

Coastal Features

INFORMATION
ABOUT THE
RHODE ISLAND
COASTAL
RESOURCES
MANAGEMENT
PROGRAM

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Landscape Management in the Coastal Zone

David Reis, Principal Environmental Scientist at the CRMC, has developed a manual on landscape design and management along the Rhode Island coast. The landscape strategies contained in the manual reflect the Council's efforts to preserve the ecology of the coast and protect water quality while, at the same time providing for compatible human uses and activities. The manual provides valuable guidelines for managing shoreline vegetation and is intended to complement the Council's requirements related to buffer zones. With gardening season upon us, the following information may at least be of interest, and hopefully will be of use to owners of property both within and outside of Rhode Island's coastal zone.



Rugosa Rose, though a non-native species, is now considered appropriate on some developed beaches.

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The Council encourages property owners to restore inappropriately landscaped shoreline areas to natural, low-maintenance habitats. In so doing, the owner can enhance the natural beauty of the property while contributing to the overall health of Rhode Island's coastal environment. It is important to note that landscaping within existing upland shoreline forests, shrub growth areas, fields and designated buffer zones requires a CRMC buffer management permit. Property owners should contact the CRMC prior to undertaking any of these activities or a major landscaping project. Those interested in restoring an area or establishing a buffer zone should contact Council staff who will work with applicants to develop an appropriate and attractive buffer zone.

The Upland Shoreline Environment

Naturally vegetated areas of the Rhode Island shoreline provide habitat for native plants and animals, protect the shoreline from erosion, filter pollutants from upland development and provide important aesthetic qualities and recreational opportunities. These areas typically consist of relatively young forests and shrub growth that have grown in areas previously disturbed for agricultural or residential purposes.

Forested areas are commonly a mixture of oak, red maple, black cherry, shad bush, sumac and sassafras over a shrub layer consisting of a mixture of arrow-wood, high-bush blueberry, greenbrier, fox grape,
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sweet pepperbush, blackberry, poison ivy and bayberry. Another type of shoreline environment found in Rhode Island consists of thick impenetrable areas of shrub and vine growth without a well developed forest overstory. In these areas typical plants include black cherry, sumac, arrow-wood, bayberry, blackberry, poison ivy, fox grape, greenbrier, and the invasive non-native plants; asian bittersweet, multiflora rose, honeysuckle and rugosa rose. Other areas of the Rhode Island shoreline are maintained as field by annual mowing. In these areas, a highly variable association of plant species may exist including various sedges, grasses, herbaceous plants and tree and shrub saplings. Invasive non-native plants are also common in these areas.

Forested upland shorelines, shrub growth areas and fields provide valuable habitat for wildlife including both shoreline and upland species. Among those species are: herons, egrets, kingfishers, osprey, comorants and marsh hawks along



Egrets are one of the many species that benefit from a natural shoreline landscape.

Coastal Features

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This issue of *Coastal Features* was edited by Laura Miguel. To comment on any article or to make address changes, write to the CRMC at the Oliver Stedman Government Center, 4808 Tower Hill Road, Wakefield, Rhode Island, 02879 or contact us on-line at ricrmc@compuserve.com.

shore areas; songbirds, game birds and small mammals in the upland areas; and deer, mink, fox, otter and raccoon in both the near shore and upland areas.

The replacement of upland forests and shrub growth areas with high maintenance lawns and ornamental plants raises serious environmental concerns and may result in a number of indirect impacts. Consider the following:

- A shoreline of exemplary natural beauty attracts people to the shore, increases property values, drives tourism and supports the economy.
- Where natural vegetation once provided a filter for pollutants associated with development, the suburban landscape becomes a source of pollutants including fertilizers, pesticides, domestic chemicals and pet droppings. Where these pollutants affect water quality, habitat for fish and shell fish and associated recreational opportunities may become diminished or eliminated entirely.

- A thick growth of deep-rooted upland vegetation holds the soil and helps prevent erosion and storm damage from wind, flooding and salt spray.

Landscape Management Strategies

In addition to regulatory guidelines a number of other considerations should be taken into account in landscape management plans. For example, dead trees can provide valuable feeding and nesting habitat for a variety of desirable species including woodpeckers, chickadees, titmice and nuthatches. Areas of thick brush can also provide habitat and cover for songbirds, small mammals, rabbits and others. It is therefore important to consider the existing habitat provided by the naturally landscaped area prior to undertaking any alterations.

Replanting or enhancement planting should utilize native species placed in a manner which mimics natural shoreline conditions. An easy way to determine which plants may perform well is to look at existing vegetation in surrounding areas.

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However, it must be recognized that many areas contain invasive, non-native plants that have colonized disturbed sites. These species should be avoided and replaced with native plants where possible. It also may be possible to improve a shoreline plant community by planting suitable native plants that have not yet become established.

The following lists contain recommended species for the Rhode Island shoreline. Common name are provided for general information purposes and scientific or "Latin" names are provided in parentheses. When undertaking an actual landscape management plan it is critical that scientific names be used for reference in order to ensure that native species, and not hybrids, are being planted. Typically, if a third name has been added to the scientific name, it is a hybrid and should be avoided.

Appropriate Field Plantings

Switch Grass (*Panicum virgatum*)
Evening Primrose (*Oenothera biennis*)
Bluestem (*Andropogon scoparius*)
Seaside Goldenrod (*Solidago sempervirens*)
Butterfly Weed (*Asclepias tuberosa*)
New England Aster (*Aster novae-angliae*)
Butter-and-Eggs (*Linaria vulgaris*)*
Queen Ann's Lace (*Daucus carotta*)*
Chickory (*Chichorium intybus*)*
Yarrow (*Acillea millefolium*)*

* non-native species considered naturalized

Appropriate Tree Plantings

Dry Shady or Sunny Sites

Red Oak (*Quercus rubra*)
Black Oak (*Quercus velutina*)
Black Cherry (*Prunus serotina*)
Sassafras (*Sassafras albidum*)
Pitch Pine (*Pinus rigida*)
Sumac(s) (*Rhus glabra* and *Rhus Typhina*)

Moist Shady or Sunny Sites

Red Maple (*Acer rubrum*)
Shadbush (*Amelanchier canadensis*)
Pussy Willow (*Salix discolor*)

Sites with No Salt Spray

Red Cedar - full sun (*Juniperus virginiana*)
White Pine (*Pinus strobus*)

Beach Sites

Shadbush (*Amelanchier canadensis*)
J. Black Pine - non-native, developed beaches only (*Pinus thunbergii*)

Appropriate Meadow Plantings

Reed Canary Grass (*Phalaris arundinacea*)
Barn Yard Grass (*Echinolchola crusgalli*)
Tussock Sedge (*Carex stricata*)
Blue Flag (*Iris versicolor*)
Swamp Rose Mallow (*Hibiscus palustris*)
Soft Rush (*Juncus effusus*)
Sensitive Fern (*Onoclea sensibilis*)
Wool Grass (*Scirpus cyperinus*)
Joe-Pye Weed(s) (*Eupatorium maculatum* and *Eupatorium fistulosum*)
Spiderwort (*Tradescantia virginiana*)
New York Ironweed (*Veronia novaboracensis*)
Meadow Beauty (*Rhexia virginica*)
Cattail(s) (*Typha latifolia* and *Typha augustifolia*)

References

- Desbonnet, A., P. Pogue, V. Lee and N. Wolff. 1994. Vegetated Buffers in the Coastal Zone - A Summary Review and Bibliography. Coastal Resources Center Technical Report No. 2064. University of Rhode Island Graduate School of Oceanography. Narragansett, RI 02882, 72 pp.
- Feucht, James R. and Jack D. Butler. Landscape Management; Planting and Maintenance of Trees, Shrubs and Turfgrasses. (New York: Van Nostrand Reinhold Company, Inc. 1988) 179 pp.
- GASP (The Rhode Island Group for Alternatives to Spraying Pesticides). Newsletter: "The Grass May Be Green, But is it Safe". Offices: 116 West Short Drive, Exeter, RI.

Appropriate Shrub Plantings

Dry or Moist, Shady or Sunny Sites

Arrow-wood (*Viburnum dentatum*)

Blueberry - high bush (*Vaccinium corymbosum*)

Blackberry (*Rubus allegheniensis*)

Inkberry (*Ilex glabra*)

Huckleberry (*Gaylussacia baccata*)

Virginia Creeper

(*Parthenocissus quinquefolia*)

Chokeberry(ies) (*Pyrus melanocarpa* and *Pyrus arbutifolia*)

Sunny Dry Sites

Sweet Fern (*Comptonia peregrina*)

Blueberry - low bush (*Vaccinium augustifolium*)

Bayberry - tolerates some shade (*Myrica pensylvanica*)

Shady Moist Sites

Sweet Pepperbush (*Clethra alnifolia*)

Witch Hazel - no salt spray (*Hamamelis virginiana*)

Spice Bush - no salt spray (*Lindera benzoin*)

Elderberry (*Sambucus canadensis*)

Sites with No Salt Spray (shady or sunny)

Mountain Laurel (*Kalmia latifolia*)

Sheep Laurel (*Kalmia augustifolia*)

Swamp Azalea - moist sites only (*Rhododendron viscosum*)

Winterberry - moist sites only (*Ilex verticillata*)

Beach Sites

Beach Plum (*Prunus maritima*)

Bayberry (*Myrica pensylvanica*)

Rugosa Rose - highly developed beaches only (*Rosa rugosa*)

Hudsonia - ground cover (*Hudsonia tomentosa*)

Lawn Care Strategies

A low maintenance turf generally requires less fertilization and less watering than a traditional lawn type turf. Lawns that do not require high application rates of fertilizer and regular watering are less likely to contribute to ground water contamination or polluted runoff.

Traditional lawn type turfgrass seed mixtures normally contain a large percentage of Kentucky Bluegrass which often requires relatively high fertilization rates and regular watering. In coastal environments, nitrogen inputs from fertilizers are a concern since excess nitrogen can lead to eutrophication (enriched growth of plants, phytoplankton and macroalgae which can deplete oxygen and render waters unsuitable for marine life). Alternative turfs such as fine fescues, tall fescues, and perennial rye grass can be more drought tolerant and require significantly less fertilization. The following are examples of appropriate non-traditional low maintenance turfgrass seed mixtures:

10% (max.)	Perennial Rye Grass
10% (max.)	Fine Fescue (Hard Fescue)
80%	Tall Fescue (2-3 varieties)
	or
10%	Perennial Rye Grass
15%	Kentucky Bluegrass
75%	Red Fescue (or other varieties of Fescue)

Once a low maintenance lawn has been established, a fertilization program can be initiated. This program should be sufficient to maintain the health of the lawn and depends on the soil type and owner's expectations. A "rough lawn" is more protective of the environment, requires less maintenance and is more characteristic of the rural landscape than the "perfect suburban lawn."

Fertilization formulas are based on a ratio of nitrogen to phosphorous to potassium. For instance, by weight a 20-5-10 fertilizer would consist of 20% nitrogen, approximately 5% phosphorous and approximately 10% potassium. Accordingly, 5 pounds of a 20-5-10 fertilizer applied over 1,000 sq. ft. would amount to 1 pound of nitrogen applied (5 pounds x 20% nitrogen by weight = 1 pound). Generally, a total of 3.5 to 5 pounds of nitrogen per year at an application frequency of 3 times per year (.7 to 1 pound per application) is adequate. It is recommended that fertilizers be applied once between May 12 and May 30, once around Labor Day, and once around Thanksgiving. Fertilizers with timed (slow) release nitrogen are preferred and total nitrogen application should be reduced in sandy soils.

Pesticides should be used only when absolutely necessary and should not be applied within fifty feet of the shoreline. Naturally, both pesticides and fertilizers should not be applied when rain is forecasted. Lawn height should be maintained at 2-3 inches above the soil line and watering should be limited to no more than twice a week, 1/2 inch each time, to prevent leaching of fertilizers and pesticides.

Again, property owners should contact the CRMC prior to undertaking any major landscaping activities or buffer zone alterations to avoid inadvertent violations of the Rhode Island Coastal Resources Management Program.



Aquaculture Commission Holds Final Meeting

The Special Legislative Commission to Develop a Plan to Promote, Protect, and Stimulate Aquaculture Commerce in Rhode Island held its final meeting on April 22, 1996. Since its inception in January 1995, the Aquaculture Commission has been holding public televised meetings at the State House with national and international aquaculture experts to gain a better understanding of modern aquaculture operations. The Commission has focused efforts on educating Rhode Islanders about the potential for new ventures in fish and shellfish production through aquaculture techniques conducted in tidal waters and in upland locations. Based on the Commission's work, there appears to be tremendous potential for on-land operations in Rhode Island, particularly at Quonset Point/Davisville in North

Kingstown due to the vast acreage of underutilized land and proximity to utilities and major transportation routes.

Traditionally, Rhode Island has been a leading exporter of fish and shellfish harvested from local and offshore waters. At the turn of the century approximately 21,000 acres in Narragansett Bay were cultivated for oyster production. However, disease, predation, and the 1938 hurricane resulted in the downfall of the oyster industry. Today, there are only five individual aquaculture operations in Rhode Island's tidal waters which occupy a total of less than nine acres.

Further aquaculture activity in tidal waters depends on the success of developing a state-wide aquacul-

ture management plan. This plan will address appropriate sites for specific aquaculture operations while accommodating existing uses within the tidal waters of the state. Thus far, major user groups, particularly commercial fishermen, have been opposed to new aquaculture operations in Narragansett Bay and the salt ponds for fear of losing areas to aquaculture interests. However, the development of fair and equitable siting criteria with proper management will minimize user conflicts while maintaining a balance of uses in the coastal environment. The CRMC is actively engaged in the initial steps of formulating such a plan.

For more information, contact Jim Boyd at 277-2476

Council to Celebrate Silver Jubilee

This summer the CRMC will be celebrating its twenty-fifth anniversary as the oldest coastal zone management program in the country. Then and now, the Council's stated purpose was to "...preserve, protect, develop, and restore the coastal resources of the state for this and succeeding generations." Over the past twenty-five years, so much has been accomplished toward this end including the designation of over 210 public rights-of-way to the shore, the dedication of a public park and access area at Narragansett Electric's

Manchester Street Station, the restoration of tidal influence at the Galilee Bird Sanctuary as a condition for construction of the Jamestown Bridge, and the protection from development of Rhode Island's fragile barrier beaches.

Today, as the legislature originally intended, the first succeeding generation is reaping the benefits of the Council's balanced approach to coastal management in Rhode Island. As a result of the legislature's efforts twenty-five years ago, and the dedi-

cation of many Council members and staff, Rhode Islanders are no longer faced with such environmental threats as a nuclear power plant in Charlestown or oil refineries in Jamestown or Tiverton.

To mark this occasion, the Council is in the process of planning a number of events. Look for more information on the Council's Silver Jubilee Celebration in the next issue of *Coastal Features*.

U.S. House Votes 407 - 0 to Renew Coastal Management Program

The House of Representatives, in a strong showing of bipartisan accord, unanimously passed the "Coastal Zone Management Reauthorization Act of 1996" (HR 1965) to reauthorize the national Coastal Zone Management program for another three years, fiscal years 1997-1999. The totally lopsided vote demonstrated broad support for coastal protection measures by lawmakers from all geographic regions in the country.

The Coastal Zone Management Act, signed into law in 1972 by President Richard Nixon, created a voluntary State/federal partnership whereby the 30 coastal States and 5 U.S. Territories and Commonwealths could participate in this coastal management program. Of keystone importance, the CZMA grants to the States unprecedented authority over federal actions. That is, once in the national CZM program, the States are accorded equal status with the U.S. government over any federal action

taken in the coastal area. If a State disapproves of the action, the federal government must either work with the State to modify the project, or stop all together. To date 34 of 35 eligible States, Commonwealths and Territories are participating in the program — a true testament to its success.

Eldon Hout, Oregon Governor John Kitzhaber's Delegate to the Chairman of the Coastal States Organization, hailed the House passage of the CZMA, noting that the program "seeks to balance resource preservation with sound economic growth, a difficult task considering the U.S. coastal zone is one of the most ecologically fragile yet densely populated and economically productive regions in the country."

The CZMA has the support of the coastal State Governors, the Clinton Administration, the leadership of both parties, the environmental community, and coastal based industry.

CRMC Participates in Governor's Dredging Commission

Sandra Thornton-Whitehouse, the CRMC Chairperson, has been appointed to the Governor's Dredging Commission. Other members of the Commission include representatives from the Department of Economic Development, the Department of Environmental Management, the Rhode Island Marine Trades Association, Save the Bay, the Ocean State Fisherman's Association, and the Rhode Island Petroleum Association as well as the Governor's Director of Policy and a member of the public appointed by the Governor.

In accordance with the Executive Order creating the Commission, recommendations on a solution to the state's dredging problems, particularly disposal of dredged material from the Providence River, are due early this summer. Since its initial meeting on April 2nd, Sandra has been busy researching other state's approaches toward dredged material management and has made an excellent report to the Commission based on her research. Commission Chair and President of Fleet Bank of Rhode Island, Tom Skala, has expressed confidence that the Commission will be able to meet its mandate. Based on the commitment of its members and their work thus far, it appears that this prediction will prove correct. Look for more information on the R.I. Dredging Problem and the Commission's final recommendations to the Governor in future issues of *Coastal Features*.

For more information, contact the Jeff Willis at 277-2476.

CRMC Goes On-Line

The CRMC has established an on-line Internet address. Our CompuServe address is ricrmc@compuserve.com. The CRMC will also be going on-line over RINet and will soon have an address there as well. Lastly, the CRMC is planning to go on-line with the U.S. Department of Commerce, National Oceanic and Atmospheric Administration's Internet system.

So, drop us a line if you have a question, or leave us a note if you have information to share.

For more information, contact Jeff Willis at 277-2476.



Publications and Information Available at the CRMC

The Coastal Resources Management Council has a variety of publications available at its main office located in Wakefield at the Oliver Stedman Government Center. The following list is not exhaustive. Materials on a variety of issues and application "checklists" for a number of different activities are also available. In addition, CRMC staff will make every effort to answer questions and assist applicants whenever possible. For more information, call the CRMC during normal business hours (8:30 to 4:00, Monday through Friday) at (401) 277-2476.

Regulatory and Policy Documents

Rhode Island Coastal Resources Management Program (the Red Book).....	\$10.00
Red Book Addendum	5.00
The Narrow River Special Area Management Plan*	10.00
Rhode Island Salt Pond Region: A Special Area Management Plan*	10.00
Providence Harbor: A Special Area Management Plan	10.00
The Pawcatuck River Estuary and Little Narragansett Bay: An Interstate Management Plan	
Rhode Island Coastal Resources Management Council: Management Procedures:	3.00

Guidance and Informational Documents

Guidelines for the Development of Municipal Harbor Management Plans*	10.00
Beach Dune Walkover Structures	Free
Rhode Island Coastal Resources Management Council - Siting Mooring Fields	Free
Rhode Island Coastal Resources Management Program: A Handbook for Permit Applicants	Free
Public Access to the Rhode Island Coast	10.00
Building at the Shore: A Handbook for Development on the R.I. Coast	3.00
Designation of Rights-of-Way to the Shore: Progress Report	3.00

State Manuals

State of Rhode Island Stormwater Design and Installation Standards Manual:	10.00
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Fact Sheets and General Information (Free)

Rights-of-Way Fact Sheet	
The Hearing Process: A Quick Reference Guide	
Narragansett Bay Marine Pumpout Facilities	
Down Where the Water Is: A Coastal Awareness Activity Book	
Preserving a Delicate Balance: A Perspective on the Rhode Island Coastal Resources Management Council (video available on loan from the CRMC or at your local library)	
A Citizens Guide to Assisting in the Rights of Way Designation Process	
Nonpoint Source Pollution Poster	

(Please note: the CRMC is unable to accept cash payment. All materials must be paid for by check or money order.)

**These documents are currently being revised.*

National Program Managers Meeting

The 1996 National Program Managers Meeting, held on March 18, 19 and 20 in Washington, DC, was attended by the CRMC's Assistant Commissioner, Bill Hawkins. The annual gathering, held each spring and funded by the National Oceanic and Atmospheric Administration (NOAA), is included as part of the Council's federally approved work program. The theme of this year's conference was "Improving Management of America's Coasts and Oceans."

Attended by Coastal, National Estuarine Research Reserve, and National Marine Sanctuary Program Managers, the three-day meeting included discussions on: updates and improvements at NOAA's Office of Ocean and Coastal Resource Management; innovative concepts in wetlands management; reauthorization of the Coastal Zone Management Act; the status of state appropriations; and the public trust doctrine. The latest computer technology and Internet access now available from NOAA were also demonstrated. Regional meetings emphasizing the importance of inter-agency cooperation and coordination concluded the conference.



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