storms and shoreline erosion.
- ♦ *Protecting wildlife habitat.* Set measurable objectives for protecting wildlife populations and habitat. Take actions to further protect State designated "essential" habitat for endangered species.
- ♦ *Enhancing the economic value of beaches.* Set measurable objectives for public access to beach. Take actions to maintain or improve public access to support beach dependent businesses while meeting the needs of beach front land owners.
- ♦ *Reforming beach regulations.* Develop ways to tailor state regulations to address local conditions. Develop ways to improve education and enforcement of these regulations by both municipal and state governments.

- ♦ *Regional coordination.* Develop ways to communicate and make decisions about beach management issues among the stakeholders.

The stakeholder group discussed how the beaches in southern Maine should be defined for planning and management purposes. While there are many ways to divide the coast, the group recommends eight coastline segments shown in the following illustration. These segments have been selected based on: (1) coastal geology; (2) political boundaries; and (3) community associations. The segments could change based on additional information. The beach monitoring program described above should evaluate the variability of each beach system, particularly to learn how they are affected by different coastal storms and floods.

As further explanation of the segments, the Saco Bay beaches are grouped because they are all part of a large scale geologic process that transports sand across political boundaries. The beaches in the Wells embayment are subdivided into groups because there is limited sand transport around the headlands. Erosion and beach response to storms, however, are likely to be similar in the sections of this group.