Rhode Island
Wetland Resources

Wetlands cover about 10 percent of Rhode Island's land surface (Tiner, 1989) and are an important component of the State's natural resources. Rhode Island's wetlands are valued for the environmental and economic benefits they provide, such as wildlife habitat, water-quality improvement, flood and erosion control, recreational activities, and esthetic beauty (fig. 1). Wetlands provide important food, shelter, breeding, and nursery habitats for shellfish, fish, birds and other wildlife. Undeveloped flood-plain wetlands along the rivers in the State provide natural storage that helps regulate floodwaters. Wetland vegetation can inhibit flood erosion when streams swell out of their banks. Acquiring flood-plain wetlands to protect them from development was found to be the most cost-effective approach to limit future flood damage along the Pawtuxet River near Warwick (U.S. Army Corps of Engineers, 1991).

TYPES AND DISTRIBUTION

Wetlands are lands transitional between terrestrial and deepwater habitats where the water table usually is at or near the land surface or the land is covered by shallow water (Cowardin and others, 1979). The distribution of wetlands and deepwater habitats in Rhode Island is shown in figure 2*A*; only wetlands are discussed herein.

Wetlands can be vegetated or nonvegetated and are classified on the basis of their hydrology, vegetation, and substrate. In this summary, wetlands are classified according to the system proposed by Cowardin and others (1979), which is used by the U.S. Fish and Wildlife Service (FWS) to map and inventory the Nation's wetlands. At the most general level of the classification system, wetlands are grouped into five ecological systems: Palustrine, Lacustrine, Riverine, Estuarine, and Marine. The Palustrine System includes only wetlands, whereas the other systems comprise wetlands and deepwater habitats. Wetlands of the systems that occur in Rhode Island are described below.

System	Wetland description
Palustrine	Nontidal and tidal-freshwater wetlands in which vegetation is predominantly trees (forested wetlands); shrubs (scrub-shrub wetlands); persistent or nonpersistent emergent, erect, rooted herbaceous plants (persistent- and nonpersistent-emergent wetlands); or submersed and (or) floating plants (aquatic beds). Also, intermittently to permanently flooded open-water bodies of less than 20 acres in which water is less than 6.6 feet deep.
Lacustrine	Nontidal and tidal-freshwater wetlands within an intermittently to permanently flooded lake or reservoir larger than 20 acres and (or) deeper than 6.6 feet. Vegetation, when present, is predominantly nonpersistent emergent plants (nonpersistent-emergent wetlands), or submersed and (or) floating plants (aquatic beds), or both.
Riverine	Nontidal and tidal-freshwater wetlands within a channel. Vegetation, when present, is same as in the Lacustrine System.
Estuarine	Tidal wetlands in low-wave-energy environments where the salinity of the water is greater than 0.5 part per thousand (ppt) and is variable owing to evaporation and the mixing of seawater and freshwater.
Marine	Tidal wetlands that are exposed to waves and currents of the open ocean and to water having a salinity greater than 30 ppt.

The most recent inventory of Rhode Island wetlands mapped about 65,000 acres of wetlands statewide (Tiner, 1989). Wetlands were mapped from aerial photographs taken from 1974 through 1977 for the FWS National Wetlands Inventory Project. Most of the State's wetlands were classified as palustrine (fig. 2*B*). Palustrine forested wetlands can be found throughout the State and are the most abundant wetland type, accounting for 73 percent of Rhode Island's wetlands (Tiner, 1989, table 5). Most of these forested wetlands are deciduous, red maple swamps. Red maple grows in most inland wetlands because it tolerates a wide range of flooding and soil saturation conditions (Metzler and Tiner, 1992). The vegetation found with red maple, in the understory and intermixed or codominating in the canopy, differs according to nutrient availability and water regime.

Atlantic white cedar wetlands, which are palustrine evergreen-forested wetlands, are most abundant in southwestern Rhode Island (Laderman and others, 1987). These freshwater wetlands contain a distinctive plant community that grows under conditions too extreme for most other northeastern trees: standing water for one-half of the growing season or longer, highly acidic waters, and low nutrient availability. Atlantic white cedar swamps were once more common in Rhode Island; many cedar swamps have changed over time to red maple and other types of swamps (Tiner, 1989).

Figure 1. Rhode Island's estuarine wetlands benefit both humans and wildlife. *(Photograph courtesy of the Audubon Society of Rhode Island.)*

Palustrine scrub-shrub wetlands account for 8 percent of the State's wetlands. Highbush blueberry, swamp azalea, sweet pepperbush, northern arrowwood, alder, willow, and young red maples are common. Bogs are palustrine scrub-shrub wetlands that are characterized by nutrient-poor, acidic water, constant saturation, and peaty soils. Organic matter decays slowly in bogs and forms deep peat accumulations that can seal off vegetation from direct contact with mineral soil or mineral-rich ground water (Damman and French, 1987). Bogs generally have a well-developed sphagnum mat that contains shrubs such as leatherleaf, sheep laurel, black huckleberry, and blueberry. Pitcher plants and sundews commonly are present—trapped insects provide an important source of nutrients to these plants. Trees are commonly the dominant plants at the outer borders of bogs, where nutrient-enriched seepage water is discharged from the adjacent upland, or they grow as stunted individuals scattered across the bog mat. Tree species may grade from those requiring high nutrient levels (hemlock, larch, and red maple) near the bog's outer border to those with lower nutrient requirements

(Atlantic white cedar) near the inner border (Damman and French, 1987).

Vernal pools are small, generally temporary palustrine wetlands that occur throughout Rhode Island. Because these wetlands dry up by late summer or earlier, they are devoid of fish and thus provide a safe breeding habitat for many amphibian and invertebrate species.

Lacustrine and riverine wetlands compose only a small percentage of Rhode Island's wetland acreage. Lacustrine wetlands in the State include aquatic-bed and nonpersistent-emergent wetlands. Riverine wetlands are present in all of the State's freshwater rivers and their tributaries. Most riverine wetlands in Rhode Island are nonvegetated, but nonpersistent emergent vegetation is visible in slow-flowing, shallow water in the lower reaches of many of the State's rivers and streams, and aquatic beds are established in the deeper water of some clear rivers and streams.

Estuarine wetlands account for 7,000 acres, or about 11 percent, of the State's wetland acreage. Estuarine wetlands have developed behind the barrier beaches of the State's southern coast, from the Connecticut border to Narragansett Bay, and in protected coves and embayments of Narragansett Bay and Block Island. Rhode Island's vegetated estuarine wetlands are primarily salt and brackish marshes (emergent wetlands) that are commonly vegetated by grasses, bulrushes, or cattails. Nonvegetated estuarine intertidal flats and beaches, alternately flooded by tide or exposed to air, also are an important wetland type in Rhode Island.

Marine wetlands account for only 1 percent of the State's total wetland acreage. Marine wetlands, composed primarily of intertidal beaches and rocky shores, are present along the shoreline of the State.

HYDROLOGIC SETTING

Wetlands occur in geologic, topographic, and hydrologic settings that enhance the accumulation and retention of ground water and surface water. Hydrologic processes are the primary factor determining the existence of wetlands; even if the geologic and topographic settings are favorable for wetland formation, unfavorable hydrologic conditions can inhibit wetland formation (Winter, 1988). On an annual basis, precipitation exceeds evapotranspiration losses in Rhode Island (Johnston, 1986). Hydrologic conditions, therefore, favor the formation and maintenance of wetlands throughout the

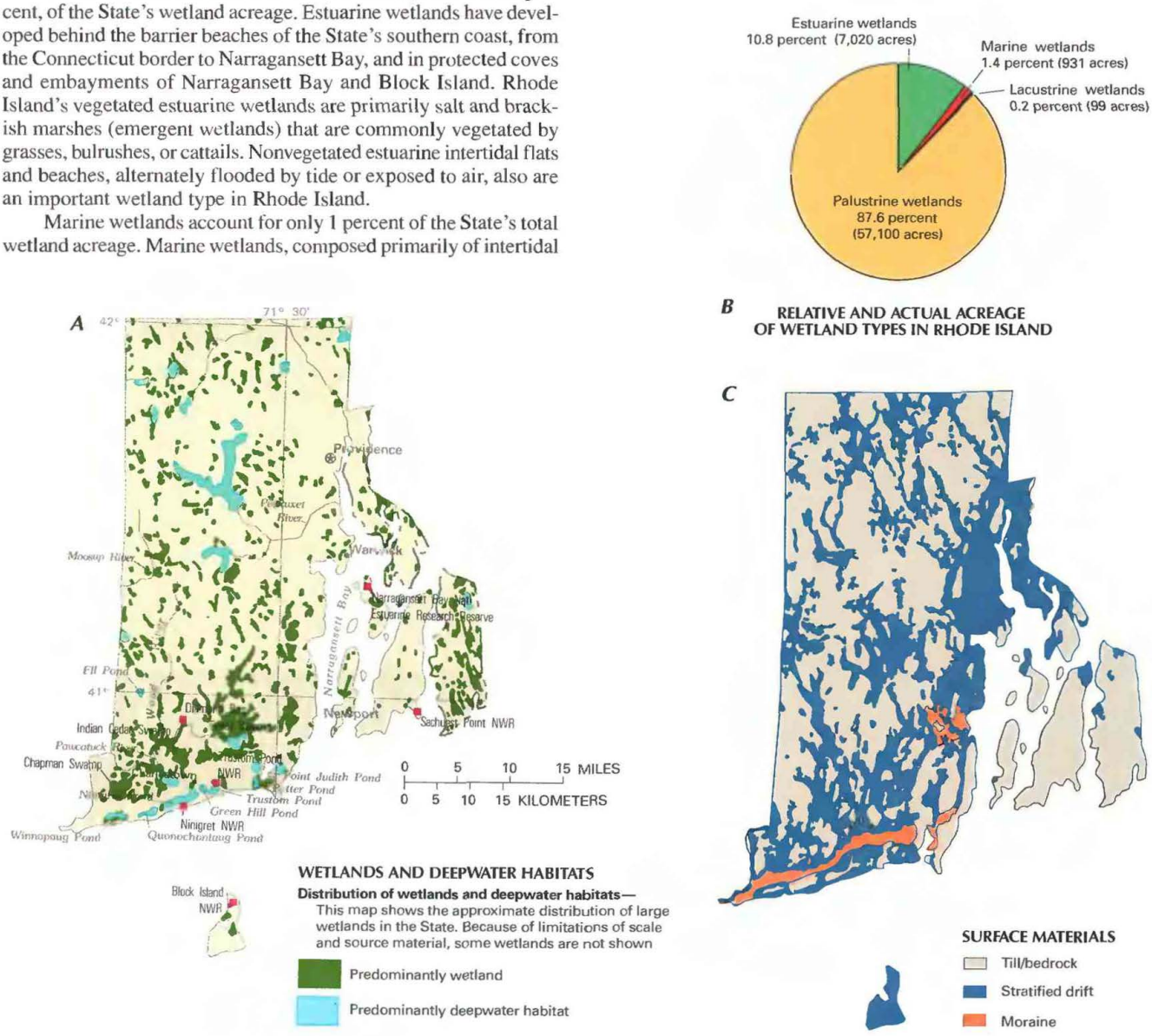

Figure 2. Wetland distribution and acreage in Rhode Island and distribution of surface materials across the State. ***A***, Distribution of wetlands and deepwater habitats. ***B***, Relative and actual acreage of the most common wetland types, mid-1970's. (No data are available for riverine wetlands.) ***C***, Distribution of surface materials. *(Sources: A, T.E. Dahl, U.S. Fish and Wildlife Service, unpub. data, 1991. B, Tiner, 1989. C, Rhode Island Department of Environmental Management, Groundwater Division.)*

State, and wetland location is determined primarily by geologic and topographic controls.

Rhode Island was completely covered by ice during the last glaciation. Large quantities of glacial drift (sediment derived from glacial action) were produced and deposited over bedrock throughout the State (fig. 2*C*). Drift deposited directly by the ice is called unstratified drift or till. Till is exposed at the land surface in about two-thirds of the State (Johnston and Barlow, 1988), primarily on upland hilltops and slopes. Because till was deposited directly from glacial ice, it is a poorly sorted mixture of boulders, gravel, sand, and silt. Sediment that was eroded and reworked by glacial meltwater is called stratified drift. Because stratified drift was deposited by flowing water in either riverine or lake environments, it consists of well-sorted gravel, sand, and silt. Stratified drift is exposed at the land surface in the remaining one-third of the State and is commonly 75 to 125 feet thick. These deposits are present in topographically low areas, such as narrow stream and river valleys, or occur as broad, flat plains beyond former ice margin positions. Ice-contact stratified drift was deposited directly against ice by glacial-meltwater streams; often these deposits have higher relief due to the control of sedimentation by the ice or valley walls or both.

Wetlands occur throughout Rhode Island in topographic depressions within glacial drift or bedrock. Closed topographic depressions called kettle holes pit the surface of glacial drift. Kettle holes resulted from melting ice blocks that were embedded in glacial sediments. Surface runoff and ground-water discharge collect in small hollows, kettle holes, and other topographic depressions, leading to the formation and maintenance of wetlands. Retention of moisture occurs in depressions which have no outflow or have drainage controlled by bedrock sills, glacial drift, beaver dams, or manmade structures. Seepage wetlands commonly form where the ground-water table intersects the land surface—on concave slopes and at breaks in slope; however, the wetlands are perennial only if ground-water discharge is also perennial (Winter, 1988).

After the glaciers retreated, vegetation colonized the landscape in response to the warming climate; open-water depressions filled in with sediment and organic matter to become freshwater wetlands or remained lakes with wetlands fringing open water. The availability of nutrients determines the types of plants that grow in wetlands. As water moves through soil and surficial materials, it is enriched in nutrients that enhance plant growth. The longer the flow path beneath the surface, the more the water is enriched. Wetlands in upland till and bedrock depressions are primarily areas of discharge from nutrient-poor, local ground-water flow systems, whereas wetlands in lowland valleys underlain by stratified drift receive discharge from nutrient-enriched, longer ground-water flow systems.

Results from a 7-year study of water-table activity in Atlantic white cedar wetlands (Golet and Lowry, 1987) illustrate the effect of geologic setting on wetland hydrology. Water levels fluctuated primarily in response to variations in annual precipitation in all wetlands studied (Golet and Lowry, 1987). However, seasonal water-level activity differed between wetlands because of different sources and amounts of moisture input. Ell Pond and its associated wetlands overlie a deep bedrock fracture (Laderman and others, 1987). Water levels in this wetland fluctuated significantly in response to precipitation input and transpiration losses (Golet and Lowry, 1987). Diamond Bog is a deep kettle-hole wetland within permeable stratified drift, and it receives significant ground-water input. In contrast to Ell Pond, water levels within Diamond Bog remained relatively high even during periods of high evapotranspiration losses.

As the last glacier retreated northward, a succession of till ridges or moraines was deposited at the edge of each ice front. Moraines on Long Island in New York, Block Island in Rhode Island, and Martha's Vineyard and Nantucket Island in Massachusetts mark the maximum extent of the last ice front (Sirkin, 1982; Goldsmith, 1982). The high topography of the Charlestown moraine, near Charlestown, roughly paralleling the coast, and the Old Saybrook moraine, just north of the Pawcatuck River, mark pauses in the retreat of the ice sheet (Goldsmith, 1982). Drainage of surface water in many valleys or lowland areas is blocked or slowed by the higher topography of glacial moraines or mounds of ice-contact stratified drift. Some of the largest stands of Atlantic white cedar in Rhode Island and also the State's largest wetlands—the 2,150-acre Chapman Swamp, the 960-acre Indian Cedar Swamp, and the 2,970-acre Great Swamp (Laderman, 1989)—occur in basins blocked by moraines. Many other large, shallow wetlands are present in valleys throughout the State owing to drainage blocked by ice-contact stratified drift.

Some of Rhode Island's palustrine wetlands are lowland areas modified by the recent erosion and deposition by rivers—in abandoned river channels, in flood-plain areas, behind levees and overbank sediments adjacent to rivers, and in backswamp areas. These wetlands receive moisture from river flooding and ground-water discharge.

Tidal wetlands form a narrow fringe along coastal areas of the State. Tidal wetlands receive freshwater from upland areas through ground-water discharge and surface-water runoff. Floodwater resulting from high tides or storm flows is temporarily stored on the wetland surface but drains into the tidal river or estuary as the river stage recedes. The drainage of floodwater and surface-water runoff from the wetland surface is slowed by the low slope of coastal areas.

As the last ice sheet melted and water stored as glacial ice returned to the sea, sea level rose and encroached upon land, flooding many stream and river valleys to form estuaries. Narragansett Bay is an estuary formed in such a "drowned" river valley. Tidal wetlands have either migrated inland along estuaries, river valleys, and coastal slopes, or the wetlands have been completely submerged by the rising sea. Some kettle holes were flooded by saltwater, resulting in a change from freshwater to tidal wetlands (Boothroyd and others, 1985). The interconnected Point Judith and Potter Ponds, located perpendicular to the State's southern coast, formed when the sea flooded a series of individual kettle holes. The shallow, elongate salt ponds paralleling the barrier beaches of the State's southern coast—Green Hill, Ninigret, Quonochontaug, Trustom, and Winnapaug Ponds—have formed through the gradual rise in sea level over low-slope outwash plains. Presently, tidal wetlands exist between rising sea level and expanding coastal development and have little area for future inland migration.

TRENDS

There are no statewide estimates of recent wetland losses or alteration; however, wetland losses and alterations continue in Rhode Island despite Federal and State regulation. In the first 5 months of 1993, more than 230 preliminary-determination applications were submitted to the Department of Environmental Management for work proposed in or near freshwater wetlands in the State (Chuck Horbert, Department of Environmental Management, oral commun., 1993). Of these applications for wetland alteration, 149 were approved because the projects would result in insignificant wetland alterations, 17 required formal applications because the projects would cause significant wetland alterations, and the remaining projects were not near wetlands. Generally, the functions for which wetlands are valued operate at a drainage basin or landscape scale, not at the permit site or single-wetland scale. The contribution of a single wetland to landscape functions can depend not only on the actual size of the wetland but also on its setting within a landscape system (Bedford and Preston, 1988). The cumulative impact of individually insignificant, but collectively significant, wetland losses could lead to serious impairment of beneficial wetland functions.

Studies of the sediments deposited in wetlands show that wetlands have been strongly affected by activities within their drainage basins. Postsettlement agricultural and industrial practices in the uplands of northeastern Connecticut were found to be the most important ecological influence on wetlands since glaciation (Thorson, 1990, 1992; Thorson and Harris, 1991). Both the frequency of transitions between wetland types and the rate of sediment accumulation increased by at least one order of magnitude after colonial settlement as compared to the thousands of years before settlement. Cores of bottom sediments from Narragansett Bay show a distinct increase in the percentage of organic accumulation 2 to 3 feet below the surface; the increase marks a change in wetland type from intertidal sand flats to salt marshes. This change in wetland type was caused when dams, built across upstream tributaries for power generation, decreased the downstream transport of sediment (Bricker-Urso and others, 1989). Other wetlands have formed as a result of the numerous dams and impoundments built along rivers throughout the State and the subsequent rise in local water tables; flood-plain wetlands along the Pawcatuck River are examples (Schafer, 1968). These studies indicate that even human activities not located directly within a wetland can affect wetlands owing to the response of wetlands to changing geologic and hydrologic conditions within the landscape system.

CONSERVATION

Many government agencies and private organizations participate in wetland conservation in Rhode Island. The most active agencies and organizations and some of their activities are listed in table 1.

Table 1. Selected wetland-related activities of government agencies and private organizations in Rhode Island, 1993

[Source: Classification of activities is generalized from information provided by agencies and organizations. •, agency or organization participates in wetland-related activity; ..., agency or organization does not participate in wetland-related activity. MAN, management; REG, regulation; R&C, restoration and creation; LAN, land acquisition; R&D, research and data collection; D&I, delineation and inventory]

Agency or organization	MAN	REG	R&C	LAN	R&D	D&I
FEDERAL						
Department of Agriculture						
Consolidated Farm Service Agency	...	•	..	..	..	...
Forest Service	...	..	...	...	...	•
Natural Resources Conservation Service	...	..	•	•	...	•
Department of Commerce						
National Oceanic and Atmospheric Administration	•	•	..	•	•	...
Department of Defense						
Army Corps of Engineers	...	•	•	..	•	•
Military reservations	•	..	..	...	...	..
Department of the Interior						
Fish and Wildlife Service	•	...	•	•	•	•
Geological Survey	...	...	...	...	•	...
National Biological Service	...	...	...	...	•	...
Environmental Protection Agency	..	•	..	...	...	•
STATE						
Coastal Resources Management Council	•	•	...	•	...	•
Department of Environmental Management						
Fish, Wildlife, and Estuarine Resources Division	•	•	•	•	•	...
Freshwater Wetlands Division	...	•	..	..	...	•
Parks and Recreation Division	•	...	...	...	...	...
Water Resources Division	...	•	...	..	...	...
University of Rhode Island	•	...	•	...	•	...
PRIVATE ORGANIZATIONS						
Audubon Society of Rhode Island	•	...	...	•	•	•
Ducks Unlimited	...	...	...	..	•	•
The Champlin Foundation	...	...	...	•	...	...
The Nature Conservancy	•	..	...	•	•	•

Federal wetland activities.—Development activities in Rhode Island wetlands are regulated by several Federal statutory prohibitions and incentives that are intended to slow wetland losses. Some of the more important of these are contained in the 1899 Rivers and Harbors Act; the 1972 Clean Water Act and amendments; the 1985 Food Security Act; the 1990 Food, Agriculture, Conservation, and Trade Act; the 1986 Emergency Wetlands Resources Act; and the 1972 Coastal Zone Management Act.

Section 10 of the Rivers and Harbors Act gives the U.S. Army Corps of Engineers (Corps) authority to regulate certain activities in navigable waters. Regulated activities include diking, deepening, filling, excavating, and placing of structures. The related section 404 of the Clean Water Act is the most often-used Federal legislation protecting wetlands. Under section 404 provisions, the Corps issues permits regulating the discharge of dredged or fill material into wetlands. Permits are subject to review and possible veto by the U.S. Environmental Protection Agency, and the FWS has review and advisory roles. Section 401 of the Clean Water Act grants to States and eligible Indian Tribes the authority to approve, apply conditions to, or deny section 404 permit applications on the basis of a proposed activity's probable effects on the water quality of a wetland.

Most farming, ranching, and silviculture activities are not subject to section 404 regulation. However, the "Swampbuster" provision of the 1985 Food Security Act and amendments in the 1990 Food, Agriculture, Conservation, and Trade Act discourage (through financial disincentives) the draining, filling, or other alteration of wetlands for agricultural use. The law allows exemptions from penalties in some cases, especially if the farmer agrees to restore the altered wetland or other wetlands that have been converted to agricultural use. The Wetlands Reserve Program of the 1990 Food, Agriculture, Conservation, and Trade Act authorizes the Federal Government to purchase conservation easements from landowners who agree to protect or restore wetlands. The Consolidated Farm Service Agency (formerly the Agricultural Stabilization and Conservation Service administers the Swampbuster provisions and Wetlands Reserve Program. The Natural Resources Conservation Service (formerly the Soil Conservation Service) determines compliance with Swampbuster provisions and assists farmers in the identification of wetlands and in the development of wetland protection, restoration, or creation plans.

The 1986 Emergency Wetlands Resources Act and the 1972 Coastal Zone Management Act and amendments encourage wetland protection through funding incentives. The Emergency Wetland Resources Act requires States to address wetland protection in their Statewide Comprehensive Outdoor Recreation Plans to qualify for Federal funding for State recreational land; the National Park Service provides guidance to States in developing the wetland component of their plans. Coastal and Great Lakes States that adopt coastal-zone management programs and plans approved by the National Oceanic and Atmospheric Administration (NOAA) are eligible for Federal funding and technical assistance through the Coastal Zone Management Act.

Federal agencies are responsible for the proper management of wetlands on public lands under their jurisdiction. The FWS protects and manages salt marsh and freshwater wetlands in the Ninigret National Wildlife Refuge. Wetlands are also protected in the Block Island National Wildlife Refuge, the Trustom Pond National Wildlife Refuge, and Sachuest Point National Wildlife Refuge.

State wetland activities.—Wetlands are regulated primarily at the State level in Rhode Island; separate agencies regulate coastal and freshwater wetlands. The Coastal Resources Management Program requires that permits be obtained from the Coastal Resources Management Council for any dredging, filling, or other physical

alteration of coastal wetlands and directly contiguous areas, including contiguous freshwater wetlands. Coastal wetlands are defined as any salt marsh that borders on tidal waters and contains certain plant species. Activities in coastal ponds and contiguous upland areas, extending no more than 200 feet inland, also are regulated in order to preserve the integrity of tidal wetlands. The Coastal Resources Management Council has regulatory, planning, and management powers within these specified coastal areas.

Under the Freshwater Wetlands Act, permits must be obtained from the Department of Environmental Management's Division of Freshwater Wetlands for any dredging, filling or other type of alteration to inland wetlands, including adjacent upland areas. Areas subject to regulation as freshwater wetlands include, but are not limited to, any swamp, marsh, bog, pond, vernal pool, river, stream, riverbank, flood plain (as defined by a 100-year-frequency storm), areas subject to flooding and storm flows, emergent and submerged plant communities in any body of water, and the area of land within 50 feet of any bog, swamp, marsh, or pond.

The Department of Environmental Management is the primary land-management agency in Rhode Island. The Department has responsibility for developing and operating some 87,000 acres of State-owned open space, including parks, beaches, water-supply areas, wildlife-habitat reserves, and conservation areas (Rhode Island Department of Administration, 1992). About 2,000 acres of land have recently been acquired on six of the islands in Narragansett Bay. This land is part of the State's Bay Island Park System and provides recreation, conservation, environmental education, and research opportunities. More than 2,000 acres of fish and wildlife habitat and wetlands along the Wood, Pawcatuck, and Moosup Rivers have been acquired by using State and Federal funds. The Department's Fish, Wildlife and Estuarine Resources Division is focusing on anadromous-fish restoration programs on these rivers.

The Narragansett Bay National Estuarine Research Reserve is cooperatively managed by the Department of Environmental Management and NOAA's Office of Ocean and Coastal Resource Management. The 4,950-acre reserve was created under section 315 of the Federal Coastal Zone Management Act and contains undisturbed salt marshes, tidal flats, and open-water habitats. The reserve serves as a natural laboratory and is the site of several interagency research projects.

The Rhode Island Natural Heritage Program compiles and updates rare and endangered animal and plant lists within the State. The program comments on State freshwater-wetlands permit applications, Clean Water Act Section 404 permit applications, and local comprehensive plans. Certain wetland types and rare biological communities are identified by the program for priority protection. The Natural Heritage program, along with nongame research and management projects, is funded by the nongame-wildlife fund, a voluntary contribution on State income tax forms.

The Department of Environmental Management's Freshwater Wetlands Division requires water-quality certification from the Department of Environmental Management's Water Resources Division before approval of any significant wetland alterations. Under section 401 of the Federal Clean Water Act, any activity that results in a discharge, including that of fill into wetlands or State waters, must obtain a section 401 water-quality certification stating that the activity will not result in violation of State surface-water-quality standards. Normal maintenance and improvement of agricultural lands are exempt from State and Federal authority under this program. However, any discharge from exempted activities that might convert open-water areas or wetlands to dry land, impede circulation, or reduce the size of a wetland or water body is subject to section 404 regulation. Enforcement of the antidegradation provisions of State surface-water-quality standards for wetlands provides enhanced wetland protection. Antidegradation provisions provide for the protection of existing uses in wetlands and the level of water quality necessary to maintain those uses. No degradation is allowed in areas designated as "Outstanding National Resource Waters" such as National Wildlife Refuges, National Parks, State Parks, wildlife areas, and other areas of ecological significance.

Private wetland activities.—Regulation of wetlands in Rhode Island includes consideration of local concerns and issues. Local land-use controls are an additional wetland-protection measure. Fifteen of Rhode Island's 39 communities have established local land trusts (Rhode Island Department of Administration, 1992).

Many of Rhode Island's natural resources have been acquired and protected through cooperative efforts involving private organizations, local land trusts, and State and local governments. The Nature Conservancy, the Champlin Foundation, and State and local governments together have protected endangered-species habitats and unique areas on Block Island. Block Island contains some of the State's rarest ecosystems and most valuable natural habitats; the island has recently been designated as one of 12 bioreserves in the Western Hemisphere by The Nature Conservancy. The Champlin Foundation provides funds for land acquisition to the State, The Nature Conservancy, and The Audubon Society of Rhode Island. The GreenSpace 2000 Project is a statewide plan to protect critical open-space values and functions through a network of tracts and greenways; the plan establishes protection priorities and strategies to reach its goals (Rhode Island Department of Administration, 1992). Save The Bay, the State's largest private, nonprofit environmental group, the Conservation Fund, a national nonprofit group that promotes greenways, and State and local officials are cooperating to implement the plan's goals. Wetlands are identified as critical geographic-resource areas by the plan, and many are priority protection areas in the GreenSpace 2000 Project.

The Audubon Society of Rhode Island owns and manages more than 6,000 acres of land, containing many freshwater and saltwater wetlands, for recreational and educational purposes. Ducks Unlimited provides technical and financial assistance to Federal and State agencies to protect waterfowl habitat in Rhode Island.

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