SEJournal

Summer 2014, Vol. 24 No. 2

SPECIAL REPORT:

RISK AND RESILIENCE

Lessons from Louisiana on the Realities of Coastal Living

BETWEEN THE LINES: Award-winning Photos, Q&A on Environmental Fallout of War

FREELANCE FILES: Taking the Fellowship Path

Plus: Reporter's Toolbox on storm tracking and Inside Story on covering nukes

A quarterly publication of the

Society of Environmental Journalists

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 past and hoped-for future of Louisiana coastal wetlands are embodied in this scene from the Lacassine National Wildlife Refuge southeast of Lake Charles. For more on what's being done to restore more of the state's coastal environment to conditions such as this, see stories beginning on page 6.

Photo by John and Karen Hollingsworth, U.S. Fish & Wildlife Service

SEJournal

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SEJ President's Report

Tapping the Environmental Journalism `Power Grid'

By DON HOPEY

When the Obama administration issued its National Climate Assessment in May, the story broke big on front pages across the nation, throughout the digital platforms and at the top of evening newscasts.

While some were critical of how the White House press corps was more focused on Bengazi than longer growing seasons or rising sea levels, I prefer to take a glass-half-full look (which, all in all, is more water than the Texas Panhandle or California's Central Valley may soon have available).

I choose to think the overall coverage reflected more than a maturing of the issue. It also reflected a maturing of the environment beat and its growing importance in everyday life. With apologies to the vegetarians among us, we're not a garnish, the green salad or even a side dish anymore; really haven't been for a while now. We are, increasingly, the meaty main course.

Whether due to climate change, wildfires, ocean acidification, glacial and ice sheet melt, drought, nuclear power or shale gas drilling and "fracking," environmental stories are regular and significant parts of the daily news feed, commanding readers' attention and fostering public discussion and debate.

And the Society of Environmental Journalists has played a role. At SEJ's annual conferences we've provided members with exposure to environmental newsmakers – we had James Hansen at SEJ's 1993 conference in Durham, N.C., and Steve Schneider at Stanford in 2007, to name just two of many – and inspiration to tell the important stories. That's helped foster the kind of solid reporting on environment, health and science that is essential to our society.

For confirmation of the beat's maturity look no further than "Toms River: A Story of Science and Salvation," Dan Fagin's compelling account of a New Jersey town trapped in a polluted nightmare of childhood cancer clusters and corporate compromise. It won the 2014 Pulitzer Prize for General Nonfiction, and was hailed by *The New York Times* as "a new classic in science reporting."

Fagin isn't alone among our members in being so honored. David Philipps of *The Gazette,* in Colorado Springs, CO, won this year's Pulitzer for National Reporting for his examination of the mistreatment of wounded combat veterans after their discharge from the military. Other SEJ members who have earlier placed a Pulitzer Prize on the first line of their distant-in-the-future obituaries include Mark Schleifstein, Ken Weiss, Robert Semple and Elizabeth McGowan.

Also this year, for the first time, SEJ's Annual Awards for Reporting on the Environment attracted more than 300 entries. Although the awards are an imperfect measure, they highlight again the interest in the kind of significant journalism that is our goal individually and within SEJ.

Fagin, a former New York *Newsday* environment reporter and SEJ board member and president, told me recently that SEJ provides an energizing community of support.

"(It's) a place where a diverse group of people come together to learn from each other, support each other's work and identify in-common challenges and opportunities," said Fagin, now director of the Science, Health and Environmental Reporting Program at the Arthur L. Carter Journalism Institute at New York University.

"We give to SEJ and we take from it, and the collective result of these thousands of exchanges, large and small, is a sort of intellectual 'power grid' we tap to supercharge our storytelling about the ideas, people, places and things that will determine the future of life on Earth.

> "SEJ is a place where a diverse group of people come together to learn from each other, support each other's work and identify in-common challenges and opportunities."
>
> —Dan Fagin, Author, *Toms River: A Story of Science and Salvation*

"There is nothing quite like the feeling of flying home from an annual conference on Sunday morning, exhausted (and maybe even a tiny bit hungover) but exhilarated about what you've learned and brimming with ideas about how to apply that knowledge to your next story, and the one after that."

So at SEJ's upcoming annual conference in New Orleans Sept. 3-7 (earlier than usual this year; time to register if you haven't yet), let us celebrate the environment beat's new prominence. We should not do so too loudly because many of the stories we must tell are not happy ones, but with pride because they are important ones. And we should not celebrate excessively long, because we know that things can turn on a dime or an election or a corporate bottom line, and there is always much, much work yet to do. But we should do so with some satisfaction in our job done well.

I hope to see you in NOLA in September for the celebration. And on second thought, maybe we will make some noise.

Here's the link to register:
www.sej.org/sej-annual-conferences/registration.
You should do it now.

Don Hopey covers environment at the Pittsburgh Post-Gazette, *and teaches at the University of Pittsburgh and the Pitt Honors College Yellowstone Field Course.*

Freelance Files

Freelancers and Fellowships

A Path for Growth

By LISA PALMER

Fellows participating in IJNR's Crown of the Continent Institute in Montana during June 2013 were briefed at this stop on their journey by University of Montana fire scientist Ron Wakimoto.
Photo: © Osha Gray Davidson

Six years ago I faced a conundrum. To succeed as a freelance journalist, I felt compelled to dig deep into a specialty. While I loved reporting on a variety of topics, the thought of devoting all my time to a typical newsroom beat – business, health, government – didn't thrill me.

Then came a Knight Center fellowship that changed everything. The Knight fellowship focused on climate change and its sweeping effects. It offered unique professional seminars on the science, economics, politics and social science issues related to climate change. And, it was the first of many fellowships that have profoundly shaped my career. The value of a journalism fellowship seems like a no-brainer. You get training. You get story ideas. You get paid (sometimes). You also receive one of the best gifts you can't get while working day-to-day deadlines: time. The benefits are many and likely why fellowships are so competitive.

As a summer media fellow at the Vermont Law School's Environmental Law Center in 2013, I was immersed in a university-like setting during the day; and in the evenings, I retreated to a quiet house in the country where I read my course assignments and wrote articles.

Currently, I'm one of two science communications fellows at the National Science Foundation-funded National Socio-Environmental Synthesis Center. A steady flow of scientists crosses my path every day; and my fellow fellows, post-doctoral researchers, regularly point me to new perspectives on ecology, biodiversity and ecosystems services.

As a freelance journalist, I often hesitated before applying for a fellowship. Self-doubt ruled. I thought institutions would prefer to award a spot to a staffer at the Associated Press, *Los Angeles Times* or *The Washington Post* rather than an independent reporter with no particular affiliation. While that may have been true in the past, the media market has changed so much that freelance journalists with strong performance records now regularly receive fellowships.

When opportunity knocks

Freelance science writer Osha Gray Davidson, of Phoenix, AZ, says he wished he had understood a couple of decades ago the importance of fellowships. "They're the single most important resource I've found to help me do my job better," he said. Davidson has been awarded several fellowships, including a Heinrich Boell Foundation Media Fellowship in 2012. This summer he will attend Vermont Law School as a media fellow.

Perhaps the biggest value in fellowships is that they can provide a base of knowledge about issues a journalist has not yet investigated. And there's no telling when that knowledge will come in handy. In 2013, Davidson was awarded the Institutes for Journalism and Natural Resources' Crown of the Continent fellowship. During the five-day fellowship, he attended seminars on wildfires and devoted time to learning about wildfire in the West. The day he returned home to Phoenix was the day 19 men died in the Yarnell Hill Fire.

"With a basic understanding of the issues involved, and having met one of the top fire researchers in the country at the institute, I felt equipped to query *Rolling Stone* for a piece on the disaster," Davidson said. A month later, the story was done.

Davidson says he can't prove it, but he's pretty sure that each fellowship he receives increases the odds that he'll be successful in getting another one. "Funders want to be able to point to results, and every grant or fellowship I've received I've used to produce at least one major story," he said.

Fellowships also provide intangible benefits that can propel a freelance career, says Davidson. "An editor who sees that a prestigious institution funded my work is, I think, more likely to bet on me, too," he said.

Widening your frame of reference

Christine Heinrichs, a freelance journalist based in San Luis Obispo County, CA, received a National Tropical Botanical Garden Environmental Journalism Fellowship in 2007. She said the experience provided her a leap forward in how she sees the world.

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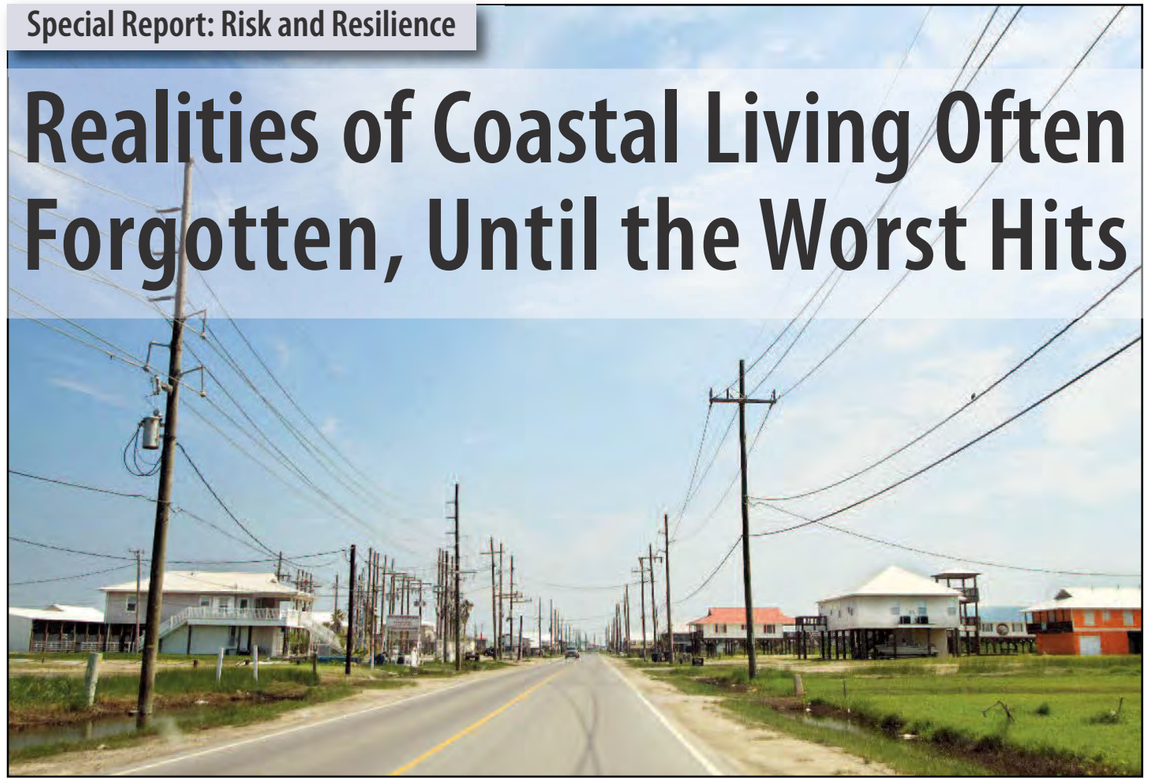
Special Report: Risk and Resilience

Realities of Coastal Living Often Forgotten, Until the Worst Hits



Grand Isle is Louisiana's last-remaining inhabited barrier island, and an extreme example of coastal communities around the country that are experiencing sea-level rise. Photo: Mira John via Flickr

By AMY WOLD

Perched on poles, the houses on the barrier island of Grand Isle reflect the reality that people who live and vacation there know is part of their lives: the Gulf of Mexico is their neighbor.

In fact, this last remaining inhabited barrier island in south Louisiana is experiencing such a high rate of relative sea-level rise that it is the only area in the continental U.S. where the definition of sea level needs to be readjusted not just every 20 years, as it is elsewhere, but every five years instead.

On average, the sea level gets adjusted about two inches every five years. As a result, you'd be hard pressed to find a house on this island that is built on a ground-level foundation.

> There is no silver bullet that will bring absolute protection or resiliency to a community.

Grand Isle may be an extreme example, but coastal communities all over the country are seeing some degree of sea-level rise. Hurricane Sandy in 2012, for instance, devastated parts of the East Coast and has prompted a number of calls for increased protection, whether in the form of sea walls or wetland restoration.

Louisiana, too, learned the hard way in 2005. People felt secure behind levees and what appeared to be large expanses of wetland between the Gulf of Mexico and their homes. Then Hurricanes Katrina and Rita devastated the entire state coastline.

In the effort to help all coastal communities face such realities, lessons can be learned from Louisiana as it works to adapt and to mitigate flood risk. The overriding lesson is that there is no single solution that provides complete protection. Communities need to learn how to manage risk in multiple ways as they recognize there's no way to live along the coast risk free.

Restoration, protection linked

After 2005, the Louisiana State Legislature formed the Coastal Protection and Restoration Authority, or CPRA, to consolidate the largely separate efforts that had been going on in coastal restoration and hurricane protection.

Until this time, coastal restoration had largely been thought of as something good for the ecosystem of fish and wildlife, while levees were necessary for community safety and economic development.

The creation of CPRA was a formal attempt to recognize what some had known for years – restoration of wetlands and protection of humans are linked.

There is no silver bullet that will bring absolute protection or resiliency to a community. So instead, the state adopted an approach put forward by John Lopez, a scientist with the Lake Pontchartrain Basin Foundation. Called the "multiple lines of defense," this strategy promoted looking at ways that risk from storm surge could be mitigated in stages, starting with the restoration of barrier islands along the coast.

Other lines of defense to be considered included coastal wetlands, forested ridges of land, levee protection, floodwalls, elevated homes and ensuring the safety of evacuation routes.

Master plan informed by science, public input

Using this strategy as a backdrop, CPRA came up with a required master plan in 2007. Although general in nature, it did give a framework for action until the next plan was ready in 2012. The 2012 master plan is a 50-year, $50 billion outline of what science and computer modeling say can help stop land loss in 20 years and even see net growth after that.

Although based in science, the latest plan is also the result of community input, as well as stakeholder input from industries including fisheries and navigation, all raised during the planning process instead of once the report was completed. That helped the state gain approval of the plan in the state legislature, where it was not free of controversy.

When the plan was released for public review, for the first time it showed areas of the coast that were not going to get much protection. The reasons for this were not political, but rather the result of several factors: distance from the rivers that could deliver sediment to rebuild depleted areas, expanses of open water to contend with and a very soft sea floor that makes placement of structures impossible, as they would continue to sink almost as soon as construction stopped.

Louisiana's master plan doesn't just include wetland creation and levee building. It also includes a large amount of money to be spent on "non-structural" protections, such as the elevation of homes.

For some, the change toward more than just levees has been a completely different way of looking at risk reduction from storm surge. Even the term "risk reduction" is new, since before Hurricane Katrina, the term normally used was "levee protection."

Important lessons can fade from memory

Protection, absolute protection, is not possible. That was a lesson learned from Hurricane Katrina. But like most lessons, it's one that can slowly fade from memory.

The United States hasn't been hit by a major hurricane of Category 3, 4 or 5 strength – one with wind speeds of 111 miles an hour or more – since 2005. This gap is unprecedented in the hurricane record. Previously, there were only two times where the United States went five straight years without a major hurricane landfall.

Complacency is an easy thing to fall into. Windell Curole, levee director for the South Lafourche Levee District, has long blamed it for why New Orleans and the surrounding area decided to focus efforts on solving rain-based flooding instead of hurricane protection.

The hurricanes that hit New Orleans in the 1960s were similar to what happened in 2005, but years went by without any major storms and people forgot, he posits.

People all over south Louisiana forgot what their grandparents knew, he says. "In Louisiana, prior to World War II, homes were built elevated on the natural ridges adjacent to the bayou," he wrote in a paper included on the levee district's website. People constructed their homes on the high ground directly next to the bayou with the back of their property used for things like trapping, fishing or agriculture.

After World War II, conformity was the rule and people began wanting to have a regular house, meaning built on a ground-level foundation, which increased flood risks.

Keeping the conversation alive

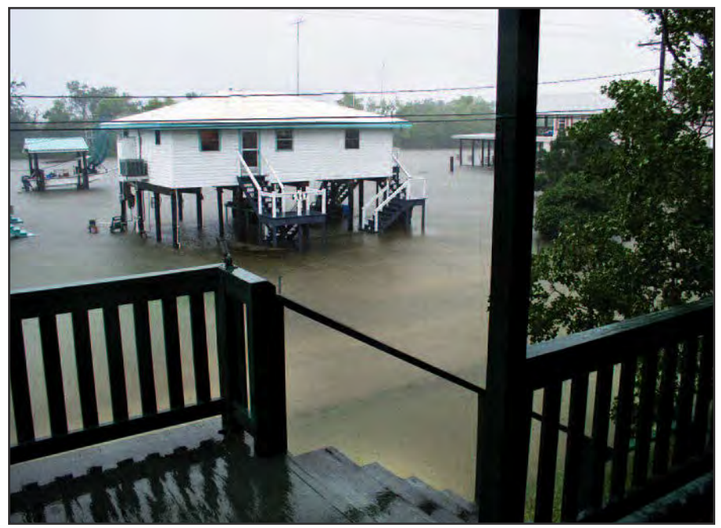
Prior to Katrina, it seems many Louisiana residents forgot they lived in a region that would surely face storm-surge flooding again. And now, almost nine years after Katrina and Rita, there are signs that many New Orleans residents again are failing to recognize the risk in the Big Easy or just how close that open water is to their homes.

The technology and know-how to reduce risk from flooding or coastal hazards is available. The science is available too, even though there can always be more added to what can be done.

The real challenge is keeping that sense of urgency alive long enough to effect change. The political will to make change isn't easy. People don't like change. Once the storm damage is cleaned up and people are back to their normal lives, many people want to hold on to what is secure and what they knew before the disaster.

Pointing out risks, where there are hazards that are developing and possible solutions to mitigate those risks, helps keep that conversation alive.

Amy Wold is the environmental reporter at The Advocate *newspaper in Baton Rouge, La. She is a graduate of Western Washington University in Bellingham, WA, and worked for two newspapers in the Northwest before moving to Louisiana in 2000. She's covered numerous hurricanes, including Katrina, Gustav and Ike as well as the 2010 Deepwater Horizon disaster.*



Houses in Louisiana's southernmost communities are built on stilts for a reason, as evidenced in Cocodrie during Tropical Storm Bill in 2007. Photo: sleepyorange via Flickr

Living in Harm's Way

Louisiana's Struggle Between Land and Sea

By AMY WOLD

If you're coming to the SEJ annual conference in New Orleans, Sept. 3-7, chances are you'll hear more than once the phrase "Louisiana loses a football field of land every hour."

That's because it's a simple way to help people understand the very large scope of what land loss has meant to the state – not only in recent years, but for decades.

This land loss has moved whole populations northward over time, erased place names from National Oceanic and Atmospheric Administration maps and forced residents to adapt to a Gulf of Mexico that keeps getting ever closer.

After Hurricane Katrina in 2005, there were a number of voices in the national press who asked the question, "Why does anyone still live there in harm's way?" People in coastal Louisiana knew the answer and it's as complicated as the land loss they are still facing every day.

Louisiana may have hit the national spotlight for a time, but coastal communities elsewhere around the country will have to find their own answers to that same question, even as more and more people move toward the coast – and the water moves ever closer to them.

National implications of land loss in Louisiana

For Louisiana, land loss means the loss of communities, loss of fishing and loss of cultural heritage. But it doesn't end there.

For the country as a whole, Louisiana land loss means that vital oil and gas production, refining and pipelines are increasingly exposed to tropical storms and hurricanes. It also means that shipping channels, needed to get inland products to countries overseas, are threatened as the Army Corps of Engineers struggles to keep a river open that was ready long ago to change course.

In other words, coastal land loss matters to Louisiana, but it matters just as much to the rest of the nation. It's just that coastal Louisiana is dealing with those impacts now.

For Louisiana, the answer to the dilemma starts with how the coastal area was built. For thousands of years, the Mississippi River has meandered across this delta, spreading sediment in one area only to change course to add land to another area. These so-called delta splays abandoned by the river would eventually decay, leaving behind barrier islands, as the rest of the coast retreated and another part of the coast was born.

This is the natural way of deltas and it would have continued that way for thousands more years – that is, except for the arrival of people who didn't want the river to change or flood. Early European settlers created their own personal levees and built their houses high in the area because they knew from experience that they could try to contain the water in its banks, but the river eventually would win.

Then in 1927, a great flood brought devastation to large parts of the country, including Louisiana, and the federal government made a decision that enough was enough. A large levee system along the river was built, essentially constricting the river to its banks. The wandering and the sediment deposition in the wetlands of south Louisiana were largely contained.

Lying just to the east of Grand Isle, East Grand Terre Island forms a natural barrier between the Gulf of Mexico and Lower Barataria Bay. The photo above shows how it appeared in 2007 before the start of a $31 million rebuilding program.

At left, East Grand Terre Island after rebuilding of the 2.8-mile, 620-acre barrier shoreline and marsh.

Photos: Louisiana Coastal Protection and Restoration Authority

If restoration of Louisiana's coastal wetlands is to succeed, beach plants like the succulent saltwort (Batis maritima) will be just as important as coastal barrier construction.

Photo: cc scott e via Flickr

The natural regression of old deltas, no longer fed by the Mississippi River mud, began. It was a known consequence accepted for the greater national good for more than a century as witnessed by this comment in an article in *National Geographic* dating back to December 1897.

> "No doubt the great benefit to the present and two or three following generations accruing from a complete system of absolutely protective levees, excluding the flood waters entirely from the great areas of the lower delta country, far outweighs the disadvantages to future generations from the subsidence of the Gulf delta lands below the level of the sea and their gradual abandonment due to this cause. While it would be generally conceded that the present generations should not be selfish, yet it is safe to say that the development of the delta country during the twentieth century by a fully protective levee system, at whatever cost to the riparian states and the Federal Government, will be so remarkable that people of the whole United States can well afford, when the time comes, to build a protective levee against the Gulf waters, as the city of New Orleans has done on a small scale against the sea water of Lake Pontchartrain."

Hurricanes prompt action, but not restoration for all

That forecast was largely forgotten for years until the 1970s, when researcher Woody Gagliano and others started looking into coastal issues. What they found was coastal land loss.

But it took years of research, meetings and more and more evident land loss before decision makers started to take action (see sidebar with timeline of legislative action).

Then in 2005, Hurricanes Katrina and Rita devastated coastal Louisiana. Although New Orleans got the bulk of the national media attention as the major metropolitan area laid low by the hurricane, the entire coastline saw devastating damage from the one-two punch. More than one million Louisiana residents were displaced and about 200 square miles of coastal wetlands were lost.

Coastal restoration and storm protection took on a new urgency. But within the decade, as government agencies responded to the threat, it became clear that many areas of the coast weren't going to see the level of protection or restoration they had come to hope for.

So despite vocal concerns, the Louisiana state legislature in 2012 approved a 50-year, $50 billion master plan. Even if everything in the plan is done, including marsh creation, levee construction, home elevations, river diversions and other water management actions, the plan doesn't call for a net gain of land until decades into the effort.

While no one will admit defeat, the plan did signal a growing realization that the coastline Louisiana has today will not be the one the state will have in 20, 30 or 40 years. *Continued next page*

Timeline of Louisiana Coastal Restoration Actions

1987: A group of scientists, coastal community members and others known as the Coalition to Restore Coastal Louisiana publishes a report outlining the problem and setting down what needs to be done. A big lesson: Coastal restoration – as the current government structure was set up – wasn't anyone's responsibility.

1989: Louisiana passes Act 6, which sets up the Governor's Office of Coastal Activities and a State Wetlands Authority. It also sets up the Coastal Wetlands Trust Fund, with money coming from state oil and gas money.

1990: Congress passes the Coastal Wetlands Planning, Protection and Restoration Act through the work of then-senators John Breaux and J. Bennett Johnston. It dedicates part of a small-engine fuel tax for use in coastal restoration in Louisiana. This CWPPRA program (pronounced Quip-pra) remained the main dedicated funding for coastal restoration in Louisiana for years. That work, which continues today, ultimately led to the development of the Coast 2050 plan, which was a broad outline for coastal restoration across the state.

December 2005: The Louisiana state legislature creates the Coastal Protection and Restoration Authority, or CPRA, to be the single entity to handle coastal restoration and storm protection in the state.

2007: CPRA releases and receives legislative approval for a master plan for coastal restoration and protection. Although general in nature, the plan was hailed as another step forward, while acknowledging more work needed to be done.

2007: The Coast 2050 plan leads to the Louisiana Coastal Area plan being included in the congressional Water Resources Development Act of 2007, which comprises more specific projects for coastal restoration, the latest development in a long list of plans for dealing with land loss.

2012: As required by law, CPRA releases the 2012 master plan. It was specific in laying out projects and areas of focus. For many it was a first look at areas of the coast that weren't going to see the level of protection or restoration they had come to hope for.

Response to reality varies by locale

Some adaptation to this reality will be organized by government, but much of the reaction will likely arise spontaneously from the ground up.

For example, Plaquemines Parish, just south of New Orleans, was hard hit not only by Hurricane Katrina, but several other hurricanes and the Deepwater Horizon oil spill in 2010.

Of the estimated 23,000 people living in the parish, most live in the main city of Belle Chasse, well north of the large areas of the parish that have flooded in the years since 2005.

Parish President Billy Nungesser is hoping the influx of industry and business along the Mississippi River that runs through the entire parish on its way to the sea will help the area rebound. This growth has been enough to convince federal lawmakers to spend money and time to build up the levees in the lower parish, he said. In the meantime, most of the homes seen south of Belle Chasse are either trailers that can be left if a storm approaches, or houses built on artificial hills or perched in the air on stilts.

Just to the west, Lafourche Parish continues to build up its levee around the parish, a system that has not been breached. The levee director, Windell Curole, makes a repeated point that just because the levees haven't been overtopped, doesn't mean they won't be someday.

So why do people live here?

The road through Lafourche Parish is the only one that services Port Fourchon, a major supplier of the needs for offshore oil and gas activity. Although a portion of the road outside the levee system has been elevated, advocates say more work needs to be done since it no longer takes a tropical storm to flood the lower levels of the road with water.

What other coastal communities can learn

There are a number of other reasons that people in other parts of the country should care about land loss in south Louisiana. Seafood production is important here. Hunting and fishing are important here.

But when you come right down to it, oil and gas production, or the lack of it, is something that really grabs the national headlines. It was reported after Katrina that gas prices in some areas of the country went up 40 cents a gallon, which was blamed on production interruption due to the storm.

Will this be the same reason a New York or a Seattle starts to look at adaptation to likely flooding? Probably not. Each coastal area is going to have to find its own answers and reasons to act.

It's taken decades for Louisiana to come to terms with, study, better understand and adapt to the changes along the coast. But those lessons could help the next coastal community when the sea comes knocking on the door.

A group of volunteers helping to replant marsh grass on the Bayou Sauvage National Wildlife Refuge east of New Orleans. Photo: U.S. Fish & Wildlife Service

Reporter's Toolbox

Weather Service Offers Better Ways to Track Storm Intensity

By ROBERT McCLURE

With Hurricane Georges bearing down on the Florida Keys and cops blocking access to where our editors told us we must go – U.S. 1, the main route into the Keys – photographer Sean Dougherty and I were perplexed. We spent a day piloting our rented SUV through back roads I thought I knew better – ones I'd used going fishing with my dad when I was a kid.

We were bound for Key West to record what happened when Georges stormed ashore that night. About dusk we finally slipped onto the highway just barely out of sight of the blockade to the north. An hour or so later, halfway to Key West, I realized our folly. Crossing the Seven Mile Bridge with the high winds of Georges buffeting our SUV, I seriously wondered if we'd go in the drink. We skated through. But I'd never want to relive that night.

Those memories from 1998 came flooding back as I learned from Amy Wold, who authored our Special Report on Risk and Resilience in this edition of *SEJournal*, that the National Weather Service this year is making available tools that will help us and our readers/viewers/listeners better anticipate the intensity of storms. If Sean and I'd had those tools we might have made different, smarter decisions.

Here's what's new, along with changes to some traditional hurricane-forecast products of the National Hurricane Center aimed to inform reporters and the larger public:

● **New potential storm surge flooding map:** This is an experimental product, but it sure does sound promising. Storm surge is, of course, one of the most important factors determining how much damage a given storm does in coastal areas. In fact, the weather service calls it "often the greatest threat to life and property from a hurricane." And you can't assume that just because you're only getting a category 1 or 2 hurricane that storm surge won't get bad – those Saffir-Simpson hurricane numbers are based only on wind speeds.

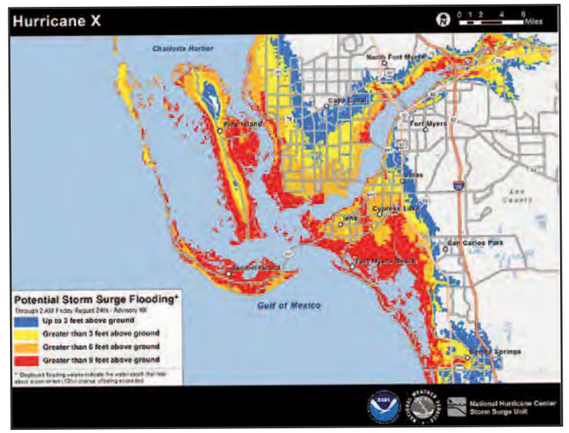
This new forecast, to be updated every six hours, will show areas thought to have at least a 10 percent chance of seeing storm surge – pretty much a worst-case scenario. It also projects how deep the surge will be.

That can help news reporters anticipate where to deploy in anticipation of the storm. On the night of Hurricane Georges, Sean and I made it to Key West, but other than a power outage, life continued more or less as normal. The next day we cast about for hours and hours trying to find flooded homes. If only we'd had this new tool, we'd have known where to go a lot sooner. Hint: It wasn't Key West.

Note that if you're deciding where to deploy for the duration, keep in mind that just two feet of storm surge can carry away vehicles. More on the dangers of storm surge here:
http://bit.ly/StormSurgeCanBeDeadly

More on the new flooding maps here:
http://bit.ly/NOAAStormSurgeGraphic

● **New five-day Graphical Tropical Weather Outlook:** Now, the National Hurricane Center issues outlooks covering potential tropical storm development for the next 48 hours. That will continue to be produced (with small changes). But in addition the forecasters will be issuing a five-day Graphic Tropical Weather Outlook, or TWO, that plots tropical disturbances and displays a usually oval-ish blob depicting the likely path of the disturbance.



This year NOAA will issue a potential storm surge flooding map for areas along the Gulf and Atlantic coasts at risk of storm surge from a tropical cyclone. Image: National Hurricane Center

Unlike the 48-hour TWO, this new five-day product will not display the disturbance after it grows to the intensity of tropical storm or hurricane (because the graphic would be too busy to be useful). Both of these products will be produced every six hours when a tropical storm or hurricane is active.

Tool removed to better relate real risks

The National Hurricane Center is eliminating what the agency calls an unfortunately misleading estimate of storms' intensity at landfall. It's because people have misused it, as the Hurricane Center explained:

> "Unfortunately, the current methodology provides a highly misleading estimate of landfall intensity. Because of the likelihood of misuse for land-threatening storms, (National Hurricane Center) is discontinuing this table until a better procedure to estimate intensity risk can be developed."

The weather service's full description is here:
http://bit.ly/NOAASeasonChanges

Smaller projected hurricane path

Nowadays the Hurricane Center issues forecasts of a hurricane's path that are more accurate than ever. For several years running now the Hurricane Center has been narrowing the projected path of a hurricane, the so-called "tropical cyclone forecast cone." This cone-shaped projected path is derived by looking at forecast errors over the last five years.

Continued on page 21

Rain of Steel

Covering the Environment, Health Fallout of Unexploded Ordnance

A farmer stands behind a live mortar round he discovered in the field behind his home in Savannakhet, Laos. A branch of the Ho Chi Minh Trail once ran through this valley, and the man says the surrounding hillsides are still covered in unexploded bombs, which makes him afraid whenever he goes out farming.
Photo: © Jerry Redfern

For the latest Between the Lines *– a question-and-answer feature in which published authors provide advice to SEJ members about how and why they did their books –* SEJournal *book editor Tom Henry caught up via email with Karen Coates and Jerry Redfern, as the couple was on their latest reporting expedition in Southeast Asia. They spoke about "Eternal Harvest: The Legacy of American Bombs in Laos," a book seven years in the making that combines Coates' intensive research and passionate writing with dozens of Redfern's powerful SEJ-award-winning photographs. It shows how Laos – the most heavily bombed nation on the planet – has had its culture upended and its longstanding tradition of living off the land grossly impaired, if not forever ruined. In the interview, they discuss how they stumbled on the story, the challenges of getting editors to see it as an environmental and health issue worthy of coverage, how they turned standard reporting techniques on their heads, and the lessons of taking on a major overseas project. For a review of the book, see page 20 of our* BookShelf.

SEJournal: This book is a fascinating, highly ambitious project. What inspired you to do it?

Karen Coates and Jerry Redfern: In 2005, we were in northern Laos doing research for a story on the Plain of Jars for *Archaeology* magazine. The jars — hundreds of them, each weighing thousands of pounds and standing several feet tall — are a mysterious collection of stone burial vessels scattered about the high plateau of north-central Laos, an area that was heavily bombed during the Vietnam war. For two weeks, we followed a Belgian archaeologist as she did the groundwork to set up the sites for UNESCO World Heritage status. She worked hand in hand with a bomb-clearance team that cleared unexploded ordnance (UXO) from the sites visited most often by tourists (many other sites remain uncleared).

From years of working in the region, we knew the general outlines of the area's history and knew that a lot of bombs had been dropped there. But we had no idea of the extent of the problem today. One day, while reporting the Archaeology story, we visited the local hospital and met a young boy who had been seriously injured when something exploded as he was out working in his family's fields. We talked to his mother who said they knew the dangers, of course, but what could they do? They have to farm. She constantly worried about her children in the fields.

The more we looked around, and the more we reported, the more we realized this was one family among millions facing bombs as a daily problem in their lives, 40 years after war had ended.

More than 20,000 Laotians have been killed or injured in UXO accidents since the end of war. In the few weeks we reported the *Archaeology* story, we learned of dozens of accidents in the area. This was a much bigger story that we felt had to be told. Yet, while we found occasional newspaper stories about UXO in Laos, that was it. It seemed no one had done a comprehensive story on how Laotians all across the country still live with the danger of a war 40 years gone. As Americans we felt a duty to report this to our country — a country that didn't know the problem existed.

SEJournal: One of the messages isn't just the sheer legacy of the bombing, but also the magnitude of it and the indifference about it. You make the point the U.S. government didn't want Americans to know the extent of it, but to what degree do you believe the American media never followed through on its own? How will your book help fill that void of knowledge?

Redfern: The initial scope of the bombings was announced in Congressional testimony in the '70s — 580,000 missions, an astounding number. But it's one of those huge numbers that confound people: What does 580,000 bombing missions mean? What does that look like? I don't think it was until the U.S. State Department gave the bombing data to Vietnam, Laos and Cambodia in the late 1990s and people there started creating maps that anyone truly understood the scope of the bombing. But then, 20 years on, focus had shifted, there were other stories. People who work in UXO clearance in these countries understand the scope, but it's still being taught to the rest of the world, and particularly the U.S. public.

Coates: Also, I think it's important to note that Laos has one of the few remaining Communist governments, which keeps a tight rein on information and reporters (local or foreign) working in the country. It's extremely difficult for foreign reporters to do more than cursory reporting on the issue. This is a large part of the reason why we spent huge amounts of time, over the course of seven years, making contacts and repeat visits to the country.

Sii, 40, stands in his banana field at Ban Dong, Savannakhet, Laos, which was a front line in the Lam Son 719 battle of 1971. The Army of the Republic of Viet Nam, backed by the United States, came across the border here in an attempt to sever the Ho Chi Minh Trail. Instead, they ran into North Vietnamese Army troops and were routed, leaving behind mountains of unexploded ordnance. Craters and UXO from the battle still litter the ground. Photo: © Jerry Redfern

Two Hmong boy, take a break from scavenging bomb scraps in the ashes of a burned field in the middle of Xieng Khouang province, Laos. At the start of the dry season, farmers all over Laos burn their fields to prepare them for the next planting. This clears off the scrub that grew during the rainy season and also makes it easier to find bomb scrap and dud bombs that were unearthed by the rains.

Boys like these can hope to make the equivalent of a few cents a day collecting the metal nuggets like those in the bottom of Teng's basket. They can make a little more if they find an intact bomblet, and are lucky enough to get home to sell it. The heat from burning fields also occasionally triggers buried, long-dormant bombs, killing anyone working nearby and throwing deadly shrapnel up to a mile.

Photo: © Jerry Redfern

Tao Lee squats next to three BLU-49 fragmentation cluster bombs found in a newly cleared farm field overlooking Etoum, a village in southern Laos. When the field was set on fire to clear it of vegetation, heat from the fire detonated several other buried bombs. They rained shrapnel on the village in the middle of the night, forcing its temporary evacuation. Etoum lies on a crossroads of the old Ho Chi Minh Trail and was heavily bombed during the Vietnam War. The Lao government recently moved Etoum from a nearby location to its current spot atop the heavily bombed patch of ground. Locals now must contend with UXO throughout their new village and farmland.

Photo: © Jerry Redfern

Bic, age 10, lies in the provincial hospital in Phonsavanh, Laos, recovering from wounds caused by a cluster bomblet. While working in his family's fields with a hoe, he struck a buried bomblet that exploded, injuring his legs, arm and jaw, which became severely infected. Bic doesn't remember the accident.

Photo: © Jerry Redfern

Seen from a mile away, a pair of white phosphorous bombs are detonated by a clearance team from Phoenix Clearance LTD. The bombs were found and reported by a pair of young boys tending cattle. The nearby village is scheduled to be moved to make way for the reservoir behind the Nam Theun 2 dam. Meanwhile, in the last year, PCL has found and destroyed unexploded ordnance dating from the Vietnam War era in and around this village. PCL's job is to clear explosives from new home sites and farmland for people relocated by the Nam Theun 2 Dam hydro-electric project. The clearance team is led by Wisconsin native Jim Harris, a former kindergarten teacher and grade-school principal, who feels a debt to the Lao people for the bombs dropped there during the Vietnam War.

Photo: © Jerry Redfern

Every now and then, the international media will run a story about an accident that kills or injures Laotian civilians, and then that's it. But those accidents happen routinely. One headline does not cover the scope of the problem.

I also think a lot of American editors have a hard time seeing the relevance today. Even now, for reasons Jerry and I cannot fathom, we've had a difficult time trying to persuade editors that UXO is both an environmental and a health problem. They just don't see it. We recently had an interesting conversation about this with a UXO expert in Vientiane who said 'Ask Laotian villagers what their health and environmental worries are and they would likely be snakes, scorpions, UXO' (the order shifting, depending on where in the country they are).

For the record, traffic accidents are among the country's biggest health problems. But many farmers don't worry about traffic accidents the way they worry about UXO accidents.

SEJournal: What does it say to you about mankind when you come face to face with people who — 40 years after the war ended — still live with the daily threat of unexploded bombs? And an entire culture being upended because it cannot farm or live off the land like it had in years past? And everything from ashtrays to artwork made of bomb shells?

Redfern: Mankind is also the species that is currently pumping greenhouse gasses into the atmosphere, knowing that they will drastically, catastrophically change the planet's environment, so I guess it is sadly unsurprising that people would have done this.

Coates: On the other hand, as someone with an anthropology background, I'm continually amazed by humanity's ability to adapt and cope with such tragic and difficult circumstances. Much of what we focused on in the book shows how UXO and war scrap have become routine parts of daily life in Laos. It has to be: People have no choice. And as some villagers explained to us, a person cannot fear constantly. At some point, the mind has to move on to other things. As for all that metal in the environment, Laotians are incredibly creative, turning old bombs into useful tools.

Redfern: In a way, we seeded Laos with tons and tons of the highest-quality American steel. They are using it.

SEJournal: What frustrations and challenges did you have researching, writing and taking photographs for it?

Coates and Redfern: Travel. The mountains that kept the Thais away from the Vietnamese (and vice versa) for centuries and frustrated the Americans throughout the war continue to make travel through Laos an "adventure." Also, remarkably, many foreign aid agencies working with UXO victims or in clearance in Laos were loathe to talk with us, as they were terrified of getting kicked out of the country or hassled by the government. Also, ironically, many groups didn't want us talking with their Lao "clients" who invariably did want to talk to us when we approached them on our own.

Of course, we also saw live ordnance on a regular basis, often with people not trained to handle it safely — most disturbingly children. Then again, we witnessed the controlled detonation of a 750-pound bomb with a clearance team. Even though we took shelter with the professionals, we had shrapnel falling around us more than a kilometer from the blast site.

And, on our trip there in 2012, Jerry got dengue fever. That really sucked.

SEJournal: Compare and contrast how you were received by locals when you arrived and how you are now. You obviously got them to open up to you. How did you gain their trust?

Redfern: Much reporting overseas (and in the U.S. as well) starts with interviewing experts and government officials and getting local quotes for "color." We turned that on its head (as we typically do) and interviewed regular people along the major bombing routes. We would walk into villages, smile, say we are Americans and we wonder if anyone has a bomb problem. That usually was all it took, because (surprise!) people really wanted to talk and had really interesting things to say. Lather, rinse, repeat a couple of hundred times across the country.

Lao people are among the friendliest you can meet, but we also think part of how we were received is a reflection of working over here for years and understanding the culture.

Coates: Key here, too, is time. Lao culture can be very easy-going (some might say slow!), and we rolled with it. We drank tea with the locals, we sat through hours of village meetings. That's what it takes.

SEJournal: What advice would you have for other SEJ members contemplating a major overseas project, whether it is in Laos or some other part of the world?

Coates: Take the necessary time. When we start a project in Asia, we typically spend days just getting a feel for the people and the place, and for the possibilities. Almost every time I have tried to outline and pitch a story before setting foot on the ground, it fails. But something else always turns up, and usually I never would have anticipated it.

Redfern: Something else, typically better and invariably more accurate. And the necessary time is usually quite a bit more than what a paper or grant expects a story to take. I think there is no such thing as an easy, quick story done outside the country where you grew up, if you are to be accurate and comprehensive about the people who live there — and that's the point, right?

SEJournal: What life lessons did you learn from this book? How did it change you as journalists and as people?

Redfern: It is nearly 10 years since we began work on the book. I have less hair. I would hope that anyone would change in a decade, hopefully for the better. It's a difficult question to answer — sort of like asking an old tree what its forest looks like after all these years. But I am grateful for the advantages I had growing up, not always appreciated at the time — schools, health care, a nominally functional government, a lack of bombs hidden in the ground.

Coates: It is a difficult question to answer because, for so many years now, beginning well before this book, we have made Southeast Asia and international reporting key facets of our lives. I can't imagine who I would be today without that. Many of my dearest friends are people I met during these years of reporting overseas. I'm also constantly amazed by people's hospitality and generosity. How many Americans would welcome strangers into the kitchen? How many Americans would welcome to the dinner table strangers from the country that tried to bomb them into the Stone Age?

SEJournal: What's next for you two? How do you plan to advance this story or others from Southeast Asia?

Redfern: We've been doing multimedia presentations in the U.S. and Asia. Our latest took place in Vientiane, the capital of Laos, and we couldn't be happier about it. We have more events planned for later this year in the United States (and we're open to more ideas, as well as interviews).

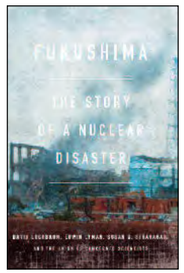
Coates: Yes! We're ready and willing. As for our next big project, we're looking into the causes of global hunger.

Tom Henry is SEJournal's *book editor and a former SEJ board member. He has been associated with SEJ since 1994.*

Water buffalo wallow in a mud hole left in a decades-old bomb crater along the old Ho Chi Minh Trail. The Lao government recently improved the rough string of roads and trails into a real road. The Ho Chi Minh Trail was heavily bombed during the Vietnam War and locals now contend with still-buried unexploded ordnance on land adjacent to the historic trail.

Photo: © Jerry Redfern

BookShelf



Fukushima: The Story of a Nuclear Disaster
By David Lochbaum, Edwin Lyman, Susan Q. Stranahan and the Union of Concerned Scientists
The New Press, $27.95
Reviewed by TOM HENRY

First, let's address the elephant in the room. No, not nuclear power. The Union of Concerned Scientists.

I'll let the group do its own public relations. But I feel compelled to put this out there, knowing what I do about human nature and how that relates to knee-jerk biases many people have about the controversial, highly politicized subject of nuclear power.

"Fukushima: The Story of a Nuclear Disaster" is a darned good book, regardless whether or not it's got the UCS brand attached to it. I say that because even though the two UCS employees named as authors – David Lochbaum, a nuclear safety engineer who is director of the UCS nuclear safety project, and Edwin Lyman, a senior scientist for the UCS global security program – have decades of experience as nuclear watchdogs, have given countless hours of expert testimony to Congress and so forth, there's a segment of the population that will shut down whenever it sees something that appears to have an activist label attached to it.

To each their own. But, in this case – knowing what I do after covering nuclear power for 21 years, one of the longest stretches among active American journalists – I have to hand it to the lead authors, including Susan Q. Stranahan, a Maine writer who was at the center of the Three Mile Island coverage when the once-mighty *Philadelphia Inquirer* won a Pulitzer Prize for its coverage of the landmark 1979 accident with the Unit 2 reactor there. They not only did their homework, but presented the information in a fair and reasonably balanced manner.

Are there a few nuggets in there the U.S. Nuclear Regulatory Commission and the nuclear industry might take issue with? Perhaps. The tone starts to waver toward the crusading side at times. But, as with all great journalism, the authors shed light on some hard truths.

And, for those eager to dismiss it because of the UCS label, at least consider the fact the authors got a big assist from the NRC itself. I'm not talking about Lochbaum's brief tenure with the agency, when he worked for about 12 months a few years ago as an NRC trainer. I'm talking about Charles "Call Me Chuck" Casto.

Certainly not a household name, Casto was the point man in Japan for the entire U.S. government for the first 11 months after the Fukushima disaster struck in March 2011. Now retired, Casto came back and oversaw the fleet of U.S. nuclear plants that report to the NRC's Midwest regional office in the Chicago suburb of Lisle, Ill., for a brief time before ending his agency career. He was, without a doubt, changed by what he saw. Some of that is reflected in this column I wrote for *The* (Toledo, OH) *Blade* shortly after he took over as the NRC's Midwest regional administrator [bit.ly/1pjad63]

Casto's not a co-author, of course, but he's mentioned in the credits and, more importantly, his footprint is all over the book. He's quoted extensively and, at times, the narrative is so compelling (especially in the first chapters) that it seems impossible to have been done without some on-the-ground, personal observations from him or others in Japan.

What fascinated me about this book was, first, the chilling narrative about the Fukushima Daiichi event as it unfolded, in the hours and days leading up to it and nearly a minute-by-minute account as it occurred. Much of it is heavily rooted in public documents, some which were likely hard to get.

The truth is there are a lot of gaps of information about what happened at Fukushima, and that's largely a result of what happens when tight-lipped industry officials and embarrassed government regulators who claim to have prepared for every conceivable scenario get thrown for a loop with one they didn't fathom. It happens when it occurs on the other side of the world in a country known for being tight-lipped and while dealing with a language many Americans haven't learned.

The bottom line is this book does a very good job of journalism, a public service, in reconstructing the events for the American layman as well or better than most of the major media, where staffing cutbacks, a lack of knowledge or appreciation about science (especially nuclear power) and neurotic guessing games over whether the public wants more Lindsay Lohan or serious journalism in the digital age compromised coverage of this historic event.

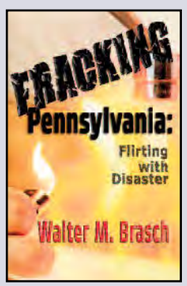
Of the many take-aways, one stands out: More than a third of all U.S. nuclear reactors are downstream of major dams or bodies of water. Will there be a tsunami here? No, but the point made by the authors is you don't need one to have flooding that can wreak havoc on a plant and send it spiraling into chaos.

Consider also that the Fukushima Daiichi complex consists of six reactors, three of which melted. Most emergency planning in the United States is focused on scenarios involving one reactor, not multiple events occurring simultaneously in an area where flooding has washed out roads and virtually eliminated access. A lot of planning also depends on backup power from emergency diesel generators. What happens when those are rendered useless by floods?

The book is not an evil scare tactic that UCS critics would suggest. It raises legitimate questions and, in terms of pushing the envelope, that is mostly focused on the NRC's accountability as a regulator, which is what UCS does more often than pushing an anti-nuke agenda.

Is it completely, 100 percent devoid of emotion and sentimentality? Probably not. But what is? Said Robert J. Rosenthal, Center for Investigative Reporting executive director: "It's hard to imagine a more comprehensive and compelling account of what happened after an earthquake and tsunami struck the Fukushima Daiichi nuclear power plant in March 2011. There are lessons in this book for all of us."

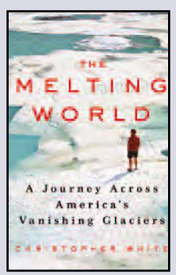
Tom Henry is SEJournal's *book editor and is a former SEJ board member. He covers environmental and energy issues, including nuclear power, for* The *(Toledo)* Blade.



"Fracking Pennsylvania: Flirting with Disaster"
by Walter M. Brasch

Greeley and Stone, Publishers
http://www.walterbrasch.com

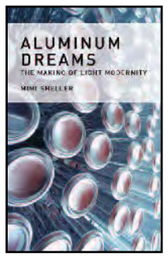
Dr. Brasch combines scientific evidence, extensive interviews with those affected by fracking throughout America, and an investigation into the collusion between politicians and Big Energy.



"The Melting World: A Journey Across America's Vanishing Glaciers"
by Christopher White

St. Martin's Press
http://bit.ly/MeltingWorld

"An urgent wake-up call to nations across the globe that share responsibility for climate change and a heartbreaking elegy to a vital component of ecology." — BOOKLIST



Aluminum Dreams: The Making of Light Modernity
By Mimi Sheller
MIT Press, $29.95
Reviewed by JENNIFER WEEKS

What is the most essential material for modern living? Most people would probably choose oil or plastics. But Drexel University sociologist Mimi Sheller has a different answer: aluminum.

"Aluminum Dreams" tells the story of this lightweight metal, and shows how corporations have marketed it as a symbol of speed, lightness and progress.

Sheller also describes aluminum's darker side – the heavy environmental impacts of bauxite mining and hydropower development (many rivers have been dammed in the United States and elsewhere to provide the huge quantities of power needed for aluminum smelting).

In her words, aluminum is "a superficially lightweight topic with a surprisingly heavy history."

Aluminum is everywhere in our daily lives: It is used in buildings, cars, airplanes, electrical transmission systems, packaging, appliances, and many consumer goods. Its ubiquity reflects aluminum's useful qualities. It is lighter than many other metals. It is extremely malleable, conducts heat, cold, and electricity well, and it resists corrosion.

When two 23-year-old researchers (one French, one American) simultaneously discovered an electrolytic process for smelting aluminum from bauxite ore in 1886, they triggered a shift from the first industrial revolution – powered by coal, iron and steam – to a second industrial revolution based on electricity, lightweight metals, and later, plastics and synthetic fibers.

Sheller calls this new age "light modernity." Using commercial ads, Sheller shows how companies such as Alcoa, Bohn and Kaiser marketed aluminum goods as symbols of a bright future where things were smooth, fast and streamlined. Some products that date back as far as the 1930s have become icons of 20th century design, from Airstream trailers to consumer goods such as rounded toasters and school lunch boxes. In the 1960s and 70s consumer interest waned, and mass-produced goods like aluminum siding came to be seen as artificial and disposable.

But now aluminum is resurging. Design magazines such as *Dwell* have revived the idea of prefab housing, and many green buildings contain recycled aluminum components, which help builders earn LEED points.

Turning to aluminum's dark side, Sheller surveys the global impacts of bauxite mining and smelting. Key supplier countries such as Jamaica, Suriname, Guinea and India have struggled to win royalty payments and benefits from multinational companies. Indigenous countries have been displaced for mines and dam construction. Mined-out areas are marked by "deforested mountains and lakes of red mud." Today, Guinea is one of the world's largest bauxite producers and also one of the world's poorest countries.

With this record, is aluminum really a green material?

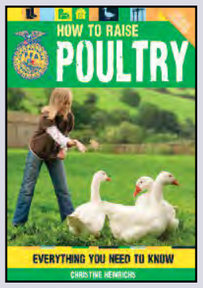
On one hand, it reduces weight in cars and planes, which saves fuel. It also is very recyclable: Producing soda cans from recycled aluminum uses only about 5 percent of the energy required to make them from virgin material.

But many aluminum products are not recycled, and Sheller argues that the industry's continuing investments in primary mining and smelting are far larger than the resources companies devote to recycling.

Sheller's conclusions are fairly obvious: Modern societies should use fewer resources, recycle more of them, and pay more attention to the impacts of resource extraction.

Her writing can be clunky. She creates a choppy effect by overusing quotation marks for information that could be paraphrased. But in spite of these flaws, "Aluminum Dreams" is a timely look at a material that is pervasive in our lives. And for maximum impact, read it on your shiny MacBook Air or iPhone – made with recycled aluminum.

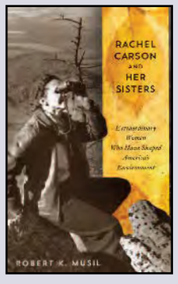
Jennifer Weeks is a Boston-based freelancer and a former SEJ board member.



"How to Raise Poultry Everything You Need to Know"
by Christine Heinrichs

Voyageur Press
http://bit.ly/HowToRaisePoultry

This book gives detailed history and breed information for the beginner, the experienced poultry keeper and those for whom poultry dances in their dreams. Revised and updated from the 2009 edition.

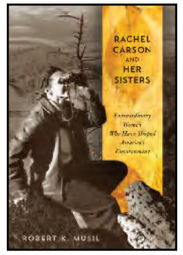


"Rachel Carson and Her Sisters Extraordinary Women Who Have Shaped America's Environment"
by Robert K. Musil

Rutgers University Press
http://bit.ly/RachelCarsonAndHerSisters

A provocative fresh look at Rachel Carson that reveals the roots of her political passion and the women who inspired and were inspired by her.

BookShelf



Rachel Carson and Her Sisters: Extraordinary Women Who Have Shaped America's Environment
By Robert K. Musil
Rutgers University Press, $26.95
Reviewed by TOM HENRY

You go, girl.

I'm being a bit facetious – though not totally – when I describe the general tone of "Rachel Carson and Her Sisters," which is really a hybrid between environmental history and women's studies.

With a strong emphasis on the former, it's a valuable addition to the body of knowledge about Rachel Carson and her enormous influence. The only disclaimer – and it's a fairly minor beef, if not something that was inevitable, given the theme – is that the writing, at times, sounds almost like cheerleading for the women's movement.

There's a delicate balance to be struck here, of course, because women consume the book's theme. But there are occasions in which Musil allows himself to get a bit distracted and tread too much into the rah-rah.

None of this should keep people from reading an otherwise excellent book, though. Credit Musil for coming up with a fresh theme: If Carson is the mother of the modern environmental movement, then who influenced her? And who has been influenced by her since?

It's an interesting question, one in which Musil sheds light on lesser-known women of the 1800s, such as Susan Fenimore Cooper, Florence Merriam Bailey and Ellen Swallow Richards, whose contributions to science and nature writing could have directly or indirectly helped shape Carson during her formative years.

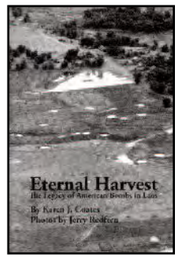
Musil's research gives credence to the idea that the modern environmental movement was not something that sprung up from nowhere in response to Carson's landmark 1962 book, "Silent Spring," or any of her other writings, for that matter – that it was likely building for decades and hit a crescendo with her. That's something which other scholars have said – that Carson wasn't just good, but that she also had the good fortune of being timely when America needed an environmental hero to rally around.

There's a greater comfort level in Musil's writing during the second half of the book, when he sheds light on lesser-known women of modern times who have carried on Carson's work through science, a passion for writing about nature, or both.

Elegant essays are offered on writers such as Terry Tempest Williams, who spoke at SEJ's annual conference in 1994, and on writer-scientists Sandra Steingraber and Devra Davis, as well as scientist Theo Colborn, another former SEJ speaker.

In February, Musil became president of the Rachel Carson Council, Inc., a group founded in 1965 to promote Carson's legacy. He also is a senior fellow at the Center for Congressional and Presidential Studies at American University, author of a 2009 book, "Hope for a Heated Planet," and is former chief executive officer of the Physicians for Social Responsibility.

His book is a loving tribute to Carson, one which both amplifies her influence while also casting a wider net through environmental history, connecting the dots between the 19th and 21st centuries. It also is a valuable contribution to women's studies, even if it has its moments of sentimentality.



Eternal Harvest: The Legacy of American Bombs in Laos
By Karen J. Coates, with photos by Jerry Redfern
ThingsAsian Press, $12.95 (paperback)
Reviewed by TOM HENRY

Although not an environmental book per se, "Eternal Harvest: The Legacy of American Bombs in Laos" is a great piece of journalism that environmental writers can use to rethink issues such as land use, chemical contamination and public safety.

It deftly combines an utterly fascinating narrative written by Karen Coates with mind-bending black-and-white photographs from Jerry Redfern for a package guaranteed to stick with you, whether or not you're a human rights advocate or someone mildly intrigued by the human condition elsewhere in the world.

Laos is the most heavily bombed nation on Earth, a country bombed once every eight minutes on average over a nine-year period from the late 1960s into the early 1970s, according to the authors.

Forty years later, the bombs remain one of the greatest threats to public safety and traditional farming. Tons of steel shrapnel and unexploded bombs still litter the landscape. More than 20,000 deaths and injuries are believed to have occurred there since the U.S. bombing stopped, mostly from unexploded ordnance going off.

Coates and Redfern, who have spent years working together in Southeast Asia, demonstrate an obvious comfort level, not only in their understanding of declassified information about the bombing campaigns in Laos during the Vietnam War – a legacy the United States government suppressed for years – but also in how the mostly agricultural-based country has been upended.

It's nothing, for example, to see children attempting to detonate bombs, farmers with missing limbs, and hunks of steel from bombs made into ash trays and lamps. In fact, Laos received its most steel imports from the bombing.

The couple made its first visit to Laos in 2005, ironically, while researching an article about the Plain of Jars for *Archaeology*. The Plain of Jars is one of the most fascinating areas of Laos, one in which hundreds of mysterious stone burial vessels exist. That trip resulted in their continued research of Laos and the bombing legacy.

This book is a great example of how mankind can grossly impair, if not forever ruin, the way of life for a whole culture . It's a reminder of how pollution can be found in unconventional forms.

Read our interview with the authors in Between the Lines, beginning on page 12. And visit their web site: http://eternalharvestthebook.com

Reporter's Toolbox...continued

It's a complicated process, but suffice it to say that as improvements are made, the Hurricane Center is able to reduce the size of the area where the hurricane is expected to pass. That might have helped Sean and me that night in the Keys.

And for 2015, expect more changes. Here's what the Hurricane Center has to say about products the agency is experimenting with this year, noting that the accuracy and timeliness are not guaranteed:

> "In 2014, the National Hurricane Center will be working behind the scenes on potential enhancements to products and services. These planned in-house (non-public) experiments include extending tropical cyclone track and intensity forecasts out to seven days from the current five-day period, creation of track and intensity forecasts for disturbances with a high chance of formation, and the issuances of tropical cyclone watches and warnings prior to the formation of a cyclone."

Florida native Robert McClure is pioneering the concept of a journalism studio for the Pacific Northwest at InvestigateWest, *where he serves as executive director. He is a longtime member of the SEJ board of directors and chairman of the* SEJournal *editorial advisory board, and editor of Reporter's Toolbox.*

EJ Academy

Will Your Journalism Matter in the Year 2514?

Few Front-Page Stories Have Long-Term Relevance, Classroom Research Project Finds

By MARC SEAMON

Imagine a historian 500 years from now glancing at the front pages of today's newspapers. Would that person be impressed with how forward-thinking our media and our society were, or would he or she see myopic ancestors so mired in the unimportant details of the moment as to be blind to things that could have made the future better? That's a question every journalism student ought to think long and hard about.

The inescapable conclusions of such a thought experiment should lead journalism faculty and students alike away from the status quo of mainstream media and toward a new future for journalism where long-term sustainability is valued more than the glib, perfunctory topics that monopolize the news today but do nothing to help humanity solve its biggest problems.

Part of the media's social responsibility is to try, through reporting, to secure social wellbeing for future generations. But what does this look like in practice?

I began experimenting in my undergraduate journalism classes last year with a self-guided project that would allow students to investigate the social-responsibility role of the media, particularly regarding the long-term implications of events and issues they cover. Eventually, I decided the most effective way to do this would also generate data that could be used in a research project, so I developed a feasible methodology, gained institutional review board approval and launched the study.

The project generated some striking results that I have since incorporated into a research paper. The students gained critical insight into the workings (and failings) of the mass media, not to mention an awareness of how academic research works and, I hope, how practical and important research can be if directed toward worthwhile questions.

Designing our study

Our class project started with asking journalism students to think about what journalists are doing to secure a better future. Then we moved on to a formal content analysis of 10 daily American newspapers. We were looking for front-page stories of "long-term relevance," which we defined as stories that the subject matter could have, or could have had, an impact that will be felt in the lives of people living in the far future, say 500 years from now.

We developed two hypotheses:

Hypothesis 1: In American daily newspapers, issues without long-term relevance will outnumber issues with long-term relevance.

Hypothesis 2: In American daily newspapers, many issues with long-term relevance that could have been covered will fail to be reported.

Data collection occurred in November-December 2013, after the government shutdown and the Syrian chemical weapons stories had faded from the spotlight. This period of time was not one of those periods of media obsession with a single story, and therefore should have been a good opportunity to see coverage on a range of important issues.

Future impact of Front-page Stories

Of the total 379 newspaper articles culled from newspaper front pages by a recent study, only about 8.7 percent were about topics that could have an impact on the lives of people living in the far future.

Source: Seamon, Youngstown State University

We examined 10 newspapers from around the United States: From the Northeast, the *Bangor* (Maine) *Daily News* and the *Times Union* (Albany, NY); from the South, the *Augusta* (GA) *Chronicle,* the *Lexington* (KY) *Herald-Leader,* and the *Sun-Herald* (Biloxi, MS); from the Midwest, the *Fort Wayne* (IN) *News-Sentinel* and the *Sioux City* (Iowa) *Journal;* and from the West, *The Los Angeles Times, The Columbian* (Vancouver, WA) and the *Casper* (WY) *Star-Tribune.*

Our process was three-fold. First, three coders analyzed all front-page stories from the 10 newspapers on 10 separate dates: Nov. 5, 8, 13, 15, 18, 20, 22 and 25, and Dec. 2 and 4. The selected stories, 379 in all, were coded into two categories: 1) those that likely will have significance in the lives of people living 500 years from now and 2) those that likely will become irrelevant within 500 years.

Second, the three coders searched a variety of additional, alternative news sources from the same time period for stories exhibiting great long-term relevance. These articles were labeled and combined with the first set of articles.

Third, 12 journalism students ranked the stories from the combined data sets in order of the strength of their long-term relevance. The story believed to offer the greatest long-term relevance was ranked first and the story with the weakest long-term relevance was ranked last. Each of the 12 students ranked the stories independently, and then their rankings were averaged. The articles were stripped of bylines and other identifiers, so the students didn't know which articles were from which data set.

Top topics? Fate of humanity, literally

Of the total 379 newspaper articles culled from newspaper front pages, only about 8.7 percent were about topics that could have an impact on the lives of people living in the far future — thus exhibiting long-term relevance. This supported our first hypothesis, that issues without long-term relevance would predominate.

Our second hypothesis was also supported. Coders browsing alternative news sites easily found an additional 30 articles with long-term relevance that were not covered by any of the 10 newspapers analyzed for this study.

In addition, we found that articles from alternative news sites ranked much higher than the sampled newspaper articles on the strength of their long-term relevance. The noticeably higher rankings of the alternatively sourced articles seemed to be a function of both what the articles were about as well as how the topics were covered. Further study, perhaps in the form of a framing analysis, might reveal the specific processes contributing to this effect.

It's worth looking at the top articles of long-term relevance. The students examined a total of 63 articles, 33 culled from the newspapers and 30 from alternative sources.

The article unanimously ranked as having the greatest long-term relevance, "What 11 Billion People Mean for Earth" (LiveScience.com, Nov. 19), was a series of investigative reports looking at the impact of human overpopulation on a variety of resources. It paints an alarming picture of the future if humans cannot achieve sustainability in a number of areas, but especially in reversing overpopulation. Whether humans exist at all in 500 years could depend a great deal on the outcome of the topics addressed in this report.

The No. 2 article, "Russian Fireball Fallout: Huge asteroid numbers raise stakes of impact threat" (Science, Nov. 11), detailed admissions from scientists that there are many uncharted asteroids capable of doing tremendous damage to the Earth.

Alternatively, students said that many of the articles winding up near the bottom of the rankings were there only because of how they were written. In many cases, the topics could have been done in such a way as to make them much more relevant in the future. For instance, "China easing one-child policy" (USA Today, Nov. 15), which was ranked 58, could have rivaled the No. 1 article if it had tackled the human overpopulation issue. Doing so should have been easy, given that China's one-child policy is a population control measure. Instead, the article managed to talk about the political and economic implications of the change without substantively addressing the overpopulation issue.

Relevance also conveyed in how topics covered

This content analysis of 379 front-page newspaper articles found that more than 91 percent of articles will lack any long-term relevance or impact on people's lives in the far future. Plenty of potential story topics rich in long-term significance exist, but when newspapers do cover such topics, they often fail to write about them in a way that emphasizes the long-term relevance the subject matter has for society.

These results suggest that most American daily newspapers are not covering issues of long-term relevance as well as they should. Journalists could do a better job of helping to ensure a sustainable future if they would report issues of long-term relevance whenever and wherever those issues exist. Under the current system of story selection and reporting methods, many opportunities to do so are ignored.

The key to improving journalism's long-term relevance lies both in changing what the media cover and how they cover it. To do so, journalists need to give more consideration to the future and what might be needed to ensure that it is healthy and prosperous.

Marc C. Seamon, Ph.D., teaches journalism at Youngstown State University in Ohio. His research interests include the role of the mass media in affecting social awareness of sustainability and environmental issues.

To see the full research study, go to http://bit.ly/1n0Xgy2

She learned specifics about invasive species: how Hawaii has become overrun with houseplants, and how feral hogs have destroyed habitat for native species, for instance.

"It was truly sobering," she said. "Acquiring that knowledge gave me a different perspective on invasive species. This isn't some secondary issue. This is life and death, not only for the native species but also for us. If unwanted plants and animals dominate the landscape, traditional ways of life become impossible."

Heinrichs says the experts who taught her group were working to resolve crisis issues that have never been confronted. She learned from a botanist tracking rare species who visits extreme environments of ever-more-rare plants year after year. She learned from a horticulturalist who sees the possibilities of breadfruit to feed the hungry.

"Their ability to take their knowledge and apply it to solving problems was inspiring," she said. "They encouraged me to think bigger about the stories I encounter. How did the shooting of elephant seals fit into marine conservation issues? What's the importance of the otter surrogate mother program? How can an unseen collection of poultry art help save heritage breeds?"

Heinrichs' group of fellows came from diverse media and backgrounds. One was from Colombia working for Voice of America. One was an editor for *Scientific American*. One was a film-maker. As a result, Heinrichs learned new technology, and new skills, especially from the film-maker. She said, "This fellowship was life-changing."

As for me, I'm about to embark on the biggest fellowship of my career. In July, I'll start a six-month appointment as a Public Policy Scholar at the Woodrow Wilson International Center for Scholars in Washington, D.C., where I will write about issues at the nexus of climate change, agriculture and population growth.

A fellowship application takes a great deal of work. It is well worth the effort, however. A fellowship can improve your network of sources. It can provide income, and a return on your investment of time. But it isn't a vacation. To find a program that will best suit your needs, check out these resources:

SEJ :
http://www.sej.org/node/614/

Newslab:
http://www.newslab.org/training/fellowships-grants/

Poynter:
http://bit.ly/JournalismFellowshipsInternships

Lisa Palmer is a reporter based in Maryland. She writes about climate change, environment, business sustainability and social science. Her work has been published in Slate Magazine, The Guardian, Yale Forum, Yale e360, The New York Times, Ensia, *and* Scientific American, *among many others. She has received funding from the Solutions Journalism Network to support her reporting on climate change resiliency. She has worked as a freelance editor for the National Academy of Sciences. She earned her bachelor's degree from Boston University and master's degree in communications from Simmons College in Boston. www.lisa-palmer.com.*

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Inside Story

A Crack is a Crack
Making the Complex Simple

Ivan Penn is a utility, energy and consumer reporter for the Tampa *(FL)* Bay Times *who has won numerous national and local journalism awards. In the last several years, he has written on nuclear power, including the closing of the Crystal River Nuclear Plant, problems with cooling tubes at another facility and the risk to ratepayers for new nuclear power generation in Florida. Penn spoke recently to* SEJournal's *"Inside Story" Editor Beth Daley about his work. To see more of Penn's work, visit www.tampabay.com/writers/ivan-penn.*

SEJournal: Why did you begin to take such a focused look at nuclear power in recent years?

Ivan Penn: Two issues arose with our utility, Progress Energy (now Duke Energy): First, there were questions about the company's only nuclear plant in Florida, Crystal River 3, and cracks in the reactor's containment building. Would the damage force the utility to permanently close the facility? Who was at fault? Second, the company wanted to build two new reactors for $24 billion, the most expensive nuclear project in U.S. history. Was this in the best interest of consumers? That's where we began.

SEJournal: How do you sort out truth among advocates, regulators and industry officials in covering nuclear power and energy in general?

Penn: Everyone has their spin and it does become dizzying at times. We have focused largely on the economics, decision-making and indisputable facts. What does the law or regulation say? So, in the case of wear in steam generator cooling tubes at the St. Lucie nuclear plant, it isn't simply a matter of safety per se, as all of the parties want to argue (whether it's advocates warning of a potential hazard or the utility and the U.S. Nuclear Regulatory Commission insisting the operation remains safe). We can measure the amount of tube wear against what the regulations say about taking a tube out of service due to excessive wear and the implications of that: Whether the plant is safe at that level or not. The regulation/law is what it is.

SEJournal: Your writing is often sharp and simple, despite the complexities of what you cover. Are there any tips you have for SEJ reporters on how to achieve that clarity?

Penn: Good editors make the world of difference and I have two very good ones. They remind me of some of the basic things we always talk about as journalists: keep the jargon out of the story. For stories involving technical and scientific information delivered by some really smart people, it is hard – but we must – resist allowing them to dictate to us how to write the story. When there was a crack in the Crystal River nuclear plant, the utility kept insisting I call it a "delamination" or "separation in the concrete." Only engineers understand delamination, but the reality is a "separation" is a crack.

SEJournal: What is the most challenging aspect of covering energy and utilities?

Penn: I'm covering all these really smart people – engineers, accountants, lawyers and economists – and I am challenging their arguments, data and conclusions. It's daunting. The biggest challenge is to figure out what they are not saying or accurately portraying issues that could harm consumers.

Cooling towers at Crystal River nuclear plant in Florida. Duke Energy announced it will permanently close the crippled plant that has been shut down since late 2009. Photo by Maurice Rivenbark, Tampa Bay Times

SEJournal: Your analysis questioning officials' claims that nuclear power was financially beneficial for ratepayers was enlightening. Tell us about one of the main obstacles of that story and how you overcame it.

Penn: The major obstacle was to build our own economic model to compare the cost of the proposed nuclear plant to a comparable natural gas facility. We kept it local because, again, it was the most expensive nuclear project in U.S. history. We studied ratemaking models and I consulted accountants, economists, engineers and lawyers as I put together our model to ensure it was sound.

SEJournal: What in the energy arena is not being covered well and do you have any advice for journalists who want to start reporting on the beat?

Penn: Utility companies and state regulatory commissions are not being seriously covered much at all these days. Most everyone receives an electric bill. It's hundreds, even thousands of our dollars in a household every year. This isn't really revelatory: start following the money. Who's paying? How much? And where is it going?

"Inside Story" editor Beth Daley is reporter and director of partnerships at the New England Center for Investigative Reporting, a nonprofit newsroom based at Boston University and affiliated with WGBH News.

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A train of tank cars bound for the West Coast, loaded with crude oil from North Dakota's Bakken shale formation, climbs toward the Continental Divide along the southeast boundary of Montana's Glacier National Park. Osha Gray Davidson, a freelance writer from Phoenix, encountered the scene while participating in the Crown of the Continent Fellowship, one of a number of full-immersion field seminars conducted by the Institutes for Journalism and Natural Resources. Upon returning home from the fellowship, Davidson was able to put what he'd learned to immediate use on his very next assignment. For more about the benefits such fellowships can bring to journalists, especially freelancers, see story beginning on page 5.
Photo: © Osha Gray Davidson