Promoting research, education and stewardship throughout the Great Bay Estuary
GET TO KNOW GREAT BAY

2 animals in New Hampshire that turn white in the winter

Outgoing Night Tides:
best • for • smelt • fishing

True Hibernators
woodchucks, bats and jumping mice

January-March:
❤❤
mating season of the red fox

Black Ducks and Greater Scaup:
winter on Great Bay

snowshoe hare  short-tailed weasel

juvenile horseshoe crabs are more active at night
By early November each year, we have turned back the clocks and pulled out our sweaters. Appreciating New England is tough those first few weeks of the dark, cold weather; the days at the beach or lake are long gone, the brilliant foliage is over, and the real fun of snow sports has not yet begun. But if we wish away the cold and the dark, we wish away half of each day and half of our year here in New Hampshire. This issue of Great Bay Matters is all about embracing the cold dark night. Night skies are becoming more precious and rare, as so many places on earth are flooded with electricity at all times. The National Parks Service considers dark night skies a nationally significant natural resource; half of the species on earth are nocturnal, and the absence of light is essential to their habitat. People may be diurnal, but there is much to see and appreciate when the sun is down and the temperatures plunge. I challenge every reader to bundle up and take a walk in the woods at night this month and immerse yourself in a fresh perspective of Great Bay; gaze at the same stars the Abenaki tribe used to navigate the shores of the estuary, listen for the call of an owl or the howl of a coyote, and feel the brisk wind sting your eyes.

Cory Riley, Reserve Manager, GBNERR

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Well, here it is again: January. It’s cold; the wind burns on the skin and the sun offers little warmth… but adds a crystalline sparkle to the snowy fields and ice-covered waters on and around Great Bay—a beauty worth visiting.

Circling the Bay is a necklace of parks, preserves, refuges and other public lands that allow winter activities like snowshoeing, skating and cross-country skiing and offer the intrepid some spectacular views and encounters. The sight, for instance, of a bald eagle, a fish plucked from icy Bay waters flapping in its talons, settling on an ice floe for breakfast is transporting, taking us into the wild.

And yet this wild is available close by, from Great Bay shorelines at places like the Great Bay National Wildlife Refuge in Newington or the Adams Point Wildlife Management Area in Durham or the boardwalk at the Great Bay Discovery Center in Greenland.

Also in Stratham, on the bank of the Squamscott River, is Chapman’s Landing. While the landing isn’t maintained for winter use (only a small portion of the parking lot is usually plowed), the viewing platform at the back of the Stratham Community Wildlife Garden (a Reserve property) has one of the nicest nighttime views of the Bay—a lot of celestial splendor for not much investment.

For sheer nighttime beauty, however, The Nature Conservancy’s Lubberland Creek Preserve’s Bay-side fields and meadows are hard to beat. The Preserve has the distinction of being a place you can enjoy at night, unlike many of the other public spaces around the Bay; most parks and refuges close at sundown.

Located off Bay Road in Newmarket, the Preserve’s 120 acres feature both salt marsh and upland forest, providing a sanctuary of darkness away from bright lights/big city (though Portsmouth and communities east and south do contribute light pollution). There’s a small parking lot at the TNC office; .3 miles further on Bay Road on the left is the small lot for the Sweet Trail entrance; the open fields are just across the road, with less challenging terrain for snowshoeing and cross-country skiing. In addition to moon- or starlit expanses, you may also see wildlife you’re less likely to see during the day.

Further out Bay Road, after it turns into Durham Point Road at Crommet Creek, is Adam’s Point, the dividing line between Great and Little Bay. A variety of vistas from trails along the water and criss-crossing the central ridge, through woods and open fields, include marshes and both bays and the Footman Islands. Skiing, snowshoeing and winter walking are available dawn to dusk, though you’ll want to be cautious on the steep west shore, where narrow trails can be icy.

From the eastern bluffs of Adams Point, looking across Furber Strait, you see the Great Bay National Wildlife Refuge, more than 1000 acres of the former Pease Air Force Base in Newington that is slowly returning to a natural state. In winter, the refuge is home to bald eagles and black ducks as well as increasing populations of turkey, white tailed deer, fox and other woodland creatures. The two-mile Ferry Way Trail takes skiers and snowshoers past a beaver pond, old orchard, open fields and woods on the way to a viewing area on the Bay.
South on NH 33 from Newington, through Greenland, you’ll come full circle to Depot Road and the Great Bay Discovery Center, where the boardwalk is a beautiful winter saunter with a grand view north up the Bay.

Back on Little Bay and the rivers north of Cedar, Dover and Bloody points, where routes 4 and 16 cross the watershed, are still more options, most notably Wagon Hill Farm on the Oyster River in Durham, off NH 4. A town-owned recreation area best known in winter for its sledding hill, it also offers trails for skiing and snowshoeing down to the mouth of the Oyster and views across Little Bay, often full of winter “sea smoke,” toward Adams and Fox points.

A half mile east on Rt. 4 is Back River Road, which leads up toward two other options for winter beauty in fields and forests, the Bellamy River Wildlife Sanctuary and the Bellamy Wildlife Management Area, both in Dover. They have trails available for winter use; it’s best to check to see if parking is available—good advice in general for many of these sites, since their lots may not be priority plowing after a storm.

This is just a small selection of some of what’s available around Great Bay. If you’re lucky enough to live near these beautiful places, make yourself this promise: After a new snowfall, set the next morning aside, put on your base layer, your warm layers, your wind layer, grab your skis or your snowshoes or your warmest walking gear. Show up at your chosen Bay-side destination just at dawn (after all, most of these places are dawn-to-dusk!). The sun hitting the snow-laden tops of the tall pines, turning them a pastel rose or a brilliant orange is an experience you’ll remember …and want to share.

By Bill Burtis

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**Where ever you live and whatever your mode of winter outdoor experience, here are a few tips.**

- Bookmark the websites of recreation/parks websites and keep an eye out for special winter events, including full-moon tours and new-moon stargazing.
- Know before you go: hours, regulations, parking. Call or look online.
- Remember that there are hazards out there; It’s best to go with a companion or at least to tell someone where you’re going and stick to that.
- The trails are for everyone. If you are a walker, try to walk off the cross country ski tracks, tempting as it is to use them for better footing; skiers will appreciate it.
- Even if you’re going out for a quick trip and you know the exercise will keep you warm, take another layer (in a small pack, perhaps) just in case. Near the Bay, it’s always wise to have, if not wear, a windbreaker.
I lived in Panama for several years, latitude 9 north, and I could never get used to the near equal 12 hours of light and dark year round. I found this equal light dark pattern un-nerving, and I couldn’t acclimate to it. I missed being in tune with Earth’s seasonal change.

I came to live and work in NH from Panama. It was early February and I arrived at my temporary residence at a friends’ apartment at about one in the morning. The apartment was in a marina building on Little Bay. It was cold, but the crystal clear sky full of stars made me want to stay outside. While searching for an item in my car, I realized the whole of the northern sky was dancing in lights. The sky was shimmering yellow and green. I was held in a trance. My first night in coastal NH as a resident, a new job and career path ahead of me, exhausted from the drive, yet filled with optimism and hope, and now this gift from the sky. I had never seen the Northern Lights in such brightness and energy. It made me want to dance and cry with joy but I was already frozen as I had no winter clothes and was acclimated to the tropics, and tears might have cemented my death that first night in NH.

This gift, on my first night here as a resident, was the first of many winter nighttime gifts I have received while living here, experiences and memories that I relive often. Nighttime in winter is full of mystery; it puts me in a childlike mindset where everything is new and exciting. At night there is less human produced noise, and in a winter with snow cover the stillness can be exciting as well as mind clearing. At night, vision is taxed, but this narrows one’s focus, allowing us to see what might be missed with a broader easier vision. At night stories can be heard – with low light our eyes take a back seat to our ears and our mind is forced to piece together text from sound. Smells are muted in winter, but when discernable, add to the experience. All of these cold temperature nighttime sensory experiences reset expectations making me feel more alive, making the places I know well in daytime new and different. Being outdoors in winter at night I find my senses searching for stimulus. I slow down and focus, my eyes look longer, smells add clarity, and...
my ears search for a cohesive story in the small disparate sounds.

A few winters ago, a year with abundant snow fall, the top of the bunny fence around my vegetable garden was beneath the snow line. Plant tops remained above the snow and the neighborhood rabbits were a frequent visitor to the garden looking for forage. On a moon lit night, a pair of coyotes was working the neighborhood, and had tracked a rabbit to my garden. The image of the pair working the garden in deep snow in moonlight was another of winter’s night gifts. Like a scene from the far frozen north, the drama of life sustaining life, was now part of my mental record of life here in NH. An experience that would

never have happened had I not been out at night enjoying this place I call home.

This winter during the months of December, January and February, there will be 1,291 hours of darkness and 869 hours of light. Most of us work during the day, with busy routines and multiple responsibilities, and as a result our time options for winter play and recreation will more likely be during the dark hours. This is New England and part of what makes living here so interesting. So get out and play around the Bay, and enjoy the unique recreational opportunities we have here on the seacoast that occur at night.

Steve J. Miller, CTP Coordinator, GBNERR

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**Estuary Almanac**

Eastern Coyote - (*Canis latrans*)

Historical evidence as to the presence of the coyote in the northeast before the 1800s is a mystery. However, in the mid-1900s the Western coyote began to move from the Mid-Western parts of the country into the Northeast, via Canada. The first known sighting of a coyote in New Hampshire was in 1944 in Grafton County. Today, Eastern coyotes are present and common in every county of New Hampshire.

**Natural history**

During the 1800s forested habitats were being converted to pastureland throughout the northeast and simultaneously, Eastern wolves, the coyote’s rival, were treated as vermin often with bounty programs in place, allowing for the migration of Western coyote eastward. Western coyote’s migration travelled into Canada, coming in contact with the Eastern Canadian wolf. It is believed that low population conditions of Eastern wolf prompted reproduction when they otherwise would have preyed upon the Western coyote. The breeding of Western coyote with Eastern wolf developed the Eastern coyote species. Today, there are around 20 subspecies of coyote across the country.

Eastern coyote’s mixed DNA causes a larger body size than the Western coyote and differing behavioral characteristics. Our Eastern coyotes typically weigh 30-50 pounds; almost twice the size of their Western counterparts.

Coyotes are active year-round and though they may be seen at all hours of the day and night, they are mostly active during dawn and dusk. Breeding begins in December and ends in March with pups being born in early spring. During this time they den in areas of dense undergrowth or in rocky crevices until pups are weaned.

**Unique adaptations**

One of the most unique characteristics of the Eastern coyote is its adaptability to varying food sources and habitats. As east coast cities developed, Eastern coyotes have continued to thrive not only in forested areas, but around suburban sprawl – an amazing strength given their originating species’, the Western coyote, natural habitat is the Great Plains.

As the coyote’s range has increased, its diet has followed. They are opportunistic hunters taking advantage of a meal wherever it can be found. Coyotes’ diet can include small mammals, birds, fawns, amphibians, fruits, vegetables, carrion (decaying animals) and garbage, depending upon what may be available.

**Population status in New Hampshire**

New Hampshire’s Eastern coyote population has continued to be stable, with an open hunting season and a well-regulated trapping season.

Colleen McClare, Naturalist, GBNERR
COLLABORATION FOR GREAT BAY

The collaboration between the Great Bay Stewards, GBNERR and Trammo, Inc. was kicked off this fall with Trammo staff members from around the country visiting the Reserve and lending a hand. As part of a $100K multi-year pledge by Trammo to the Reserve, employees from New York City, Florida, Texas, Iowa and New Hampshire, joined together to learn about the Great Bay Ecosystem and the work being done at the Reserve to conserve and protect the estuary.

With shovels and rakes in hand, a new garden was installed at a Reserve property designed to model backyard gardening for wildlife. Invasive species were removed and a variety of perennials and shrubs were planted throughout the property. Employees of Trammo were also treated to a ride aboard the Piscataqua Gundalow and a kayak trip in Great Bay during their visit. “We feel so fortunate that we are part of this collaboration. We got meaningful work done at the Reserve and learned so much about each other,” said Cory Riley, Manager of the Reserve.

Trammo employees work together to prevent the spread of invasive species.

COASTAL RISKS AND HAZARDS COMMISSION APPROVES FINAL REPORT

In November of 2016, the New Hampshire Coastal Risks and Hazards Commission approved a final report and recommendations after nearly three years of work. It reviews the scientific conclusions about future flood risk in coastal New Hampshire, identifies key areas of vulnerability, and makes recommendations to improve coastal resilience and reduce risk. The New Hampshire Coastal Risks and Hazards Commission was established by legislation sponsored by New Hampshire senators David Watters (Dover), Nancy Stiles (Hampton) and Martha Fuller Clark (Portsmouth) in 2013 to “recommend legislation, rules, and other actions to prepare for projected sea-level rise and other coastal watershed hazards… and the risks such hazards pose to municipalities and state assets in New Hampshire.” The Commission’s recommendations focus on refining science-based understanding of coastal flood risks, completing detailed assessments of our vulnerabilities, and implementing actions that protect and adapt our built structures and facilities, our economy, our natural resources, and our heritage. Reserve manager, Cory Riley, represented NH Fish and Game on the Commission and Reserve Coastal Training Program Coordinator, Steve Miller, was the representative to the City of Portsmouth.
Educational Offerings

Winter BAYVENTURES 2017

February Vacation Days

Thursday, March 2nd
Trekking for Tracks
Join us as we look for animals and their “auto-graphs” in different habitats around the Discovery Center...on snowshoes! Over the last couple of years we have identified fisher tracks in the woods and otter tracks on the salt marsh. Take part in winter activities and games and make a craft to take home.

Friday, March 3rd
Winterkids
Do your kids prefer to play inside when it is cold out? Natural landscapes in the outdoors provide rich, diverse, multisensory experiences for free play. As part of a national initiative, let our naturalists provide the opportunity for well supervised, but unstructured play around the Discovery Center grounds. Bundle them up and send them outside with us!

Friday, March 17th
(SAU16 Teacher Workshop Day)
A Taste of Winter
How did Native Americans survive the winter? What did they eat? How did they dress? What did they live in and what did they do during the long winter months? We will spend the morning at our Abenaki campsite making food and crafts like the “People of the Dawn” did along the shores of Great Bay 400 years ago.

Each Bayventure program runs from
10am - 2pm, for ages 6-11
$20 GBS member ● $25 N/M
$5/sibling/program discount

To register for all winter programs email Beth at beth.heckman@wildlife.nh.gov or call 603-778-0015

“Once Upon a Winter Estuary”

For ages 2-5, 10:30 am -11:30 am on select Thursdays in January, February and March

Come dressed ready for some winter wonderland fun outdoors! We’ll start each program outside with activities, games and wintery walks. Following our outdoor exploration, we’ll move inside to warm up with a story, craft and hot cocoa! This series is ideal for youngsters, ages 2-5; $3 per child participant or $5 per family. Pre-registration is required.

January 12th - “No Two Alike” by Keith Baker
Do you feed the birds in winter? Do you know which birds stick around for the cold and which ones migrate? Join us as we look for birds and make a craft to take home to feed the birds in your yard.

January 26th - “Snow” by Manya Stojic ● What do the animals think of winter and how do they spend it? What do they do while it’s snowing? Join us as we look for some critters (or signs of them) and then try our hand at painting some.

February 9th - “Hooray for Snow!” by Kazuo Iwamura ● Do you get excited when you see the snowflakes falling? Come have fun with us as we play in the snow and then head inside to make snow ice cream!

February 23rd - “Stella Queen of the Snow” by Marie-Louise Gay
How many snowflakes are there in a snowball? Do snow angels fly? Has winter ever filled you with questions? Come play in the snow with us and ask away! Join us as we make snow angels and try to listen for a frog snoring!

March 9th - “Who’s Been Here? A Tale in Tracks” by Fran Hodgkins
How can you tell who’s been walking around? Join us as we look for signs of animals that might have been nearby and then make some tracks of your own to take home.

March 23rd - “Winter Trees” by Carole Gerber ● Can you tell the difference between a maple and an oak tree? Join us as we take a walk to find these trees and learn about which animals use them. Then make a project with your favorite leaf to take home.

EXHIBIT ROOM TRAINING
Friday, April 14th, 9am – 11am

SPRING VOLUNTEER EDUCATOR TRAINING
Wednesday, April 12th, 9:30am – 4:30pm
A National Perspective: The Jubilee Phenomenon

While most of us use nighttime to rest and rejuvenate, nature can behave just the opposite. More than a thousand miles away from Great Bay, and close to the Weeks Bay National Estuarine Research Reserve in Alabama, occurs a crazy, wondrous natural event known as the Jubilee. In the wee hours of the night, during the warmest months of the year, residents of Mobile Bay, Alabama eagerly await the cry: “Jubilee”!

During a Jubilee, residents know that they can rush to the shore and find dozens of flounder, pounds of shrimp and bushels of crab ripe for the picking! A Jubilee can occur along a stretch of beach a few hundred yards long, or as long as 10 miles. They can last several hours or just a few minutes.

Although Jubilee events may occur in other areas of the world, Mobile Bay is probably the only body of water on Earth where this phenomenon occurs regularly each summer and is fairly predictable. Researchers at the Weeks Bay NERR understand that a unique combination of conditions cause a Jubilee. Like all Reserves in the System, water quality data collected in Mobile Bay helps to explain and predict when conditions will be just right for a Jubilee.

For a Jubilee to occur a very specific set of conditions must exist. They occur in summer, before sunrise and the previous day must have been overcast and calm with a gentle east wind. A rising tide is necessary, and all these conditions together with an upwelling of oxygen-poor waters will force bottom dwelling fish and crustaceans ashore—literally onto the shore!

Many years ago, only the keenest of observers could predict such events, but today, like many environmental phenomena, the data loggers deployed in estuaries around the nation contribute vital information as part of the System Wide Monitoring Program (SWMP). SWMP occurs in all 28 Reserves and helps Reserve scientists and other coastal planners make informed predictions and decisions about water quality, weather and nutrients as they relate to the health of our estuaries.

If you would like to check out the temperature of the water in Mobile Bay, the barometric pressure during Hurricane Matthew or the salinity of any other estuary within the National Estuarine Research Reserve, simply log on to: http://estuaries.noaa.gov/sciencedata/Data.aspx and dive in!

Volunteer for Great Bay!

- **Brown Bag Lunch Series**: Join us for a public lecture series once a month Jan-March. No RSVP is required and all lectures are free. We provide snacks and drinks; just bring your lunch and learn something new! Topics and dates to be announced soon on greatbay.org/events.

- **Exhibit Room Volunteers**: Greet visitors, assist with the Discovery Tank, and help people learn about Great Bay! Training is April 14. 9am – 11am

- **Volunteer Educators**: Teach school children about the natural history of Great Bay and help shape future stewards of the bay! All training is provided and volunteers sign up for programs that work with their schedule. Training is April 12, 9:30am – 4:30pm

- **Earth Day Workday at Chapman’s Landing**: Help us spruce up the Stratham Community Wildlife Garden at Chapman’s Landing. The garden is a wonderful demonstration area and helps residents see how to create native gardens that provide food and shelter for wildlife. The gardens will need a good spring cleaning, and invasive plants need to be removed. Date and time TBA.

Contact Melissa at melissa.brogle@wildlife.nh.gov or 603-778-0015 with any questions or to register for a training or workday.

The Reserve has two boardwalks. One boardwalk is behind the Reserve Interpretive Center and leads to Weeks Bay; the pitcher plant bog boardwalk connects to Fish River.

Dozens of crabs and flounder as well as an eel crowd the shore during a Jubilee.
As I write this my thoughts keep returning to all the upcoming outdoor activities awaiting around the bay. Some months ago the Great Bay Stewards (GBS) participated in the State of New Hampshire Site Evaluation Committee process involving the permitting of an expansion of Sea-3, the propane distribution operation located at the mouth of the Piscataqua River. In conjunction with the settlement reached by the parties, the GBS and Trammo, Inc., Sea-3’s parent corporation, signed a Memorandum of Understanding in which Trammo committed to consider GBS proposals for assistance in fulfilling the Stewards’ mission of supporting the GBNERR. As a result, Trammo pledged $100,000 in a multiyear agreement of financial support for the GBNERR.

On September 21, employees from Trammo’s operations from around the country participated in a visit that included hands-on work to remove invasive shrubs and vines, and plant native shrubs at Stratham Community Wildlife Garden. The visit was a huge success and we look forward to more of them!

Jack O’Reilly, President, Great Bay Stewards

The Evelyn Browne Conservation Award

Congratulations to Jean Eno of Greenland, the winner of the 2016 Evelyn Browne Conservation Award! The award is given annually by the Great Bay National Estuarine Research Reserve to an individual who has made a significant contribution towards the protection and conservation of the Great Bay Estuary.

With a B.S. in Conservation studies, environmental education, communication and public leadership, Jean has given her expertise and time, demonstrating her intense commitment to the health of Great Bay in a variety of very meaningful ways.

As a current member of the Great Bay Stewards board of directors, Jean serves as chair of the fundraising committee, volunteer coordinator for the Great Bay 5K road race and can often been seen working at the many fundraisers the Stewards hold throughout the year. She is the co-founder of the Winnicut River Watershed Coalition; the former Winnicut River Project Director at the NH River’s Council and has logged well over 500 workshop hours on local and regional climate change, land use planning, wildlife habitat conservation and storm water runoff pollution.

In her own words, Jean is moved by empathy and charity and the nominating committee agreed that Jean embodies this philosophy, not only for those who walk upright, but for those who swim, fly, crawl or slither…. This is the reason why she was selected as this year’s Evelyn Browne Award recipient!

Jean Eno

PLEASE JOIN US!

All interested parties are cordially invited to become Great Bay Stewards. Members receive Great Bay Matters and other pertinent mailings.

Annual dues may be paid by check made payable to the Great Bay Stewards and sent to: GBS Membership Committee, 89 Depot Road, Greenland, NH 03840

☐ Guardian $150 ☐ Protector $75
☐ Steward/Family $35 ☐ Student $20 ☐ Other $__________

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