

Great Bay MATTERS

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*Promoting research, education
and stewardship throughout
the Great Bay Estuary*



Happy Birthday, CZMA!



I grew up in New England, and like so many of us who did, fall is my favorite season. On a perfect fall morning I throw on a fleece, grab a steaming hot cup of coffee, and my dog and I enjoy a sunrise over

the tidal river we live on while everyone else is still cozy in bed. It is a good time of day for reflection, and a perfect setting for feeling grateful. The peace I feel on these quiet autumn mornings is facilitated by a view, and a walk by the water. Thousands of people around the country start their day or end their day this way: catching a view, a wave, or a ride on the water. I have a hunch that many are similarly gripped by a thankful mood, but I doubt that most would think to feel grateful for something as mundane as piece of legislation called the Coastal Zone Management Act.

The Coastal Zone Management Act was created in 1972 to “preserve, protect, develop and where possible, to restore or enhance the resources of the nation’s coastal zone”. The legislators noticed that the demands from industry, energy, trade, recreation, and the need for environmental protection were headed for a serious conflict as the coasts became more populated. This Act is not one that imposes federal regulations, but rather it gives states support and resources to create and implement plans for managing the

social and natural needs on the coast. States were given authority and funding to work on public access, working waterfronts, wetland regulations, habitat protection and restoration, and water quality enhancement. To do this wisely, it was recognized that the states needed sound science about how coastal systems function. That is why the Coastal Zone Management Act created the National Estuarine Research Reserve System: to be places to do research and translate that science to understand and ultimately protect and manage our estuarine systems better. The Great Bay National Estuarine Research Reserve was designated in 1989 and is now one of 28 reserves around the country. The Great Bay NERR and Reserves around the country continue to do the important work of understanding how to balance the needs of a coastal population with the restoration and protection that is critical for our natural systems.

This year the Coastal Zone Management Act turns 40. Without the CZMA, there would be no Great Bay NERR, no Great Bay Stewards, and no Great Bay Matters. I ask that you use one of your quiet moments by the coast this fall, to recognize the act that is protecting your public access to the beach – that is working to bring appropriate development to traditional working waterfronts – that is prioritizing coastal restoration and protection-- and that authorized and created the National Estuarine Research Reserve System. I cannot promise that I will be thinking about acts of Congress every day while I sip my coffee, but I think I can spare one of my favorite morning moments, in my favorite season, reflecting on the CZMA and wishing it a happy birthday.

Cory Riley
Reserve Manager, GBNERR



GREAT BAY
NATIONAL
ESTUARINE
RESEARCH
RESERVE

Great Bay National Estuarine Research Reserve (GBNERR) is an estuary comprised of 7,300 acres of tidal waters and 2,935 acres of coastal land. Acquired through land purchases and conservation easements, GBNERR was designated on October 3, 1989 to be preserved for the purposes of education, research, and resource protection.

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Make way for Amphibians

Winter can be a challenging time for New Hampshire's wildlife, especially for the State's cold-blooded amphibians. Unlike birds and mammals, amphibians are unable to regulate their body temperatures and are thus dependent on, and at the mercy of, the environment. As temperatures begin to drop during the fall, many of our amphibians need to find safe places to protect themselves from the frigid days of winter. Land salamanders, some frogs, and New Hampshire's two species of toads can be found hibernating underground, some in burrows, others near the roots of trees or under leaves. Non-hibernating aquatic salamanders seek out the unfrozen sections of ponds and streams, as do several species of hibernating frog. Within these sheltered habitats, New Hampshire's amphibians safely wait out winter's chill in anticipation of the warmth of the coming spring.

It's one of the first signs that spring is coming. *Peep-PEEP. Peep-PEEP.* The call of the spring peeper (*Pseudacris c. crucifer*) is one of the first, and loudest evening calls we hear in the spring. Once evening temperatures are warm enough, usually around 40 degrees Fahrenheit, these little frogs start singing from the freshwater ponds they call home. The song of the spring peeper is not only a nice reminder to their human neighbors that spring really is coming but, it is also a helpful reminder that a migration is about to start, a migration of salamanders.

Three of the twelve species of salamanders known to breed in New Hampshire migrate during the spring. On the first warm, rainy night in early spring, Spotted (*Ambystoma maculatum*), Blue-spotted (*Ambystoma laterale*), and Jefferson's (*Ambystoma jeffersonianum*) salamanders begin leaving their underground burrows and

migrate to vernal pools – non-permanent, shallow bodies of freshwater located in forested landscapes, to breed. In the pools, the female salamanders lay their eggs directly in the water, usually attached to submerged vegetation or a submerged branch. After breeding, the salamanders return to their burrows leaving their eggs to mature in the pools. A few weeks later, the eggs hatch into aquatic, larval salamanders. Two-to-three months after hatching, larval salamanders metamorphose into adults. These new adults leave the vernal pools and seek out territories and burrows in the forest floor.

While this is a very interesting life history strategy, there is a problem – a recent problem from an evolutionary stand point – and that problem is roads.



Blue-spotted salamander



Spring peeper

Roads often cut through what would have been continuous woodlands and can separate the salamander's breeding pools from their non-breeding burrows. In fact, New Hampshire Fish and Game lists "road mortality" as one of the top conservation concerns for all three of these salamander species.

So, what can we do?

Listen for the peepers. Spring peepers begin calling at about the same temperature needed for salamander migration. If peepers have been calling and it's raining, limit night driving during the early spring. This will not only save the salamanders but will also help the frogs and toads breeding at the same time.

Report what you see. New Hampshire Fish and Game's Reptile and Amphibian Reporting Program (RAARP) makes it easy to report sightings of not only salamander but of all species of reptiles and amphibian known to exist in New Hampshire. Information can be found at wildnh.com/nongame. Click on the "Reptiles and Amphibians" link.

Get involved. Work with state and local organizations to protect salamander breeding and non-breeding habitat. Like most habitat management, protecting salamander habitats will protect needed habitat for many other plants and animals.

Kellee Duckworth,
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