



A Quarterly Publication from the Division of Fish and Wildlife, RI Department of Environmental Management

## Deer Management in Rhode Island: Crossroads of Issues *by Brian Tefft*

The whitetail deer is without question one of the most charismatic wildlife species found in Rhode Island; loved by many, despised by some and often polarizing when the discussion of deer management arises. Deer are certainly a problem in many communities. They cause damage to agricultural crops, threaten public safety as auto-deer collisions increase and threaten public health as a vector for Lyme disease, carried by deer ticks. Ecosystem impacts of deer overpopulation include damage to forest regeneration, extirpation of rare plants and infestations of invasive plants. These effects degrade habitats and reduce biological diversity. The whitetail deer is a popular game species, highly prized for its meat and hide, and sought by hunters who enjoy the challenge of harvesting a whitetail for their table.



cause of its overabundance. Deer are prolific. They adapt to changes in their environment and can live in close proximity to people, especially in urban-suburban areas. A healthy, well conditioned doe can have twins or even triplets in a good year. Overall deer have an amazing sense for survival, honed over the eons, that enables them to avoid predators. The result of this success has been felt in many communities in the United States that struggle with deer management issues. There are an estimated 20 million deer in the US with approximately 15,000 in Rhode Island. Deer are

literally colliding with humans as developments and suburbia encroach into rural areas. Companies that insure automobiles estimate that there are 1.5 million crashes between deer and autos in the U.S. each year, resulting in hundreds of deaths, thousands of injuries and more than \$1

The success of the whitetail as a species is the also the

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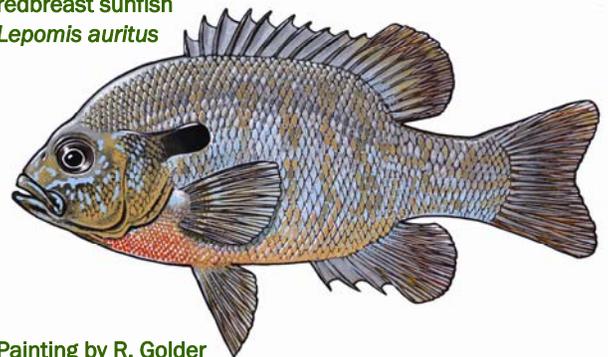
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## Factors Influencing the Distribution of Freshwater Fish

*by Alan Libby*

There are many natural and anthropogenic factors that influence the distribution of freshwater fish. Natural factors include water movement; i.e. whether the water is standing (lentic) or flowing (lotic), temperature, and previous glacial events. Freshwater species such as the fallfish (*Semotilus corporalis*) or redbreast sunfish (*Lepomis gibbosus*) prefer the flowing water of lotic environments, whereas species such as the largemouth bass (*Micropterus salmoides*) and golden shiner (*Notemigonus crysoleucas*) favor the standing water of lentic environments. Most species have a defined range of temperatures in which they are likely to be found. Brook trout (*Salvelinus fontinalis*), for example, are more likely to be found in the

redbreast sunfish  
*Lepomis auritus*



Painting by R. Golder

cooler reaches of streams while fallfish and common shiners (*Luxilus cornutus*) are more likely to live in streams having warmer waters.

Glacial advances and retreats have influenced the distribution of fish in much of North America. Any freshwater fish that had inhabited a region that was

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### THE DIVISION OF FISH AND WILDLIFE MISSION STATEMENT:

Our mission is to ensure that the Freshwater, Marine and Wildlife resources of the State of Rhode Island will be conserved and managed for equitable and sustainable use.



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## Wild Places: Fort Wetherill Narrative Courtesy of *Defenses of Narragansett Bay in WW-II*, By Walter K. Schroder Compiled by S. Olszewski

Situated atop 50 to 70 foot high cliffs with clear views of the horizon and Block Island to the south, Fort Wetherill held an important strategic position within an extended harbor defense system of Narragansett Bay during World Wars I and II. The government acquired the first parcels of land for this fort in 1799. Additional acreage was later purchased bringing the total area of the military reservation to 61.5 acres. In 1900, the enclave was formally dedicated as Fort Wetherill. The site contains the largest concrete fortifications of its kind in Rhode Island. Because of the spatial constraints it was laid out in an uncommonly tight linear array, featuring a variety of gun sizes and types, from 12-inch barbette-mounted and disappearing rifles, to the smaller 6-inch and 3-inch pedestal types.

The majority of the mounted guns, and the barracks that housed officers and enlisted personnel, were located at the western end of the reservation, now known as Fort Wetherill State Park. Most of the military personnel serving at the fort during World War II were members of Rhode Island's own 243<sup>rd</sup> Coast Artillery Regiment, some of whom later chose to become permanent residents of the Town of Jamestown. After the war, a number of wooden barracks were acquired by local citizens and relocated to sites throughout town.

A complete Submarine Mine and Cable facility consisting of several buildings, a wharf, tram rails, and ancillary facilities occupied the easternmost section of the fort during the World Wars. Three permanent structures were preserved and upgraded, and now house the offices of the Division's, Marine Fisheries section. Here the State's Marine Fisheries Biologists, with a host of research vessels, monitor and manage the marine resources of Narragansett Bay and Rhode Island Sound. The Submarine Mine and Cable facility now houses the Division's marine wet lab.

Historically, the rocky cliffs behind and above the buildings of the Harbor Mine Complex were of military significance to

Rhode Island's earliest colonists, who built earthen fortifications on its headland and installed cannons to protect nearby Newport from the British during the early days of the Revolutionary War. The guns atop the steep granite cliffs effectively commanded the approaches to the East Passage of Narragansett Bay. The Colonists abandoned this site when a British fleet of 81 ships landed in

excess of 6,000 troops in Newport on December 8<sup>th</sup>, 1776. For three years, both British and Hessian soldiers occupied and improved upon these earthworks as part of their general occupation of Conanicut Island. Hessian troops briefly abandoned the



site on July 29<sup>th</sup>, 1778 when a large French fleet, under command of Comte Charles Hector d'Estaing, made its way into the inner harbor of Newport to assist the Colonists against the British by putting a large contingent of troops ashore on Conanicut Island on August 8<sup>th</sup>. Soon after these landings, a British fleet was spotted on the horizon to the south. The French commander promptly withdrew his troops and sailed for open waters to engage the enemy. In the days that followed, both fleets suffered severe hurricane damage, preventing the French from returning to the Bay at that time.

The British-Hessian occupation of the Newport area ended on October 5, 1779, when King George III withdrew his forces from Narragansett Bay. On July 10, 1780, the French returned under command of Comte de Rochambeau. His Large armada and 5,800 soldiers occupied the Newport-Jamestown area until June 1781, when the French broke camp and marched to Philadelphia, joining General Washington's forces in the defeat of the British at Yorktown.

The Fort Wetherill Marine Laboratory and State Park can be accessed from the Jamestown Bridge. Follow Route 138 to the Jamestown exit (last exit before toll booths for Newport's Pell Bridge). Continue south on Conanicut Ave., past the waterfront, bear left at the Ft. Wetherill State Park sign and follow road to the end. There is a sign and the entrance to the parking lot is on the right.

## Those Flighty Finches! *By Christopher Raithe*

The concept of bird migration was once very controversial. Even though it was obvious to early naturalists that birds disappeared seasonally, it was thought that they might hunker down in holes (or even under water) to spend the winter.

We now understand that many birds, at least those in non-equatorial areas, make repeated seasonal movements that we refer to as migrations. We recognize and accept the periodicity of birds such as warblers - they are not here all winter, they show up, stay a while and then are gone. Other northern species that do not nest in Rhode Island appear in fall, stay for the winter and then depart in the spring. The White-throated Sparrow and Junco are two examples of this latter pattern.

Apart from this "typical" migratory pattern, other groups of birds are more peripatetic; that is, they come and go in a very irregular fashion. Such bird flights are referred to as "irruptive" and are characteristic of most types of finches but also exist in other such disparate species as owls, raptors and even woodpeckers. In this area, birds with irruptive migrations typically nest in subarctic regions and usually stay home for the winter, or at least move only slightly. However, in some years they move south in vast numbers and penetrate the continent much farther south than usual. The reasons for such movements are not fully understood but vacillating food resources, snowpack in northern climes, and continental fluctuations in their populations are all probable contributors.

Because it is true that absence makes the heart grow fonder, these birds are among the most sought-after Rhode Island denizens because they may not appear in Rhode Island for several years, if not decades, at a time. When they do appear *en masse*, it can be a once or twice-in-a-lifetime event. What is even more fascinating (or frustrating, as the case may be) for local bird watchers is that irruptions are not very predictable and the various species move on different schedules. The inevitable result of all the overlapping irregularities is that sometimes all the stars align and there are a lot of birds around, and in other years nothing lines up and there are none.

The winter of 2009-2010 was a non-year for irruptive species. Most finches, winter owls, and northern raptors stayed home, making for a very lean winter season for local observers. The birds were probably fine - they just weren't in Rhode Island or anywhere close. By contrast, the winter of 2010-2011 is shaping up (at least at the time of this writing) as a more interesting year for irruptions, with vanguards of several species, including Pine Siskins, Purple Finches, Evening Grosbeaks, and Crossbills already present in the state. Even several species of woodpeckers and nuthatches seem to be busting out this year - you might see something very unusual.



Photo by Bob Wadman

Above: The strikingly clad **Evening Grosbeak** was formerly a more frequent visitor to winter feeders. It has apparently declined in recent decades and is now only rarely seen in the state.



Photo: Shai Mitra

Above: The **White-winged Crossbills** are very irregular visitors to Rhode Island, but when they come they can be abundant. Crossbills have beaks specialized for prying open pine cones.



Photo: Shai Mitra

Above: The majestic **Pine Grosbeak** is one of Rhode Island's rarest winter finches. They are sometimes found in old orchards or ornamental trees where fruit remains on the branches.

## Deer Management in Rhode Island: A Crossroads of Issues *by Brian Tefft (cont. from page 1)*

billion dollars in damage to vehicles. In Rhode Island, deer-auto collisions have increased significantly each of the last several years with a 9% increase recorded from 2008 to 2009. During that same period deer nuisance complaints by farmers rose and RI's rate of Lyme disease was one of the highest in the country.

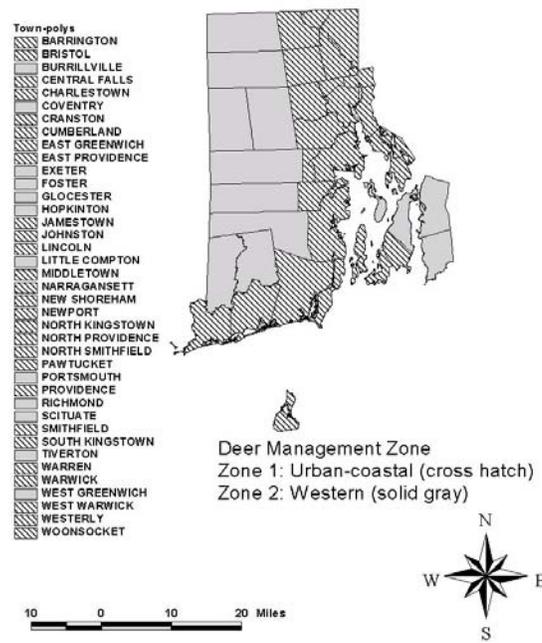
Hunters in Rhode Island enjoy the challenge of hunting whitetail and each hunting season our dedicated hunters spend many hours in the field harvesting deer. Approximately 17,000 permits to take deer are issued each year by DEM, resulting in an annual harvest that has ranged from 2500 to 3000 deer in the past few years. Hunters are the most viable and important method of deer population control we have because they absorb all of the costs associated with population control.

DEM reviewed and revised its deer management strategy this year. The approach was based on an analysis of habitat, deer harvest demographics and deer-auto collision data. The analysis found that the harvest of deer per square mile of habitat in the larger western rural towns was significantly higher and the number of road killed deer per square mile of habitat significantly lower when compared to the urban-suburban communities surrounding Narragansett Bay. In the rural western half of the state the combination of large public land holdings and open private lands make access for hunting more feasible than in the more densely developed eastern zone. The resulting town-by-town profile of harvest vs. road kill enabled a logical division of deer management zones to begin the process of reducing deer overabundance and increasing sustainability. In deer management Zone 1 (suburban and coastal RI), low or no deer harvest (range 0 to 4.6 per mi sq) and road kills of 2 to 6.5 deer per square mile were found. In deer management Zone 2 (rural communities), deer harvests of 4 to 6 deer per square mile of habitat and road kills of <1 to 1.7 deer per square mile were found. The management



Photo: USFWS

### 2010 Deer Management Zones



goals for each of the two zones were established to reduce road kills to <1.5 per square mile in Zone 1 and to <1.0 per square mile in Zone 2.

The strategy also includes a primary goal of increasing hunter success in zones where hunting may be restricted or access is limited, focusing on archery as a primary management tool. Other management goals include: providing extra incentives and longer seasons to hunt; directing harvest to areas with “too many deer”; reducing the road kill index to specific target levels; and reducing nuisance complaints. The strategy also employs annual monitoring of herd density (aerial survey) to help refine management strategies. Consistent reporting of results will allow us to both measure success to adjust management as necessary.

To achieve management goals, a number of changes were incorporated into the hunting regulations in our first year. These changes include an early opening of the archery deer season on September 15 statewide, and re-defining the “earn a buck” provision for Zone 1, which requires archers to harvest an antlerless deer prior to harvest of any buck. We also offered a free either sex “replacement tag” to any hunter harvesting two antlerless deer in Zone 1 on private lands. The zone management system also permitted avid hunters who hunted in both management Zones 1 and 2 to harvest additional animals up to the bag limits for that particular zone. We hope that

these changes will begin to encourage and increase hunter success in the areas where deer are over-abundant. Other hunting techniques and strategies are under consideration to improve hunter success in urban deer management problem areas. This process will be adaptive and dynamic as we grapple to manage and reduce deer over-abundance in the state. Our determination and success is necessary for public health and safety, for the ecological health of forest lands and to sustain a healthy deer population. Our goal is to achieve a quality deer management program that maintains deer densities at ecologically sound levels and maintains a quality hunting program for whitetail deer. We recognize that the strong tradition of deer hunting in Rhode Island and the important role hunters play in population regulation.

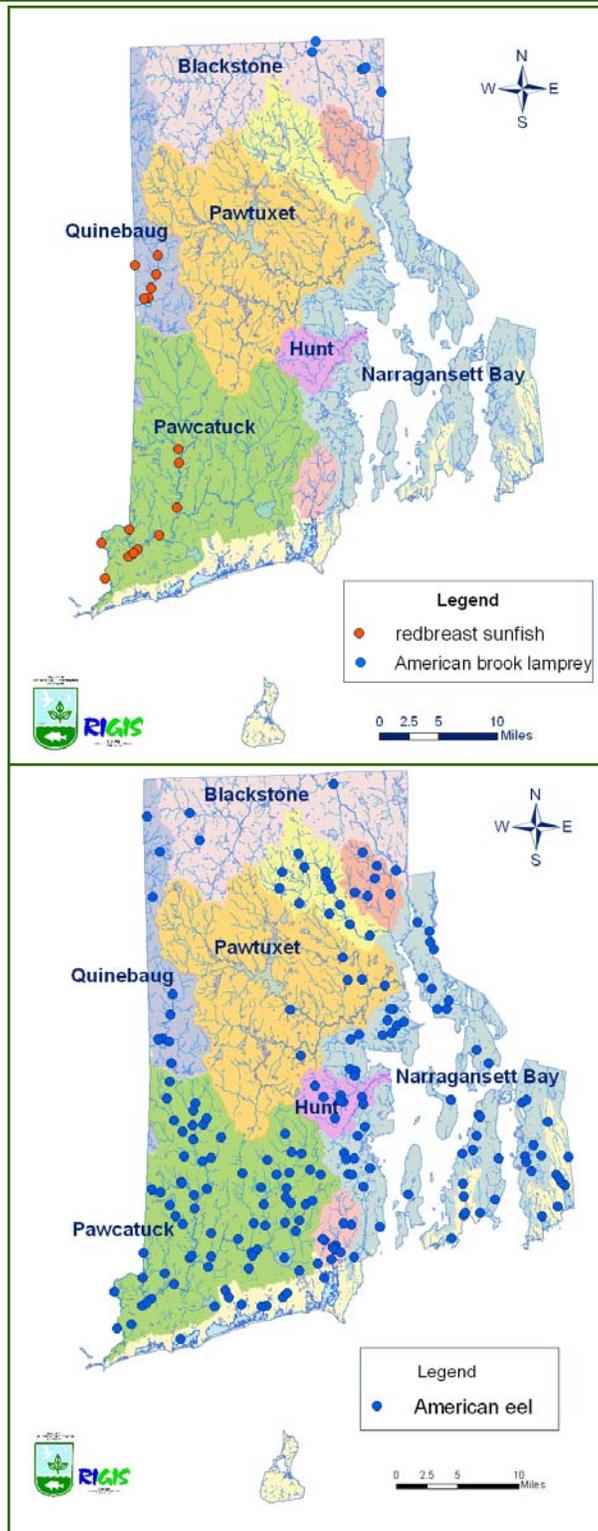
## Factors Influencing the Distribution of Freshwater Fish *by Alan Libby cont. from page 1*

covered by a glacier was forced to retreat when the advancing ice sheet scoured the land beneath it, pushing forward both earth and stone. The effects of this sheet of ice can be seen along the southern New England coast in the form of a terminal moraine that stretches from Cape Cod and the islands of Martha's Vineyard and Nantucket to Block Island and Long Island.

When temperatures moderated and the glacier began to recede, fish inhabiting refugia on the coastal plains of the Atlantic, located south of the glacier, moved into the newly formed rivers and streams (i.e., routes) created by glacial meltwater. They then recolonized the freshwaters of southern New England that were now expanding as the ice sheet melted. The distribution of four such species, the banded sunfish (*Enneacanthus obesus*), swamp darter (*Etheostoma fusiforme*), redbreast sunfish (*Lepomis auritus*), and American brook lamprey (*Lampetra appendix*) in CT, RI, and MA may have been influenced by the refugia they inhabited and the routes utilized.

The distribution of banded sunfish and swamp darter in southern New England, for example, is limited to eastern CT, all of RI, and the eastern half of MA. The distribution of the redbreast sunfish, on the other hand, is limited to all of CT, western RI (top map), and in most of MA except for its easternmost areas. The distribution of the American brook lamprey is limited in RI, CT, and MA. In RI it is only found in a few tributaries of the Blackstone River, which flows through the northeastern part of the state (top map).

Anthropogenic factors influencing the distribution of freshwater fish include dam construction and the introduction of fish from areas outside their natural or normal range, where they can outcompete native species for habitat and food. Large-scale construction of dams in RI began with the



Industrial Revolution in the 1790s. At present there are approximately 600 dams in the state. Dams not only convert free-flowing streams into lentic habitat and raise water temperatures, but also act as barriers by impeding or blocking the reproductive migrations of diadromous fish (fish that spend a portion of their life in both freshwater and salt). American shad (*Alosa sapidissima*) and Atlantic salmon (*Salmo salar*), which presently are only able to return to the Pawcatuck River to spawn, once immigrated into the Blackstone and Pawtuxet Rivers before impassible dams at the mouths of these rivers blocked their access and, consequently, are no longer found in these systems.

Numerous dams on the Blackstone and Pawtuxet Rivers have impeded the upstream migrations of the American eel (*Anguilla rostrata*) from Narragansett Bay in these two large watersheds (bottom map), which can be noted by the absence of dots in the upper half of the map.

The fragmentation of lotic habitat by dams and culverts has also impeded or blocked the movement of non-diadromous riverine species to habitat critical to their existence. Species such as the brook trout (resident populations) and white sucker (*Catostomus commersoni*) regularly migrate to and from areas having preferred spawning, over-wintering, or feeding habitat.

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## The ARE Program: A Wealth of Resources for RI Teachers by Kimberly Sullivan



For over 25 years the DEM Division of Fish and Wildlife has offered environmental education opportunities to people of all ages via the Aquatic Resource Education (ARE) program. This program is fully funded by the Sportfish Restoration Program from the US Fish and Wildlife Service. The many classes offered provide Rhode Islanders with a chance to become stewards of their waterways through a variety of teacher training workshops, fishing and fly-tying classes, ecological and conservation programs, aquaculture programming, and appearances at various shows and events. This article serves as an overview of the various types of programming available through the Aquatic Resource Education program. If you would like further information, please

contact Kimberly Sullivan, the ARE Coordinator, at [kimberly.sullivan@dem.ri.gov](mailto:kimberly.sullivan@dem.ri.gov) or 401-539-7333. For upcoming ARE events, visit <http://www.dem.ri.gov/programs/bnatres/fishwild/fwevents.htm>.



### Learn To Fish!

Whether you are looking to bring a group to fish or learn the art of fly tying, the ARE program has much to offer. Our fishing programs are focused on teaching stewardship using safe, responsible fishing techniques.

**Group Freshwater Fishing:** The ARE pond located at the Carolina Trout Hatchery offers a safe and wheel-chair accessible location to teach young and old to spin-cast. Trained personnel teach the basics of fishing and the location easily hosts groups of 10-25 people. The program is free of charge and we provide all bait, rods, and tackle.

**Surf Fishing:** As the Ocean State, Rhode Island has miles of coastline and plentiful populations of migrating Striped Bass and Bluefish. The ARE program hosts evening surf casting programs throughout the spring, summer and fall. These workshops are designed to acquaint you with various methods of marine fishing, including the type of equipment needed and basic knots needed for fishing, and then provide you with hands-on casting and fishing experience. Families with children over 10 are welcome. Fee applies.

**Ice Fishing:** Too cold to fish? Nah... not when there is safe ice on the ponds. Held on Saturday mornings in the winter, this program is a crash course in ice fishing, covering all the basics from ice safety to the equipment and bait needed for a fun day of fishing. Depending on ice conditions, participants will be able to fish for bass and trout in a stocked pond.

**Fly Fishing:** The ARE Fly Fishing class offers training in both freshwater and saltwater fly fishing. The all day programs give participants a chance to learn about the art of fly fishing, what they need to get out on the water, how to tie a fly, and how to cast. Trained volunteer instructors work with participants and help them fish local waterways. Families with children over 10 are welcome. Fee applies.

**Fly Tying:** As the weather turns cold, the ARE program offers chances to tie flies for your springtime fishing ventures. The annual Fall Fly Tying series allows beginner and intermediate fly fishers the opportunity to tie flies for the upcoming fishing season through a number of evening classes. Fee applies.



### Free Teacher Training Workshops



The ARE program offers *free* teacher training workshops to Rhode Island's teachers, camp counselors, scout leaders, and other interested instructors in various curricula including the popular *Project WILD/ WILD Aquatic, WOW! The Wonders of Wetlands, Project WET*, and the new pre-school curriculum *Growing Up WILD*. These 3 or 6 hour workshops offer teachers Pre K-12 opportunities to teach students about the environment with fun and engaging activities.

The ARE program also trains middle and high school teachers in the experiential *Salmon in the Classroom* and *Trout in the Classroom* projects. Elementary teachers can be trained in the *Raising Horseshoe Crabs*. These unique programs offer students a chance to learn about and raise living aquatic creatures in the classroom and then release them into Rhode Island's beautiful streams, rivers and bays.

### Marine Ecology, Freshwater Ecology & Conservation Programs

Take your class or scout troop on an adventure to one of Rhode Island's natural resources. Whether you are interested in the marine communities along the coastline or in local streams, we can help.



**Beach Exploration and Salt Marsh Tour:** For over 20 years we have been bringing groups to Point Judith Pond and Succotash Salt Marsh by the Jerusalem Coastal Lab. This area provides a safe place for students to explore the creatures of the sea and salt marsh. Children participate in beach seining, a walk through the marsh and a scavenger hunt. The 3-hour program allows ample time for students to get a hands-on look at a variety of Rhode Island's marine habitats.

**Water Quality:** If you are interested in the quality of your local freshwater stream, the ARE Coordinator can suggest safe spots for water testing and lead your group on an exploration of the various creatures that live there and explain how biologists can use these critters to determine water quality.

**Fish Ladders:** Wonder what all those fishways are doing in your local streams and rivers? The ARE program has recently added a 'Ladder Tour' to its list of available activities. The tour covers the history of Rhode Island streams, the purpose of dams, what effects the dams have on fish populations, and the purpose and dynamics of the fishways.

**Kids Corner!** Presented by the Aquatic Resource Education Program



Photo: A. Wilson

Winter is here! That means skating, sledding, and building snowmen! As you warm up with a nice cup of hot chocolate, take a look outside your window at the cold and snow covered ground. Where are the animals? How do they warm up? What are the birds doing? While some animals hibernate and others migrate to warmer climates, some birds come to New England to wait out the winter. Check them out! **WILD BIRD MATCH:** Who might stop by your feeder? Some Can you match the bird name to its picture? Place the number of the picture next to its name: **Answers on page 3.**

Cardinal \_\_\_\_\_,

Blue Jay \_\_\_\_\_,

Black-Capped Chickadee \_\_\_\_\_,

Tufted Titmouse \_\_\_\_\_,

Dark-Eyed Junco \_\_\_\_\_



Photo: K. Thomas



Photo: MDF



Photo: K. Thomas



Photo: USFWS



**Wild Craft: Make a bird feeder and invite the birds to your house!**

**Bird Feeder #1**

Materials: Large Pine cone, String, Peanut Butter, Birdseed.



1. Attach string to pine cone.
2. Spread peanut butter all over pine cone.
3. Roll pinecone in birdseed.
4. Hang from a tree and watch the birds eat!

**Bird Feeder #2**

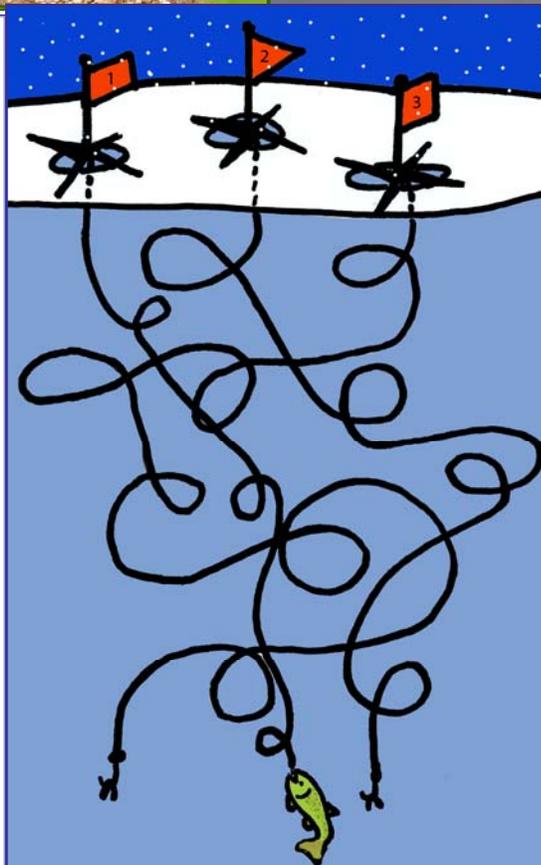
Materials: Orange, string, peanut butter, birdseed.

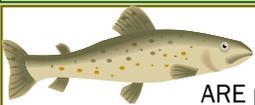


1. Cut orange in half and hollow out the rind so that it makes a bowl shape.
2. Attach string to each half of orange rind.
3. Spread plenty of peanut butter on the inside of the orange rind.
3. Fill the orange bowl with bird seed
4. Place in a tree or on a picnic table

**LET'S GO ICE FISHING!**

Three friends set up ice fishing rigs over 3 different holes. One caught a fish but the fish tangled up all 3 lines. The 3 flags went up but who caught the fish? Trace the lines to find out who caught the fish.. **Come Ice fish with us on Saturday, January 29, 2011, 9am-12pm. See calendar on page 8 for more info.**





### Aquaculture Education

From in-school programs to hatchery tours, the ARE program can help your students explore the many possibilities of freshwater and marine aquaculture. Our successful *Salmon in the Classroom* and *Trout in the Classroom* programs offer middle and high school teachers hands-on tools to teach the life history and biology necessary to raise these cold water fish. Schools are given the equipment to raise the fish from eggs to fry and then, when ready students travel to the stocking site, conduct a variety of water tests and put their fish in the water. As a marine counterpart, the ARE program provides elementary schools with a chance to raise horseshoe crab eggs with a field trip to the Jerusalem Coastal Lab where students explore the marine environment and stock their hatched horseshoe crabs.

The ARE program also provides group tours of Lafayette Trout Hatchery which introduces students to the inner workings of a trout hatchery, discusses the needs of trout, and the benefits of the hatchery. Each tour is tailored to the specific age group and to the needs of the instructor. The Aquatic Resource Education program would not be able to offer its variety of programs without the help of many volunteers including specialty instructors, teacher volunteers, and school and community volunteers. Their time and effort provides match to fund these programs.

## Calendar January–March 2011

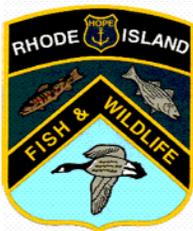
**January 13-16 2011 Providence Boat Show** at the RI Convention Center. For more information visit [www.providenceboatshow.com](http://www.providenceboatshow.com).

**January 29 – Lets Go Ice Fishing 2011!** An educational experience offered by the Aquatic Resource Education Program. Held at the Carolina Hatchery on a stocked pond. Families with children ages 6 and older are welcome. All gear and hot chocolate included. Fee is \$10 for the first person any additional people are \$5 each. Registration required. Please contact Kimberly Sullivan at [Kimberly.sullivan@dem.ri.gov](mailto:Kimberly.sullivan@dem.ri.gov) or (401) 539-7333.

*The Division of Fish and Wildlife wishes you a  
Happy and Safe New Year.  
Go Wild!*



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### Wild Rhode Island

*A Quarterly Publication from the Division of Fish and Wildlife*

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### Attention! Fluorescent Orange Requirements

All users of state management areas (e.g. hikers, cyclists, horseback riders) are required to wear 500 square inches of daylight fluorescent orange during shotgun deer season (12/5/2010 through 1/16/2010, with additional dates on Block Island in 2010). Additionally, all users of State Management Areas are required to wear 200 square inches of solid daylight fluorescent orange (generally, a baseball hat) from the third Saturday in October to the last day of February and the last Thursday in April to the last day in May.

TO:



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