

RHODE ISLAND COASTAL RESOURCES MANAGEMENT COUNCIL

SHORELINE HABITAT PROTECTION AND LANDSCAPE MANAGEMENT STRATEGIES TO AVOID AND MINIMIZE EXPOSURE TO TICK AND MOSQUITO POPULATIONS

**DAVID S. REIS
S. ENVIRONMENTAL SCIENTIST
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INTRODUCTION:

The Rhode Island Coastal Resources Management Council (CRMC) was created in 1971 through an act of the Rhode Island State Legislature. CRMC was given the charge of managing Rhode Island's Shoreline in a manner designed to appropriately regulate development while preserving and restoring Rhode Island's fragile shoreline ecology. In this regard, Chapter 46-23 of the General Laws of Rhode Island state:

“The general assembly recognizes and declares that the coastal resources of Rhode Island, a rich variety of natural, commercial, industrial, recreational, and aesthetic assets, are of immediate and potential value to the present and future development of this state; that unplanned or poorly planned development of this basic natural environment has already damaged or destroyed, or has the potential of damaging or destroying, the state's coastal resources, and has restricted the most efficient and beneficial utilization of these resources; that it shall be the policy of this state to preserve, protect, develop, and, where possible, restore the coastal resources of the state for this and succeeding generations through comprehensive and coordinated long range planning and management designed to produce the maximum benefit for society from these coastal resources; and that preservation and restoration of ecological systems shall be the primary guiding principle upon which environmental alteration of coastal resources will be measured, judged, and regulated.”

And: “That effective implementation of these policies is essential to the social and economic well-being of the people of Rhode Island because the sea and its adjacent lands are major sources of food and public recreation, because these resources are used by and for industry, transportation, waste disposal, and other purposes, and because the demands made on these resources are increasing in number, magnitude, and complexity; and that these policies are necessary to protect the public health, safety, and general welfare. Furthermore, that implementation of these policies is necessary in order to secure the rights of the people of Rhode Island to the use and enjoyment of the natural resources of the state with due regard for the preservation of their values, and in order to allow the general assembly to fulfill its duty to provide for the conservation of the air, land, water, plant, animal, mineral, and other natural resources of the state, and to adopt all means necessary and proper by law to protect the natural environment of the people of the state by providing adequate resource planning for the control and regulation of the use of the natural resources of the state and for the preservation, regeneration, and restoration of the natural environment of the state.”

THE INTERRELATED NATURE OF COASTAL ECOSYSTEM HABITATS:

Coastal ecosystems are composed of a complex interrelated system of habitats which occur along the shoreline, in subtidal areas, intertidal areas and in adjacent areas above tidal waters. Coastal ecosystems include expanses of open tidal waters and associated bottom habitats, intertidal mudflats, salt marshes, beaches, coastal dunes, coastal cliffs and bluffs, rocky shorelines, and adjacent freshwater wetlands, tributaries and bordering upland forests, fields and shrub-lands. This system of interrelated habitat types supports a diverse assemblage of plant and animal life. Certain species are found only in coastal habitats. Coastal ecosystems further support many species of plant and animal life which are beyond those commonly attributed to the shoreline.

Many species of animal life found along the shoreline depend on several habitat types for their existence. For instance, fox, raccoon, mink, herons, egrets, and kingfishers utilize several habitat types including upland forests, intertidal beaches and coastal wetlands. Predators such as marsh hawks feed primarily upon meadow voles inhabiting salt marshes, fields and shrub-lands while osprey feed over open tidal waters but nest in upland trees and manmade nest platforms. Waterfowl rely primarily on open tidal waters, tide flats and wetlands while shorebirds utilize salt marshes tidal flats, coastal beaches and rocky shorelines. Neo-tropical migrants (small insectivorous birds) seek out shrub-lands for protection from inclement weather and for a source of fruits and berries to “fuel” their shoreline migration between the northern United States and Central and South America. White-tailed deer, typically considered an upland species, often venture into salt marshes to feed and are known to swim across several miles of open tidal waters to reach suitable habitat.

AVAILABLE STRATEGIES FOR THE PROTECTION AND MANAGEMENT OF SHORELINE HABITAT:

The State of Rhode Island is committed to preserving, restoring and managing the State’s Coastal Ecosystem. There are only two available methods to achieve this task: The first is to acquire open space through either outright purchase or through the purchase of development rights or easements which prevent or minimize development. The second method of protection is through management designed to minimize environmental damage through regulatory permitting. Unfortunately, the State of Rhode Island has not been in a position to preserve sufficient areas of habitat necessary to protect coastal ecology through purchases on the behalf of taxpayers. Where shoreline parcels have been purchased, most purchases were made many years ago when the cost of land was less expensive and the goal was to provide recreational opportunities and support tourism. Rhode Island’s State beaches are a prime example. Although the state beaches provide highly attractive recreational opportunities, the management goals for these areas are not to provide natural habitat for plant and animal life. There are a few exceptions such as those areas contained in Rhode Island’s National Wildlife Refuge Complex and the State’s purchase of Black Point in Narragansett. However, these relatively small isolated areas of the RI shoreline cannot support the coastal ecology of the entire shoreline. Considering these basic facts, the preservation of Rhode Island’s coastal ecology can only be achieved through the proper management of development activities through regulatory permitting.

RICRMC WATER TYPE DESIGNATION AND SHORELINE USE ESTABLISHMENT:

To guide shoreline development activities in a manner which preserves the coastal ecology of Rhode Island's shoreline, the tidal waters of the state have been assigned "usage categories". These use categories or "water types" have specific definitions, findings and predetermined regulatory policies. The RI Coastal Resources Management Program has established 6 water types ranging from Conservation Areas where environmental protection is given the highest priority to Industrial Waterfronts and Commercial Navigation Channels where activities involving commerce are encouraged. Water type designations utilized to manage the shoreline are similar to zoning practices utilized by cities and towns. Most areas of the RI shoreline which support residential development are designated Type 1 (Conservation Areas), Type 2 (Low Intensity Use) and Type 4 (Multipurpose Use).

It is commonly accepted that development activities must comply with basic zoning provisions established by Rhode Island Communities. Where relief is sought, only minor relief to a specific portion of a zoning code can typically be expected. For instance, few people would expect to obtain relief to place a commercial use in an area zoned for residential purposes. It should be clear that the same type of expectations apply to development along the Rhode Island shoreline. The policies and standards established for specific water types and adjacent shoreline features must be given due consideration.

PROTECTION OF RHODE ISLAND'S COASTAL ECOLOGY THROUGH THE ESTABLISHMENT OF BUFFER ZONES AND SETBACKS

Setbacks and buffer zones are common tools contained in municipal zoning codes. Setbacks requirements are often used to keep buildings away from the immediate edge of public roads and to provide an adequate separation distance between adjacent buildings. Setbacks provide for public safety along roadways and assure access for fire fighting and rescue equipment. Buffer zones are often utilized to provide green space and to provide screening between incompatible zoning districts such as commercial zones and residential neighborhoods. The RI Coastal Resources Management Program, as well as many other state and federal regulatory programs, use these same tools to protect environmental quality.

The Coastal Program utilizes setbacks to provide an adequate separation distance between the shoreline and development. Where possible, these areas of separation are intended to keep development beyond the reach of storm damage and erosion, protect environmental and scenic quality and to keep development accessible to fire fighting and rescue equipment. Setbacks also provide a separation distance between natural habitat areas and development necessary to minimize human exposure to coastal natural areas inhabited by ticks and mosquitoes. Buffer zones are areas bordering the shoreline which must be retained in, or restored to a natural condition. These areas provide habitat for plant and animal life essential to Rhode Island's shoreline ecology. Buffer zones also protect the scenic and aesthetic quality of the shoreline by screening development, preserve

water quality by filtering pollutants contained in runoff, minimize shoreline erosion by anchoring soils, minimize flood damage by infiltrating and reducing the velocity of runoff and they preserve historic resources often located along the shoreline. Buffer Zones are typically retained in woodland or are quickly restored to shrub-land by the discontinuation of mowing and the cutting of vegetation. The deep root systems associated with scrub-lands and woodlands are superior to lawn root systems for anchoring shoreline soils during coastal storm events. Across the nation, buffer zones have proven to be one of the most effective and economical tools utilized to protect environmental quality. In addition, the buffer zone standards contained in the RI Coastal Resources Management Program have been recognized as a national model by the Environmental Protection Agency (EPA) and the National Oceanographic and Atmospheric Administration (NOAA). In Rhode Island, buffer zone requirements for home construction are particularly important since over 80 percent of the RI shoreline supports residential development.

RESIDENTIAL DEVELOPMENT OF SHORELINE HABITAT:

The 1980's and 1990's represented a rapid period of shoreline development in Rhode Island. Many of Rhode Island's cities and other urban areas experienced population declines as people chose to relocate toward the shoreline and other outlying areas of the State. Many homes built during this period were constructed bordering shoreline areas designated for Conservation and Low-intensity Use by the RI Coastal Resources Management Program. In accordance with policies and standards contained within the RI Coastal Resources Management Program, permits issued for the development of these areas included requirements for shoreline buffer zones and associated construction setbacks. Despite these regulatory requirements for development, shoreline habitat was lost, and continues to be lost at an alarming rate. Buffer zones required by development permits represent one of the last remaining areas of refuge for plant and animal life important to the shoreline ecology of Rhode Island. As a consequence of this development trend, many people are now residing in close proximity to the shoreline and other rural areas where they are more often exposed to ticks and mosquito populations. This increased exposure often leads homeowners to actions they perceive will minimize their exposure. Unfortunately, eliminating buffer zones is often falsely perceived as an effective method of minimizing exposure to ticks and mosquitoes.

STRATEGIES FOR PRESERVING SHORELINE HABITAT WHILE MINIMIZING RISKS ASSOCIATED WITH TICK AND MOSQUITO EXPOSURE:

In 1994, the Coastal Resources Management Council adopted a set of policies entitled "CRMC Buffer Zone Management Guidance". This guidance document allows homeowners to design and submit management plans for buffer zones required by condition of development permits. Management activities promoted within buffer zones include shoreline access pathways, shoreline recreation areas, view corridors, habitat management and selective tree removal. Shoreline access

pathways and shoreline recreation areas may be maintained as mowed lawn areas. View corridors may be established through selective tree removal and by the pruning of tree limbs and understory vegetation. Habitat management typically includes the removal of unwanted vegetation with the replanting of native plants. Selective tree removal is typically performed for safety purposes, to improve views and to increase sunlight exposure.

CRMC's management policies for buffer zones have been designed to preserve shoreline ecology while promoting safety and increase recreational opportunities for shoreline residents. To achieve this goal, the buffer zone management guidance allows for 25-40% of the affected buffer zone area to be managed. Remaining portions of the buffer zone must be retained in a natural undisturbed condition to provide more suitable habitat for wildlife. The CRMC believes that these buffer zone management policies strike an appropriate balance between preserving shoreline ecology and providing for the safety concerns and recreational needs of shoreline residents.

Although the CRMC has adopted setback requirements from buffer zones and supports the appropriate management of vegetation, exposure to ticks and mosquitoes remains a significant concern of many shoreline residents. It must be recognized, however, that there are currently no socially acceptable method of completely eliminating ticks and mosquitoes. The facts are: The shoreline of Rhode Island and most other rural areas support insect populations. Many insects* are considered beneficial such as pollinating bees, wasps and butterflies while other insects including ticks, mosquitoes, carpenter ants, and termites are considered to be a nuisance. Any attempt to completely eradicate nuisance insects would likely require filling wetlands, applying frequent applications of pesticides and eliminating natural habitats for plant and animal life. Although, activities in the past included filling wetlands and applying pesticides with little regard to long term impacts on human health and the environment, society now recognizes the dire implications of these activities and no longer supports such extreme measures. Rather, it appears society has chosen to live with, and where possible, appropriately manage nuisance insect threats. It should be recognized that eliminating natural buffer zones represents an extreme measure which could devastate the shoreline ecology of Rhode Island.

Effective management and avoidance of nuisance insects begins with recognizing insect habitats and activity patterns. Ticks are most commonly found in grassy fields and meadows, shrublands and woodlands. Mosquitoes reproduce in areas flooded by water but take refuge in areas of thick vegetation. Contrary to popular belief, mosquitoes do not reproduce in vegetated areas unless pools of water are present. Rather, both ticks and mosquitoes take refuge in thick vegetation where it is moist and shady to avoid dehydration. To further avoid dehydration, mosquitoes are most active in the early morning and evening and during humid weather. Around the home, mosquitoes can be avoided by maintaining adequate setbacks from vegetated areas and by maintaining a landscape which provides for adequate outdoor ventilation and sun exposure. During the morning and evening active periods, the best way to avoid mosquito bites is to wear long pants and long sleeve shirts. Insect repellent applied to clothing avoids the need to apply repellent to exposed skin. Even in the summer, long pants and long sleeve shirts of light breathable fabric should be worn whenever mosquitoes are active.

(* Ticks are arachnids, a relative of insects in the Phylum Arthropoda.)

Exposure to ticks can be minimized by utilizing mowed pathways and mowed (lawn) shoreline recreation areas while avoiding contact with thick vegetation. Households with pets and small children may utilize fences along maintained pathways and the edges of natural vegetation. Where pets are the primary concern, invisible fencing can be very effective in keeping pets out of naturally vegetated buffer areas which contain ticks. In addition, wearing long pants sprayed with insect repellent minimizes tick exposure while preventing mosquito bites. To avoid tick bites following exposure to tick habitat, clothing should be removed and laundered immediately, a visual body check performed followed by a shower and change of dress into clean clothing. Pet exposure may be further minimized by utilizing tick repellent collars and preventative treatments such as “Frontline”. Pets should further be checked frequently for the presence of ticks. These precautionary measures can be highly effective since ticks typically take 12 - 36 hours to become attached. It further helps to recognize seasonal patterns of tick activity. Ticks are most often active in the spring and fall with little activity during the dry summer months. Once tick activity is detected, vigilance should be increased until the activity subsides.

Although the risk of tick exposure may be minimized, exposure to ticks cannot be completely avoided. Accordingly, precautionary measures are considered the best method of minimizing the risk of tick transmitted disease. It is important to recognize that ticks can be present in manicured lawn and landscape areas, particularly in areas that remain shady. Ticks are carried by most mammals including mice, voles, chipmunks, squirrels, rabbits, raccoons, skunks, fox, deer and domestic animals including cats and dogs. Ticks are also carried by birds. Once carried into the yard, ticks may become established in vegetation bordering stone walls, wood piles, landscape beds, perennial gardens, around bird-feeders and bird-baths and in any area that provides a damp, shady environment.

RISK ASSESSMENT, MANAGEMENT AND CHOICE:

Ticks and mosquitoes may carry disease. Ticks in Rhode Island may carry lyme disease, babesiosis, ehrlichiosis, and rocky mountain spotted fever. Mosquitoes in Rhode Island may carry eastern equine encephalitis and recently, west nile virus. Except for lyme disease, these diseases are extremely rare. According to the Center for Disease Control, the current infection rate for lyme disease in Rhode Island is approximately 37.5 persons per 100,000 persons in the Rhode Island population. Those who chose to live in South County and along the shoreline are at higher risk.

As with many risks in life, the risk of exposure to diseases associated with ticks and mosquitoes can be managed. Management can come through personal protection measures and/or by choosing a low risk area to live. The risk of lyme disease can be further lowered by receiving a lyme vaccination and by recognizing a tick bite and/or the early symptoms of the disease. In most cases, a lyme disease test can determine if lyme disease has been contracted and, if so, the risk of health complications can be significantly reduced by antibiotics prescribed by a doctor. Those at high risk for contracting lyme disease need to take these responsibilities more seriously than those at low risk.

When choosing to live along the Rhode Island Shoreline, the requirements of the Rhode Island Coastal Resources Management Program must be considered. Most areas which directly border the shoreline require buffer zones as a condition of development permits. Buffer zones, by definition, must be retained in a naturally vegetated condition. Areas of natural vegetation provide habitat for ticks and mosquitoes. Although ticks may be present in landscaped areas far removed from natural vegetation, it is more likely that ticks will be present and found in greater numbers in buffer zones and other areas of natural vegetation. Likewise, although mosquitoes may travel several miles from the place they were “produced”, greater numbers of adults are likely to be present in areas of thick vegetation which provides cover. These basic facts are part of our everyday lives when we chose to live near natural areas. Where living along the shoreline of Rhode Island is desired, exposure risk to ticks can be reduced by choosing water view properties as opposed to waterfront. Only those waterfront properties which directly border the shoreline require buffer zones by state regulation.

SYNOPSIS:

The Rhode Island Coastal Resources Management Council (CRMC) was created in 1971 through an act of the RI State Legislature. In creating the CRMC, the State Legislature established appropriate goals and policies to guide CRMC’s mission. Through enabling legislation the legislature’s directive to CRMC states: “...that the preservation and restoration of ecological systems shall be the primary guiding principle upon which environmental alteration of coastal resources will be measured, judged and regulated”. To meet this mandate, the CRMC developed a management program which established shoreline usage (water) types similar to zoning districts. Additional management tools were developed including buffer zones and setbacks to protect coastal ecological systems while allowing for appropriate development. Buffer zone and setback requirements have been refined through several amendments to the program to minimize public safety concerns and provide increased recreational use of the shoreline while protecting habitat for plant and animal life. Buffer zone management guidelines have been developed to provide shoreline residents with simple solutions to common concerns associated with minimizing safety risks and managing shoreline habitat in a manner which supports residential and recreation uses while preserving shoreline ecology.

In life, the risk of injury can be minimized and avoided but not eliminated. Risk management requires the recognition of risk, appropriate decision making and the implementation of appropriate personal protection measures when exposed to risk. Living in areas managed for environmental protection and other areas zoned for rural use is a matter of choice. The CRMC has strived to reach a balance between protecting shoreline ecology and providing compatible residential uses of the shoreline. Those who choose to live on the shoreline must understand and recognize the State’s Management Program for the Rhode Island Shoreline just as a decision to live in a particular zoning district of a city or town must be given the same consideration.