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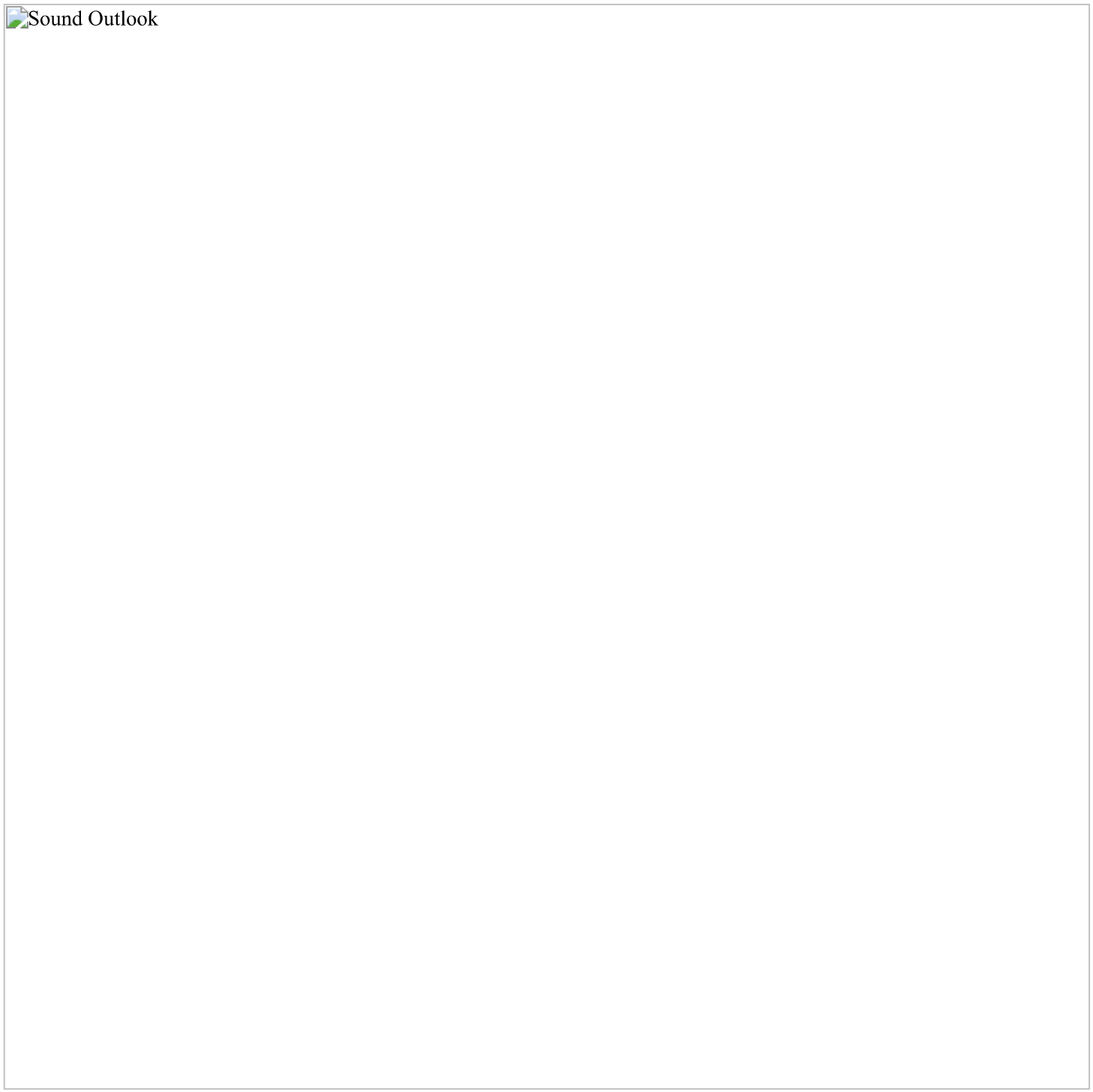


A Newsletter from the Connecticut Department of Energy & Environmental Protection
Exploring Long Island Sound - Issues and Opportunities

FEBRUARY/MARCH 2018
No. 57

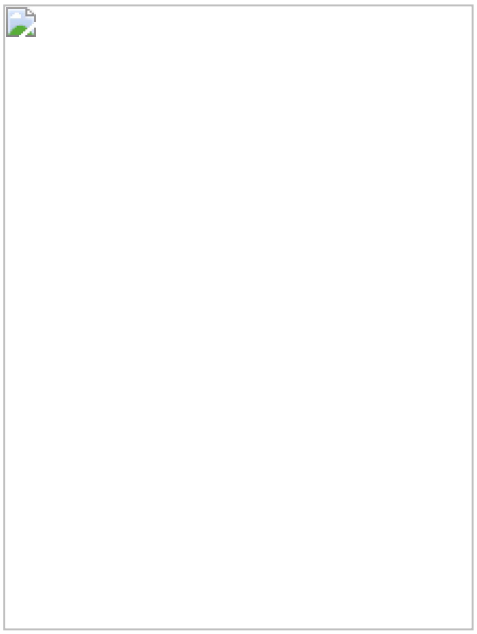
Blue Plan Update: Inventory of Resources and Uses Now Available for Public Review and Comment

After more than two years in the making, the first draft of the inventory of natural resources and human uses for the Long Island Sound Blue Plan has been

Inside

completed!

The Long Island Sound Resource and Use Inventory (www.ct.gov/deep/lisblueplaninventory) was compiled by the Blue Plan Advisory Committee's Inventory and Science Subcommittee chaired by Sylvain De Guise, a professor at the University of Connecticut and Director of Connecticut Sea Grant.



The Inventory is based on the best data available regarding the natural resources and human uses of Long Island Sound, and contains 12 ecological and 13 human use chapters in its 294 pages. The document provides information on the current state of the Sound's natural resources (e.g., plants, animals, habitats) and human uses (e.g., recreational and commercial boating, shellfishing and aquaculture, transportation) and is the first step in drafting the Blue Plan for Long Island Sound. Ultimately, the Inventory will be used as the basis for developing the Blue Plan to minimize future conflicts with these resources and uses.

The success of the Blue Plan depends on the involvement of the general public and all stakeholders to make sure the Plan reflects the knowledge, perspectives, and needs of everyone whose lives are touched by Long Island Sound. Therefore, we encourage *Sound Outlook* readers to review this first draft of the Inventory and provide your insights, questions, additional information, and other input. Please send any comments:

- via email to DEEP.BluePlanLIS@ct.gov, or
- through the Online Comment Form, or
- via U.S. mail to LIS Blue Plan/Inventory, DEEP WPLR, Land and Water Resources Division - Planning, 79 Elm Street, Hartford, CT 06106.

A **public hearing** to gather input on the Long Island Sound Resource and Use Inventory has also been scheduled for **Tuesday May 8, 2018 from 6:30 pm to 8:30 pm at DEEP Marine Headquarters**, 333 Ferry Road, Old Lyme, in Conference Room Building 3, behind the main building.

To stay up-to-date on Advisory Committee quarterly meetings and other public outreach events related to the Inventory and Blue Plan, please join the Blue Plan listserv.

Finally, we encourage you to visit the new and improved Blue Plan website at www.ct.gov/deep/lisblueplan. The redesigned website has an updated format, new content, and additional links.

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Defending the Public's Right to the Shore: DEEP Issues Final Decisions on Stamford Property

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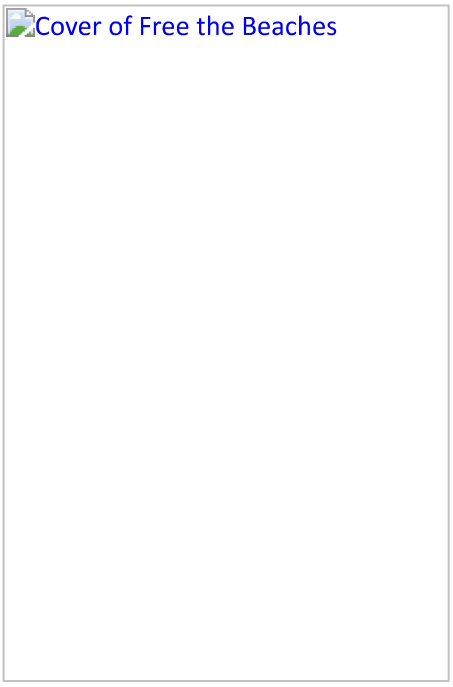
First Impressions

Sharing the "First Impressions" that make an Environmental Difference

This column features the "First Impression" that set someone on his or her path to environmentalism. We hope *Sound Outlook* readers will relate to these "First

Owner Who Blocked Public Access

As regular readers of *Sound Outlook* know, public access to the shores of Long Island Sound is one of the cornerstones of the state's Coastal Management Program, and the Connecticut Coastal Access Guide is one of the most popular pages on the DEEP website.



However, not everyone is so enthusiastic about the general public having access to the shore. As described in a recent study by University of Virginia Professor Andrew W. Karhl entitled *Free the Beaches: The Story of Ned Coll and the Battle for America's Most Exclusive Shoreline* (New Haven: Yale University Press, March 20, 2018), many of Connecticut's shoreline communities have a long and unfortunate history of excluding non-residents and "outsiders" from the shore.

While the bulk of *Free the Beaches* covers the era of the 1960's and 70's and the open beaches campaigns of activist Ned Coll, the latter chapters bring the story up through the passage of the Coastal Management Act in 1980 to the present day. Staff of Connecticut's Coastal Management Program can confirm Professor Karhl's conclusions that developers of coastal property, but especially coastal homeowners, remain persistently opposed to public access to the coast. Shoreline property owners often claim that fishers and other members of the public will be disruptive, create nuisances, damage property, and interfere with the tranquil attractions of a coastal lifestyle.

A recent enforcement case brought by DEEP against a waterfront property owner in Stamford highlights one example of this mindset. The subject property on Sea Beach Drive is located next to Hobson Street, a municipal street-end that provides modest public access to a small stretch of shoreline. The access point is not particularly inviting, since it opens onto a stretch of rocky shore and provides no facilities or parking. The level of access is not even sufficient for Hobson Street to be listed on DEEP's Coastal Access Guide. Nonetheless, local fishers and other members of the public use this public access point to gain access to the shoreline in front of the property owner's house.

Impressions" and recall their own experiences that led them to appreciate and care about Long Island Sound.

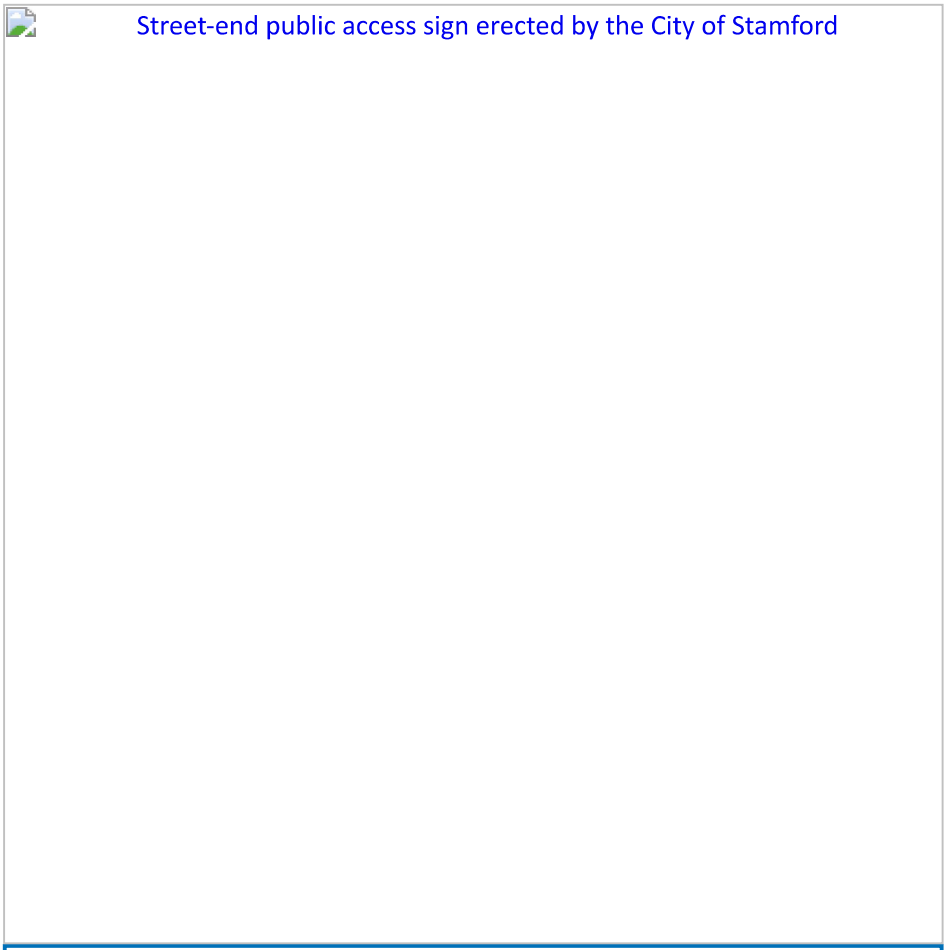
This month we profile Judy Rondeau, a Natural Resource Specialist with the Eastern Connecticut Conservation District and the Niantic River Watershed Coordinator:

Judy's love of the outdoors started when she was a youngster. Little did she know that her time outdoors would serve as the "First Impression" that planted the seed for her environmental evolution:

When I was young I wasn't really focused on the environment or environmental issues, I just loved being outside. I always thought I would do something with my life that involved the outdoors. Maybe not necessarily with "the environment" per se....

Her desire to work outside led Judy to pursue a career in archeology. She graduated from the University of Connecticut with a degree in physical anthropology and geology and worked for several years with the Public Archeology Survey Team. But her lack of an advanced degree prevented her from advancing in the field:

You can't get very far in



Small-scale, street-end public access areas are marked by signs installed by the City of Stamford
Photo Credit: DEEP LWRD

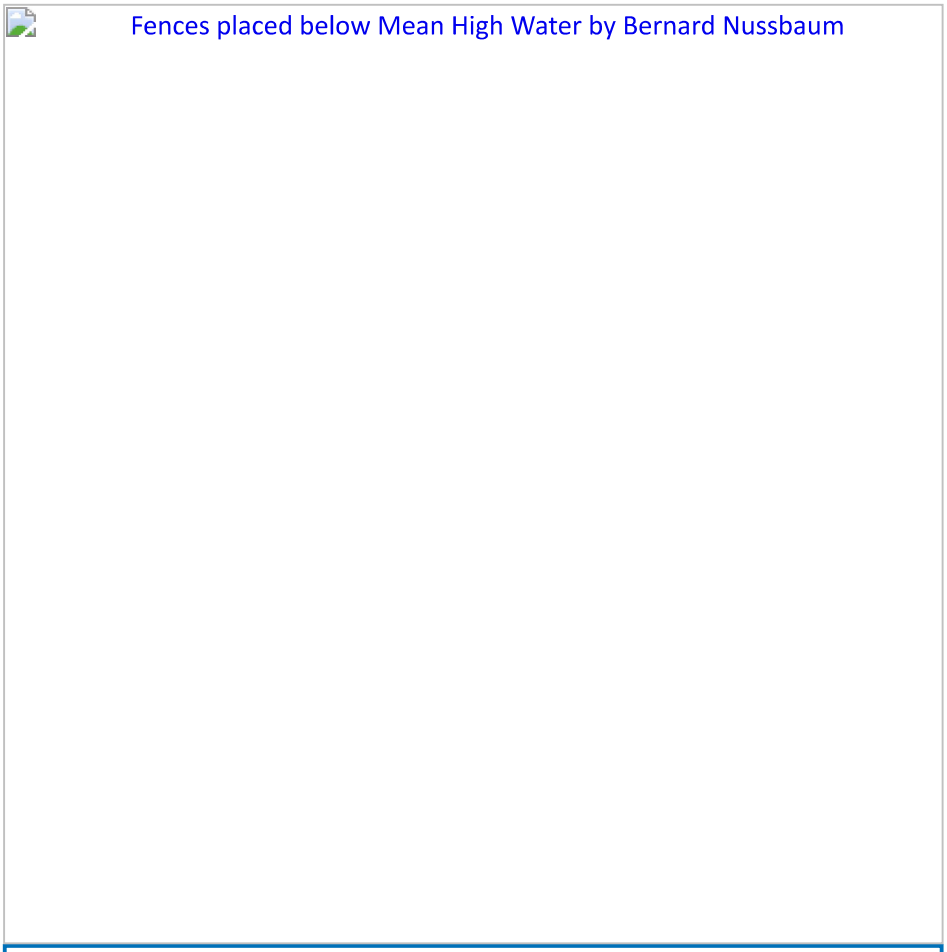
Subsequently, the property owner built fences that extended into the public trust area waterward of mean high water in an effort to block passage in front of his property. The erection of fences or any other structures in the state's coastal waters is a regulated activity, and the Sea Beach Drive fences had received no authorization of any kind from DEEP or the City of Stamford. Accordingly, DEEP staff issued a Notice of Violation on July 16, 2012 seeking removal of the fences.

archeology with just a bachelor's degree, so I started pursuing more of the geology aspect of my degree and worked in the construction industry for quite a few years.

Judy's "First Environmental Step" came about as an epiphany while working as a land surveyor in the construction industry during the housing boom of the late 1980's:

I love telling this story because it made a significant impact on me. I was working on a surveying team for a development company that would buy large tracts of land. My team would go out and survey these beautiful tracts of farmland and forest--there might be a nice old farmhouse--and we'd be out there for maybe a year doing boundary surveys because they were pretty big properties, sometimes a couple hundred acres. The development company would then lay out where the roads would go and start cutting in where the lots would be. And I would watch these beautiful open spaces slowly get cut up and developed and turned into building lots. Sometimes you'd have a subdivision of 100 or more houses on what had once been this beautiful forestland. After the first couple of subdivisions we worked on, I just started feeling really sad, knowing that this beautiful land that I had literally been crawling all over in the course of our survey work would be developed.

When the housing boom busted, Judy left that development company and went to work for another survey company. Around the same time, the town where



Fences built below Mean High Water at Sea Beach Drive in Stamford
Photo Credit: DEEP LWRD

Ultimately, on April 21, 2017, DEEP Hearing Officer Brendan Schain issued a Proposed Final Decision finding that the unauthorized fences were indeed inconsistent with statutory criteria and that the permit application should be denied. The property owner took exception to this finding and requested oral argument before the Commissioner of DEEP. On February 6, 2018 Commissioner Klee issued a Final Decision that upheld the Hearing Officer's decision to deny the permit application.

Shortly thereafter, on February 20, 2018, Hearing Officer Schain closed the loop on the case by upholding the order requiring removal of the fences.

The property owner has not complied with the order, but has instead decided to pursue his legal remedy of appeal to Connecticut Superior Court, where the case is now pending. It is uncertain at this point how long this seemingly small public access issue will be in the hands of the courts, but DEEP staff is committed to pursuing the larger principle at stake--protecting public access to the public trust area waterward of mean high water--for as long as it takes. *Sound Outlook* readers should stay tuned for further developments, and any questions may be directed to David Blatt in the DEEP's Land and Water Resources Division at 860.424.3610.

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Innovative "Home-grown" Tree Wells Installed in East Lyme to Improve Water Quality in the

she lives, Thompson, advertised openings for members on the inland wetland commission. Although the company Judy was working for was located in Massachusetts and didn't do many projects in town, there was a potential for a conflict if Judy joined the commission. However, her boss didn't think there would be a problem, so Judy became an Inland Wetland Commissioner for the Town of Thompson and experienced a greater environmental awareness:

At that point I had been working in the construction industry for a few years but I didn't really know much about wetlands. So being on the commission was a real learning experience. Having watched all of those properties get developed, I cultivated this desire to be more involved in protecting the land. I knew nothing about wetlands, but I knew about construction and about subdivisions.

At first, Judy almost related more to the applicants than she did to the commission itself. She understood the survey industry and civil engineering but was still learning about wetlands:

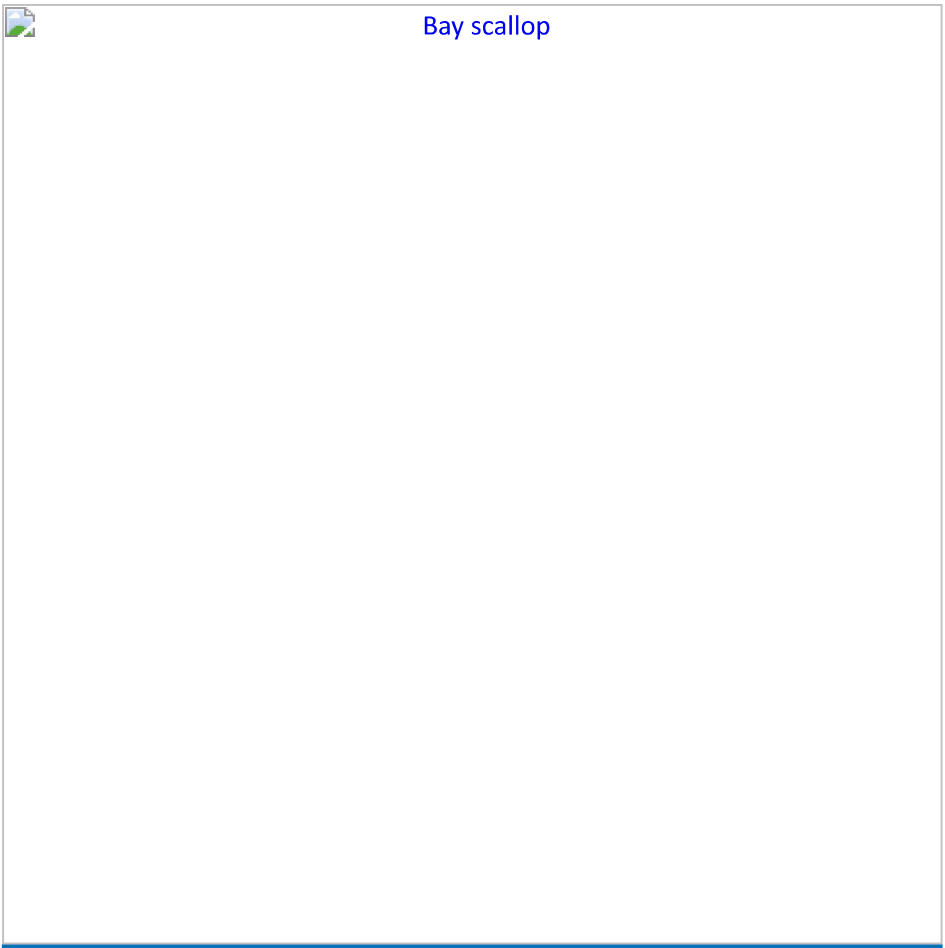
Applicants' experts would come in and say, "We want to put the road crossing here because this wetland has the least value," and I would think, "What does that mean?!" So I tried to do some learning on my own because I wanted to know as much as the professionals coming in and presenting their plans to us. And the more I learned, the more interested I became in wetlands and wetland protection.

Her developing interest in

Niantic River and Long Island Sound

The Niantic River is a special place in Connecticut. Especially if you are a scallop. The river has a well-documented history associated with these precious shellfish. So protecting water quality plays a significant role in the well-being of Niantic River scallops, and the well-being of those of us who like to eat them.

After a heavy rain, shellfish beds in the Niantic River are often closed because of contamination by fecal bacteria and other pathogens contained in stormwater runoff. While the pathogens are not necessarily bad for the scallops, they can harm humans who eat the contaminated shellfish. Further, stormwater runoff can also contain nitrogen which comes from fertilizer and septic systems. Nitrogen feeds algae and can result in algae blooms during the summer. When the excess algae die, the process of decomposition depletes oxygen in the river. This low-oxygen condition is called hypoxia and it can harm the aquatic environment, stressing--and even killing--aquatic organisms like scallops.



Bay scallops (*Argopecten irradians*) are mainly found in shallow seagrass meadows
Photo Credit: Long Island Sound Resource Center

To address these stormwater pollution problems, the Niantic River Watershed Protection Plan was completed in 2006 and established a blueprint of actions that can be undertaken to improve the water quality in the Niantic River and its "watershed." The Niantic River watershed is the area of upland that drains to the river, and it contains sections of Montville, Salem, Waterford, and East Lyme, including local water features such as Fairy Lake, Horse Pond, Barnes Reservoir, Bogue Brook Reservoir, Lake Konomac, Darrow Pond, Latimer Brook, Oil Mill Brook, and Stony Brook, as well as the Niantic River itself.

wetlands ultimately led Judy to her "Big Step." She decided that land and wetland protection was the career path she really wanted to follow. She returned to UConn and in 2008 earned a master's degree in watershed management and watershed hydrology:

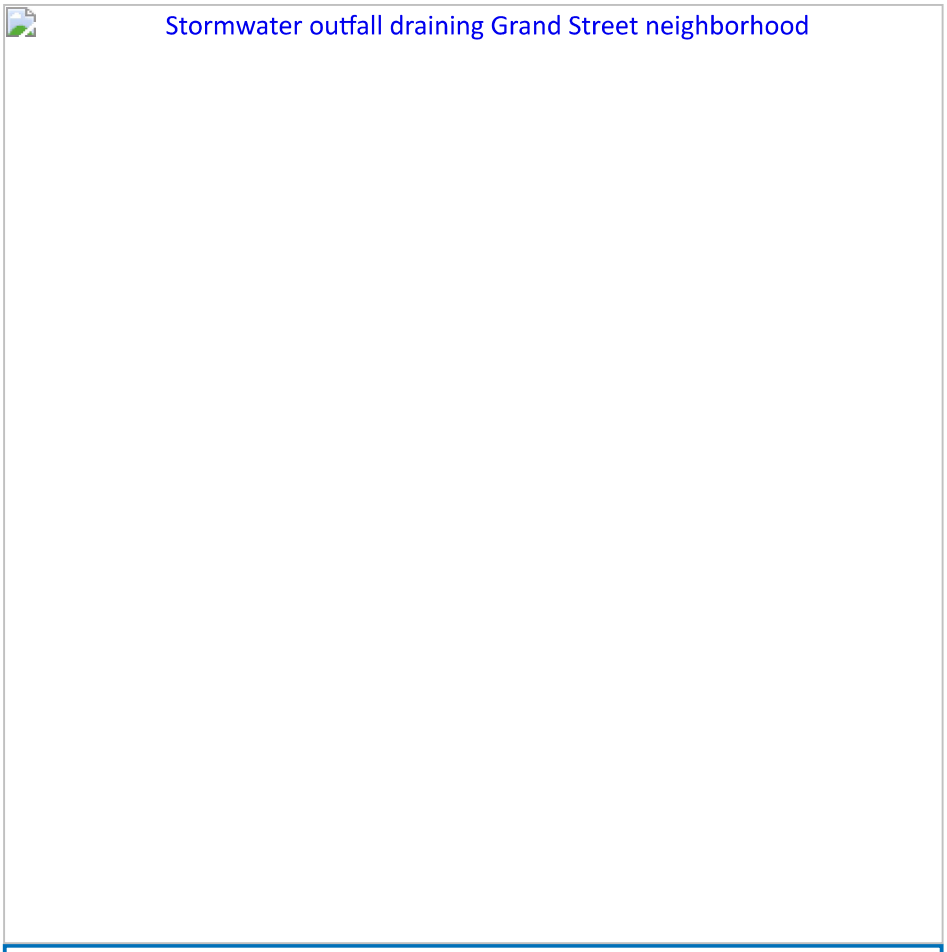
By that point I had been on the Inland Wetlands Commission for around five years. While I was earning my degree, the town wetland agent retired, so I applied for the position and got it! I became the Town of Thompson's part-time wetland agent and worked for another four to five years. But when I completed my master's degree I needed a full-time job, so I stayed on until 2010 when I got the position at the Eastern Connecticut Conservation District, and I have been here ever since.

As a Natural Resource Specialist with the District, Judy has several duties including: performing outreach and education, conducting water quality investigations on impaired waters and writing watershed-based plans to address the impairments, and coordinating water quality improvement projects like the East Lyme tree well installation project highlighted in this issue of *Sound Outlook*. Judy has written several watershed plans, for Ekonk Brook in Plainfield, Flat Brook in Ledyard, Baker Cove in Groton, and the Lower Natchaug River in Mansfield/Windham to name but a few. She has overseen the installation of rain gardens in Plainfield and Willimantic. Much of this work in the upper reaches of the Thames River watershed improves the water quality in Long Island Sound. But some of her most personally

One of the actions recommended in the watershed protection plan is the installation of Low Impact Development (LID) practices that improve water quality by allowing stormwater to soak into the ground instead of running across hard surfaces like roads, driveways, parking lots and roof tops, which is how stormwater picks up pollutants in the first place.

East Lyme is one of the towns in the Niantic River watershed, and, in partnership with the Eastern Connecticut Conservation District (ECCD), they have undertaken several LID installations throughout Niantic to help protect water quality in the river. Stormwater from these neighborhoods flows into a network of stormdrain pipes located under the road. As it travels across the streets and sidewalks, the stormwater picks up pollutants such as oil leaked from cars, sediment, improperly applied fertilizer, and animal waste, and discharges into Latimer Brook, which is the primary tributary to the Niantic River, as well as directly into the Niantic River from a storm pipe by the Grand Street boat launch.

The ECCD obtained funding to purchase and install nine pre-cast tree box filter systems in the Colony Road and Pennsylvania Avenue neighborhoods using funding from the DEEP's Section 319 nonpoint source pollution grant program, and had received another Section 319 grant to install additional stormwater management practices in the Grand Street neighborhood. The tree box filters are usually installed in combination with existing storm drains and allow stormwater to soak into the soil.



Outfall of the stormdrain system from the Grand Street neighborhood discharging to the Niantic River by the Grand Street boat launch
Photo Credit: Judy Rondeau, Eastern Connecticut Conservation District

rewarding work was conducted in the French River watershed, which contains her own backyard:

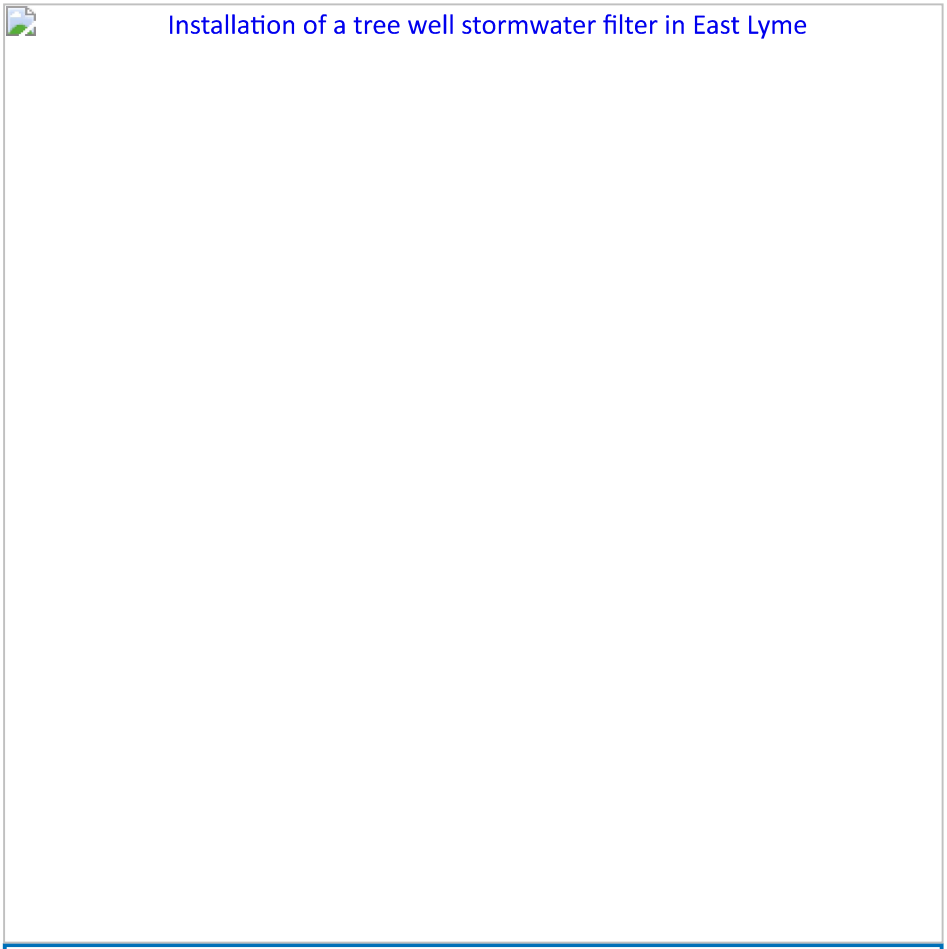
I love my job at the District, it's so much fun. Of course there are days where you want to pull your hair out, but we have so much fun with our work, we get to pursue our muse a little bit with every project. In the fall of 2017 we completed a watershed-based plan and a water quality project in Thompson. I have lived there for 30 years, and my dad was a Thompson resident, so I feel like I'm coming back to my family's roots. The project was in the French River watershed and I live in that watershed, so that was special. It's always special when you can take your skills and apply them to your hometown. We work all over eastern Connecticut and we are very invested in and proud of every project we do, but this one was really special to me. We installed rain gardens and a downspout planter to manage stormwater at the public library and at the elementary school. I go to the library all the time so I see those projects and the impact they have.

Ironically, it's Judy's experience in the construction industry that helps with those rare hair-pulling days:

I'm very goal oriented and I'm also very stubborn, so I just keep plugging away. There's nothing else you can do, the project has to be completed to meet a contract, so you keep chipping away until you get through those tangled knots. Sometimes it's just trying to mesh partners' schedules to install demonstration projects. I have to make sure all the contractors are on board and all materials are there when

Based on his extensive experience overseeing these tree box filter installations, East Lyme Town Engineer Victor Benni decided to design his own "home-grown" version of the stormwater filter for the Grand Street neighborhood project. Dubbed "tree wells," they contain a microbe-rich soil mix of sand, topsoil, and gravel that breaks down, binds, and otherwise removes pollutants as stormwater soaks into the tree well. At the base of the tree well is 2 feet of crushed stone that provides storage for stormwater until it percolates out of the tree well into the surrounding natural soil.

These home-grown tree wells have an additional benefit: they cost about 1/4 of the price of a pre-cast tree box filter. That means the town can install 4 tree wells for the same cost as one pre-cast box! And while contractors were hired to install the box filters and the tree wells, the contractor cost for the tree wells was about 1/3 less per unit.



Grand Street tree well installation
Photo Credit: DEEP LWRD

The tree wells in the Grand Street neighborhood will take advantage of deep sand and gravel deposits called "stratified drift" that make up the natural soil in this part of East Lyme. These deposits, left by glaciers over 12,000 years ago, are natural filters. As stormwater flows down the gutter, it is diverted into the tree wells through the openings in the curb, just like stormwater finds its way into a catch basin.

It should be noted that these tree wells are not designed to soak in all of the water that flows into them. Instead, they are designed to catch and treat the first inch of rain fall--also knows as the "first flush"--which contains the highest

they're needed...never in a billion years did I think I'd be back to construction management!

Judy's career evolution has resulted in an environmental awakening that spills over into her personal life:

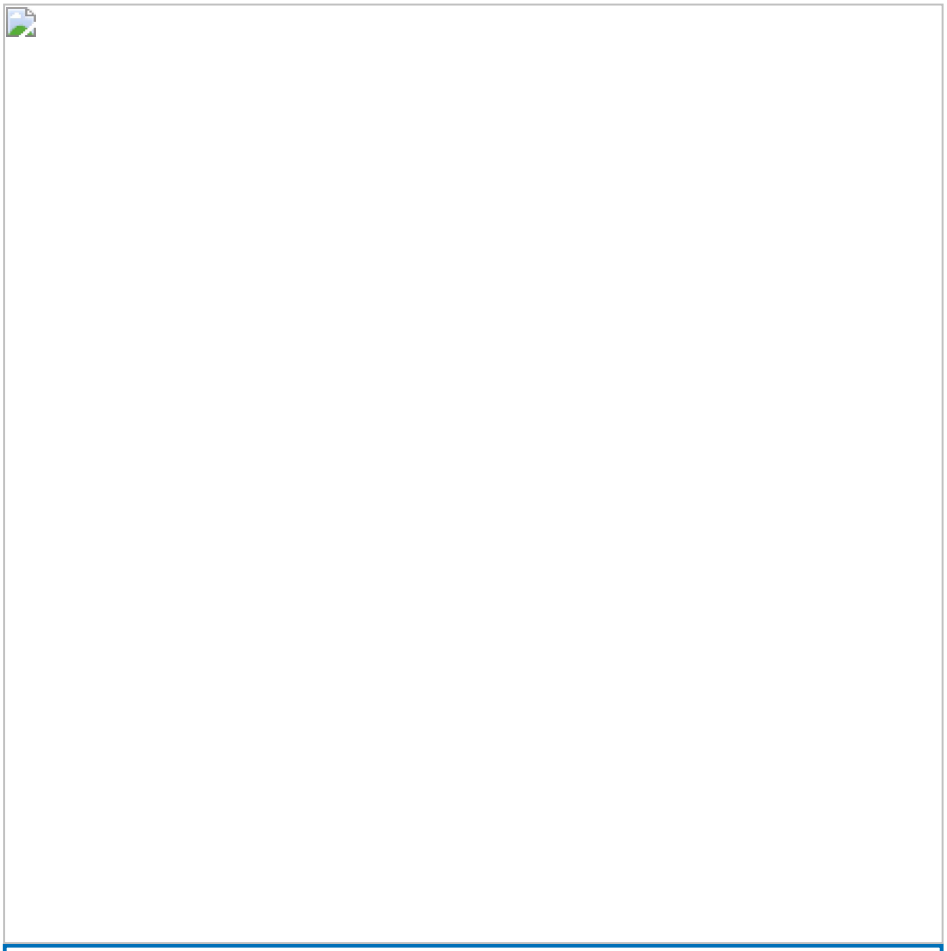
I am so much more aware of how the things that we do in our everyday lives can affect water quality. I'm much more mindful about what I'm doing when I'm at home. For instance, if it looks like the car has a leak, I call the garage right away to get it fixed. I never really was a "fertilizer person," but now I don't care what my lawn looks like, there's no fertilizer or weed killer going down anywhere in my yard!

Even with all the field work associated with her job, Judy she still loves being outdoors on her own time. She's an avid gardener (maybe all that digging brings her back to her archeology origins?) where she is particularly mindful about being a good steward on her "one little acre of land":

Gardening is one of my great passions, and when I'm not working I'm usually at home poking around in the yard. I have really focused on planting native plants, and I have a huge bed of pollinator plants that draw an incredible amount of pollinators. Not just honey bees, but wasps and all kinds of butterflies and moths . It's remarkable what I see when I go out there on a summer day.

And it's remarkable what we see in Judy Rondeau every day. With her good works, both professionally and personally, we are most thankful for the

amounts of pollutants. The tree wells are located in the street right-of-way and are owned by the Town of East Lyme. They have been planted with either ornamental pear trees or grasses, and mulch and beach stone are placed in the wells to inhibit weed growth.



Tree well in East Lyme
Photo Credit: Judy Rondeau, Eastern Connecticut Conservation District

The installation of tree wells will help to reduce the amount of polluted runoff entering the Niantic River each time it rains, making the river a bit cleaner and working towards the goal of ending shellfish bed closures and algae blooms.

All of these tree box and tree well installations were conducted by the Town of East Lyme and the Eastern Connecticut Conservation District, in partnership with the Connecticut Department of Energy and Environmental Protection (DEEP) and the Niantic River Watershed Committee.

For more information about this project or the design of the tree wells, please contact Niantic

Low Impact Development Workshop and Walking Tour in East Lyme

On Friday April 27th from 8:30 am - 1 pm, ECCD, the Town of East Lyme, and CT NEMO will present a free half-day workshop on low impact development (LID) practices and how they tie into the MS4 permit (municipal stormwater management).

The workshop features LID retrofit practices that address recommendations from the Niantic River Watershed Protection Plan. ECCD will provide an overview of the planning process and LID installation, East Lyme and NEMO will discuss how the project addresses MS4 permit requirements, and the workshop will conclude with a short walking tour of the LID projects in downtown Niantic.

conservation epiphany that unearthed a real human treasure for all of eastern Connecticut.

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Look Out For Upcoming Events

Free the Beaches!
Andrew Karhl Speaking Dates

Trinity College, Hartford
April 24, 2018
12:30 pm - 1:30 pm
Smith House, Reese Room

UConn Hartford Campus
April 24, 2018
5:00 pm - 6:00 pm
Hartford Times Building, Room 214

Eastern CT State University
April 25, 2018
1:30 pm - 2:45 pm
Webb Hall, Room 110

Long Island Sound Resource and Use Inventory Public Hearing
May 8, 2018
6:30 pm - 8:30 pm
DEEP Marine Headquarters
Conference Room Building 3
333 Ferry Road, Old Lyme

Creating a Resilient Connecticut: A CIRCA Forum on Science, Planning, Policy, and Law
May 11, 2018
8:15 am - 4:30 pm
UConn School of Law, Hartford
William F. Starr Hall

Long Island Sound Day:
Friday May 26, 2017

Long Island Sound Study (LISS)
Committee Meetings

Please be sure to check the Calendar of Events on DEEP's website

River Watershed Coordinator Judy Rondeau at the Eastern Connecticut Conservation District at 860.774.9600 x13, or Victor Benni, East Lyme Town Engineer at 860.691.4118.

The workshop will be held at the main meeting room at the East Lyme Town Hall, 108 Pennsylvania Avenue, Niantic, CT. Please register here or contact Judy Rondeau at 860.774.9600 x13 for more information.

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SPOTLIGHTED COASTAL RESOURCE: Coastal Bluffs

This issue of *Sound Outlook* features some of the important functions that coastal bluffs perform along Connecticut's coastline. From providing recreational opportunities at Crescent Beach in East Lyme, to protecting against the flooding impacts of sea level rise, these steep-sloped landforms are more than just a pretty "face."

Coastal bluffs are considered important coastal resources in Connecticut. Bluffs are not subject to coastal flood hazards because of their steep slope and high elevation. They are, however, subject to erosion from waves and storm surge at the bottom (or "toe") of the bluff and along the face of the slope. They can also be susceptible to erosion from upland stormwater if rain runoff is improperly channeled at the top of the slope and discharged down the face of the bluff. While severe, catastrophic erosion can be a concern, minor-to-moderate bluff erosion can provide a significant sediment source for beaches and dunes. Bluffs can also serve as valuable wildlife and plant habitat.

People looking out from atop the bluff at Bluff Point in Groton

Visitors to Bluff Point in Groton take-in the view from atop the bluff
Photo Credit: DEEP LWRD

In order to protect these important coastal resources, the Connecticut Coastal Management Act (CCMA) contains specific policies designed to preserve the slope and toe of these coastal hills. In general, undeveloped bluffs should be allowed to erode naturally over time so they can serve as a sand and sediment source. But CCMA policies also discourage land uses that can hasten unnatural erosion of the slope, such as the stormwater impacts mentioned above.

Property owners and municipal land use officials can take steps to protect coastal bluffs in Connecticut. First and foremost, coastal bluffs should be maintained in their natural state as vertical buffers to storms and flooding. The face of the slope of these resources should be naturally vegetated with native plant species wherever possible, and any disturbance of the face should be discouraged.

Further, any development of the bluff should be set-back from the top of the slope as much as possible. Remember, bluffs are supposed to erode naturally over time to provide sand for beaches and dunes, so it is essential for any development at the top of the slope to incorporate an adequate buffer to accommodate natural erosion during the useful life of the structure or use of the property.

We're not bluffing when we say that these coastal hills are important, multi-tasking resources that should be protected.

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SPOTLIGHTED COASTAL ACCESS:
Step into Spring with a Stroll Along Niantic Bay in East Lyme

Although the Greek philosopher Heraclitus didn't have Connecticut's coast specifically in mind 2,500 years ago when he said, "The only thing that is constant is change," the expression aptly characterizes the social and physical factors that have constantly effected change along Connecticut's coastline.

Social forces beginning in the late 19th century resulted in parts of our coast being developed for seasonal camps and grand resorts, often serving wealthy urbanites looking for a place to escape the city's summer heat. These social forces were followed in the early-to-mid-20th century by the development of summer beach communities and a coastal suburban housing boom with their attendant commercial development, all of which strongly influenced changing land use patterns on Connecticut's coast. Competition for access to and use of the shore has been longstanding in the state, due in part to the merely 88 miles of sandy beach that exist on Connecticut's 333 miles of shoreline directly fronting Long Island Sound and its embayments.

Since the region's last glacier receded from the present day Connecticut coast about 19,000 years ago, leaving behind deposits of stone and sediment that largely define Connecticut's modern shoreline, physical forces have been reworking these glacial deposits, changing the margin of where the land meets the sea. Coastal storms, such as the nor'easters that hit the state during January and again in March 2018, can dramatically alter the look and location of the shoreline margin.

And speaking of coastal storms, who can forget the damage from the physical forces of Storm Sandy in October 2012? This particular storm changed the appearance of large swaths of Connecticut's shoreline, resulting in the Federal Emergency Management Agency (FEMA) declaring Connecticut's coast a major federal disaster area. Members of the Crescent Beach Association on the western shore of Niantic Bay in East Lyme certainly won't forget how this storm eroded the bluff at Crescent Beach, known locally as Cruttenden's bluff, destroying large sections of a walkway on the top

of the bluff.

Storm Sandy caused severe erosion of the walkway atop Crescent Beach bluff in East Lyme
Photo Credit: Keith Neilson

In response to the storm damage, the Crescent Beach Association applied for and was awarded a FEMA "Category G" Public Assistance grant that funded 75% of a $1.342 million bluff and walkway reconstruction project. This category of FEMA Public Assistance grants is available to assist eligible applicants repair storm-damaged parks and recreational facilities within federally declared disaster areas. FEMA determined that the Crescent Beach Association was an eligible entity by virtue of it being chartered as a unit of local government by a special act of the Connecticut General Assembly in 1935. Similarly, FEMA's finding that the walkway is a public recreation facility owned and maintained by the Association was an important factor in determining that the proposed project qualified for Public Assistance funding. The project included the complete reconstruction of the damaged walkway and the construction of a stone revetment and concrete seawall along the bluff to control erosion and support the public walkway.

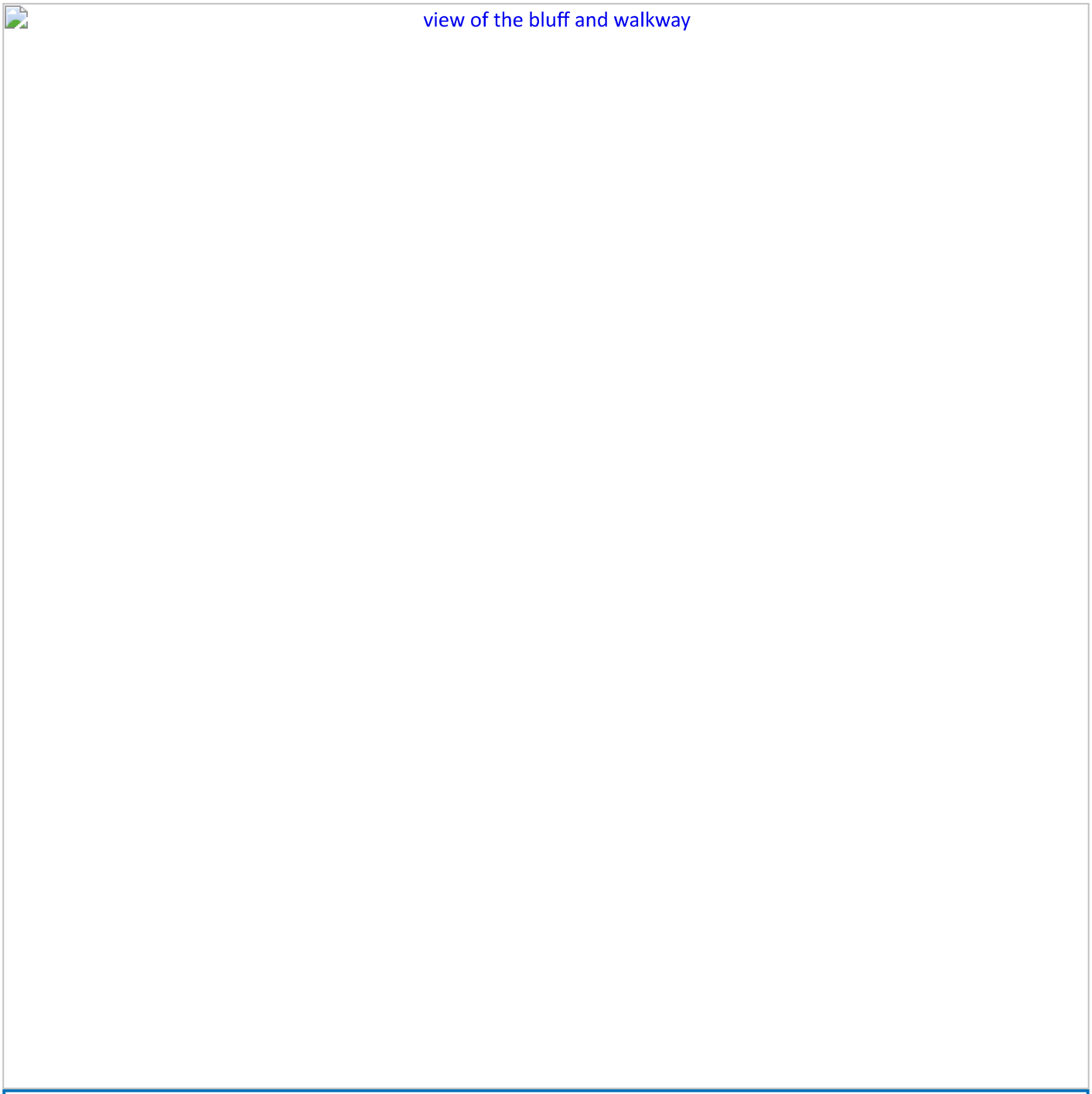
Repair of the walkway along the bluff at Crescent Beach in East Lyme

Seawall construction along the seaward edge of the damaged walkway along Crescent Beach bluff.
Permit applications for such shoreline flood and erosion control structures must be sent to CT DEEP for review.
Photo Credit: Patricia Tellekamp

The repaired walkawy and revetment at crescent beach bluff in East Lyme

Crescent Beach walkway and bluff revetment after repairs.
Note the two humans at the top of the bluff (middle of photo) for an idea of the scale of the project.
Drone Photo Credit: Wayne Pierson

Although the walkway atop Crescent Beach bluff is believed to have existed in various forms for nearly a century, the public has been generally unaware of this public facility. Until now, the walkway has largely been used by members of the Crescent Beach Association, nearby residents, and visitors familiar with the area. In order to better inform the public of this coastal public access facility, the Crescent Beach Public Walkway is now included in the Connecticut Coastal Access Guide. Shoreline public access signs are posted at both the Crescent Avenue and Beach Avenue entrances to the walkway where on-street parking is available, where permitted.



The repaired Crescent Beach walkway in East Lyme
Photo Credit: DEEP LWRD

The reconstructed walkway is a nearly 300-yard-long stone dust walkway high atop a bluff offering commanding views of Niantic Bay, with both its northern and southern sections terminating on a narrow sandy beach. It is part of an almost two-mile-long, nearly continuous segment of the Niantic Bay shoreline accessible to the public from Railroad Beach near "The Bar" at the Niantic River/Route 156 bridge to Crescent Beach:

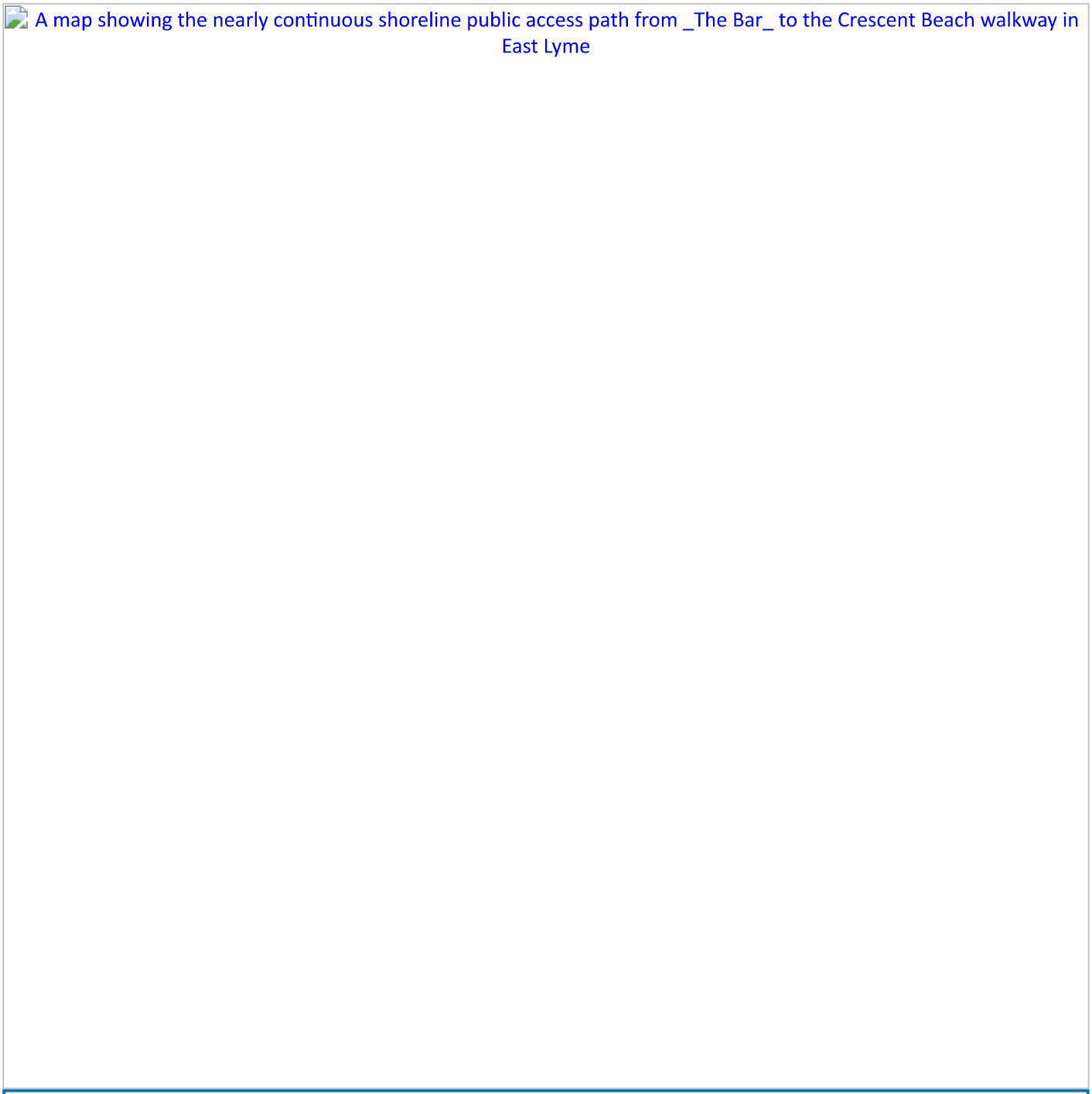
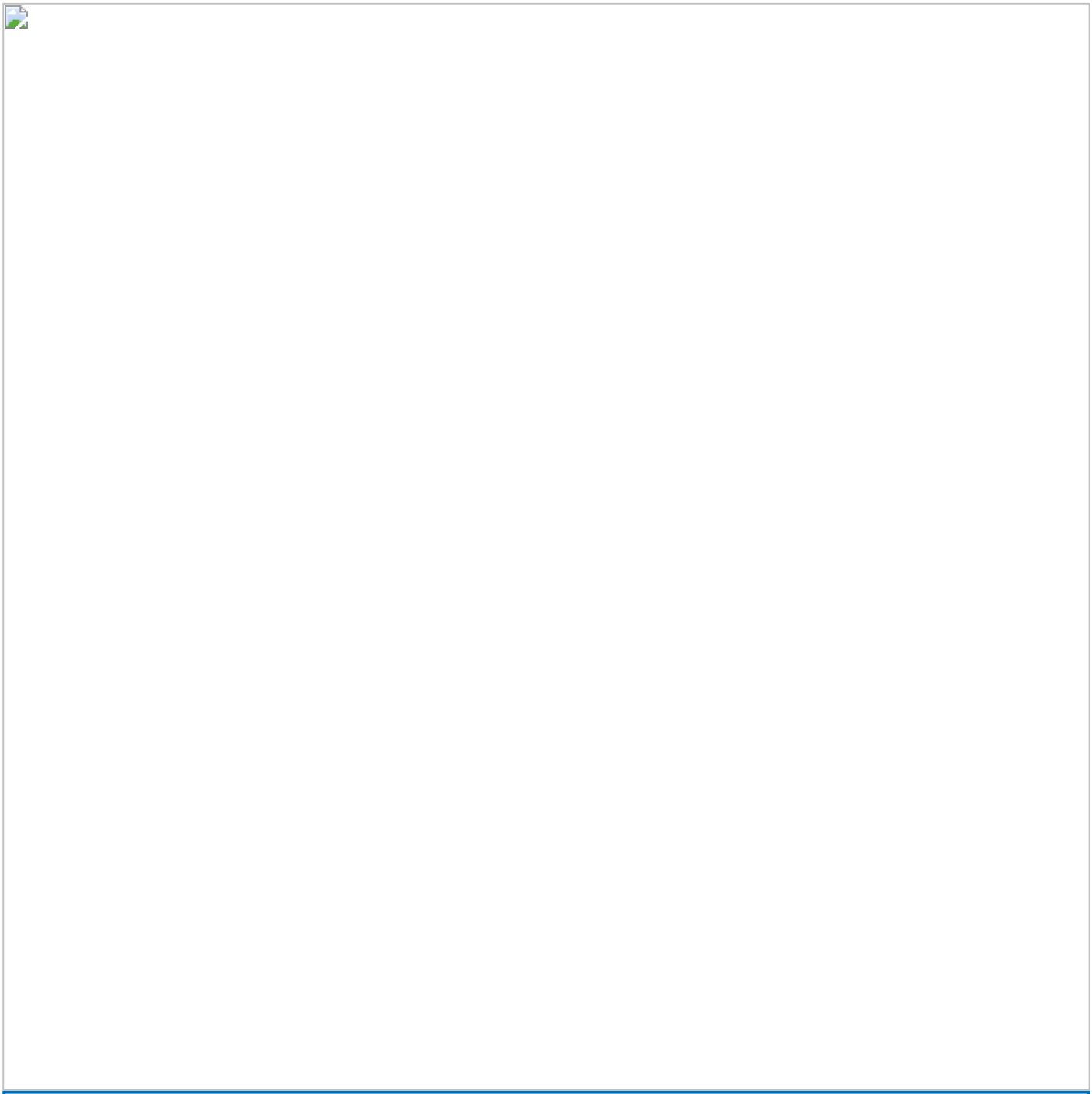
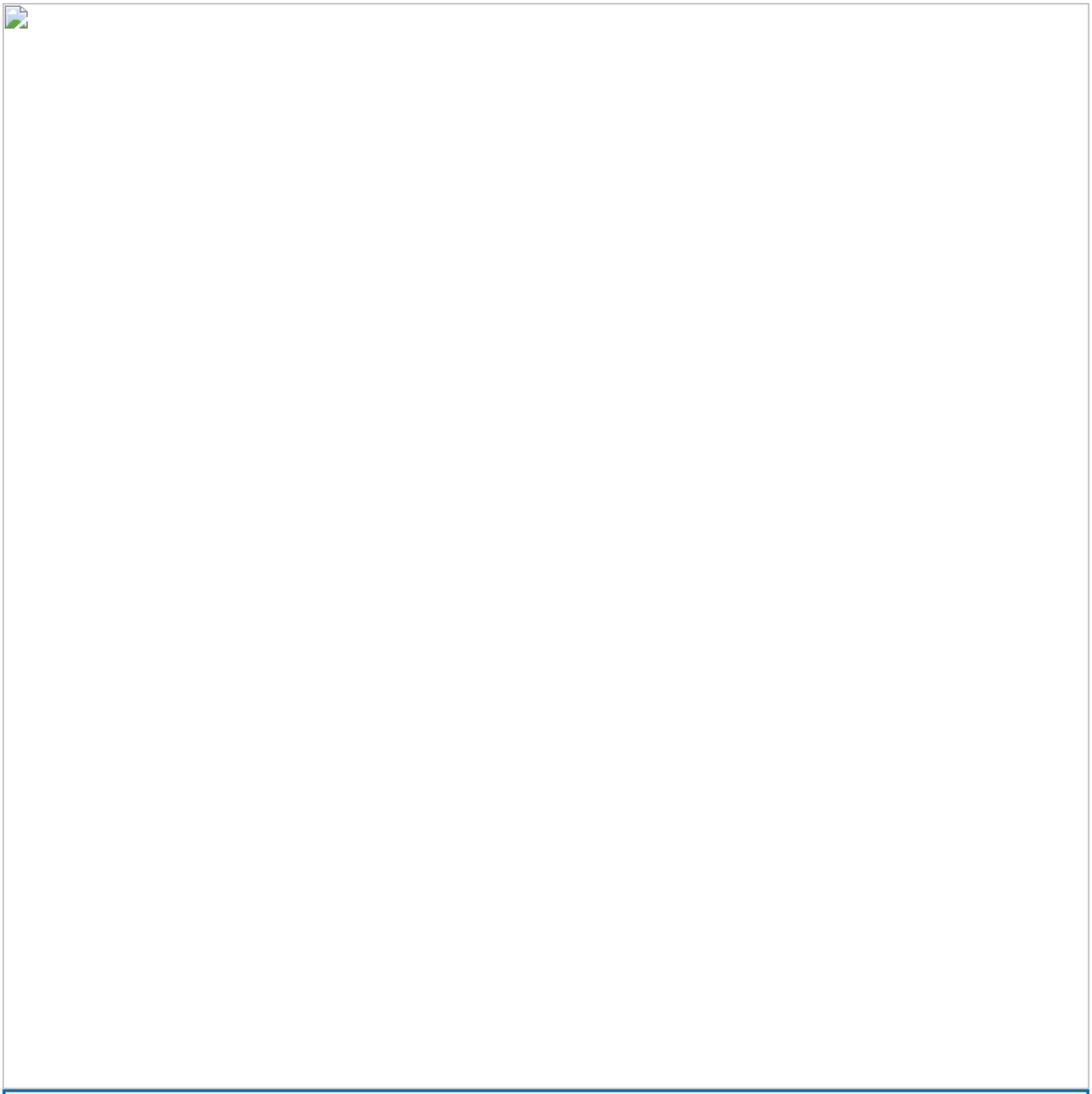


Illustration Credit: David Kozak, DEEP LWRD

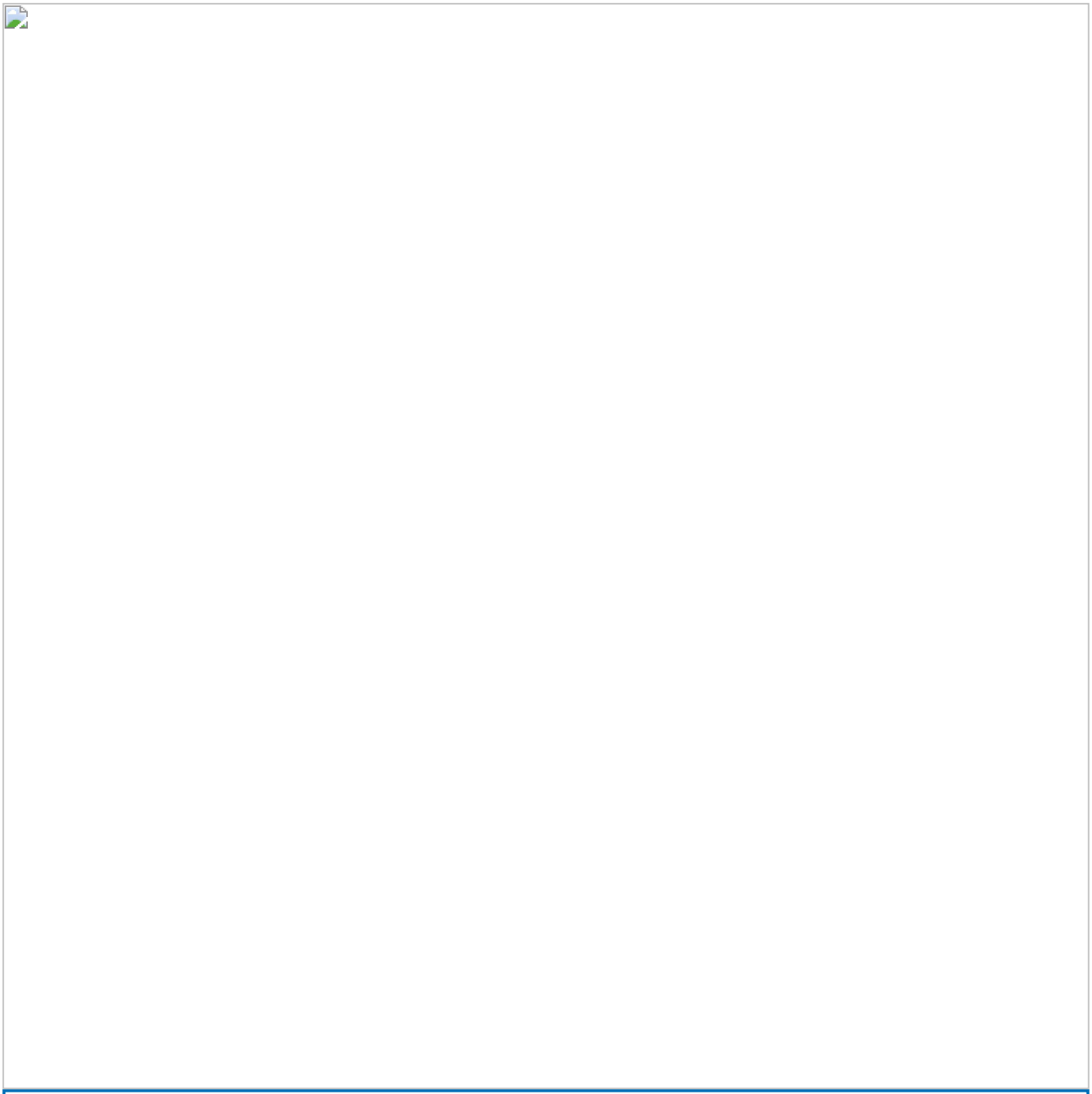
The views from the beaches and from atop the bluff walkway are beautiful!



The walkway at Crescent Beach is nestled atop a coastal bluff
Photo Credit: DEEP LWRD



The view from the bluff-top walkway at Crescent Beach
Photo Credit: DEEP LWRD



An entrance to the bluff-top walkway from Crescent Beach marked with a shoreline public access sign
Photo Credit: DEEP LWRD

As winter (hopefully) gives way to spring and the days get noticeably longer, mark your calendar to take a stroll along the walkway at Crescent Beach and the adjacent coastal public access sites. It will help chase away any lingering winter blues. For more ideas on additional ways to enjoy your coast, check out the Connecticut Coastal Access Guide which lists over 300 sites providing public access to Long Island Sound and its coastal tributaries.

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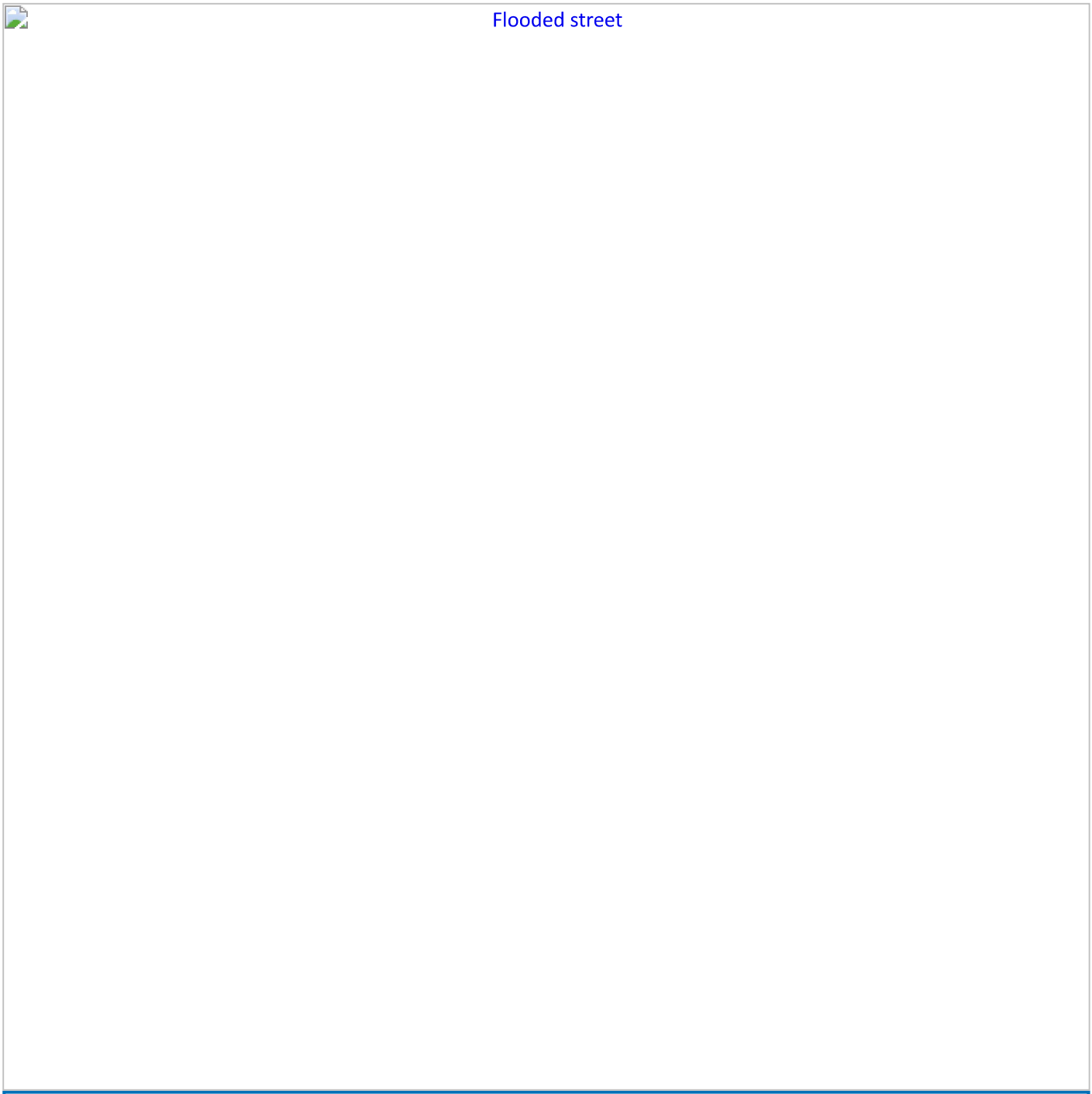
CLIMATE CHANGE UPDATE: CIRCA Releases Sea Level Rise Projections for Connecticut's Coast

The concept of "Sea Level Rise" is pretty well understood: As water warms, it expands. In addition, as the ice on land in the Arctic and Antarctic (polar ice) melts, that melted water flows to the sea. While there are various factors that contribute to sea level rise, these are two of the primary contributors to the increase in the volume of the earth's oceans, causing the height of the ocean surface (sea level) to rise.

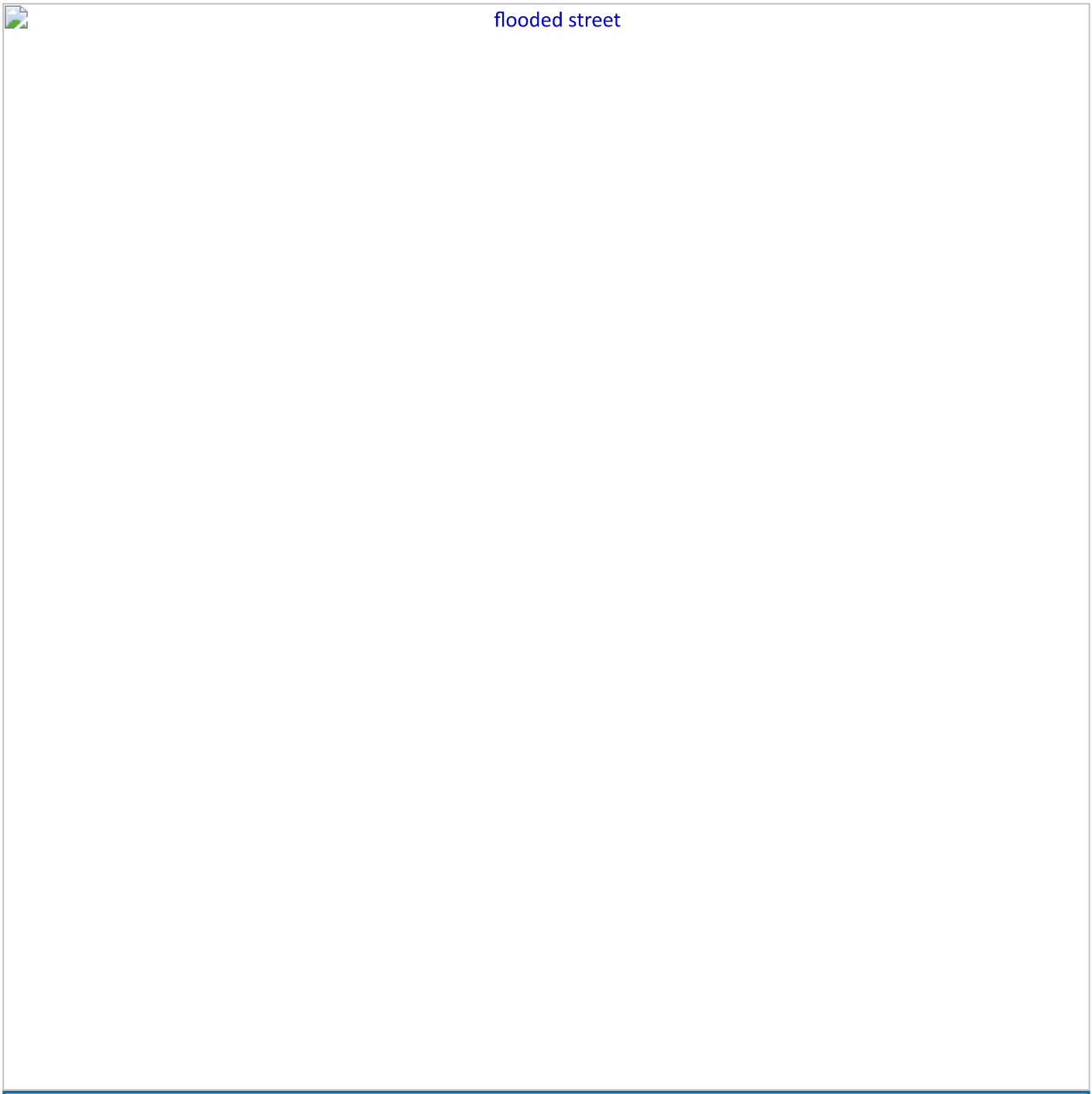
If you think of the world's oceans being contained like water in a bathtub, the height of sea level would merely rise and stay in place within that deep container. But the oceans aren't contained in a deep tub. It's more like water backed-up in a shallow walk-in shower, where a rising water level will surely spill over onto the bathroom floor. And depending on how much the level rises, that water could very well spill out of the bathroom, travel down the hallway and reach the kitchen and, possibly, the living room.

Similarly, a rising sea level will cause coastal waters to reach farther landward than they do now, flooding properties that are currently dry land.

Many areas along Connecticut's shoreline are already experiencing this "concept" of sea level rise, where flooding events are routine at high tide, without a storm in sight. Faced with this reality, many officials in these areas understand the need to plan for sea level rise, but it isn't clear whether they should plan for water in the bathroom, the kitchen, or the living room.



Non-storm flooding on Deerfield Avenue in Milford during a routine lunar high tide in February 2016
Photo Credit: Milford, CT Engineering Department



Non-storm flooding along Point Beach Drive in Milford during a routine lunar high tide in February 2016
Photo Credit: Milford, CT Engineering Department

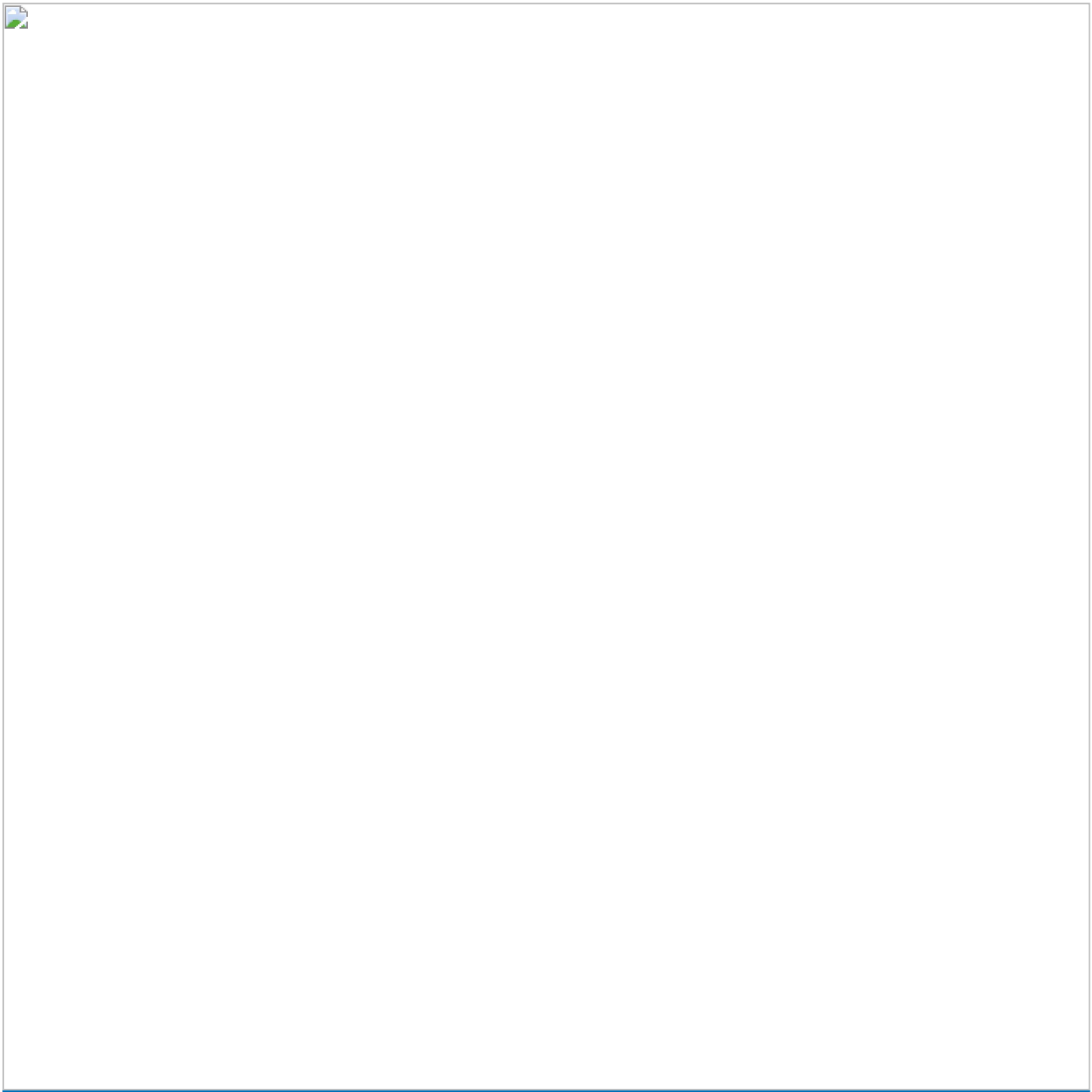
In an effort to help state and local officials get a better handle on planning for sea level rise, the Connecticut Institute for Resilience and Climate Adaptation (CIRCA) at the University of Connecticut recently released sea level rise projections for Connecticut's coast.

Using local tide gauge data and the best science currently available, CIRCA has provided the range of sea level rise scenarios through the end of the century for Connecticut. Based on these scenarios, CIRCA recommends that Connecticut plan for the upper end of this range, equal to 20 inches of sea level rise by the year 2050.

Twenty inches is a little over 1.5 feet, which doesn't seem like much over the course of the next 32 years. So why should we be concerned?

One reason for concern depends on how far inland increases in sea level will reach. According to the CIRCA report, the area of inundation with a rise in sea level in Connecticut won't be that widespread relative to other states like Florida

since Connecticut's coastal geology gives us many areas that are steep along the shore (think the coastal bluffs along the lower Connecticut River and high rocky ridgelines at Bluff Point and Rocky Neck State Park). The floodplain will not expand greatly in these areas. In other words, the water along hilly coastlines won't flow out of the bathroom. However, those areas that are already subject to flooding--the water already in the bathroom--will flood more frequently, and the depth of inundation at high tide will increase.



Small vertical changes in sea level can have dramatic flooding impacts on gently sloping coasts, but cause only minor flooding along steep coasts.
Source: Adapted from Richard Davis and Duncan Fitzgerald, Beaches and Coasts, 2004

Another reason for concern focuses on storm-related flooding. According to the CIRCA report, storm surge implications will be significant because of the increased frequency of coastal flooding. The flooding associated with "once-in-a-lifetime," 1% annual chance frequency storms (think hurricanes and "bomb cyclones") will occur more frequently and pack an even stronger punch. Even storms that are now considered "moderate" will cause worse flooding in the future than they do now because sea level will be higher. Adding a small storm surge to a higher sea level to start with means more water reaching further inland. And chronic high-tide flooding that now occurs with no storm on the horizon will

impact a greater area, again because there is more water to start with.

Not every town along Connecticut's shoreline has been graced with bluffs and steep slopes. Many towns' coastal areas contain gently sloping shorelines that will now be subject to flooding with even a modest rise in sea level. For example, the three coastal airports in Groton, Stratford, and New Haven are relatively flat land, and all abut tidal wetlands that are already subject to the ebb and flow of the tides. In keeping with our sea level rise scenario, water flowing across these coastal airports would be akin to water flowing from the bathroom into the kitchen. And the living room isn't that far away. CIRCA's "20 inches by 2050" projection can help state and municipal officials identify areas like these coastal airports that will be most impacted by sea level rise and plan for ways to become more resilient.

The CIRCA report also warns that Connecticut's shoreline towns won't be out of danger once 2050 arrives. Rather, Connecticut municipalities should expect sea levels to continue to rise after 2050. Which is why CIRCA also strongly recommends that these projections be reviewed and updated at least every 10 years to ensure that municipal planning efforts are informed by the best available science.

For more information on how CIRCA established these projections for Connecticut, or to view an archived presentation on the sea level rise projections, please visit the CIRCA Sea Level Rise Projection website.

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Visit the DEEP website at www.ct.gov/deep.

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