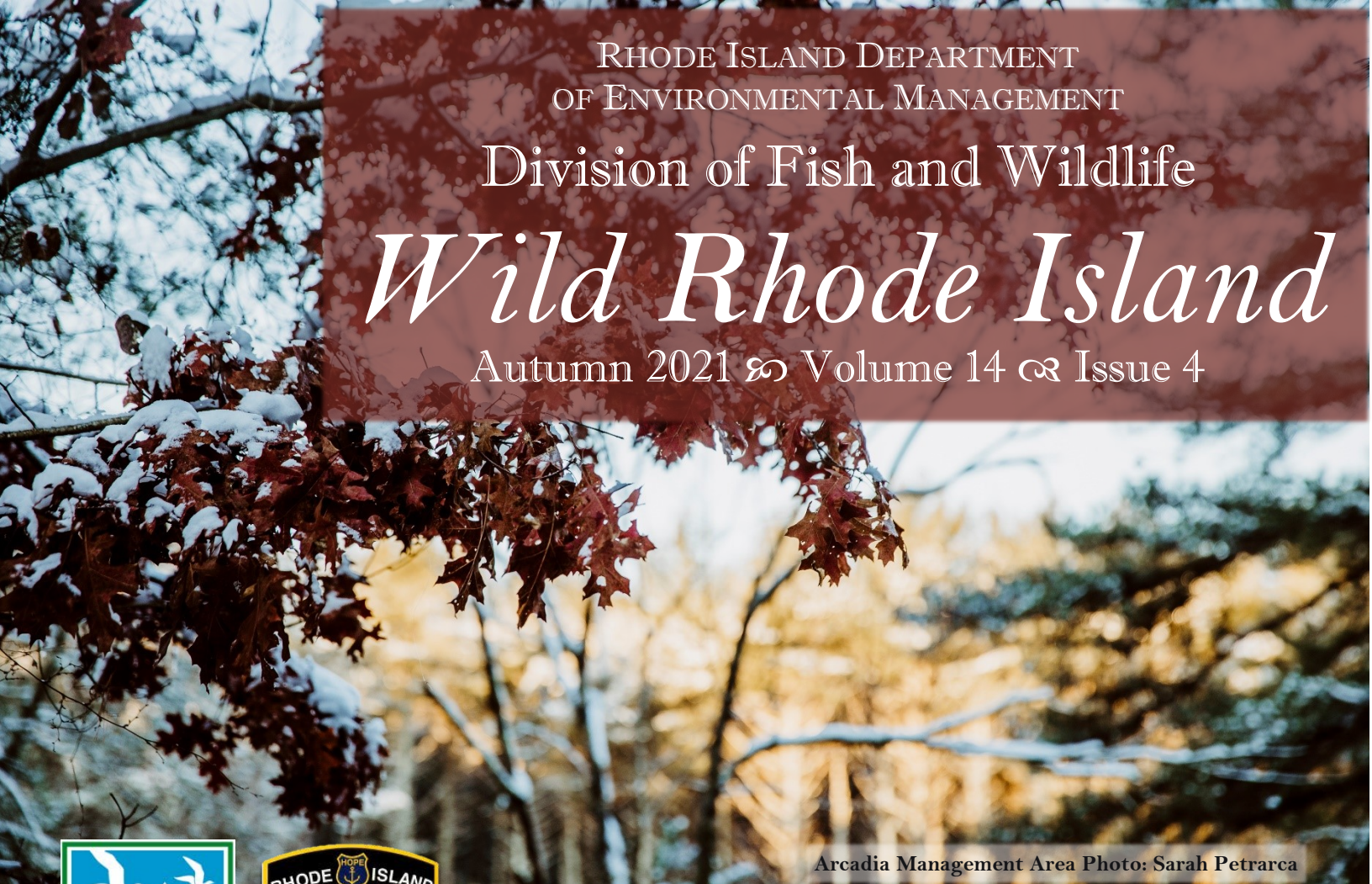
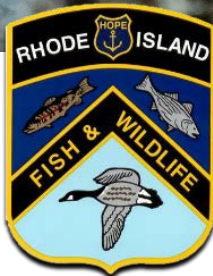


Wild Rhode Island

Autumn 2021 ∞ Volume 14 ∞ Issue 4



Arcadia Management Area Photo: Sarah Petrarca



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Hot on the Tail of Trout: Brook Trout Research Kicks Off First Season

By: Carissa Charboneau, Seasonal Fisheries Biotechnician, DFW

Brook trout (*Salvelinus fontinalis*) are known as an indicator species. Indicator species play an important role for conservation and management since their status can reflect habitat quality and environmental changes. The absence of brook trout may be indicative of poor water quality and deteriorating habitat due to the species' inability to tolerate high-water temperature and low oxygen levels specifically (USFWS 2020; National Park Service 2015). Brook trout act as "the canary in the coal mine," indicating impacts to other species reliant on similar habitat qualities. Due to this relationship, the conservation of brook trout has far reaching benefits beyond the species alone. As a species of greatest conservation need (SGCN) in the [Rhode Island Wildlife Action Plan](#), brook trout populations are continually being monitored and fishing regulations are being revised based on current, best-supported science. Brook trout travel

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THE DIVISION OF FISH AND WILDLIFE
MISSION STATEMENT

Our mission is to ensure that the freshwater, wildlife, and marine resources of the state of Rhode Island will be conserved and managed for equitable and sustainable use.



Carolina Management Area. Photo courtesy of Mike Stultz



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AN INSIDE LOOK AT THE TAGGING AND TRACKING RESEARCH BEING DONE WITH BROOK TROUT IN RHODE ISLAND'S RIVER SYSTEMS.

WILDLIFE MANAGEMENT AREA VS. STATE PARK.....3



LEARN THE DIFFERENCE BETWEEN A WMA AND A STATE PARK, AND WHAT THE PRIMARY FUNCTIONS OF THESE STATE LANDS ARE.

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DFW IS EXPANDING AND WELCOMING NEW STAFF FOR OUR GROWING NEEDS, MEET THE NEW BIOLOGISTS AND STAFF.

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LEARN MORE ABOUT THIS FASCINATING NATIVE RODENT, WHERE THEY CAN BE FOUND, AND ABOUT THEIR LIFE HISTORY.

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OVER THE NEXT FEW YEARS, RI HUNTING, FISHING AND TRAPPING LICENSE COSTS WILL INCREASE SLIGHTLY, LEARN MORE ABOUT THESE CHANGES.

2021 HUNTING REGULATIONS GUIDE.....12



PICK UP OR DOWNLOAD A COPY OF THIS YEAR'S REGS GUIDE AT SPORTING SHOPS AROUND THE STATE, ON YOUR COMPUTER, OR SMART PHONE.

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WHAT IS THE DIFFERENCE BETWEEN A WILDLIFE MANAGEMENT AREA AND A STATE PARK?

State Parks are operated by the Rhode Island Department of Environmental Management (RIDEM) Division of Parks and Recreation (“Parks”) with the mission to provide all Rhode Island residents and visitors the opportunity to enjoy a diverse mix of well-maintained, scenic, safe and accessible facilities. To offer a variety of outdoor recreational opportunities and programming which may benefit and enhance our quality of life. Parks aims to provide a beautiful space for public use. They have well-defined trails that are marked for recreational use and many provide food and recreation concessions such as horseback riding, kayak rentals, beachside snack bars or food trucks. Some of the more popular State Parks include Lincoln Woods, Ft. Wetherill, Goddard Park, and more. To learn more about State Parks visit: www.riparks.com



Goddard State Park, with maintained, accessible walking paths, golf course, food trucks, beach access, bridle trails, and more for public use and enjoyment.

Wildlife Management Areas (“WMA”) are operated by the RIDEM Division of Fish and Wildlife (DFW), with the mission to “ensure that the freshwater and wildlife resources of the state of Rhode Island will be conserved and managed for equitable and sustainable use.” These areas are designed to support wildlife, so there aren’t many marked or well-manicured trails, aside from access roads. There are no public buildings or restrooms and use is limited in order to protect the sensitive habitats and wildlife within.



Arcadia Management Area has maintained but minimally marked trails throughout to allow hunters, trappers, anglers and researchers access to areas throughout, while maximizing unaltered habitat for both game and non-game wildlife species.

As Veronica Masson, DFW’s Federal Aid Coordinator explains, “land acquisition and maintenance are supported by the federal Wildlife and Sportfish Restoration Program (“WSFR”) Wildlife Restoration Act ... a user pay, user benefit funding stream, that is administered through the U.S. Fish & Wildlife Service (USFWS), and contributes to one of the most successful conservation programs in the world. Through this program, hunters and sports shooters pay excise taxes on specific hunting and shooting products. Those funds are then distributed to the State Fish and Wildlife Agencies to support their wildlife programs. Only a small percentage of RI General Funds dollars (about 6% of our total budget) are used by DFW, and those are only used to support tasks that are not allowable under WSFR



funding, such as the development of regulations.” Without this funding source, our agency would not be able to acquire land specifically set aside for wildlife – both game and non-game species alike. Without these areas set aside as habitat, there would be very little space remaining for wildlife as development increases in our state.

Some of these areas include Arcadia Wildlife Management Area, Great Swamp Management Area, Buck Hill Management Area, and others. Hunters, anglers, researchers, hikers, and nature enthusiasts



Management Areas provide vital habitat for Rhode Island's wildlife. Photo: Dean Birch



Colt State Park, Bristol, R.I. Photo: M. Stultz

are welcome visitors, so long as they are respectful of the land. All users of State WMAs and Undeveloped State Parks (“USPs”) must wear fluorescent orange during the hunting season. For more information, see the DFW hunting regulations at: www.eregulations/rhodeisland. For more information about Wildlife Management Areas in Rhode Island, please visit www.dem.ri.gov or email DEM.DFW@dem.ri.gov or call 401.789.0281.



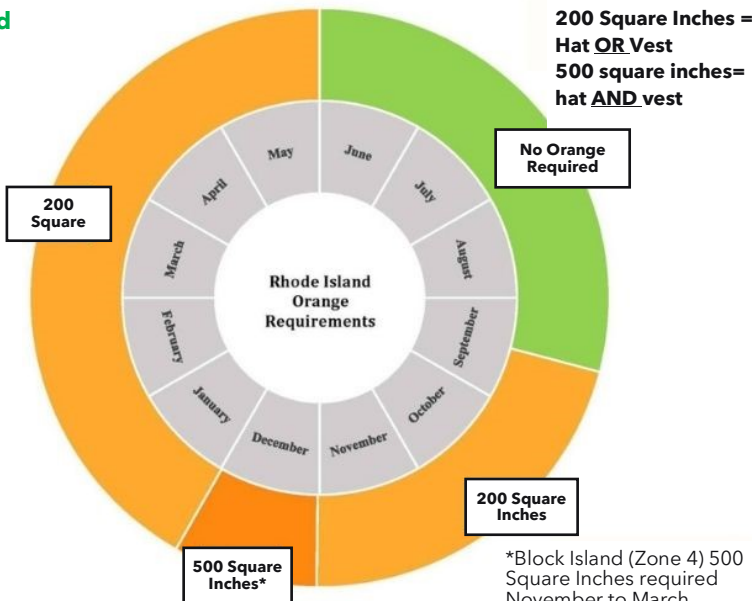
HUNTING SEASON STARTS IN SEPTEMBER FLUORESCENT ORANGE REQUIRED

IN STATE WILDLIFE MANAGEMENT AREAS DURING HUNTING SEASONS

No orange required
June to the second
Saturday in
September

200 square inches
required the 2nd
Saturday in
September to the last
day of February, and
the 3rd Saturday in
April to the last day in
May

500 square inches of
orange required
during shotgun
season



- All users of state wildlife management areas and undeveloped state parks are required to wear at least 200 square inches of solid fluorescent orange during the hunting season.
- It MUST be: solid, fluorescent (safety) orange, worn above the waist. This is to make you visible to others using the management area and to keep everyone safe.

For more detailed information visit:

<http://www.eregulations.com>

*Exceptions apply to some hunters, for more information, see the link above, or email DEM.DFW@dem.ri.gov

RIDEM DIVISION OF FISH & WILDLIFE

WELCOMES NEW STAFF

AMANDA CUGNO- LANDS & COMPLIANCE MANAGER



Amanda has recently been hired as the Division's Lands & Compliance Manager, and as such will be monitoring the agency's property throughout the state—including management areas, boat launches, and fishing areas. She will also be developing and implementing administrative and organizational programs to support the work of our state biologists and ensure transparency between our agency and its federal partners.

Amanda is returning to the agency from her position as a wildlife technician a few years prior, where she aided in the development of our wildlife outreach program, assisted in coordinating our volunteer programs, and supported our wildlife management projects with state biologists. Following the first leg of her journey with the Division, Amanda served in a federal capacity with the U.S. Department of Agriculture on an invasive forest pest eradication program in Massachusetts. Here, she led multiple internal and external projects to implement best practices and enhance the production of the program.

"I'm excited to be back at Fish & Wildlife with the opportunity to support our programs and employees in this capacity. This is a unique agency and I'm happy to be returning to a group of people I thoroughly enjoy working with and for whom I have the utmost respect."

JOHN VEALE- HABITAT BIOLOGIST

John Veale grew up in Western Massachusetts a short drive from the Berkshires, where from an early age he was taught about the outdoors by his parents and neighbors. He grew up fishing, hiking, canoeing, hunting and sport shooting with his family and friends. He attended college at the University of Rhode Island (URI) in Kingston and obtained his Bachelor's degree in Wildlife and Conservation Biology in 2006. He spent several years working as a technician for the United States Fish and Wildlife Service; Connecticut DEEP; RI DFW, URI, and the University of Nevada, Reno.

In addition, he spent time with Massachusetts Division of Fish and Wildlife as their Chronic Wasting Disease Program Coordinator. Most recently, he spent six years working with the US Fish and Wildlife Service in Rhode Island as lead shorebird technician and hunting coordinator, and contributed to habitat planning, prescribed burning, and a variety of additional projects. This included wildland fire details in Idaho, and several prescribed fire details throughout the region. Professionally, his interests lie in habitat management to promote both game and nongame wildlife production and encouraging public use. Currently, he is pursuing a Master's degree from the University of Rhode Island in Environmental Policy and Management, with an additional certificate in GIS and Remote Sensing. In his free time, he enjoys upland bird hunting with his German shorthair, fishing, and hiking in Rhode Island as well as Maine, New Hampshire and Vermont.



Species Spotlight:

Muskrat (*Ondatra zibethicus*)

By Colleen Kracik, Clerical Support Aide, and Charles Brown, Furbearer Biologist, DFW

As you explore the wetlands around Rhode Island, you might spy a furry shape gliding through the water. Perhaps you'll see it stopping to nibble on some cattail roots as it continues on its way.

The muskrat is a semi-aquatic mammal species native in Rhode Island. Smaller than a beaver, they are around 20-24 inches long, with about 9 inches of that length being their tail. Although sometimes mistaken for beavers, they are not nearly as large, and are not closely related. Muskrats, like beavers, are rodents and are a part of the order *Rodentia*. They are the only member of the genus *Ondatra*. Their common name comes from the musky smelling fluid they excrete during the breeding season to mark their territory.

Muskrat fur is dense and waterproof, with two layers to help them stay both warm and dry. Their fur also traps air to help aid in buoyancy while swimming. Unlike a beaver, their tails are vertically

flattened, and are used as a rudder to propel them through the water. They are aided by their partially webbed hind feet and their ability to stay underwater from 12-20 minutes at a time. They can reach speeds of three miles an hour underwater but can be ungainly on land. You can identify their tracks by looking for their larger, slightly webbed back feet, and occasional marks of tail drags in mud.

Muskrats are omnivorous, but primarily feed on the roots and stems of aquatic vegetation like cattails, horsetails, watermilfoil and pondweed. Their lips close behind their incisors, to allow for gnawing underwater. They will also occasionally feed on freshwater mussels and crustaceans; middens of empty mussel shells piled along the river bank are evidence of muskrat feeding. Muskrats consume about a third of their body weight in food a day, and can be active any time of day, although they are active primarily from mid-afternoon until just after dusk. Threats to muskrats include flooding and habitat loss, as well as predation; they are a valuable food source for mink, birds of prey, coyotes, foxes and other predators.

Muskrats are found across North America, from Canada and Alaska throughout the United States, except for some parts of the southern U.S. They occur in freshwater and brackish water, including lakes, ponds, marshes and streams. They make their homes by digging burrows in banks and levees or making a lodge out of vegetation. The inner chambers of the den or lodge are above the water line, with the entrance located underwater.

In Rhode Island, muskrats can be found throughout the state, including the larger islands of



Photo: USFWS

Muskrat (Ondatra zibethicus) is smaller than the beaver, and its tail is long and thin, usually seen paddling behind it as it swims.

Narragansett Bay and Block Island.

Aside from being an important and economically valuable furbearer, muskrats help manage the growth of vegetation and algae within their territories, which in turn maintains healthy wetlands. These habitats are important for many species of animals including waterfowl, amphibians, reptiles and insects. Wetlands also act as natural water filters and flood protection; thus protecting muskrats and their habitat has numerous benefits.



Photo: USFWS

Research is currently underway in identifying significant muskrat habitat, and developing better methods to monitor their populations.

Muskrats are one of the most important furbearer species in North America. Recent evidence, primarily harvest data, suggests that muskrat populations are in decline across their range. However, there is little empirical evidence to confirm this, or what causes may be responsible. Muskrats have many predators, they can be susceptible to a number of diseases and parasites, and they can be negatively impacted by pollution, drought conditions, or excessive rain events that impact their habitats.

A single factor has not been identified, but a combination of factors may be responsible for the muskrat decline. In order to get a better understanding of the current status of muskrat populations in Rhode Island, the Division of Fish and Wildlife is funding a research project at the University of Rhode Island. Starting in 2020, John Crockett, a master's student at URI, has been systematically surveying the state's waterbodies to determine the current distribution of muskrats, as well as river otter and beaver. John will attempt to determine what, if any, limiting habitat factors may be affecting muskrat populations, which will help guide all habitat or harvest management decisions by DFW.

❧

Tracking Brook Trout continued from Page 1

within freshwater streams and rivers in response to habitat conditions such as water temperature, dissolved oxygen, and food availability (USFWS N.D.). While they have been found to travel large distances in relation to spawning habitat and preferable conditions, brook trout movement may be disrupted by the presence of barriers such as impoundments (dams) and road culverts (Petty *et al.* 2012; Mahlum *et al.* 2013). In Rhode Island alone, there are over 650 dams which isolate brook trout populations (URI and RIGIS 2016). In many streams throughout Rhode Island where brook trout reside, water temperatures reach well above their preferred levels during summer months. Brook trout experience the most success with water temperatures less than 20°C (68°F), but adults can tolerate temperatures up to about 25°C (National Park Service 2015). RIDEM and the University of Rhode Island (URI) are looking to further understand how wild brook trout move in streams with barriers during periods of increased water temperatures.



Figure 1 Fisheries biologist Corey Pelletier surgically implants a radio transmitter into a wild brook trout. Photo credit: Carissa Charbonneau

a one-centimeter incision was made behind each fish's pectoral fin along the belly. A hollow needle was inserted behind the incision and the antenna of each tag was threaded through the needle while the tag was inserted into the fish (Fig. 1). The incision was then sutured and tagged fish were placed into an aerated pool of freshwater to be monitored post-procedure (Fig. 2). Once the fish regain full consciousness, they were released back into the stream site from which they were caught. In total, the team implanted 75 radio transmitters into wild brook trout.

After the fish were tagged and released, the goal was to track each study site once per week and record the location of each fish. The team utilized a method known as radio telemetry, described as using "radio signals, which are made up of invisible and silent electromagnetic waves, to determine location" (Smithsonian 2018). Each implanted tag was set to emit a signal at five second intervals for the lifespan of the tag (approximately 100 days). The researchers hiked and bush-whacked several miles alongside streams, equipped with an antenna and radio receiver designed to pick up signals from the tags. This was often challenging, as most sites were located within heavily wooded areas with thick vegetation. Some days, tracking was accomplished while floating a stream reach in canoes and kayaks. When the tracker got within range of a tagged fish, the receiver would begin to

At the start of the 2021 field season, Corey Pelletier, a fisheries biologist with RIDEM Division of Fish and Wildlife (DFW), along with a team of URI students and seasonal DFW employees, began the process of tagging and tracking wild brook trout in four stream reaches located within the Wood and Beaver River watersheds. All stream reaches selected for the study contained at least one barrier. A backpack electrofisher, a piece of specialized equipment that emits an electric charge into the water to stun fish, was used to collect brook trout for tagging. Post-collection, fish were anesthetized in order to handle them for data collection and tag implantation. Length and weight were recorded prior to the surgical procedure. To implant the tag,



Figure 3 A dropped tag recovered during tracking. Photo credit: Carissa Charbonneau

beep. The signal strength and volume of the beep became stronger and louder as the distance between the tracker and fish narrowed. This turned out to be a delicate process as brook trout are naturally very skittish so too much movement or noise when near the riverbank could easily spook them. The team had to cautiously approach the river in order to triangulate and pinpoint the precise location of the tagged fish. Once confident we had pinpointed the source of the signal, and therefore the location of the fish, the location was marked in a GPS, and habitat data was collected. This data included the water temperature, velocity, dissolved oxygen, substrate, etc. This same process was repeated over the course of the summer through all weather conditions, including rainstorms and heat waves. Tracking concluded at the end of August, just prior to the end of the tag lifespan.

Of the 75 fish initially tagged between the end of May and beginning of June, 63 have been located at least once, and two fish have been recorded fourteen times (the maximum). The 63 recorded fish moved varying distances up to 4 miles over the course of the tracking period. In addition to the twelve fish never recorded, several tags were recovered from the streams that had fallen out of tagged fish (Fig. 3). We believe that the fish which were never recorded or only recorded few times went missing as a result of predation or migration out of the study sites. It is possible that dropped tags fell out of the trout as a result of improper healing or getting caught and pulled out by debris. The highest water temperature recorded by the team was 27.4°C (81.3°F), potentially lethal for the species. A handful of fish remained within the study sites for much of the summer, despite warm water temperatures surrounding their location. These fish were typically in and around cold-water sources. Due to their upstream movement being impeded by barriers, a downstream pattern of movement was followed by all tracked fish.

Now that the tracking period is complete, the compiled GPS points will be mapped on a computer program called ArcGIS, which will allow for Pelletier to analyze the movement of the tagged trout. All habitat data collected will undergo statistical analysis to explore the relationships between habitat conditions, specifically water temperature, and where trout moved throughout the season. The results of this study will help to improve future monitoring efforts and implement management actions to further protect brook trout and their habitats. Such benefits will also extend to other freshwater species that belong to the same ecosystem.

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*Figure 2 Aerated pool of freshwater to monitor brook trout post-operation.
Photo credit: Carissa Charbonneau*



Stocked Trout at Lincoln Woods State Park



Wildlife Outreach Program Field Trip



NE Cottontail Being Fitted with a Radio Collar



Fish Hatchery Tour

RI DIVISION FISH & WILDLIFE

FISH AND WILDLIFE LICENSE AND PERMIT FEES

FY2022 BUDGET PROPOSAL

DEM’s Division of Fish and Wildlife supports a long tradition of fishing, hunting, and outdoor recreation funded through fishing and hunting license fees matched by federal dollars. This budget proposal will provide additional state match for federal funding, increasing the Division’s ability to conserve and manage fish and wildlife and carry out projects that benefit the outdoor community.

Division of Fish and Wildlife shares management responsibility of more than 60,000 acres of land distributed across 15 towns and all counties and is responsible for managing thousands of species of wildlife, including freshwater species. The Division serves a wide and diverse segment of the public from outdoor recreationists — such as hunters, hikers, mountain bikers, and wildlife watchers — to the general public and municipalities concerned with nuisance wildlife.

Hunting and fishing are more than just traditional pastimes in Rhode Island — they contribute more than \$235 million to our economy.

Hunters and anglers purchase close to 70,000 licenses, permits, stamps, and tags each year, and revenue generated from license and permit sale supports RI fish and wildlife conservation programs. A critical source of funding, these monies are leveraged to match federal Wildlife and Sport Fish Restoration Program dollars that support outdoor recreational opportunities for fishing, hunting, and boating in Rhode Island.

There are over 9,000 licensed hunters in Rhode Island, whose license and permit revenue is used to match federal funds. This user pay/public benefit model is extremely successful because our sportsmen and women, and the industries that serve them, have historically been willing to commit the resources necessary to protect, enhance, and expand Rhode is extremely successful because our sportsmen and women, and the industries that serve them, have historically been willing to commit the resources necessary to protect, enhance, and expand Rhode Island’ conservations, hunting, and shooting heritage.

DEM has changed the fees associated with many fish and wildlife licenses and permits to generate additional revenue for the Division of Fish and wildlife and to provide matching funds for federal funding.

- To minimize impact on hunters and anglers, the fees will increase over an eight-year period in three steps taking place in 2021, 2025, and 2028.
- These increases will better align RI fish and wildlife fees with those in other states.
- Most fees associated with the fish and wildlife licenses and permits have not been increased since 2003 or before.
- Fees for disabled and senior (65+) licenses will not increase.
- The fee increases will generate over \$60,000 in new restricted receipt revenue after the first step, over \$185,000 per year after the second step, and over \$300,000 per year after the third step.
- New revenue will leverage federal funding (3:1 match) that can be used for a variety of projects benefitting hunters and anglers

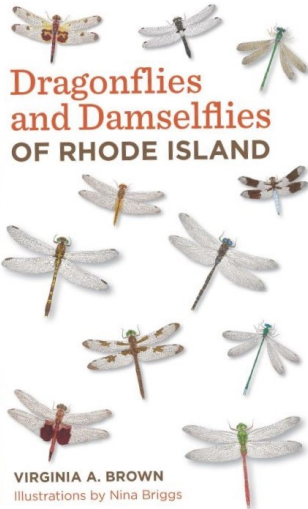
In addition to wildlife research and monitoring programs that include migratory birds, New England cottontails, and predator species like bobcats and coyotes, the Division also spearheads projects that expand hunting and fishing opportunities in Rhode Island. Completed projects include a renovation of the Great Swamp Shooting Range in West Kingston, wheelchair-accessible boat ramp upgrades at Echo Lake, Indian Lake, Watchaug Pond, and Goddard Memorial State Park, conservation of more than 400 acres of management land over the last four years, and expansion of education programs that include a wild game cooking class, mentored youth hunts for wild turkey and waterflow, year-round fishing programs, and a Division-run Instagram page.



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Questions? Contact Ryan Mulcahey, DEM Legislative Liaison at 401-222-4700 x 2772038 or Ryan.Mulcahey@dem.ri.gov

Three publications available for purchase from the RIDEM Division of Fish & Wildlife



Dragonflies and Damselflies of Rhode Island By: Virginia Brown, Illustrated by Nina Briggs

Dragonflies and Damselflies of Rhode Island, a compilation of three decades of inventorying and monitoring dragonflies and damselflies inhabiting the state. This is the first time these species have been comprehensively compiled and identified in a publication specific to Rhode Island.

Price: \$20.00 purchase by mail (check or money order only). Order form available by emailing DEM.DFW@dem.ri.gov or from:

<http://www.dem.ri.gov/programs/fish-wildlife/publications/index.php>

Amphibians of Rhode Island



Christopher J. Raithel

Amphibians of Rhode Island By: Christopher J. Raithel

This book provides meticulous accounts of the state's native frogs, toads, and salamanders and their respective habitats, and includes crisp, vivid photography depicting the amphibians' multiple life stages. It combines an exhaustive search of the historical record and four decades of study to present complete information on the statewide distribution, life history, research needs, and conservation status of each species.

Price: \$25.00 purchase by mail (check or money order only). Order form available by emailing DEM.DFW@dem.ri.gov or from:

<http://www.dem.ri.gov/programs/fish-wildlife/publications/index.php>

Inland Fishes of Rhode Island



by Alan D. Libby

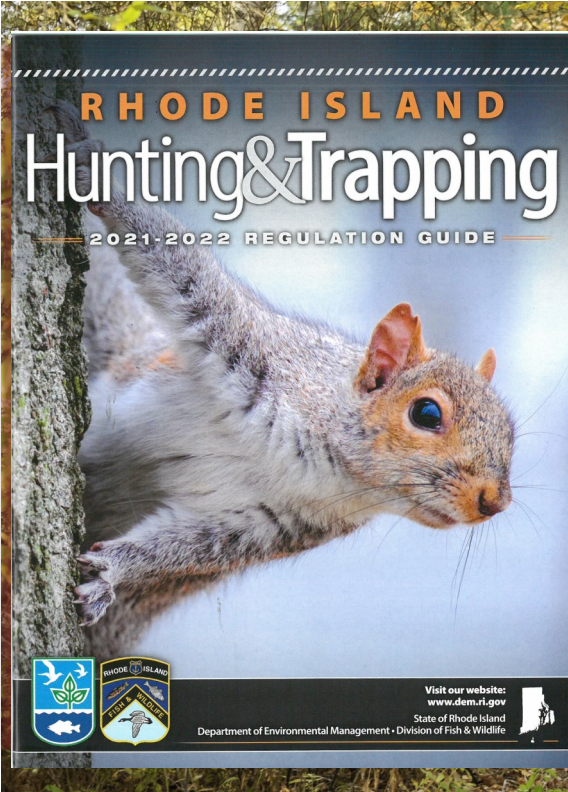
Illustrations by Robert Jon Golder

Inland Fishes of Rhode Island By: Alan Libby

This publication describes the more than 70 fishes found in the fresh and brackish waters of Rhode Island. Filled with beautiful color and black and white scientific illustrations, each fish is addressed with a detailed description and color location map. Included are descriptions of the variety of freshwater habitats found in Rhode Island and the methodology used to carry out the field work that has led to this publication.

Price: \$18.75 purchase by mail (check or money order only). Order form available by emailing DEM.DFW@dem.ri.gov or from:

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