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The Resilience Roundup highlights CIRCA's presence in the news, provides links to recent local/state/national news articles related to resilience and adaptation, and announces upcoming events and seminars.



# Resilience Roundup

November 24, 2015

*A service of the Connecticut Institute for Resilience and Climate Adaptation (CIRCA)*

## CIRCA in the News

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- **November 13, 2015** - *NJ Assemblyman among those facing dune lawsuit*, CT Post
- **November 11, 2015** - *Report: threat of coastal flooding from Global Warming*, WTNH Reporter
- **November 7, 2015** - *Medlyn's Farm takes Branford Land Trust to court over flooding issue*, New Haven Register

## National News Clips

- **November 20, 2015** - *South Canterbury coastal asset owners yet to finalise sea level rise plans*, Timaru Herald
- **November 18, 2015** - *Japan-World Bank Program Supporting Developing Countries' Drive for Climate Resilience*, The World Bank
- **November 16, 2015** - *Climate Change: Floods In Canada Are Going To Get Uglier*, The Huffington Post
- **November 16, 2015** - *The Great Glacier Melt Spreads to Greenland's North*, Take Part
- **November 13, 2015** - *Rapidly Melting Glacier Has Enough Mass To Raise Sea Levels By Nearly 2 Feet*, Think Progress

## Announcements

- **November 17, 2015** - FEMA releases [fact sheets](#) on climate resilient mitigation activities eligible for funding under the hazard mitigation program
- **November 19, 2015** - Union of Concerned Scientists released report "*Surviving and Thriving in the Face of Rising Sea*" including Connecticut's coastal counties
- **November 20, 2015** - *America's Preparedness Report Card A - Connecticut*
- **December 1- 2, 2015** - [Registration Now Open](#). Living Shorelines: 1st National Technology Transfer Meeting and Regional Workshops, Hartford, CT. Sponsored by CIRCA and Restore America's Estuaries
- **December 1 & 4 2015** - Exploring Climate Solutions Webinar Series. Governor's Council

on Climate Change. Upcoming webinars on December 1 & 4. [Register here.](#)

- **December 8-9, 2015** - EPA is offering an interactive workshop - resiliency training for stormwater, drinking water, waste water utilities
- **January 15, 2015** - Next review date for CIRCA Matching Funds Program. Up to \$100,000 available. For more information go to <http://circa.uconn.edu/funds.htm>
- **March 22-24, 2016** - *14th Annual Climate Prediction Applications Science Workshop (CPASW)*

## CIRCA in the News

### [November 18, 2015 - Connecticut's Shoreline Threat: How Vulnerable Areas Are Responding To A Rising Ocean, News 8 WNTH](#)

Children born today will grow up with a much different Connecticut coast.

According to the Nature Conservancy, Connecticut will lose 24,000 acres of land to sea level rise by 2080. Recently, state leaders have taken a renewed interest in protecting communities from sea level rise. Connecticut, after all, has more at risk from sea level rise other than Florida.

Since 1960, Connecticut's coastline has risen almost six inches, according to data released in June from the National Oceanic and Atmospheric Administration. It may not seem like much, but that added water has been blamed for making Superstorm Sandy such a devastating storm for the state and region. Experts say that added water makes smaller storms even more devastating.

"We're going to get flooding in, say, a Nor'easter, a smaller, more common storm where we wouldn't experience flooding," said Rebecca French, the Director of Community Engagement at the Connecticut Institute for Resiliency & Climate Adaptation. "But now the sea-level rise is higher overall, so you're going to have flooding during those storms."

Created in 2014, CIRCA joined a growing number of state groups that are tasked with helping the state plan for rising seawater.

"Doing nothing will have real consequences," said CIRCA Executive Director James O'Donnell. In just the last month, Connecticut has made permanent their Coastal Resiliency Board and made plans to protect some 50,000 historic sites from possible flood damage.

These two studies join a litany of other state projects in the works that hope to create a blueprint for protecting homes, businesses and infrastructure.

Whatever the state does will cost billions. No cost estimate exists yet, but the thinking, according to staff at the Connecticut Department of Environmental and Energy Protection is that creating a 'resilient coastline' is money spent that would have to go toward cleanup and rebuilding, anyway.

"One of the challenges is to make changes that at least guarantee the safety of populations that continue to live along the shore," says Jessie Stratton, Director of Policy Development for DEEP.

The Nature Conservancy has presented proposals to every coastal town in Connecticut, identifying ways for them to protect their coastline.

"When you start talking about threats such as sea level rise or things of that nature, it has a potential of jeopardizing or tearing apart the fabric of that community," said Adam Welchel, Nature Conservancy Director of Science. "By not getting ahead on these issues through planning and thoughtful action is the potential of the loss of whom that community is. When you lose that, you really have no future."

Over two months, WTNH and 29 student reporters from Quinnipiac University drove hundreds of miles across the state to find different ways state and city leaders are bracing for what is

expected from the shore and how it is already having an impact on lives and businesses. For decades, officials in Connecticut's wealthiest town have been considering the risk of rising waters to properties and infrastructure along the shore.

Since 1964, Greenwich has had a conservation committee in place to focus on environmental issues and for the past 15 years they have been paying close attention to the rising sea levels. Flooding has become more common in recent years due to a combination of rising water and more frequent super storms, according to the town's conservation director Denise Savageau. "I think Sandy and Irene were wake up calls for people," said Savageau.

In the aftermath of Hurricane Sandy, water levels were up to over 10 feet of flooding in certain places and the sewage treatment plant was close to toppling over. The massive storm reinforced the need for a new emergency and long-term plan.

Many families who live close to the coastline will soon have to consider selling, moving or building their property higher to protect it from flooding and rising sea levels, according to Savageau. Although many families may elevate their houses, families who cannot afford this option would have to move. Greenwich has already ruled out living on Greenwich Point due to rising sea levels. The property used to be housing for military members, but has now been deemed unsafe and has been turned into a park.

Although Greenwich is still allowed to build roads and houses, they must build within the flood standards which means they would have to build at a certain level. This would keep the homes safe from rising water levels, but the roads are still susceptible to flooding. Street flooding is already common in Greenwich up to three times a month due to the full moon affecting the tides or strong winds.

Another solution Greenwich is considering is a "living shoreline," which involves creating marshes to act as a natural border along the coast.

One of the common problems the Conservation Committee deals with is with informing their homeowners about the dangers of flooding. Homeowners often do not realize that the sea levels are gradually rising.

"The biggest challenge is educating people on what surge is. We throw terms out there and experts know what we're talking about, but the common homeowner is confused," said Savageau.

She also worries when she hears of people wanting to build houses in Greenwich because even if they build their house high enough it doesn't stop their roads from flooding.

The committee has received grants in the past and they have put over \$40,000 into the town's infrastructure. The group looks at the state highways, public facilities, marinas, public drinking supply and most importantly every home in dangerous flood zones. The committee is very proactive in the town as they reach out to many communities that are located in flood zones to make sure that they are aware.

"We just need to be prepared as a community, and as individual homeowners," says Savageau. "It's really a partnership."

### **The Plan to Fix Bridgeport**

Fixing Bridgeport's coastal issues is worth millions. It has more low income homes in the path of flood water, made worse by sea level rise, than any other Connecticut city. That is the pitch the State of Connecticut is making to Housing and Urban Development officials.

Bridgeport wants \$43 million in grant money to give the city a facelift. The money would be used around Bridgeport to clear stormwater quicker, protect homes prone to flooding and reduce carbon dioxide emissions across the city. The awards are announced next month.

On the other side of the city, Sikorsky Airport is getting a \$17.7 million facelift. In an area that

floods regularly, much of the project reroutes water away from the airport. The plan includes new water basins and spaces for tidal runoff.

Already, the city has collected \$10 million in a similar project called Resilient Bridgeport. Given to Connecticut in 2014, the money will be used to protect the cities South End, University of Bridgeport and Seaside Park.

"It's a priority to help the south end of Bridgeport due to future flooding," said CIRCA's Rebecca French.

Bridgeport and CIRCA are planning to raise roads and highway exit ramps in the South End. Bridgeport has also planned out a highway bypass from Interstate 95 onto Route 8 that will go onto the Merritt Parkway and take the Milford connector back to I-95. According to Resilient Bridgeport, this highway bypass "would free about 80 acres of land."

"Sea level rise is kind of a slow motion hazard," said Nature Conservancy Director of Science Adam Whelchel.

The danger from sea level rise comes from that amount of water along the shoreline. A smaller storm in a century will cause the same amount of damage as a larger storm would cause today. "As we go into the future that sea level rise, or that base or platform, upon which these extreme weather events take place will be much higher. So we will have more water in more locations, that we haven't seen before," said Whelchel. "It's happening now. It's happening quicker. It's not something remote."

### **Rail Hubs in Flood Zones: New Haven's Hope to Save Union Station**

- 95 percent of Connecticut lives 50 miles from the coast.
- 64 percent of its insured property is on the coast.

All told, Connecticut has \$542 billion at risk to sea level rise and coastal flooding.

In New Haven, one of the most important areas is sitting in a low lying area, prone to floods: Union Station and the rail yard that goes with it. New Haven wants to revamp the entire area to reroute water that impacts the rail yard, and improve roadways, which would protect neighborhoods and businesses.

It is the second part of the same grant Bridgeport is applying for. Together, these two cities were identified as two with the most to lose from sea level rise.

### **Paving the Way: Small Towns Making Big Changes**

Guilford was among the many Connecticut towns that have released a coastal resiliency plan in recent years. Theirs was adopted in September 2012.

The Guilford plan is touted as a model example of resiliency, in part, because changes have already started.

One of those changes is seen by Brown's Boatyard owner David North every day. All it took for Chaffinch Island Road to flood was high tide. North said it happened almost every day. "[The water is] moving really fast," said North. "Every year, it's very noticeable."

The shoreline has changed, said North. He has watched water increase and the marshland disappear.

City planners identified the road as a victim of a rising sea. Construction ended on Chaffinch Island Road in October. It is now four feet higher than what it was.

Raising roads is a visible, but relatively small part of the overall plan to plan for the slow creep of ocean water. The town is looking at changing fire and zoning regulations and other large scale

changes to how the city operates in response to a rising sea. So far, none have been fully implemented.

In order to receive FEMA dollars after a natural disaster, towns need a mitigation plan. Most, if not all, of Connecticut's coastal community plans list sea level rise as a potential risk. Old Saybrook's plan passed in 2012. Sea Level Rise is a major component of their plan. "On a long term basis, sea level rise may be the greatest natural hazard facing Old Saybrook," reads the report.

The Natural Hazard Mitigation Plan focuses on the Chalker Beach neighborhood as some most likely to flood.

In 2014, The Southern Central Regional Council of Governments came up with hazard plans for Bethany, Branford, Hamden, Branford and North Branford, Madison, North Haven, Orange, Wallingford, West Haven and Woodbridge.

Across the 11 cities, the study identified \$2 billion dollars worth of potential damage coming directly from sea level rise. They found more than 12,000 homes, parcels, critical facilities (dams, roads, telecommunication infrastructure & emergency services for instance) and historical sites at risk to sea level rise.

Branford identified the most historical sites and property at risk than any other town in the study. Of all the natural disasters, Madison's main concern is coastal flooding, made more common by sea level rise. The study identified \$641 million worth of property that would directly impacted by sea level rise.

The town is seeking grants for more studies to be done on the potential impact and what can be done in the future.

### **Oyster Company Wins Award for Low Impact Ocean Fishing Plan**

Tucked away among the Thimble Islands off the coast of Branford, Connecticut, kelp and shellfish grow from vertical lines in the depths of a 40-acre ocean farm. It's here that Bren Smith, a lifelong fisherman, is fighting his own battle against rising water, increasing storms and other effects of climate change.

His mission with his Thimble Island Ocean Farm is to rearrange our dinner plate, moving bivalves and ocean plants to the center and wild fish to the edges. We must adapt our food choices, he says, as climate change has driven species like lobster northward and nitrogen pollution has triggered expanding "dead zones. Overfishing has also depleted almost 90 percent of the large fish population, according to Smith. And at the same time, drought on land is making ocean resources essential to our food supply.

"Our oceans are changing so fast and so we need to adapt with that and change our fishermen into an army of what I now call 'climate farmers'," said Smith.

Smith's three-dimensional farms are also "hurricane proof" and help protect the coastline from storm surges, events that are expected to increase because of climate change. His vertical lines are hooked to buoys and are anchored to the sea floor.

Smith's farms weren't always designed this way. Before Hurricanes Irene and Sandy, Smith grew his shellfish along the seafloor. But he lost 90 percent of his crop during these storms.

"Most of my gear washed off to sea two years in a row," Smith explained in a recent TED talk. Growing shellfish and seaweed vertically also reduces the space needed to grow food. In his TED talk, Smith talks about how as his farm has shrunk from 100 acres to just 20 acres he has been able to grow more food by doing everything vertically instead of horizontally.

"We have gotten away from monoculture," Smith says in the talk. "Aquaculture is obsessed with growing one thing in one place. We're growing four kinds of shellfish, two kinds of seaweed, and now we're even harvesting salt on those twenty acres."

He is working with scientists and engineers to grow kelp biofuels and organic fertilizer, limiting the release of carbon dioxide which is linked to climate change, and to nitrogen, which can create dead zones in the sea.

Kelp can also soak up carbon - five times the amount of land-based plants, according to Smith. Smith, who has worked as a longliner for McDonald's and in the canneries of Alaska, has said he hopes the 3D farms will make his own business sustainable and protect his livelihood from the changes to come.

"We have ignored climate change because it is looked at as an environmental problem. It is about ice caps and polar bears. It's about birds and bees; things that are great, but not close to how we make a livelihood," explains Smith. "When the truth is that climate change is an economical issue. It's a job killer and it's a small business killer."

Smith has received a lot of attention for his 3D farms. Just last month he was honored by former President Bill Clinton at the Clinton Global Initiative Annual Meeting for committing to train and support 27 new fisheries as well as operate five new 3D ocean farms.

"Now, it's not the grand solution to everything but it's a piece of the puzzle that we can use right here to start diminishing the problems," Smith said.

Smith's vision is to build hundreds of small farms along the coastline, so that Connecticut and Long Island Sound "start to look like the Napa Valley of the ocean," he said. So far, there are eight farms in the area and one in Santa Barbara, California.

### **The Weight of the State: UConn Group to Tighten Predictions**

James O'Donnell knows he has a lot of responsibility.

In 2014, the oceanographer was tapped for the position of Executive Director at The Connecticut Institute for Resilience.

CIRCA, as it's better known, is a state and federally funded project that is working on a series of studies which will ultimately craft state efforts to fight sea level rise.

Predictions for how much more water will be added to the Connecticut coast vary widely. O'Donnell said the state can count on at least three extra inches of water on its coast.

"If you're on the shoreline and you get flooded once a year now, it may change to 3 or 4 times a year depending on how much sea level rise we get," said O'Donnell. "Doing nothing will have consequences."

Housed at UConn's Avery Point Campus, in the former summer estate of a railroad tycoon heir, CIRCA has tools that measure tidal changes and studies that hope to gain a better understanding of the Long Island Sound.

Rebecca French, CIRCA's community engagement director, said creating safe communities comes down to helping towns or cities understand the threat.

"Largely, it is municipality by municipality decisions," French said. "But these problems are shared. We're evacuating into each other water. One side of the river is in Fairfield, the other side of the river is in Bridgeport, so it takes some cross-municipality thinking to deal with these problems."

CIRCA has partnered with the Connecticut Department of Housing in applying for federal funding to create coastal resilience. The U.S. Department of Housing and Urban Development (HUD) is working with the Rockefeller Foundation to provide money and resources to communities that are at risk from natural disasters. Together, they are allocating nearly one billion dollars to these communities throughout the country. Connecticut is among the 67 eligible applicants for the 2015 competition.

The state is applying for the resilience competition by proposing plans for two areas: New Haven and Bridgeport.

"HUD told us that Connecticut's qualified areas within the state were New Haven and Fairfield counties," French said. "They consider those counties the most impacted from [Sandy] and still in recovery."

O'Donnell said that the institute will use these projects towards plans in other towns.

"Our goal is to do some pilot projects in areas which are characteristic of others and then use those solutions from the experiments to inform other towns," O'Donnell said.

Even if the state earns funding from the NDRC, O'Donnell says that implementing resilience plans across the state is going to be an enduring process.

"It's going to take a long time," O'Donnell said. "This is not a two-year project and then you're done."

HUD will announce the NDRC winners in December. From there, HUD must obligate its funds by Sept. 30, 2017 and the winners must spend their funds by Sept. 2019.

## Local & State News Clips

### [November 18, 2015 - Map: See The US States Least Prepared For Climate Change, International Business Times](#)

More than a decade after Hurricane Katrina, Mississippi is getting an F for its failure to address climate change. The state's Gulf Coast was all but destroyed after the 2005 storm. Punishing winds and 28-foot-high storm surges left hundreds of people dead, racked up billions of dollars in damages and virtually wiped out life in what was once a thriving beachfront community. Because of climate change, more brutal weather events and aggressive flooding are likely to slam the region time and again.

Yet Mississippi officials have done next to nothing to confront the future coastal risks. The state's failing grade comes from the States at Risk project, a new initiative by Climate Central, a nonprofit research group, and ICF International, a global consulting firm. In a report released Wednesday, the groups found Mississippi is hardly alone. Only half the 50 states are making concerted efforts to adapt to rising sea levels, coastal flooding and stronger tropical storms. Just seven states – Alaska, California, Connecticut, Massachusetts, Maryland, New York and Pennsylvania – have strategies for dealing with the full sweep of climate-related effects, the analysis found.

The oversight carries a potentially massive price tag, climate science and insurance industry experts warned. As severe storms, heat waves, torrential downpours and other events become more frequent and intense, unprepared Americans risk paying more each year to rebuild infrastructure and restore communities.

"Very few states have taken sufficient action to prepare for future changes in weather patterns that are already impacting us," said Mark Begich, a former Democratic U.S. senator from Alaska who supports the project. "If we don't take action now ... we risk paying the higher costs of recovery tomorrow."

The States at Risk project assigned grades to each state based on two key factors: the scope of the current and future climate threats in each state, and the actions local leaders are taking to prepare and adapt to a warming planet. Mississippi was among five states to earn an F. The others were Arkansas, Missouri, Nevada and Texas. But five states aced the exam: California,

Connecticut, Massachusetts, New York and Pennsylvania all earned A's, reflecting the willingness of state officials to address climate change. The rest of the states were divided fairly evenly among the ranks of B's, C's and D's.

Climate Change Map The States at Risk project scored states based on two factors: the size of the current and future threats states face, and the level of action states are taking to confront those threats. States at Risk

For the report card, Climate Central and ICF International used a mix of quantitative and qualitative information. The researchers determined each state's risks by studying the latest climate and hydrology projections through 2050, as well as localized sea level rise projections. Scores for climate "preparedness" were based on the types and scope of state's existing laws, policies and research efforts around five key areas: public health, communities, transportation, energy and water.

Mississippi's F scoring is a combination of its performance in four specific areas. For coastal flooding, it earned an F, and in three other categories – drought, wildfires and extreme heat – it earned scores of D-. The Magnolia State is particularly vulnerable to warming weather. By 2050, the average number of dangerously hot days could quadruple from present levels, to 100 ultra-hot days a year, according to States at Risk. Despite that threat, Mississippi is the only state in the U.S. to take no steps to prepare for future heat risks. Such measures could include upgrading its electric grid to handle a surge of air-conditioning units and improving emergency response measures to ensure older adults and children are safe.

New York leaders, by contrast, have developed multiple climate adaptation strategies to account for rising threats of extreme heat, drought, inland and coastal flooding in the next few decades, the report found. The state earned A's for inland flooding and drought, an A- for extreme heat and a B in coastal flooding. Even so, the Empire State is far from climate-proofed. States at Risk noted that New York's adaptation efforts tend to stop or stall with each change in administration, and state leaders have yet to formally adopt a climate strategy with a firm timeline for implementation.

Supporters of States at Risk said they hoped the findings would pressure state leaders to make moves to protect residents, property and infrastructure from growing climate threats.

"We're seeing more severe weather events, both here in the U.S. and around the globe. You can see the [economic] impact climate change is having," said Carl Hedde, a senior vice president at Munich Reinsurance America Inc., the U.S. division of the German reinsurance company. "States don't have unlimited resources, so they have to make resourcing decisions," he added. The report "will help them focus on the steps that society has to take in the coming years."

While climate scientists say it's difficult to determine whether climate change directly caused an individual event, their research shows that rising global temperatures are making storms both more intense and more likely to occur. In 2014, climate change is thought to have exacerbated the effects of more than two dozen extreme events, including devastating floods in Jakarta and brutal heat waves in Australia, the U.S. National Oceanic and Atmospheric Administration (NOAA) found in a recent analysis.

At the same time, people are becoming more exposed to extreme events than they were in previous decades. Populations are shifting to hazardous areas – namely coastal cities and water-starved deserts – and building more property and infrastructure squarely in harm's way. More homes are filled with pricey electronics and have multiple vehicles than they did in the age of the typewriter, raising the risk of personal losses from water and wind damage.

The economic toll of extreme weather is rising as a result. In the U.S., the number of \$1 billion natural disasters – including blizzards, tropical cyclones, flooding and drought – has increased in the last few decades. Nearly 180 extreme storms have slammed the country since 1980, racking up a total of more than \$1 trillion in losses, according to an analysis by NOAA's National Climatic Data Center.

The costs of recovery – rebuilding shattered homes, relocating families, jump-starting interrupted

business activity -- are borne largely by U.S. taxpayers. Only about 40 percent of storm-related losses are covered by insurance in the U.S., leaving the remaining 60 percent to individual families or the state and federal governments, Hedde said.

Investing in sturdier infrastructure and response plans before events strike can help lower states' costs when storms roll through, he added, pointing to the case of Florida. After Hurricane Andrew ravaged the Atlantic region in 1992, racking up \$26.5 billion in property damages, Florida updated its state building codes to require stronger rooftops and windows and other storm-proofing measures. The damage caused by later hurricanes has been less severe as a result, Hedde said.

Even so, Florida still only earned an overall score of C- in the States at Risk report. Florida ranked first in the nation for both inland and coastal flooding threats, and second in terms of extreme heat. California ranked second in wildfires and inland flooding, and third in extreme heat. Texas secured the No. 1 slot for highest risks of extreme heat, drought and wildfires.

Yet other states may eventually surpass Texas for drought risks as global warming alters rain patterns over the Western and Midwestern region. By 2050, nine states -- Colorado, Idaho, Michigan, Minnesota, Montana, New Mexico, Texas, Washington and Wisconsin -- are projected to have even greater drought problems than Texas faces today, according to the report. Kathy Jacobs, who directs the Center for Climate Adaptation Science and Solutions at the University of Arizona in Tucson, said the analysis was the "most comprehensive assessment" of state-level climate threats. "It is critically important that states not only recognize the changing nature of the threats they face, but also that they chart a course towards greater preparedness," she said.

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### [November 16, 2015 - Storm surge maps: Saving more lives during hurricane season. GPS World](#)

Hurricane Sandy led to one of the largest-scale U.S. evacuations in recent history, according to Edward Schneyer, director of Emergency Preparedness, Suffolk County (N.Y.) Office of Emergency Management.

"During Sandy, we rescued 250 people from their flooded homes, evacuated two major hospitals and several adult care homes," Schneyer said.

Schneyer was able to do this effectively because his agency uses storm surge maps created by the U.S. Army Corps of Engineers, New York District. Storm surge is when a significant amount of water is pushed from the sea onto the land caused by a hurricane.

The maps provide emergency managers in hurricane-prone states with an understanding of storm surge potential that could occur for worst-case Category 1 to 4 storms, identifying areas from which people should evacuate if faced with the threat of storm surge.

The Army Corps is updating these maps with higher resolution modeling and topography performed by NOAA's National Hurricane Center's Storm Surge Unit, so agencies will have more accurate information to educate the public - reducing risk to themselves and their property.

### **Hazard Analysis**

"Historically, 49 percent of human casualties from hurricanes are due to storm surge," said Donald E. Cresitello, the Corps' Hurricane Evacuation Study program manager for the New York District. "Other impacts like riverine flooding due to rainfall, falling trees due to high winds, and indirect impacts like carbon monoxide poisoning and electrocution can cause deaths. The development of these maps is the first step in the hazard analysis for the hurricane evacuation study process."

The "New York Hurricane Evacuation Study Hurricane Surge Inundation Maps" are being produced in collaboration with the Army Corps' New England and Baltimore Districts and

provided to emergency managers. The Army Corps also guides emergency managers on using the maps in the decision-making software HURREVAC (Hurricane Evacuation), developed by Sea Island Software for the National Hurricane Program.

"Agency officials can use these maps to help reduce risk to the public," Cresitello said. "They can use them for evacuation planning, to redefine their hurricane evacuation zones, identify where shelters should be located and identify where assets should be staged prior to impact from a storm."

The new maps will not only show the extent of inland storm surge, but also the depth of the water - in ranges of feet - during different categories of storms, enabling emergency managers to better focus limited resources.

"In the initial stages of a response, our recovery resources are limited, especially for an event the size of Sandy. If resources are dispatched to areas that were not impacted, valuable time is lost mobilizing and reassigning those resources," Schneyer said.

At press time, Schneyer's agency is entering information from the maps into an interactive program viewable on its county's website, so the public can see whether their home is in a storm surge zone and which designated shelter is nearby. During Sandy, people who should have evacuated were stranded and faced dangers such as electrocution from downed power lines and fires from gas leaks.

"This very valuable resource is an excellent tool for public education, emergency management planning, and emergency preparedness in general," Schneyer said.

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### [November 13, 2015 - NJ Assemblyman among those facing dune lawsuit, CT Post](#)

BRICK, N.J. (AP) - A New Jersey state assemblyman who has refused to sign an easement allowing a dune project to be built behind his oceanfront house is among seven homeowners being sued by the state.

The state Department of Environmental Protection on Friday said it has filed eminent domain lawsuits against seven private property owners in Brick Township to seize strips of their beachfront property to build dunes. The move marked the start of a push to clear the way for protective dunes in an area that was the hardest hit by Superstorm Sandy.

John McKeon, a northern New Jersey Democrat, owns the house in the South Mantoloking section of Brick with his brother, Alfred. He represents Essex and Morris counties.

McKeon said he has been maintaining his own dune, and wants to ensure that the state's project meshes with his own before he'll sign the easement.

"My family and I are not looking for one penny, nor anything other than to assure that there will be an integrated dune system," he said. "Our family home survived because of the meticulous nature by which we maintained the dune for years. Our concern has always been about where the dune is going to be sited and whether we would be permitted to maintain it on a going-forward-basis."

The DEP also said Friday it is going after four property owners in Margate and Longport, where a dune project is being stalled by resistance from Margate officials and homeowners. Another 17 cases have been filed on Long Beach Island within the past month.

Gov. Chris Christie has vowed to build protective dunes along the state's entire 127-mile shoreline, but some homeowners object to the government taking private property for a public purpose, and some fear the loss of valuable oceanfront views.

Areas that had dunes fared much better during Sandy than those without them.

"It is disappointing that we need to go through such considerable legal efforts to obtain easements from holdouts who continue to delay our efforts to safeguard our coast, particularly in northern Ocean County, where Superstorm Sandy did the most damage," said DEP Commissioner Bob Martin. "We will continue to be aggressive in seeking condemnation of portions of remaining properties in northern Ocean County and elsewhere along the coast to avoid any further delays for these critical Army Corps beach projects that will protect lives and property."

There are 283 easements still outstanding on the northern Ocean County peninsula, held by 176 property owners.

Obtaining them won't be easy. Homeowners in Bay Head recently sued the DEP, seeking to opt out of the dune plan because they've spent millions of dollars of their own money on a rock wall they say works better than dunes and widened beaches. And the owners of the popular Jenkinson's beach in Point Pleasant Beach are suing the state to block dunes there.

Further south, Margate is also battling the state in court over dunes, saying its wooden bulkhead system is sufficient protection against storm surges.

Parts of Brick sustained catastrophic damage during the Oct. 29, 2012, storm, including a beachfront neighborhood that was wiped out by the storm surge and a raging gas-fed fire that resulted from houses being knocked off their foundations that wrecked about 100 homes.

Mayor John Ducey welcomed the eminent domain cases, and said he's surprised more residents didn't sign easements after a storm last month that severely eroded beaches.

The state would have to pay homeowners for the land seized for the project, but a state Supreme Court ruling drastically limited the amount homeowners can claim by requiring that the benefit of storm protection be considered along with the aesthetic loss of oceanfront views.

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### [November 11, 2015 - Report: threat of coastal flooding from Global Warming, WTNH Reporter](#)

NEW HAVEN, Conn. (WTNH)- Two new reports are giving some insight into the effects of global warming.

The growing threat could cause sea levels to rise, flooding major cities across the globe. News 8 wanted to look a little deeper to see what this would mean for us here in Connecticut.

"How you prepare for that or how you respond to that is a huge question," said Professor James Tait at Southern Connecticut State University.

These new reports are out ahead of a United Nations meeting set to take place in France at the end of this month to discuss this very topic. The goal is to prevent coastal areas around the world from flooding. And here in Connecticut we would definitely see the impact from all of this.

Climate Central is reporting that if the warming continues by another few degrees we will see cities across the globe flooded with water, including New York, Miami and London. The major issues are the carbon emissions. They're causing warming, which is melting ice and causing sea levels to rise.

This is bad news considering that half of the world's population lives along coastal areas. If sea levels rose by several feet, it would force hundreds of millions of people to abandon their homes and move further inland to already populated areas. That would be the case from Greenwich all the way to Stonington.

"This is something we have to live with. It's something we have to plan for, but the problem is the people use that uncertainty to say since we don't know and not to get all excited about it," said Tait.

Professor Tait says we are quickly reaching a tipping point. We have to reduce the amount of carbon emissions being emitted across the globe and fast to stop the melting and sea-level rise. And that will be the focus of that United Nations meeting in France.

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**[November 7, 2015 - Medlyn's Farm takes Branford Land Trust to court over flooding issue. New Haven Register](#)**

BRANFORD - Jay Medlyn rode through his vegetable farm on a green and yellow John Deer Gator, sharing stories about the land that has been passed down through his family for generations.

He pointed through the trees to a pile of boulders and remembered playing there as a young boy, when his adventures included pretending the Native American Spirits of the Quinnipiac were guiding him through the forest.

"The history of this place goes way back to even before my family," Medlyn said. "It's the most beautiful place in the world."

Medlyn's Farm is located at 710 Leetes Island Road and was passed down through the family for more than 120 years, according to Medlyn. This tradition has now been threatened, since the land has experienced extensive flooding for several years that has damaged parts of the farm. "I have a son who I would like to take over on the farm in the future, but I'm not too sure if that's even going to happen now that this issue has gone on for so long and by the looks of it no one is doing anything about it," Medlyn said. "I have this part of field right here that used to grow corn and now it's ruined, it doesn't grow anything."

Medlyn said he blames the Branford Land Trust for causing the excessive flooding, as it began when an earthen berm in an area of land adjacent to the farm, owned by the Land Trust, was removed three years ago. Medlyn said this caused salt water to invade the land.

On Oct. 23, Medlyn filed a complaint to New Haven Superior Court against the Branford Land Trust Inc. The four counts on the complaint are trespass, negligence, nuisance, and violation of Connecticut General Statutes.

"On or about September 2012, the Defendant dismantled and removed the Berm and in its place erected an elevated wooded walkway above the estuary floor, leaving the Farm, and under neighboring properties, exposed to the flood surges of Long Island Sound," the complaint states. The removal of the berm, according to Medlyn, allows salt water to invade his farm and his neighbor's lands every time there is excessive rain.

One of the main points of the complaint, Medlyn said, is that the Land Trust did not have the appropriate permits from the state Department of Energy and Environmental Protection or the town to build the bridge that replaced the berm.

According to Medlyn, the loss of corn crops has cost him thousands of dollars a year.

"The public roadway leading to the Farm is now regularly flooded, making, access to the Farm difficult, and sometimes impossible, for both the Plaintiff and customers attempting to visit his farm stand, causing the Plaintiff to experience financial distress," the complaint says.

Medlyn said he would do anything to save his farm and replenish the damaged land, but needs to know it will not be for nothing.

"It's destroyed a good third of this field and I would fix it but I don't want to go through the expense to renovate it and find out it all floods out again," Medlyn said.

Amos Barnes, president of the Branford Land Trust, said in an email, "The Trust's lawyers are in the process of reviewing the complaint and will respond in due course within the court system.

While it is unfortunate that the plaintiff has decided to resort to a lawsuit, the Trust will proceed with a balanced and reasonable approach in keeping with its longstanding protection of Branford's open spaces and its commitment to the greater Branford community of which it is a part."

According to Peter Raymond, professor of ecosystem ecology at the Yale School of Forestry & Environmental Studies, there is no documented proof that the removal of the berm is what impacted the field. A study lead by UConn's Connecticut Institute for Resilience & Climate Adaptation, or CIRCA, was done to "model the impacts and to be able to demonstrate any change in hydrology," Raymond said.

"We wanted to get this study done so we could have some sound scientific data to understand if there was any implications of moving the berm or not," said Raymond, who has studied the land adjacent to Medlyn's Farm since 2003. "We approached them to lead the study because this is a problem that's occurring up and down the East Coast."

The official results of the study have yet to be presented.

For Medlyn, his priority is saving his farm. He said filing the lawsuit was the "last straw" as he attempted to get help from the Land Trust and the state DEEP with no success.

"It's been part of my family forever, it feels like," he said. "It cannot go down like this when I know this can be fixed."

## National News Clips

### [November 20, 2015 - South Canterbury coastal asset owners yet to finalise sea level rise plans, Timaru Herald](#)

Owners of South Canterbury's major coastal assets are still formulating their responses to predicted accelerated erosion and sea level rise.

A report from Parliamentary Commissioner for the Environment Dr Jan Wright says the Government needs to review guidance it gives councils about planning for climate change-induced sea level rises.

The report, released on Thursday, suggests sea levels could rise between 20 to 100 centimetres by 2100 depending on how global greenhouse gas emission change.

Timaru District Council district services group manager Ashley Harper said on Friday plans to adapt council infrastructure to cope with sea level rise could be years away.

The council's 2015-2045 infrastructure strategy states coastal erosion accelerated by climate change could put "significant assets" at risk.

The strategy suggests a main sewer line near the Washdyke Lagoon could be damaged. The Rangitata fishing huts, Ashbury Park and walkaways near Waimataitai Beach could also be affected, the strategy states.

Harper said council staff would consider the report and could alter its plans during a long-term plan review scheduled for 2018.

The strategy suggests local rail corridors could bear the brunt of future erosion. KiwiRail hydraulic engineer Hamish Smith said the state-owned railway company had used planting, sea walls, "managed retreat" from the coast and other strategies to manage coastal hazards.

It also received wave forecast alerts from the National Institute of Water and Atmospheric

Research's EcoConnect system, he said.

Rough weather in June required KiwiRail to place rocks near tracks South of Timaru to protect them.

KiwiRail was considering several long-term options to protect its lines from sea level rise, Smith said.

Red meat processing company Silver Fern Farms' Pareora freezing works also lies on South Canterbury's coast.

In a statement responding to questions about the threat of erosion and sea level rise to the coastal abattoir, a company spokesman said Silver Fern "continually" assessed environmental risks to its sites.

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### [November 18, 2015 - Japan-World Bank Program Supporting Developing Countries™ Drive for Climate Resilience. The World Bank](#)

Increasing temperatures and storm frequency from climate change, coupled with rising seas, are driving important changes in risk profiles in Asia and across the world. In response to these critical impacts of climate change, the world is coming together in Paris to formalize a new climate treaty - both to mitigate the causes of climate change and also to help countries adapt to the consequences of a warmer future.

This is not an idle discussion, as a new World Bank report "Shock Waves: Managing the Impacts of Climate Change on Poverty" lays out. In the very near term, development that is rapid, inclusive, and climate-informed can blunt most of the force that climate change will have on poverty. Without an approach of this type, climate change could be a factor bringing an additional 100 million people into extreme poverty by 2030.

The Japan-World Bank Program for Mainstreaming Disaster Risk Management (DRM) in Developing Countries is connecting World Bank team leaders with the financial and technical support they need to build climate resilience into development.

Through over US\$32.6 million supporting 22 projects in 30 countries, the program, which is managed by the Global Facility for Disaster Reduction and Recovery (GFDRR) at the DRM Hub, Tokyo, is helping shape development that takes on the challenges of natural hazards, including those driven by hydro-meteorological phenomena.

#### **Combining Quality Infrastructure with Financial Protection in the Philippines**

In the Philippines, the World Bank is working with the government to ensure the resilience of key public buildings and infrastructure by strengthening the legal and institutional frameworks for risk management, the availability of financial protection tools, including a climate and disaster resilience fund, and the capacity for resilient reconstruction practices in areas affected by Typhoon Haiyan. The Japan-World Bank Program's support is helping leverage over \$500 million in additional finance to secure and expand these gains.

#### **Innovative Insurance Pooling and Recovery in the Pacific**

The Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI), supported by the Japan-World Bank Program, offers fast-disbursing coverage against tropical cyclones, earthquakes, and drought. In March 2015, Vanuatu rapidly received \$1.9 million to respond to damage caused by Cyclone Pam. This seemingly modest payout was eight times the annual emergency relief provision held by the government, and seven times the annual insurance premium paid by the government of Vanuatu. The DRM Hub, Tokyo also sent technical staff to support the internationally recognized Post-Disaster Needs Assessment, which the government is using to inform its recovery.

## Capturing Japanese Knowledge for Impact

The DRM Hub, Tokyo is also playing a critical role engaging Japanese expertise in important areas for adapting to climate change and hydro-meteorological hazards. Through a strategic knowledge engagement on hydro-meteorological services in Japan, key experts at the Japanese Meteorological Agency (JMA), the Cabinet Office, Ministry of Land, Infrastructure, Transport and Tourism (MLIT), and Japan International Cooperation Agency (JICA) are helping interpret and share the lessons learned from Japan's experience building a solid business case for quality services and adapt this to developing world contexts. Other engagements on business continuity planning at water and wastewater utilities have brought out key lessons from the Tokyo Metropolitan Government, which were shared with clients in Bangladesh and the Philippines.

The Japan-World Bank Program will continue to support both tested and innovative approaches to preparing countries for the effects of climate change.

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### [November 16, 2015 - Climate Change: Floods In Canada Are Going To Get Uglier. The Huffington Post](#)

"I see a screw-up coming."

John Pomeroy shook his head in disbelief as the rainfall warnings arrived at his research station in southwestern Alberta. Environment Canada had predicted 100 millimetres of rain or more might fall in the Canadian Rockies. And now they were issuing a "high flow advisory." OK. But where were the clanging alarm bells? Where was the official flood warning?

Pomeroy knew too well the built-up conditions that made a devastating flood so possible. A hydrologist with a special interest in climate, snowpack and precipitation patterns in the Rockies, Pomeroy had seen it coming two days before, as a big low pressure system slowly moved in from the south.

It worried him that even though winter's snowfall hadn't been that heavy, the spring snowpack in the mountains was late in melting.

Fearing the worst, Pomeroy had the computers and all the fragile equipment at the research station secured well above ground the next day before sending most of his staff home. Back at his house in Canmore, he and his wife put up extra food and drinking water, and prepared for no electricity.

And still no flood alert from Environment Canada.

That's when Pomeroy typed "I see a screw-up coming" in an email to Kevin Shook, a colleague at the Centre for Hydrology at the University of Saskatchewan.

The date was June 18, 2013.

"Screw-up" turned out to be an understatement.

When 200 millimetres of rain - and in some cases 350 millimetres of rain - poured down in the coming days, it fell on still frozen alpine wetlands and high meadows unable to soak up much moisture.

Wet snow rapidly melted and came barrelling down the mountainsides, bulldozing swaths of forest and carving out new channels along the Ghost, Kananaskis, Elbow, Sheep, Highwood and other rivers and creeks.

In Canmore, Pomeroy watched in awe as Cougar Creek - which is normally one metre wide and sometimes dry in the spring - swelled to 100 metres in width hours before the flood alert was announced.

In just a few hours, dozens of houses along its banks were damaged. CP Rail's mainline, the TransCanada Highway and Highway 1A were washed out and campgrounds along the Bow River were submerged. Hundreds of basements in Canmore filled with water.

Canmore was not the only place hit hard and left unprepared for the deluge. Flooding occurred to the north and the south along the Red Deer and Oldman rivers, and to the west along the Elk River. Had it not been for dam storage and slow release at Lake Diefenbaker in Saskatchewan, says Pomeroy, the moderate flooding that occurred in that province would have been a lot worse.

By the time the rain stopped, at least a dozen communities, including the cities of Calgary and High River, declared states of emergency. Five people were dead. More than 100,000 people had to be evacuated. With an estimated \$6 billion in damages, the Alberta government described the flood as the costliest natural disaster in Canadian history.

But it's only a matter of time, in this era of climate change, before a deluge does even worse damage.

### **Disastrous deluges**

Floods are by far responsible for most of the natural disasters in Canada. Between 1900 and 2013, 289 flood disasters occurred across the country. That's more than the next three major disaster events - hail, wildfire, and snowstorms - combined.

Many studies, including one by Natural Resources Canada, predict that this flooding is likely to get worse as the climate heats up and introduces more moisture into the atmosphere. If the past tells us anything about this future, it's going to get ugly.

Since 1996, when the overflow of the Saguenay River in Quebec caused \$700 million of damage and forced the evacuation of 16,000 people, there have been catastrophic floods:

- Along the Red River with 25,000 people evacuated in 1997.
- In Alberta in 2005 when 13 communities declared states of emergency.
- Along the Saint John River in New Brunswick in 2008 when 1,600 homes and properties were damaged.
- Along the Red River in 2011 when the province of Manitoba called a province-wide emergency.

The record-breaking 2005 floods in Toronto paled in comparison to the July 8, 2013 flood that caused \$850 million in damages in the GTA.

In many cases, the nature of the flooding was unprecedented. On August 8, 2014, the Ontario city of Burlington got two months of rain in one day.

Floods that swamped large parts of Saskatchewan and Manitoba in June of 2014 were also unique in that they were caused by rainfall, not the usual snow melt, and at a time of year when creeks are normally dry.

While climate models suggest that global warming will exacerbate the problem as temperatures increase and trap more moisture in the atmosphere, there is additional evidence to suggest that severe weather systems could linger longer than they have in the past.

Insurance companies have been at their wits' end thinking of ways of dealing with mounting claims, according to Blair Feltmate, chair of the Climate Change Adaptation Project (CCAP) at the University of Waterloo. Today, he says, more than 50 per cent of all the disaster-related compensation payments made by insurance companies comes from flood damage.

In nine of the past 11 years, he adds, insurance companies have paid out more than they have collected in premiums.

"You hear lots of people talk about climate change, but very little on adaptation to climate change," says Feltmate who emphasizes that he has no doubt that climate change will result in an increase in flooding events. "We need to be doing that. Right now. And we need to think about where water is going to be 25 or 50 years from now."

Canada's government has heard this from scientists, insurance company executives, municipal politicians and even Public Safety Canada. In August 2013, Global News used Access to Information legislation to get access to public safety documents that rated natural disasters as a bigger risk to Canada than cyber threats and emerging threats to national security.

Calgary Mayor Naheed Nenshi says that an enormous amount of money needs to be invested in flood mitigation. When campaigning, newly elected Prime Minister Justin Trudeau has earmarked part of his 10-year, \$125 billion infrastructure plan promise for flood mitigation.

For Pomeroy, the lessons of the past aren't being acted on fast enough. Talk of additional river water storage upstream of Calgary have been discussed, but not implemented, he points out. More innovative solutions, such as building a tunnel from the Glenmore Reservoir to the Bow River downstream of Calgary to permit floodwaters from the Elbow River to bypass the city, have not gone anywhere either.

"In Canmore, homes along Cougar Creek were almost entirely rebuilt despite creekbed mitigations that cannot handle a debris flow from the size of the 2013 event," he wrote in a recent report.

"In Calgary very few homes were removed from the floodplain and in Kananaskis Country, \$18 million was earmarked to rebuild a flood-damaged golf course in its floodplain location along Evan Thomas Creek. Only in High River were whole subdivisions in a flood plain declared untenable and slated for removal."

Feltmate says the situation is the same across the country. After recently assessing the preparedness of 15 Canadian cities to limit flood damage, he and his colleagues gave Ottawa and Winnipeg the only high grades. Halifax failed. Mississauga, Edmonton, Fredericton, Whitehorse, Charlottetown, Quebec City, Regina, and Vancouver barely got a passing grade. "Governments tend to make promises in the weeks after a flood that they don't keep because it takes time and money to deal with it," he says. "What they don't realize is that in failing to weather-harden our communities, they will end up paying more in disaster relief."

Feltmate has no doubt that the situation is going to get worse if the world continues to rely on coal, oil and natural gas as 80 per cent of the world's population currently does.

"A recent report suggests that between now and 2030, that reliance on fossil fuels isn't going to change much. But our footprint will. In 2030, there will be between 1.3 and 1.5 billion more people on the planet that will rely on coal, oil and natural gas for energy if we continue to rely on this form energy. Even if we find some ways of reducing greenhouse gases, the climate is going to continue to warm for some time. What we need to do now is weather-proof our communities and our homes."

In a recently released report, John Pomeroy along with scientists Ronald Stewart and Paul Whitfield say that advancing the science of predicting floods is imperative in preparing the country for future floods in a warmer world. But that, they also say, is not enough.

What is needed is a national strategy that would replace the fragmented, interprovincial, underfinanced and somewhat technologically challenged system that failed the people of Alberta in 2013.

"The flood of 2013 may have been the largest in 60 years, but it was not extraordinary, and it was likely neither the flood of the century, nor the flood of a lifetime for those in the region," says Pomeroy. "We need to prepare downstream communities for similar floods as well as floods that will be a lot larger."

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### [\*\*November 16, 215 - The Great Glacier Melt Spreads to Greenland™s North, Take Part\*\*](#)

A Greenland glacier that holds the equivalent of 19 inches of sea-level rise has been melting at

an accelerated rate since 2012, shedding as much as 5 billion metric tons a year, according to a new study published in the journal Science.

While scientists have observed the melting of Greenland's southern glaciers, the Zachariæ Isstrøm glacier is the first major glacier in the northern part of the country to show similar losses.

"That may be an indication that climate warming is spreading toward the poles," said Jeremie Mouginot, the study's lead author and an associate project scientist at the University of California, Irvine.

Working with researchers at NASA's Jet Propulsion Laboratory and the University of Kansas, the team used aerial surveys, radar, laser profiling systems, and satellite observations from multiple international space agencies to piece together 40 years of data for the study.

They found that the Zachariæ glacier is rapidly eroding from the bottom thanks to warmer ocean water and increasing levels of meltwater that are affecting the ice sheet surface.

"The top of the glacier is melting away as a result of decades of steadily increasing air temperatures, while its underside is compromised by currents carrying warmer ocean water, and the glacier is now breaking away into bits and pieces and retreating into deeper ground," Eric Rignot, study coauthor and UCI professor of earth system science, said in a statement.

"From our record, it is the first time Zachariæ has retreated so far inland and has lost its floating ice shelf," Mouginot said.

The researchers also pointed out a neighboring glacier, Nioghalvfjerdingsfjorden, which is experiencing rapid ice melts but at a slower pace than Zachariæ. The two glaciers make up 12 percent of Greenland's ice sheet. If both fully collapsed, it would mean 39 inches of sea-level rise for the world.

"At the present rate of mass loss, it would take millennia for the glacier to completely disappear," Mouginot said. "But we do not know how fast the glacier will flow in the coming decades."

Scientists estimate Greenland's 650,000-square-mile ice sheet is losing 303 billion tons of ice on average per year. But more ice loss from the north could mean an acceleration of the Intergovernmental Panel on Climate Change's projection of sea-level rise of 1.6 feet to 3.2 feet by the end of the century. If the entire ice sheet melted, it would raise sea levels by more than 20 feet worldwide.

"Not long ago, we wondered about the effect on sea levels if Earth's major glaciers were to start retreating," Rignot said. "We no longer need to wonder; for a couple of decades now, we've been able to directly observe the results of climate warming on polar glaciers. The changes are staggering and are now affecting the four corners of Greenland."

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### [November 13, 215 - Rapidly Melting Glacier Has Enough Mass To Raise Sea Levels By Nearly 2 Feet. Think Progress](#)

Say goodbye to the beaches of your youth.

A massive glacier in Greenland is on the very verge of collapse, researchers have found. From 1996 to 2010, the edge of the glacier lost 2.2 miles into the ocean. But over just the next five years, it lost another 2.2 miles. The rapidly diminishing ice block, Zachariae Isstrom, has enough mass to raise the level of sea by nearly two feet.

"The destabilization of this marine-based sector will increase sea-level rise from the Greenland Ice Sheet for decades to come" the researchers write in their report, published Thursday in Science.

The depletion of Greenland's glaciers is due largely to warming ocean waters, the researchers

said. According to earlier studies, 90 percent of global warming is taking place in the ocean. Because Greenland's glaciers extend deep into the ocean, they are particularly exposed to changing temperatures. (Hot tip: When you're trying to defrost a frozen steak, putting it in water will massively speed up the process. The same process is at work here.)

"North Greenland glaciers are changing rapidly," lead author Jeremie Mouginot, an associate project scientist in the Department of Earth System Science at the University of California, Irvine, said in a statement. "The shape and dynamics of Zachariae Isstrom have changed dramatically over the last few years. The glacier is now breaking up and calving high volumes of icebergs into the ocean, which will result in rising sea levels for decades to come."

There are actually two glaciers rapidly depleting in the northeast section of Greenland: the Zachariae Isstrom and Nioghalvfjerdingsfjorden. Combined, they represent more than three feet of sea level rise. There are also glaciers melting on the west side of the country. Altogether, the ice sheet of Greenland holds enough water to raise sea levels by 20 feet.

"If you see Greenland as a boat, it's like we're taking water from every side now," Jeremie Mouginot, an author of the report from the University of California-Irvine, told the Washington Post.

A century's worth of data analyzed in a study over the summer showed that the world's glaciers are melting faster than now they ever have before. Even if global warming stopped today, they would continue to melt, the researchers found.

That is obviously bad news for sea level rise. It's amazing to think that glaciers up in Greenland hold enough water to inundate our entire coastline, but it's true. To put it to scale, according to an extensive report in the New York Times, Greenland's ice sheets held 75 percent of the world's freshwater at the beginning of the industrial age.

A mapping tool released in September gives users an opportunity to see what their city will look like under different sea level scenarios. The project posits that without global action, carbon pollution cause sea level to rise 14 to 33 feet - but even at smaller numbers, U.S. cities such as New Orleans and Miami are likely to be threatened, and it could be too late to stop it.

## Announcements

### [November 17, 2015 - FEMA releases fact sheets on climate resilient mitigation activities eligible for funding under the hazard mitigation program](#)

The President's 2015 Opportunity, Growth, and Security Initiative (OGSI); Executive Order 13653 Preparing the United States for the Impacts of Climate Change; the President's 2013 Climate Action Plan; FEMA's Climate Change Adaptation Policy; and the 2014-2018 FEMA Strategic Plan, all identify the risks and impacts associated with climate change on community resilience to natural hazards, and direct Federal agencies to support climate resilient infrastructure.

FEMA is helping communities to incorporate methods to mitigate the impacts of climate change into HMA funded risk reduction activities by providing guidance on Climate Resilient Mitigation Activities. FEMA has developed initial guidance on Climate Resilient Mitigation Activities including green infrastructure methods, expanded ecosystem service benefits, and three flood reduction and drought mitigation activities: Aquifer Storage and Recovery (ASR), Floodplain and Stream Restoration (FSR), and Flood Diversion and Storage (FDS).

FEMA encourages communities to use this information in developing eligible HMA project applications that leverage risk reduction actions and increase resilience to the impacts of climate change.

### **[November 19, 2015 - Union of Concerned Scientists released report "Surviving and Thriving in the Face of Rising Sea" including Connecticut's coastal counties](#)**

This analysis uses a new screening tool to identify "climate equity hotspots," or locations where climate and socioeconomic factors combine to create heightened risks.

Thirty-five coastal counties in nine East and Gulf Coast states were evaluated. Exposure to climate risks-from projected sea level rise and tidal flooding-was determined for each area.

Locations were also evaluated for socioeconomic risk factors-including poverty, per capita income, educational attainment, and share of minority population-that pose special challenges to their ability to prepare and recover from disasters.

The results highlight the relative joint risks of climate and socioeconomic factors at a county level.

Case studies for five of these locations further highlight some of the challenges faced by these communities.

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### **[November 20, 2015 - America's Preparedness Report Card A - Connecticut](#)**

Connecticut is one of the leaders in preparing for its climate threats, which include extreme heat, inland flooding, and coastal flooding. It is one of only a few states that have a detailed climate change adaptation plan that covers these climate threats.

To see the Connecticut Summary Report: <http://statesatrisk.org/report-card/connecticut>

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### **[December 1- 2, 2015 - Registration Now Open! Living Shorelines: Sound Science, Innovative Approaches, Connected Community 1st National Technology Transfer Meeting and Regional Workshops](#)**

When: December 1-2 2015

Where: Hilton Hartford Hartford, CT

Restore America's Estuaries, in partnership with the Connecticut Institute for Resilience and Climate Adaptation, is pleased to announce a first-of-its-kind living shorelines event! This Summit - Living Shorelines: Sound Science, Innovative Approaches, Connected Community - will feature nationally-relevant issues and discussions along with region-specific workshops.

Whether you call them "soft shorelines," "living shorelines," "soft armoring," or "soft stabilization projects," you belong at this gathering!

Follow on twitter @LSSummit2015

Contact Jeff Benoit - [jbenoit@estuaries.org](mailto:jbenoit@estuaries.org)

Any Questions? Contact Suzanne Simon - [ssimon@estuaries.org](mailto:ssimon@estuaries.org)

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### **[December 1 & 4, 2015 - Exploring Climate Solutions Webinar Series. Governor's Council on Climate Change. Upcoming webinars on December 1 & 4. Register here.](#)**

The series explores innovative and successful climate change solutions across Connecticut and the nation. The webinars provide first-hand accounts of high-profile municipal climate programs, climate initiatives in the corporate world, new greenhouse gas reporting frameworks, statewide sustainability programs, low-carbon fuel initiatives, and other programs and projects that help reduce greenhouse gas emissions and/or improve climate resilience.

The webinars are free and open to the public. Registration required. Attend scheduled webinars

from any computer connected to the web. During the webinars, attendees may submit questions for the presenters to answer.

Boston Green Ribbon Commission  
December 1, 11:45 am to 12:45 pm

Learn about the Boston Green Ribbon Commission's efforts to bring together leaders from all segments of Boston to share ideas, monitor progress, and engage key sectors in implementation of the city's Climate Action Plan.

Connecticut Hydrogen Fuel Cell Coalition  
December 4, Noon to 1:00

In our upcoming December 4th lunchtime webinar, participants will learn about the Connecticut Hydrogen Fuel Cell Coalition. This webinar presentation will identify the strategy and method for the development of Connecticut's hydrogen fuel cell "Roadmap" document, as well as those of other states in the Northeast.

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### **[December 8-9, 2015 - EPA is offering an interactive workshop - resiliency training for stormwater, drinking water, waste water utilities](#)**

The U.S. Environmental Protection Agency is offering a free, interactive training workshop on December 8 and 9, 2015 in Edison, New Jersey to help utilities explore strategies for enhancing resilience to extreme weather events and plan ahead for addressing long-term climate change impacts. The workshop will include opportunities for collaborative exchange of ideas as well as hands-on training with the EPA's Climate Resilience Evaluation and Awareness Tool (CREAT), version 3.0. The workshop is targeted to drinking water, wastewater and stormwater utility representatives but can also be attended by Federal, State, and local government staff, watershed planners and water sector association representatives. Continuing education units will be available.

To learn more about EPA's Climate Ready Water Utilities initiative; visit <http://www2.epa.gov/crwu>

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### **[January 15, 2015 - Next review date for CIRCA Matching Funds Program. Up to \\$100,000 available. For more information go to <http://circa.uconn.edu/funds.htm>](#)**

The CIRCA Executive Steering Committee is excited to announce its fourth round of funding under the Matching Funds Program - up to \$100,000 is available. CIRCA will consider requests from Connecticut municipalities, institutions, universities, foundations, and other non-governmental organizations for matching funds for projects that address the mission of the Institute. To be funded, a successful Matching Funds request must have a commitment of primary funding within 6 months of the CIRCA award announcement, or have received a waiver from the CIRCA Executive Steering Committee. CIRCA Matching Funds will provide up to 25% of the primary funder's contribution other than municipal or State of Connecticut funds to enhance the likely success of project proposals that advance CIRCA research and implementation priorities. In evaluating proposals preference will be given to those that leverage independent funding awarded through a competitive process.

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### **[March 22-24, 2016 - 14th Annual Climate Prediction Applications Science Workshop \(CPASW\) Burlington, VT](#)**

The 14th Annual Climate Prediction Applications Science Workshop (CPASW) will bring together a diverse group of climate researchers, information producers, and users to share developments in the research and applications of climate predictions for societal decision-making.

The 2016 CPASW is hosted by the NOAA National Weather Service Climate Services Branch, University of Vermont, and other climate services partners. Find out more.

### **THEME: "Climate Services for Addressing Environmental Risks and Hazards"**

In 2016, the 14th Annual CPASW will convene in Burlington, Vermont, with a workshop theme of "Climate Services for Addressing Environmental Risks and Hazards." This theme will integrate local to global-scale climate information applications related to decision making for environmental risks and hazards on human health (air quality, temperature extremes, and water quality); flooding and inundation; and other hydro-meteorological hazards (e.g., drought, hurricanes, tornados, sea-level rise, etc.) in urban, rural, and coastal areas.

Climate, including both short-term variability and long-term climate change, is a cross-cutting concern for all of these areas and supports critical decision-making around planning, resource allocation, sustainable development, and environmental management, needed for creating resilient communities. The CPASW 2016 theme will also explore the needs and showcase existing effective strategies for translational scientists and/or the users' role in shaping products and services.

### **Who Should Attend?**

- Water and natural resource managers
- Emergency management personnel
- Forestry, wildlife, and landscape conservation specialists
- Health community providers and researchers
- Applied climatologists and scientists who use climate information
- Decision-makers who utilize climate predictions, products, and services
- Developers and providers of climate data, forecasts, applications, and tools
- Climate extension specialists and communicators of climate information
- Social scientists who work with climate information users and stakeholders
- International organizations



The *Resilience Roundup* highlights CIRCA's presence in the news, provides links to recent local/state/national news articles related to resilience and adaptation, and announces upcoming events and seminars.

The Connecticut Institute for Resilience and Climate Adaptation's (CIRCA) mission is to increase the resilience and sustainability of vulnerable communities along Connecticut's coast and inland waterways to the growing impacts of climate change and extreme weather on the natural, built, and human environment. The institute is located at the University of Connecticut's Avery Point campus and includes faculty from across the university. CIRCA is a partnership between UConn and the Connecticut Department of Energy and Environmental Protection (CT DEEP).

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