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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

February 10, 2016

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

CIRCA in the News

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- **February 8, 2016** - *Sea-level rise 'could last twice as long as human history,'* The Guardian
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- **February 7, 2016** - *Plan to Flood-Proof Hoboken Runs Into a Wall*, The New York Times
- **February 1, 2016** - *Why the U.S. East Coast could be a major 'hotspot' for rising seas*, The Washington Post
- **January 30, 2016** - *Predicting El Niño's flood risk: How new warning systems save lives, property*, San Jose Mercury News
- **January 25, 2016** - *Sea level rise from ocean warming underestimated, scientists say*, The Guardian

Announcements

- **March 15, 2016** - Next review date for CIRCA Matching Funds Program. Up to \$100,000 available. For more information go to <http://circa.uconn.edu/funds.htm>
- **April 6, 2016** - NOAA [funding opportunity](#) for community habitat restoration. Application due April 6, 2016
- **April 15, 2016** - CIRCA Municipal Resilience Grant Program Round 2: Applications due April 15, 2016. Up to \$100,000 available. <http://circa.uconn.edu/funds-muni.htm>
- **Long Island Sound Study launches [new climate change website](#)**
- **CIRCA awards more than \$100,000 to support resiliency projects** in Milford, New

Haven, Northwest Hills COG, Waterford, and WestCOG through the Municipal Resilience Grant Program.

- **CIRCA Matching Funds Program supports two research projects** funded through the Connecticut Sea Grant focused on coastal adaptation.

CIRCA in the News

[February 2, 2016 - Climate Resiliency Project Wins Federal Competition, UConn Today](#)

For a small state, Connecticut has a lot of coastline. When Hurricane Sandy blasted through in 2012, giving a taste of a future of flooding and extreme storms, the state took action. A coalition of regulators, municipalities, and UConn researchers designed a demonstration project in Bridgeport that works with the ecology and shoreline geography to protect critical energy infrastructure and residents in one of the state's poorest, most vulnerable neighborhoods.

The proposal just won \$54.3 million in January from the National Disaster Resilience Competition, held by the federal Department of Housing and Urban Development to distribute the last of the Hurricane Sandy recovery money.

"The underlying framework of Connecticut's application is based upon enhancing resilience in communities increasingly at risk [as a result of climate change]," says Department of Energy and Environmental Protection (DEEP) Commissioner Robert Klee.

Klee notes that the project will take advantage of the state's unique geography, and use it to support broader efforts to promote transit-oriented development. Because Interstate 95 and the Northeast rail corridor also run along the Connecticut coast, the economy of the entire New York-Boston region depends upon keeping the transportation lines in the state open and above water.

UConn's Connecticut Institute for Resilience and Climate Adaptation (CIRCA) played a key role in the design of the winning project. Rebecca French, CIRCA's director of community engagement, led a team that provided a comprehensive climate vulnerability assessment for the coast of New Haven and Fairfield counties, in partnership with state agency staff from State Agencies Fostering Resilience and the Yale Urban Ecology and Design Lab. Professor of marine sciences and executive director of CIRCA Jim O'Donnell advised on the flood risks that Connecticut will face from sea level rise and storm surge under current and future climate conditions, as the state developed Bridgeport pilot project.

"This is an important example of what can be accomplished when you combine the world-class, multidisciplinary researchers who are part of UConn's centers of excellence, like CIRCA, and the extensive practical regulatory experience that exists in government agencies like DEEP," says Jeff Seemann, UConn's vice president for research. "This project will have a profound impact on the health and safety of Connecticut's citizens and natural environment."

CIRCA and DEEP saw the competition as an opportunity to test a strategy that capitalizes on the state's geology. Connecticut is covered by a series of ridges and valleys that run north-south into Long Island Sound. A street by a town's harbor might be just a foot or two above sea level, but rise steeply within just a few blocks to a 100-foot elevation or higher. Part of the federal award will support work like that of O'Donnell and UConn engineering professor Manos Anagnostou, who have been working on a model that can predict both coastal and inland flooding on a much finer, and more useful, scale than Federal Emergency Management Agency maps, which do not include the impacts of future sea level rise.

Much of Connecticut's population lives and works near the coast. If key infrastructure connecting the high ground can be raised and protected, as proposed, the state might not suffer terribly from sea level rise. Such an ambitious project may eventually encompass even parts of

the New York-New Haven-Boston railroad and Interstate 95. But Connecticut first needs to prove the concept.

Bridgeport's South End is the perfect place to test the strategy. A direct hit by a major storm right now could cut off the neighborhood from the rest of the city, stranding thousands of residents and taking out critical energy substations and generation plants. The neighborhood's history stretches back to a pre-Civil War community of free black merchant marines and oystermen, but the community is currently cut off from the downtown by a disconnected street network, the sports stadium, and the University of Bridgeport.

Most of the federal money will go toward elevating University Avenue and constructing a greenway earthen berm to protect the community against storm surges. The raised street will also ensure access for rail, pedestrians, and bicyclists to and from the downtown, even during storms that previously would have flooded the road. Other streets will also be raised, creating a resilient corridor network that provides multimodal transportation options, while simultaneously protecting against floodwaters. The network would incorporate the natural ridge line that already exists along Park Avenue. Another part of the award allocates money to analyze opportunities for microgrids, cogeneration systems, and alternative energy sources, to limit disruptions during emergencies.

If successful, this project won't end with Bridgeport. As part of the project design, regulators and researchers in CIRCA spoke with many coastal municipalities about critical infrastructure needs. If the Bridgeport project works well, the state may be able to implement a larger coastal resilience plan, investing in communities that are safe, resilient to climate change, and focused on sustainable solutions.

[January 27, 2016 - With the Climate Crisis Already Here, States Work to Adapt, Between the Lines](#)

As much of the East Coast was digging out from the historic snowstorm and coastal flooding that hit the region in late January, the federal government announced that it has awarded \$1 billion to 14 states through the Department of Housing and Urban Development's National Disaster Resilience Competition. Connecticut, where 95 percent of the population lives within 50 miles of the coast and has suffered massive damage to its coastline in several recent storms, received roughly \$54 million. Those funds will be spent developing a project in Bridgeport, based on the state's resilience corridor concept and developing a regional planning effort for 13 municipalities in Fairfield and New Haven counties. The federal grant will also finance the development of a climate change adaptation framework through the Connecticut Institute for Resilience in Climate Adaptation at the University of Connecticut.

Alex Felson, a registered landscape architect for the past 15 years, worked closely with the University of Connecticut and state agencies on the HUD grant application. Through his own firm and the Urban Ecology and Design Lab at Yale that he runs, he's focused on coastal adaptation, green infrastructure and constructed ecosystems. He earlier won a \$10 million grant to construct "bio-retention" gardens at Seaside Village, a residential complex in Bridgeport.

Between The Lines' Melinda Tuhus spoke with Felson, who describes how his work is helping the region adapt to severe weather events caused by climate change.

ALEX FELSON: A bio-retention system is essentially like a swale; it's an earthwork that includes vegetation and it's intended to help manage storm water in an urban areas. And so you're designing it to perform a function for water infiltration and nutrient uptake. So I designed it as a public amenity, a public park in Seaside Village, working with the community, so it was a bottom-up approach, so it was a catalyst for the community to develop a dog park and a community garden.

BETWEEN THE LINES: They do sound like nice amenities, but they don't sound like any match for the climate changes that are coming. How does this HUD grant address those big issues?

ALEX FELSON: So for the HUD National Resilience Disaster competition, I worked with UConn to develop the Phase 1 proposal, to develop what we call resilience corridors. When you look at the risk the state faces across these coastal areas, there are some tremendous risks for Connecticut. It's second to Florida in terms of the amount of investment along the coast that's insured property. There's a lot of concern essentially with Metro North and Interstate 95 running parallel to the coast, with the functionality of the transportation infrastructure under future storm events and sea level rise. So we developed what we called a resilience corridor, which builds on transit-oriented development as a concept, so it's really an economic development proposal to connect resources and access upland to the shorefront communities or to the shorefront conditions. So rather than investing in repetitive lost housing along the shorefront or investing directly in these neighborhoods, we're investing in the connecting corridors to these neighborhoods and looking at ways to use coastal adaptation funding as a tool to promote economic development, building on Metro North as a kind of connector across Connecticut.

BETWEEN THE LINES: Are people in your field talking about moving people and infrastructure like railroad lines away from the immediate coast and abandoning it? I know after Superstorm Sandy, Gov. Cuomo talked about buying up coastal properties and letting them go back to nature as a way of providing a storm buffer. Is that something that's going to be necessary in Connecticut or other regions? What's Connecticut Gov. Dannel Malloy's take on this?

ALEX FELSON: The governor talks about building up, not back. And Connecticut has a unique condition in contrast to New Jersey or Florida or other locations. You know, Florida and New Jersey, the other coastal plains, coastal piedmonts, they're fairly flat topographically. Connecticut, because of the glacial landscape and the historic geology that was the basis of how the state formed over time, creates these kind of ridge lines that run north-south and have more of a patchy network of low-lying areas along the coast. So the risks along the coast are smaller patches, so it's less of an issue than what you're describing. So in other words, with some strategic reorganization and restructuring as well as some effective economic revitalization strategies in these corridors that create egress from areas at risk, the idea is to really reframe it and value the land we have and the housing stock we have along the coast effectively for future conditions and to become coastally adapted for the future, partly to address some of the concerns current homeowners have as well as future home buyers in terms of the value of their property and the risks they might face. So it's pretty distinct from New Jersey or Florida and elsewhere in terms of the framing, the adaptation strategy that we're proposing.

We're not really looking at retreat as an agenda. We're looking at economic revitalization as a tool to structure relationships between the upland resources and upland connections and down to the shorefront communities.

BETWEEN THE LINES: Is there anything else you or people in your field are working on regarding coastal resilience?

ALEX FELSON: You know, there are all kinds of opportunities for establishing strategic phasing for how to adapt to future conditions. The challenge is that there's been a lot of build-out and a lot of infrastructure development and critical facilities built in coastal areas. And so with homeowners and property ownership and private property, it creates a conundrum at the local scale for how to navigate and negotiate land use changes. That's where I think the value of landscape architecture and planning fields come in, where it's not just an infrastructure solution, but it's really an issue of communicating across stakeholders and establishing solutions that are co-generated at a local level that can promote or allow for adaptation over time, but that can also use the funding toward ecological benefits and social benefits. So in Connecticut, the idea of the resilience corridor, while it functions as an egress to help alleviate some of the risk within each municipality, it also allows for access to the coast, which is one of the issues we have in Connecticut is that we have limited access to the coast, so it adds a social value while also creating risk reduction. And I think that idea of multi-functional landscapes and developing these ecologically rich and socially rich solutions are the way to move this forward.

For more information, visit the Urban Ecology and Design Laboratory at uedlab.yale.edu; Connecticut Institute for Resilience and Climate Adaptation (CIRCA) circa.uconn.edu; and read about Alexander Felson, Yale Climate and Energy Institute at climate.yale.edu/people/alexander-

felson.

Local & State News Clips

[February 2, 2016 - Grant Will Help Old Saybrook Plan for Sea Level Rise, Zip 06](#)

Even now, in the highest tides, water floods some town streets routinely. What if the highest tides became the town's average tides? With current predictions that average sea levels will rise one to five feet by the end of the century, this and worse could happen. How can the town prepare?

Old Saybrook, surrounded on two sides by water and one of the region's lowest-lying municipalities, is considering a range of strategies, including the as-yet uncommonly-used "R"-word: retreat. That willingness to consider all the options may have been a key to winning a recent \$125,000 state grant.

In 2014, the Board of Selectmen (BOS) charged the volunteers of the Sea Level Rise (SLR) Climate Adaptation Committee to study the risks facing the town and its neighborhoods from sea level rise and to make recommendations to help the town prepare for it. After 18 months of work, the committee presented its final report to the BOS in December 2015.

The report notes that "Modeling of sea level rise by the U.S. Army Corps of Engineers using current data from the National Oceanic and Atmospheric Administration predicts the potential increase in sea level of one- to five feet by the end of this century."

A key recommendation in the report's summary is that the town "engage a consulting firm that specializes in coastal resilience planning to study the impacts and risks of sea level rise and climate change to identify areas of increased flooding, coast erosion, and shoreline change. The study should recommend specific adaptation and mitigation actions for the town and its residents."

Another recommendation was that the BOS should charge an existing town agency to continue the work started by the committee. A third was that the town should begin budgeting for the design and construction of physical solutions to address sea level rise, especially those for which matching funds garner government or non-profit grants.

A more in-depth study of these topics is now possible with the award to the town this month of \$125,000 planning grant from the State of Connecticut.

"We applied for the planning grant through the Community Development Block Grant Disaster Recovery funds to hone in on the recommendation of our hazard mitigation plan to see where [the town] should retreat from. The town got this [competitive] grant because Old Saybrook was the only town that used the 'R' word," said Town Planner Christine Nelson in her remarks to the BOS on Jan. 12.

Consistent with the committee's recommendation, the BOS also voted to make the Planning Commission the town agency responsible for developing the request for proposal for a coastal resilience consultant, for overseeing the hiring of such a firm, and monitoring the firm's work.

"Sea level rise is a real issue. It's important when we add new infrastructure [in town] that this needs to be considered," said Sea Level Rise Committee Member Doug McCracken, giving one example: "If we're going to repair Old Hammock Road, at what level should we pave it?"

From the audience, Janice Holland commented about how the Town of Guilford used a state planning grant it was awarded.

"A planning grant to Guilford led to a Resiliency Plan that was adopted in 2015," said Holland.

First Selectman Carl Fortuna, Jr., remarked that the planning grant and the work it will fund once again demonstrates town follow-through. He said that when the selectmen organized an ad hoc committee like the one that studied sea level rise, the group's recommendations don't sit in a report on the shelf. Instead, the findings can spur and guide other town actions and in-depth planning.

[January 25, 2016 - Officials Applaud Federal Disaster Funds To Stop Flooding In Bridgeport - Bridgeport Daily Voice](#)

BRIDGEPORT, Conn. - Gov. Dannel Malloy and the state's Congressional delegation are applauding a \$54 million federal grant to support flood and disaster prevention projects in Bridgeport and New Haven.

Bridgeport won the lion's share of the money - about \$38 million - to support disaster preparedness efforts in the city's South End, which has been ravaged by Hurricane Sandy and other large storms in recent years.

"This substantial, competitive federal award will do more than just repair past damage - it will help ensure the South End will thrive for decades to come while also funding comprehensive planning efforts to proactively protect and preserve all of our coastal communities," said U.S. Sen. Richard Blumenthal.

The grant stems from a federal Housing and Urban Development competition for resilient infrastructure and housing projects.

The Bridgeport funds will support a pilot program of the Connecticut Connections Coastal Resilience Plan.

It will be used to elevate University Avenue and create a protective earthen berm against storm tides, construct a community center to be used for future recovery efforts and study the South End's energy infrastructure.

The remaining funds will help develop guidelines for incorporating flood mitigation technologies in New Haven and extend the existing coastal resilience plan to other communities in Fairfield County and New Haven County.

Malloy said the state has transformed the way it responds to emergencies, and the funding will allow for more modernization.

"Global warming is real - the science is real," he said. "And the more we all acknowledge that reality, the more prepared we can be for extreme weather."

State Rep. Steve Stafstrom thanked the governor and legislators for their support.

"This grant is great news for the city and will go a long ways towards protecting Bridgeport's electrical and transportation infrastructure against future storms and flooding," he said.

U.S. Sen. Chris Murphy, who met with HUD Secretary Julián Castro in Bridgeport last week, said he pressed the secretary for more post-Sandy funding.

"Today is a transformational day for our coastline communities," Murphy said. "We need forward-looking improvements and bold investments. Today's federal grant, which was made possible by the hard work and close collaboration of local, state, and federal leaders, gets us closer to that goal."

U.S. Rep. Jim Himes (D-4th District) said preparing today will save money tomorrow.

National News Clips

[February 8, 2016 - Sea-level rise 'could last twice as long as human history,' The Guardian](#)

Huge sea-level rises caused by climate change will last far longer than the entire history of human civilization to date, according to new research, unless the brief window of opportunity of the next few decades is used to cut carbon emissions drastically.

Even if global warming is capped at governments' target of 2C - which is already seen as difficult - 20% of the world's population will eventually have to migrate away from coasts swamped by rising oceans. Cities including New York, London, Rio de Janeiro, Cairo, Calcutta, Jakarta and Shanghai would all be submerged.

"Much of the carbon we are putting in the air from burning fossil fuels will stay there for thousands of years," said Prof Peter Clark, at Oregon State University in the US and who led the new work. "People need to understand that the effects of climate change won't go away, at least not for thousands of generations."

"The long-term view sends the chilling message of what the real risks and consequences are of the fossil fuel era," said Prof Thomas Stocker, at the University of Bern, Switzerland and also part of the research team. "It will commit us to massive adaptation efforts so that for many, dislocation and migration becomes the only option."

The report, published in the journal Nature Climate Change, notes most research looks at the impacts of global warming by 2100 and so misses one of the biggest consequences for civilisation - the long-term melting of polar ice caps and sea-level rise.

This is because the great ice sheets take thousand of years to react fully to higher temperatures. The researchers say this long-term view raises moral questions about the kind of environment being passed down to future generations.

The research shows that even with climate change limited to 2C by tough emissions cuts, sea level would rise by 25 metres over the next 2,000 years or so and remain there for at least 10,000 years - twice as long as human history. If today's burning of coal, oil and gas is not curbed, the sea would rise by 50m, completely changing the map of the world.

"We can't keep building seawalls that are 25m high," said Clark. "Entire populations of cities will eventually have to move."

[Continued...](#)

[February 8, 2016 - Weakening Ice Shelves Raise Sea Level Rise Concerns, Climate Central](#)

All along Antarctica's coast, tongues of floating ice act as a firewall. Any major breaks in the firewall could send inland ice flowing faster to the sea, raising ocean levels and threatening coastal communities around the globe.

In some ways, it's a process already seen in some areas of Antarctica and it's concerning enough that scientists have undertaken new research to identify where the weakest links in the firewall are.

The findings, published in Nature Climate Change on Monday, show that West Antarctica - long an area of scientific concern when it comes to sea level rise - has some of the weakest areas of defense protecting its ice.

Researchers analyzed the tongues of ice - known as ice shelves - to see how much ground each ice shelf could lose before processes began to speed up, sending more inland ice to the sea.

"When they break-up, it is like pulling the plug in the bathtub for the adjacent tributary glaciers," Johannes Fürst, an ice expert at University of Erlangen-Nuremberg and leader of the new study, said. "For our article, we just wondered how far we can cut into the existing ice-shelf geometries before a notable and instant dynamic effect becomes apparent."

The cause of the cutting could be any number of factors, according to Fürst, ranging from ice shelf shape to warming seas driven by climate change. This research didn't focus on the specific causes of ice loss in the region, just how much ice could be lost until major changes occurred.

"We have known for a while now that ice shelves are important plugs for the glaciers that flow in from behind," Martin Truffer, an ice shelf researcher at the University of Alaska, said. "(This research uses) an innovative method and it shows some interesting results."

[Continued...](#)

[February 7, 2016 - Plan to Flood-Proof Hoboken Runs Into a Wall, The New York Times](#)

HOBOKEN, N.J. - Every time a powerful nor'easter or tropical storm threatens New York, residents of this small city on the New Jersey bank of the Hudson River start having flashbacks to the devastating inundation they endured when Hurricane Sandy hit in 2012.

Hundreds of millions of gallons of water poured in from the river and left most of Hoboken underwater and many of its residents without power for a week. Almost immediately, city leaders decided that Hoboken had to be fortified against future floods.

A solution seemed imminent in 2014. At a celebratory announcement, Gov. Chris Christie joined federal officials to herald the city's winning a \$230 million grant to finance a plan by Dutch architects to hold back the Hudson.

But more than three years after the hurricane, Hoboken is just as vulnerable to a deluge and the plan to defend it is mired in controversy. Furious residents have sounded off to city and state officials, opposing any remedy that might diminish the city's character or its biggest selling point: the dazzling views of Manhattan.

The backlash could cost the city the money Washington has offered. Some residents have even endorsed that outcome.

"Please do not destroy the one valuable asset this city has, which is its view and the charm of tree-lined streets," one resident, Suzanne Collins, wrote to state officials, saying Hoboken should "reject these funds."

The plan would inevitably involve erecting sea walls between the river and the low-lying parts of the city, possibly over 12 feet high in places. And, as Dawn Zimmer, the mayor of Hoboken, has learned, "wall" is a fighting word.

"This is a historic opportunity for our city, an opportunity that no other city in the country has," Ms. Zimmer, a Democrat, said in an interview in her City Hall office, a few blocks from where the surging river rushed in.

But irate residents, including Natalie Morales, a news anchor on the NBC "Today" show, have confronted Ms. Zimmer with their objections and directed their outrage to state officials. The mayor said she feared the public discord would cause Hoboken to lose out on its best chance to get help from the state and federal governments.

Wedged into the coastline between the Lincoln and Holland Tunnels, Hoboken is one of the country's most densely populated places, with more than 50,000 people living in slightly more than a square mile. Some of the land closest to the river is elevated, but most of the city lies low and is notoriously susceptible to flooding even after just a heavy downpour.

City officials have tried to ease the flooding problem with pumps and cisterns, but stopping the river would require walls, Ms. Zimmer said. Not that she would call them that.

Instead, she is careful to use less provocative terms, such as a "flood-protection measure," and emphasizes that a wall could double as an "amenity," such as a bench or planter, that would fit into the urban landscape. But a wall by any other name has stirred indignation among prospective neighbors, who have vented in public comments sent to the New Jersey Department of Environmental Protection, which is responsible for devising a plan that will meet the federal requirements.

"No to the wall," Stacy Wallace-Albert wrote in all capital letters, succinctly summarizing the opinion of many neighbors.

There is no hard and fast plan to build a wall anywhere yet. A barrier was just one part of a plan from a team led by the Office for Metropolitan Architecture, a Dutch firm founded by the architect Rem Koolhaas. The plan was submitted to Rebuild by Design, a post-Hurricane Sandy design competition overseen by the federal Department of Housing and Urban Development.

That plan, called "Resist, Delay, Store, Discharge," involved strategies for holding rain and floodwater and slowing its release into the city's sewer system. But its fundamental purpose was to prevent a repeat of what happened in Hoboken during Hurricane Sandy.

State engineers have drawn up five configurations, including some that would place a wall on the waterfront and one that would have it wind along city streets and end on a block lined with brownstones. They are scheduled to whittle those alternatives down to three within several weeks, but the uproar from residents may have set back that schedule.

Resentment started bubbling up late last year at additional public meetings requested by Ms. Zimmer to elicit the opinions of a cross section of her constituents. She got an earful.

Some residents said that the waterfront and the front-row view of Manhattan were Hoboken's most attractive features, and that to obscure the panorama would be foolish.

But the loudest opposition came from residents along Garden Street, which runs south several blocks from the river. Once they understood that one concept involved a wall four feet high or taller dividing their narrow street, they rebelled.

"You're going to ruin the character of the neighborhood," one woman said. One of her neighbors added: "I got denied a zoning thing I wanted to do in my home, but you're going to put a four-foot wall in front of my house. No good."

Online, the reaction was even more vituperative. Some residents started a petition calling for the rejection of the Garden Street proposal, saying the plan would expose "taxpaying homeowners who were not in a flood zone to new flood risks by trapping them on the 'wet side' of the new wall."

Among the over 700 people who have supported the petition was Ms. Morales, who lives on one of the blocks that would be affected. The newscaster took a shot at Ms. Zimmer on the petition site, writing, "This is corruption at its finest!" and alleging a "kickback scheme at the highest level."

Ms. Morales did not respond to several requests for comment. A spokeswoman for the "Today" show, Megan Kopf, declined to comment about Ms. Morales's postings or whether NBC News had policies covering the involvement of its journalists in local politics.

Ms. Zimmer seemed mystified by Ms. Morales's statements, saying she had met her only once before the newscaster showed up at a meeting about the Rebuild by Design process and challenged the engineers. "Did any of you guys walk the streets before you did the plans?" Ms. Morales asked them.

The mayor shrugged off the personal attacks, but she and other residents said they were troubled by the idea that Hoboken should pass up the \$230 million.

Sitting in his home-furnishings store that was flooded by Hurricane Sandy, Brian Battaglia shook his head at the thought. "To walk away from doing anything in Hoboken that stops the water from coming in seems unbelievable," he said, recalling how the rising water burst through the back door and shoved everything to the front wall.

"If you didn't drive down the back side of town and see people's lives thrown out in the street, you might feel that way," Mr. Battaglia said.

LaTrenda Ross, a 27-year resident of public housing in Hoboken, said she had not forgotten what Hurricane Sandy wrought. "To go through that for two weeks with no heat, no lights, no nothing, no food, it was a disaster," she said.

Ms. Zimmer said she would be happy if a way could be found to resist a rising Hudson without limiting access to the waterfront or disrupting residential blocks. The Department of Environmental Protection said it would consider altering the proposed configurations to placate residents.

In the meantime, Ms. Zimmer has met with small groups of residents to try to assuage their fears. She said a friend recounted how her young daughter came home and explained that "they're going to build a wall 12 feet high" that would block a schoolmate's bedroom window.

Ms. Zimmer told her friend, "That's not going to happen."

[February 1, 2016 - Why the U.S. East Coast could be a major hotspot for rising seas. The Washington Post](#)

New research published Monday adds to a body of evidence suggesting that a warming climate may have particularly marked effects for some citizens of the country most responsible for global warming in the first place - namely, U.S. East Coasters.

Writing in Nature Geoscience, John Krasting and three colleagues from the Geophysical Fluid Dynamics Laboratory of the National Oceanic and Atmospheric Administration find that "Atlantic coastal areas may be particularly vulnerable to near-future sea-level rise from present-day high greenhouse gas emission rates." The research adds to recent studies that have found strong warming of ocean waters in the U.S. Gulf of Maine, a phenomenon that is not only upending fisheries but could be worsening the risk of extreme weather in storms like Winter Storm Jonas.

"When carbon emission rates are at present day levels and higher, we see greater basin average sea level rise in the Atlantic relative to the Pacific," says Krasting. "This also means that single global average measures of sea level rise become less representative of the regional scale changes that we show in the study."

In the new research, the scientists used a high powered climate change model based at the Geophysical Fluid Dynamics Laboratory in Princeton, N.J., that simulates the ocean, the atmosphere and the cycling of carbon throughout the Earth system. The goal was to determine how much sea level rise would occur in the Atlantic, versus the Pacific, under a variety of global carbon emissions scenarios.

And the simulation found that at high emissions scenarios similar to current rates, the Atlantic sea levels rise considerably faster than the Pacific, with particularly noteworthy impacts for the U.S. East Coast. (Other recent research by scientists with the U.S. Geological Survey has

suggested this increased rate of sea level rise is already happening - finding sea level rise rates "~ 3-4 times higher than the global average" along a large stretch of the U.S. East Coast, which the researchers dubbed a sea level rise "hotspot.")

The reason for the difference, the researchers say, is that the Atlantic, more than the Pacific, is characterized by a strong "overturning" ocean circulation - technically known as the Atlantic Meridional Overturning Circulation, or AMOC - that spans the north-south length of the globe and ultimately connects waters off New York with those at the tip of Antarctica. This means that waters circulate through the entire Atlantic much faster than they do throughout the Pacific: A "parcel" of water that sinks beneath the surface in the Atlantic will generally make it back to the surface again in 200 to 300 years, versus about three times as long for the Pacific, Krasting explains.

[Continued...](#)

[January 30, 2016 - Predicting El Nino's flood risk: How new warning systems save lives, property, San Jose Mercury News](#)

Four winters ago, as worried rescuers watched the quickly rising waters of a Peninsula creek and tried to decide whether to alert local residents, they turned to a small green plant for guidance.

"You see that shrub?" one public safety official said. "When it's under water, we're going to start evacuating."

Today, that sentinel shrub has been replaced by a sophisticated network of gauges, sensors and computers that can save lives and property -- not only in flood-prone Menlo Park, Palo Alto and East Palo Alto, but also in vulnerable South Bay and East Bay communities.

Counting El Niño's raindrops in distant mountains, the new flood-prediction systems are for the first time allowing the Bay Area to anticipate disasters, not merely respond to them.

"We can ramp up, adding resources and personnel," said Menlo Park Fire Chief Harold Schapelhouman. "It becomes part of normal planning."

A revolution in technology allows for the highly automated and near-instantaneous analysis of enormous volumes of digital information about water flow.

It works like this: Separate streams of data -- collected from mountain peaks and rushing creeks -- are integrated into huge databases. Computers then track rising waters and predict flood risk, based on creekbed capacity and the surrounding landscape.

As waters run high, the computers can issue an electronic flood alert to local residents downstream. For instance, mid-Peninsula residents who are registered to get an alert -- by text or email -- are kept informed about four different flood-prone locations along San Francisquito Creek. They will be notified nearly two hours in advance of the water overflowing its banks.

"We know what is coming down the system," said Len Materman of San Francisquito Creek's Joint Powers Authority, which has a newly expanded system of automated rain and creek gauges perched 2,000 feet above the vulnerable mid-Peninsula cities. "We can give people solid information for decision-making" about such things as when to sandbag, get electronics and antiques off the floor or seek higher ground.

[Continued...](#)

[January 25, 2016 - Sea level rise from ocean warming underestimated, scientists say, The Guardian](#)

The amount of sea level rise that comes from the oceans warming and expanding has been underestimated, and could be about twice as much as previously calculated, German researchers have said.

The findings in the Proceedings of the National Academy of Sciences, a peer-reviewed US journal, suggest that increasingly severe storm surges could be anticipated as a result.

Sea level can mount due to two factors - melting ice and the thermal expansion of water as it warms.

Until now, researchers have believed the oceans rose between 0.7 to 1mm per year due to thermal expansion.

But a fresh look at the latest satellite data from 2002 to 2014 shows the seas are expanding about 1.4mm a year, said the study.

"To date, we have underestimated how much the heat-related expansion of the water mass in the oceans contributes to a global rise in sea level," said co-author Jurgen Kusche, a professor at the University of Bonn.

The overall sea level rise rate is about 2.74mm per year, combining both thermal expansion and melting ice.

Sea level rise was also found to vary substantially from place to place, with the rate around the Philippines "five times the global rate."

Meanwhile, sea level on the US west coast is largely stable because there is hardly any ocean warming in that area, said the findings.

Announcements

March 15, 2016 - 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 fifth 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.

April 6, 2016 - NOAA [funding opportunity](#) for community habitat restoration. Application due April 6, 2016

NOAA has released a Federal Funding Opportunity (FFO), seeking proposals to restore habitats critical to Listed or Managed Species or their prey and all proposals that ensure healthy habitats for forage and juvenile fish will be considered. NOAA Fisheries promotes a holistic, landscape-scale approach to resource management in a changing climate. Proposed habitat restoration actions may also increase the resilience of coastal communities by providing important

ecosystem services such as protection from coastal flooding, extreme weather events, and coastal erosion.

- High priority will be given to proposals that fulfill the following NOAA programmatic goals:
- Have the greatest potential to contribute to the recovery of Listed Species under NOAA jurisdiction, including those species designated by NOAA as Species in the Spotlight, through habitat restoration project(s) that are consistent with priority habitat restoration actions identified in Recovery Plans;
- Have the greatest potential to enhance or sustain populations of Managed Species or their prey, specifically through project(s) that restore or enhance Essential Fish Habitat or address actions supported by Fishery Management Plans;
- Provide sustainable and lasting ecological and economic benefits that enhance the resiliency of communities to severe weather events and changing conditions as a result of climate change;
- Restore critical habitat within NOAA Blueprint Habitat Focus Areas, where habitat restoration is a key strategy in achieving the goals of the Habitat Focus Area (<http://www.habitat.noaa.gov/habitatblueprint/>);
- Increase the amount of habitat accessible to diadromous species through dam and other instream migration barrier removal projects in high priority watersheds in the Northeast, as identified by the Restoration Center's regional fish passage prioritization; more information on Northeast regional fish passage priority watersheds can be found here (<http://www.habitat.noaa.gov/funding/applicantresources.html>).

One-year or multi-year awards up to three funding years will be considered, and additional releases of funds may be used to fund selected proposals through FY18 without further competition. NOAA anticipates typical federal funding awards will range from \$300,000 to \$2 million over one to three years. NOAA will accept proposals with a federal funding request of \$100,000 or more up to \$5 million over three years. NOAA anticipates up to \$9 million will be available under this FFO in FY16.

Applicants with multiple-year award requests should divide their funding request into logical allocations by consecutive years, based on their project implementation plan. For instance, a proposal request might include design costs in year one and estimated construction costs needed in year two. Another example would be a proposal that requests construction costs for distinct sites in each of three years. If multiple restoration sites are included within one proposal, applicants are encouraged to develop a comprehensive approach for restoration which links proposed sites and restoration activities by habitat-based issue or proposed target species and outcome goals.

There is no matching requirement for this funding, although NOAA typically leverages its federal funding with matching contributions from a broad range of sources in the public and private sectors to implement coastal and marine habitat restoration. Applicants are encouraged to demonstrate partnerships and some portion of non-federal match (suggested at 1:1) with NOAA funds requested to implement the proposed project.

April 15, 2016 - CIRCA Municipal Resilience Grant Program Round 2: Applications due April 15, 2016. Up to \$100,000 available. <http://circa.uconn.edu/funds-muni.htm>

The Connecticut Institute for Resilience and Climate Adaptation (CIRCA) is a partnership of the University of Connecticut and the Connecticut Department of Energy and Environmental Protection. The mission of CIRCA is to assist Connecticut towns and cities adapt to a changing climate and to enhance the resilience of their infrastructure.

CIRCA is requesting grant proposals from municipal governments and councils of government for initiatives that advance resilience, including the creation of conceptual design, construction (demonstration projects or other) of structures, or the design of practices and policies that increase their resilience to climate change and severe weather. This program is focused on implementation. The CIRCA Executive Steering Committee has made up to \$100,000 in funds available to municipal governments and councils of government for the execution of resilience initiatives.

Project proposals should develop knowledge or experience that is transferable to multiple locations in Connecticut and have well-defined and measurable goals. Preferable projects will be implemented in no more than an 18-month time frame. Preference will also be given to those projects that leverage multiple funding sources and that involve collaboration with CIRCA to address at least one of the following priority areas:

1. Develop and deploy natural science, engineering, legal, financial, and policy best practices for climate resilience;
2. Undertake or oversee pilot projects designed to improve resilience and sustainability of the natural and built environment along Connecticut's coast and inland waterways;
3. Foster resilient actions and sustainable communities - particularly along the Connecticut coastline and inland waterways - that can adapt to the impacts and hazards of climate change; and
4. Reduce the loss of life and property, natural system and ecological damage, and social disruption from high-impact events.

Information on past grant recipients is available at: <http://circa.uconn.edu/recipients-muni.htm>.

Eligible Applicants

All Connecticut municipalities and councils of government are eligible to apply. Partnerships are encouraged.

Proposal Deadline

An original and complete application must be received no later than April 15, 2016 by 5:00 PM.

Application materials can be found on the CIRCA website: <http://circa.uconn.edu/funds-muni.htm>.

CIRCA will host an informational webinar on March 17, 2016 at 11:00 AM. Please see the Municipal Resilience Grant Program webpage for registration details.

Long Island Sound Study launches new climate change website <http://lissclimatechange.net/>

The Long Island Sound Study has created a new website to help Long Island Sound residents, educators, and municipal officials learn more about climate change issues that can impact Long Island Sound.

Climate Change in Long Island Sound: A Long Island Sound Resource Guide, at www.lissclimatechange.net, is divided into four sections:

- * What You Should Know - a primer on key concepts about climate change as well as access to web resources, including indicators of climate change in Long Island Sound.
- * Town and City Resources - a portal providing links to what communities are doing to adapt to climate change and reduce greenhouse emissions, including cases studies from five Long Island Sound communities.
- * Science and Monitoring - examples of research and monitoring being conducted in Long Island

Sound.

* Educators' Toolbox - Resources for teaching about Earth's climate system and the changing climate, including "Science Spotlights" of local scientists conducting climate change research, and highlights of a teachers' workshop on climate change (note: we hope to work with scientists as well as other resource managers to include more "spotlights" and other features in the future).

Besides the four themes, the website's homepage includes a "newsroom" with two climate change newsfeeds, and a list of "hot" links for more climate change information.

The project was initiated by Long Island Sound Study's Sentinel Monitoring for Climate Change program, and includes representatives from the Connecticut and New York Sea Grant Programs, the Connecticut Department of Energy and Environmental Protection, the New York State Department of Environmental Conservation, NOAA's Northeast Fisheries Division, Milford Laboratory, and the New England Interstate Water Pollution Control Commission.

CIRCA awards more than \$100,000 to support resiliency projects in Milford, New Haven, Northwest Hills COG, Waterford, and WestCOG through the Municipal Resilience Grant Program.

The Connecticut Institute for Resilience and Climate Adaptation (CIRCA) is pleased to announce the results of the first round of grants under its Municipal Resilience Grant Program. The municipalities of Milford, New Haven, and Waterford and the Northwest Hills and Western Connecticut Council of Governments have been awarded funds to pursue projects that will not only increase their own local resilience, but also serve as learning tools for other communities hoping to replicate their success. CIRCA is pleased to provide grants to support the projects.

Several important criteria were considered by the CIRCA Executive Steering Committee when considering applications including the following:

- Does the proposed project enhance community resilience to the impacts of climate change and extreme weather?
- Does the proposed project have transferable results?
- Does the proposed project involve collaboration with CIRCA?
- Does the proposed project have measurable goals?
- Will the proposed project be completed in an 18-month timescale?
- Does the proposed project have multiple funding sources?
- Does the proposed project emphasize implementation?

Based on the above criteria, funding was awarded to the following projects. Brief descriptions of each project are below with more details on the CIRCA website.

City of Milford - Developing and Implementing a Restoration and Management Plan to Combat Threats and Challenges to Coastal Dune Resiliency in Urban Landscapes. Milford proposed restoring a degraded dune in a high-traffic area and developing a plan for post-restoration management of the dune. The goal of this living shorelines approach is to restore the natural buffering capacity of the dune to storms like Irene and Sandy

City of New Haven - New Haven Industrial Toolbox. The Commercial Industrial Toolbox will enhance the resilience of the City's commercial infrastructure to flooding and sea level rise by serving as a guidebook for the necessary steps all owners should take before a flooding event occurs.

Northwest Hills Council of Governments - Building Municipal Resilience and Climate Adaptation through Low Impact Development. The Northwest Hills Low Impact Design Manual will include the specific information needed by engineers and project designers to successfully construct LID projects.

Town of Waterford - Waterford Municipal Infrastructure Resilience Project. The town's Waterford

Municipal Infrastructure Resilience Project is a two-part project that will assess the vulnerabilities of the sewer pumps stations as well as include an analysis of drainage at Gardiners Wood Road. CIRCA is pleased to fund the sewer pump station assessment and adaptation portion of the project.

Western Connecticut Council of Governments - Regional CRS Program. The Western Connecticut Council of Governments will take steps to create a regional CRS program to assist communities within Western Connecticut as they undertake the challenging CRS program.

CIRCA Matching Funds Program supports coastal adaptation research projects funded through the Connecticut Sea Grant College Program.

On January 15, 2016, the Connecticut Sea Grant College Program announced the awardees from their funding program for the period of 2016-2018. CIRCA was thrilled to see that two of the six funded projects were supported by Matching Funds from CIRCA. The projects will inform building designs for wind and flood hazards and assess coastal resident's willingness to pay for adaptation measures. The Institute looks forward to working with the research teams to help Connecticut's communities adapt to the impacts of climate change and extreme weather along the coast.

The CIRCA Matching Funds Program provides 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 is given to those projects that leverage independent funding awarded through a competitive process. Project proposals should develop knowledge and/or experience that is transferable to multiple locations in Connecticut and have well-defined and measurable goals.

The successful Connecticut Sea Grant and CIRCA Matching Funds research projects are as follows:

Wei Zhang and Christine Kirchhoff of UConn's Department of Civil and Environmental Engineering, aim to reduce coastal community vulnerabilities by evaluating and comparing trade-offs in residential home building designs for both wind and flood factors. New GIS-based resilience maps will be produced to show multi-hazard effects to help communities plan and build appropriately to reduce vulnerabilities to extreme weather events and sea level rise. The towns of Fairfield and Milford, CT are participating in the study.

Stephen Swallow of the UConn Department of Agricultural and Resource Economics, is leading a multi-disciplinary team of investigators that will survey Connecticut coastal residents to examine their preferences and values with respect to various measures to preserve coastal areas and resources in the face of sea level rise. They want to find out whether residents are more likely to support environmentally protective measures if they understand the value of ecosystem functions for public benefit. Results will give managers insight into the alternatives and tradeoffs, which are preferred, and how much residents are willing to pay for adaptation measures in coastal area to make communities stronger.



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).

circa.uconn.edu

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