SEJournal
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SPECIAL REPORT
Is Adaptation the Next Climate Beat?

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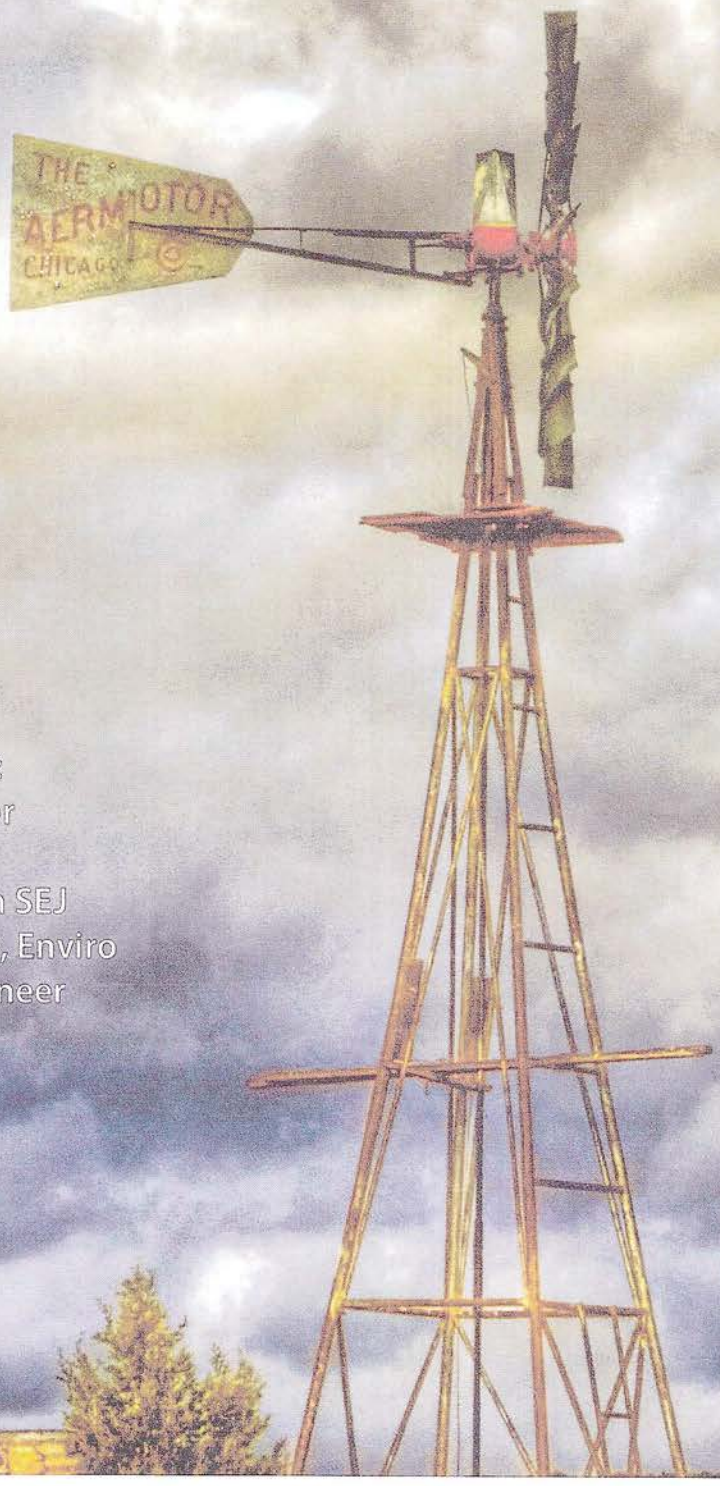

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To strengthen the quality, reach and viability of journalism across all media to advance public understanding of environmental issues

The Society of Environmental Journalists (SEJ) is a non-profit, tax-exempt, 501(c)(3) organization. The mission of SEJ is to strengthen the quality, reach and viability of journalism across all media to advance public understanding of environmental issues. As a network of journalists and academics, SEJ offers national and regional conferences, publications and online services. SEJ's membership of more than 1,350 includes journalists working for print and electronic media, educators, and students. Non-members are welcome to attend SEJ's annual conferences and to subscribe to the quarterly *SEJournal.*

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The ubiquitous windmill, utilized by ranchers and farmers alike for well over a century to coax water from deep in the earth to rise to meet their surface needs, has become an icon of adaptation to the environment in the American West. As climate change impacts begin to emerge, human adaptation becomes a work in progress. See our special report on the adaptation beat, beginning on page 6.

Photo: ⓒ Jeremy Taylor

Special Report

Climate Adaptation Sto

The idea of humans adapting to climate change may not be new, but what is new is an emerging sense from many quarters that it is now imperative. In July, President Obama pushed adaptation as a big part of his climate change policy. A month earlier, the nation's most populous city, New York, released a massive report outlining hundreds of recommendations costing billions of dollars to make its coastal reaches more resilient. Many smaller communities in the United States and abroad are acting on adaptation as well, and reporters are starting to pick up the thread.

The editors of the SEJournal *have brought together this special report on climate change adaptation to help environmental journalists to better understand and cover this growing topic. Top-notch beat reporters share how to best get at the nuts and bolts of adaptation in coastal communities and agricultural ones, a leading communications thinker shares insights into the "message" of adaptation, and we provide snapshots of a few of the many noteworthy adaptation projects, as well as the special challenges faced in one developing nation.*

Climate adaptation measures have become increasingly critical in the wake of major-scale environmental disasters such as Superstorm Sandy. For governments and organizations throughout the nation, adaptation has practical appeal — the effects are often easily visible to the public, the costs may be lower, and it doesn't always involve the same level of comprehensive infrastructural change as mitigation can. Below, environmental reporter Donald Borenstein highlighted a few noteworthy U.S. adaptation projects currently under way.

Location: Rockaway Beach, Queens, N.Y.
Project type: Coastal reclamation

The Rockaways, a set of coastal beaches on the south shore of Long Island, were among the areas hardest hit by Superstorm Sandy. Exposed coastal residences were annihilated, and beaches already suffering an erosion crisis lost more than 1.5 million cubic yards of sand. Now, the Army Corps of Engineers and New York City have started a massive beach-and-dunes reclamation project with the goal of installing a 14-foot-high man-made dune across a 4.7-mile area of coastline. The dunes will be anchored by 25,000 tons of high-capacity sandbags, then 2.5 million cubic feet of sand will be drawn from the ocean and deposited atop them. The goal is a usable beach and dunes by 2014.

The Dirt on Ag & Adaptation

By CHRIS CLAYTON

If you're looking to connect average Americans to climate change and to how they will have to adapt to it, why not report on the future of food and agriculture? After all, most Americans may not visit the polar ice caps, but everyone needs to eat.

Farmers, scientists and nutrition advocates are constantly asking, "How are we going to feed nine billion people in 2050?" Simply put, food production has to grow to feed everyone. The way we grow our food also has to intensify on the land already being farmed, because every other land creature still needs a place to live as well. Because of water and nutrient challenges, farmers will have to grow more with less.

But as you probably know, most farmers do not see climate change as a threat. The typical response goes something like, "The climate has always changed and farming has always adapted."

For instance, I recently read an EPA report describing how higher temperatures could cause crop acreage to move northward. That would lead to "increased erosion and runoff, with negative impacts on surface and groundwater quality." In other areas, such as the Great Plains, less rainfall could spur more irrigation and spark conflicts over water usage. Also, heat would put more stress on livestock.

When did EPA make those projections? 1989! I cited that fact in a series examining the long-term risks to irrigation and crop production in the Southern Plains. Most readers who took the time to comment dismissed the old EPA report.

Talk about the weather

While we may have some climate deniers in agriculture, no one denies the weather is changing.

Earlier this year a group of farmers, scientists and other agricultural advocates wrote a report, "Agriculture and Forestry in a Changing Climate: Adaptation Recommendations" (http://bit.ly/17htkUF). The report, by the 25x'25 Alliance, detailed what needs to happen with research, production systems, risk management, decision-making tools for farmers, as well as how to talk to wary rural Americans about climate change. The paper points out that we're having bigger weather events now. There are more intense rains, more intense droughts and costlier crop disasters. [DISCLOSURE: I directly participated in the

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Reaches Tipping Point

A row of elevated houses in New Orleans. Photo: © Jennifer Cowley

Get Feet Wet on Coastal Adaptation

By KATE SHEPPARD

Americans — and humans in general — have long flocked to the coasts. Thirty-nine percent of the U.S. population, or about 123 million of us, live in coastal counties. But many in coastal areas are finding it increasingly less hospitable due to sea-level rise and extreme weather events linked to climate change. As communities figure out how to adapt to these changes, it is often environmental journalists who are being asked to cover these complex stories.

So first, the basics. The National Oceanic and Atmospheric Administration has deemed 11,200 miles of the coast — about half of the total U.S. coastline — to be "highly vulnerable" to sea-level rise. These coastal areas are at risk of erosion and loss of use as the sea levels creep up. But they are also, perhaps more crucially, at increased risk of flooding during storms, which scientists say are becoming less predictable due to climate change.

Yet more of us are moving to the coasts all the time. NOAA and the U.S. Census released a joint report earlier this year (http://1.usa.gov/15jPklZ) that found that, if population trends continue, the coastal population is expected to grow another 9 percent by 2020, to 134 million people.

Increasingly severe storms and more development on the coasts are already costing the U.S. government a lot of money. In the past three years, 11 storms have each caused more than $1 billion in damage — none as significant as the $60 billion in damage that Superstorm Sandy left behind in October 2012.

It's only expected to get worse. A report that the Federal Emergency Management Agency released in June 2013 projects that the combined forces of climate change and population growth will double the number of Americans that live in flood-prone regions by the end of this century <http://bit.ly/13EINh4>.

I covered many of the challenges faced by coastal communities in a recent feature at *Mother Jones* <http://bit.ly/1dxR9hg>, and found that even in places where local officials realize the problems they face, there is a lack of guidance and oversight from state and federal officials for how to think long-term. Budget and planning constraints often make it difficult to plan for projections 25, 50, or 100 years in the future.

Even though these coastal adaptation stories are as much about economics and politics as the environment, it is environmental reporters increasingly on the beat So to get in-

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Location: Lake Hermitage, La.
Project type: Marsh creation

After the 2010 Deepwater Horizon oil spill, efforts to repair the natural ecosystem have met with mixed results. Among the more notable efforts is the Lake Hermitage Marsh Creation project, which seeks to build man-made marshes as a replacement habitat for the devastated marine life and aviary populations in the Mississippi delta region, and to reduce erosion in the area, with sediment brought in from the Mississippi river to create the marshland. Critics take issue with the $32-million, 104-acre project, citing difficulties in building an artificial wetland and significant problems with others created in the past. The project is considered the biggest litmus test yet for artificial wetlands in the United States.

Location: Philadelphia, PA
Project type: Green infrastructure and rainfall management

Philadelphia, faced with sewage overflow issues, has responded with a program that tries to both incentivize and regulate the placement of green infrastructure and rainfall management systems in as many new buildings as possible. The city is attempting to retrofit streets and sidewalks with "bumpers" that help increase the yield of rainwater collected by median grass in order to reduce sewer runoff. The city is also directly funding the creation of green roofs and greywater gardens, with the aim of installing these infrastructural elements in more than half of all Philadelphia public schools. Philadelphia is making a $1.67-million investment in these efforts over the next 25 years, and aims to support the measures with a storm-water fee, offset by tax breaks for businesses with green roofs, and free design assistance for businesses to help them bring green infrastructure into their offices.

Location: Detroit, Mich.
Project Type: Rainfall usage

Detroit is home to the largest single-site wastewater treatment plant in the United States. Due to aging infrastructure and excessive demand, it often faces the danger of overflow, a problem worsened by the threat of more frequent and intense storms brought about by climate change. The Sierra Club has explored green infrastructural options for surface-level water filtration, such as rain-collection barrels and rainwater/greywater gardens. The Sierra Club's approach has placed an emphasis of community participation and organizing to encourage green infrastructure and gardening. The effort has led to the creation of five rain gardens to date, with at least two more on the way, and a community initiative for Detroit to incentivize rainwater collection for businesses and residents.

Location: Portland, Me.
Project type: Climate change and fishing

As lobster populations continually migrate north due to global warming, the market outlook for lobster fishers in Maine has suffered in spite of the increased abundance of these bottomfeeders. Due to lobster overabundance, the effects of climate change and a centuries-long pattern of overfishing, other marine-life populations have plummeted in population, and rising sea temperatures are posing an imminent threat to the lobster population in Maine. Despite the lack of action by state government, lobster fishers, marine biologists, and policy makers came together at the end of July for a symposium on the threat to lobsters posed by climate change and overfishing. The symposium attendees called for greater regulations on overfishing, including no-fish zones, and yield-management strategies for lobster hauls.

Location: Los Angeles, Calif.
Project type: Green infrastructure

After the success of greenways elsewhere, the city of Los Angeles has started work on a greenway next to the Los Angeles-Glendale water reclamation plant. Designed as a self-sustaining infrastructure, the greenway will use rainwater to both

Ag and Adaptation...continued

25x'25 committee to learn more about climate adaptation issues.]

But agriculture is also one industry where mitigation and adaptation intersect. S questering carbon in the ground is not only a mitigation strategy, but building organ matter in the soil – carbon – is also one of the best adaptation practices for a farmer. Son people suggest we need a "Brown Revolution" to rebuild our degraded soils globally.

More analysis is needed to document the benefits and production that can come fro different kinds of agriculture, such as grass-fed meat, orchards, urban farming or perm culture practices.

Environmentally, there are other significant benefits if farmers are growing cov crops and not tilling the land (here's more on the no-till idea - http://1.usa.gov/16FlSjJ Soil erosion and water quality, two of agriculture's biggest environmental challenges, bo improve when farmers adopt these practices.

The U.S. Department of Agriculture embraces this strategy. Last year, USDA's Natur Resources Conservation Service rolled out a "soil health" initiative built around growing o ganic matter in the soil. There just hasn't been a lot of reporting on it outside of the ag pres

USDA regional climate hubs expected

This fall, USDA is expected to announce seven new "regional climate hubs" to con bine work at USDA and land-grant universities. Ideally, the hub concept will also bui better networks between research and field extension work to connect with farmers ar agribusinesses.

The National Institute for Food and Agriculture also has funded several multi-ye studies to examine how climate change affects various crops or livestock production. Ju search "USDA NIFA grants climate change" and several links to those studies pop up. Work on climate change at USDA contrasts with what's happening in Congress. Sometin in the near future (at least as of the *SEJournal* press time) Congress will come to terms c a new farm bill. Few reporters have examined how the farm bill would help or hinder cl mate adaptation.

Both the Senate and House cut between $3.6 billion-$4.8 billion out of conservatic programs. Both bills also shift more crop support to crop insurance, but one of the bigge debates is whether farmers will have to meet minimum conservation standards to be el gible for crop-insurance premium subsidies.

Data from the 2012 USDA Ag Census also should be released in February 2014. Th information could provide some insight on irrigation expansion, crop shifts or changes livestock production in your area.

Get out of the office

To keep on top of the topic, take advantage of various farm tours or attend confe ences. And even if you can't make such events, examine the programs on-line. Do any the topics relate to your area regionally, or affect a particular agricultural sector close you? Are any of the speakers from your area?

Here are just a handful of groups and annual events where climate adaptation wou be on the agenda.

- The World Food Prize Symposium is held annually in mid-October in Des Moine Iowa. Created to honor Nobel Prize winner Norman Borlaug, the World Food Prize h become an increasingly high-profile event to discuss global food security, biotechnolo and climate change.
- The American Society of Agronomy, Crop Science Society of America, Soil Socie of America, in what is simply called the "tri-meeting," all gather Nov. 3-6 in Tampa, Fl "Water, Food, Energy & Innovation for a Sustainable World" is the name of this year event (more info: www.soils.org). The tri-meeting is the place to learn about the latest soil and agronomy research.
- The group "No-till on the Plains" holds its annual meeting early February in Salin Kan. The event in recent years has been the mecca for farmers who want to stop tilling the soil as well as grow cover crops. Perhaps most importantly, many of the presenters at th conference are farmers. Salina also is home to Wes Jackson and the Land Institute, which

Continued on page

Get Feet Wet on Coastal Adaptation...continued

sights on better reporting these issues, *SEJournal* spoke to reporters from Louisiana, New Jersey, and Florida about some of the challenges and opportunities they have found.

Learn how to read flood maps

First order of business: Check out your local floodplain maps. These maps, issued by FEMA, tell you what properties are at risk of flooding. A house is considered at risk if there is a one-percent risk in any given year of a major flood event occurring. This is often called the 100-year floodplain, but that can be a misleading term, as many folks assume it means a flood will happen only once every century.

If you think about it more practically, it means there's a 26-percent chance of a flood happening at some point during a 30-year mortgage on a house. And scientists have predicted that what was once a 100-year flood could happen more like every three to 20 years as the climate warms.

"Learning how to read flood maps is critical," said Sarah Watson, the environment and Sandy-recovery reporter at the *Atlantic City Press*, in New Jersey. Better still, Watson says, is getting to know your local and regional floodplain managers. "They know how to tell you what you may not realize is important," she said.

One of the challenges when it comes to flood maps, however, is that they only convey current flood risks. While recent changes made to the federal flood insurance program will allow FEMA to take future projections related to climate change and sea-level rise into account as they create new maps, those projections are not included in the updated maps that are currently being rolled out. It will likely take years before regions see maps that include those projections.

Lifts, walls and buyouts

Many areas of the coast hardest hit by storms have started, or are considering, raising houses out of the floodplain. FEMA has a Hazard Mitigation Grant Program that many regions are using to fund home-lifting; others have used post-storm recovery funds to do so.

But even if you lift the houses, there are still risks. As one planning director in a Virginia coastal community pointed out, flooding will still submerge the roads, and can trap residents and put them out of reach of emergency services personnel. It can also damage roads, utilities, sewer systems and other infrastructure. That's why Highlands, N.J., for example, is considering raising the entire downtown of this 5,000-person town by at least 10 feet — a $30-million plan.

In some cases, FEMA also offers complete buy-outs to homeowners in areas that are repeatedly subjected to flooding. In those cases, the land must be returned to open space — which prevents future losses and can improve coastal resilience, as green space provides more natural drainage and coastline protection (for more, see this recent study: <http://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate1944.html>.)

Two other New Jersey towns, Mantoloking and Brick, recently got federal and state approval and funds to install 40-foot steel seawalls on their coast. Buried under the sand, the walls are meant to block storm surge and prevent beach erosion. But at $40 million, the walls are hardly a scalable solution for the entire coast.

Watson also suggests reviewing local ordinances with an eye to laws and regulations that might have consequences for sea-level rise and storm issues. "Your town might be doing everything right, but the next over is screwing you over," said Watson.

Lessons from the Gulf

Reporters in the northeast are now covering many of the same issues and concerns that reporters on the Gulf coast have been looking at for years, particularly in the wake of hurricanes Katrina and Rita in 2005.

One mistake reporters sometimes encounter in covering coastal climate issues is "assuming that climate change alone is going to be what the problem is," says Mark Schleifstein, the environment, hurricane and levee reporter at the *Times-Picayune* in New Orleans. Climate change can act as an accelerant for already-existing problems, like coastal erosion. And it acts in addition to regular weather cycles of El Niño and La Niña.

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nourish the plants in the greenway and to funnel the water into the treatment center. The greenway will also be designed with an educational focus, including signage and displays to help show visitors how the greenway works, and how they can use rainwater in their own gardens.

Location: Yarnell Hill, Ariz.
Project type: Wildfire adaptation

Following the disastrous Yarnell Hill wildfire that earlier this summer killed 19 firefighters and affected more than 8,300 acres, researchers wonder whether directly combating wildfires made increasingly frequent and dangerous by climate change is the best approach. Researchers at the Pacific Biodiversity Institute found only a small percentage of homes in the Yarnell Hill region had an adequate buffer zone between their homes and flammable vegetation or other fire hazards. Researchers called for a focus on building adaptive, fire-ready communities in these vulnerable areas, using buffer zones and fire-resistant materials in construction. Wildfire-vulnerable communities are also starting to investigate community awareness programs and more efficient evacuation routes.

Location: Cape May, NJ
Project type: Restoration of natural coastal resources

On New Jersey's Atlantic shore, nonprofit group The Nature Conservancy is leading a coastal restoration effort that melds adaptation efforts with the long-term sustainability and progress goals of climate change mitigation. The focus is on the creation and restoration of naturally occurring coastal features, such as coral reefs on the shoreline, to buffer against tidal risks presented to shoreline communities. The group has placed particular emphasis on restoring forests, marshes and meadows near the shoreline, taking advantage of their capacity to buffer storm surge and retain water. One example is a restored meadow on the shore of Cape May, completed in 2006, that withstood both Hurricane Irene and Superstorm Sandy without any damage to the dunes or wetlands.

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