

# Entrenched ideas targeted at conference to consider lessons of Irene

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SOUTH ROYALTON — If you thought the toughest challenges posed by Tropical Storm Irene were behind us, think again. The hardest work remains ahead if Vermonters are to make themselves safer and better prepared the next time natural disaster strikes.

That was the message during a day of talk earlier this month at Vermont Law School, where the school's Journal of Environmental Law had assembled 70 state officials, academics and national experts for "After Irene," a conference to consider the storm's lessons for the future.

The lessons themselves seemed quite clear. Speaker after speaker described the science of rivers, the failure of federal flood-control policies and the disconnect between federal, state and local priorities in flood prevention and recovery.

But acting on those lessons, the speakers made clear, would mean rethinking entrenched ideas — three centuries of building villages on riverbanks, two centuries of dredging rivers and walling them from their floodplains, half a century of government policies that allow and even encourage floodplain development.

"The tools are there," Gus Seelig, executive director of the state Housing and Conservation Board, said about his share of the challenge, the state's ability to address both housing and conservation as they relate to flooding. "It is a matter of political will."

## **Storm of the decade'**

We've heard the numbers that trail in Irene's wake often enough — although some of them just keep going up — but they struck with particular force as Sue Minter reeled them off one after the other to start the day.

Minter, the state's Irene recovery officer, began with a count of towns affected by the deluge of rain last Aug. 28: 225 out of 251. Six people died; 50,000 people lost power; 13 towns were cut off for days.

When the flood receded, it had damaged more than 3,500 homes, including 500 mobile homes; 229 businesses; 629 historic buildings. Irene drowned 20,000 acres of farmland. More than 500 miles of state road and 2,260 sections of town highway suffered washouts and damaged bridges.

Minter was followed by speakers who emphasized how risky it would be to assume that an extreme storm such as Irene will be a once-in-a-lifetime event.

Although Irene's devastation was more widespread than any storm since 1927, damaging floods

are both familiar events in Vermont and ones likely to occur with greater frequency, the speakers said. “Irene was the third catastrophic flood to devastate the southern half of Vermont in the 38 years since 1973, a frequency of once every 13 years,” Mike Kline, head of the state’s river management program, told the audience.

Global warming raises the likelihood of extreme weather events — warmer air, for example, can hold more moisture — added Pat Parenteau, a former Vermont commissioner of environmental conservation and a professor at the law school.

“Was Irene the storm of the century?” he asked. “More likely the storm of the decade.”

During Irene, Vermont rivers remade their geography. They cut new courses, dropped tons of gravel and rock in old channels, and swept away the rip-rap protecting riverside homes.

In many towns, Vermonters responded as they always have in the past: They used heavy equipment to put the river back in its old channel, to straighten it, to dig the channel deeper, to rip-rap its banks higher and more heavily.

“Dig it out, make it fast and straight and deep, and we’ll be fine,” Kari Dolan of the state’s Ecosystem Restoration Program said, summing up one strain of public opinion.

Wrong, wrong, wrong, Kline and a suite of national experts told the conference: A river pushed around by man only becomes more dangerous.

When a river is dredged deeper and confined within walls, it gains more power. During a flood, that increases the river’s power to bulldoze riverbanks, rip out trees and carry a much greater load of rock and toppled trees downstream to jam against bridges and culverts.

River scientists have learned that the best way to defuse that destruction is to give the river room to meander across the landscape and to pour out into its floodplain, where water spreads and dissipates its force.

But river scientists’ increasing knowledge has not trickled down to riverside residents, many of whom still believe that dredging rivers deeper is the best protection. After Irene, bulldozers were a common sight in Vermont rivers, mining gravel for town road repairs and — towns thought — protecting property from future floods.

“Twenty percent of the (river) work after Irene reduced future flood vulnerability,” Kline told the conference, describing assessments done by his staff in the rivers program. “Forty percent of the work put the river back where it had been, but that was already a vulnerable condition.

“And 40 percent of the work made our risk and vulnerability greater,” he said.

University of Florida law professor Christine Klein, who is writing a history of Mississippi River floods, reinforced Kline’s point.

“We have spent \$120 billion on flood-control structures,” she said of the federal government.

The result? “Our flood damage has increased 300 percent.”

The first challenge, speakers agreed, is to find a way of talking about river science that informs and persuades property owners and town officials that new strategies and standards are needed when they make riverside land-use decisions and when floods strike.

Dolan said even the shock of a flood sometimes is not enough to change a town’s way of thinking about its rivers. It might take a set of incentives from the state to influence local thinking.

“It takes time to get people to say, ‘There is another way to look a river’” she said. That dialogue can succeed, added Rob Evans, the state’s floodplain manager. Forty-two Vermont communities have acted in recent years to prohibit all new structures in some flood hazard areas.

“Armoring and dredging gives us 20 years of feeling safe. Investments in floodplains increase. Then the channels explode during the next flood,” Kline said.

“Nature bats last,” agreed Bob Irvin, president and CEO of American Rivers, a national conservation group.

### **Lessons of Irene: ‘Smart growth in dumb places’**

Irene forced families from their homes and devastated villages including Wilmington and Waterbury in part because from the earliest European settlement Vermonters have built their homes and villages beside the water.

Vermont’s growth policy today calls for maintaining that settlement pattern of compact villages, and that can conflict with a desire to reduce flood damage.

“We need to be honest about where the tension lies,” Dolan said.

Added Lisa Sun, a Utah law professor who has studied the rebuilding of New Orleans after Hurricane Katrina in 2005, “Smart growth in dumb places is the opposite of sustainability.”

Although moving most riverside villages would be impractical, local officials can take steps to reduce flood risks to their downtowns, Kline, the rivers program manager, said.

He offered the example of Chester, where his department hopes to work with the town to restore the Williams River’s access to its floodplain above and below the village, to reduce the river’s height and power in a flood.

If there were a mantra for the day, it was the word “avoidance,” with speaker after speaker emphasizing the importance of directing future development away from floodplains.

Unfortunately, federally subsidized flood insurance sometimes has the opposite effect, conference presenters said, encouraging the location of homes and businesses near rivers.

Federal rules allow floodplain zoning to provide for the construction of new homes if they are elevated above projected flood levels. A developer can pile fill in a floodplain to raise its elevation, then put buildings on it, and those buildings will be eligible for flood insurance.

The buildings nevertheless remain at risk — and the development has eaten up floodplain the river needs to release its power.

“If you follow the regulations you can encroach and build, encroach and build,” Rob Evans, Vermont’s floodplain manager, said. “This is the single largest perverse incentive in the flood program.”

### **Lessons of Irene: The role of government**

It took a telephone call from North Carolina’s governor to President Bill Clinton to win federal dollars to move the wastewater treatment plant in Kinston, N.C., out of a floodplain after it was wrecked by Hurricane Floyd in 1999, Gavin Smith told the conference.

Smith, a professor who leads natural-disaster research at University of North Carolina, offered Kinston as an example of what he called “the disconnect between government programs and local needs” when it comes to mitigating the effects of future floods.

“Those programs are created in a vacuum,” he said, developed by people who “rarely interact with people who have a deep understanding of local needs.”

North Carolina has taken over floodplain mapping from the federal government and spent \$836 million on sustainable redevelopment after Floyd, he said. Among other things, the state supplemented FEMA payments to floodplain residents so they could afford to move and abandon their damaged, unsafe dwellings.

“FEMA is often about cost containment and getting in and out fast,” he said.

Minter, Vermont’s recovery officer, agreed that the narrow requirements of Federal Emergency Management Agency rebuilding rules mean the state has “missed some opportunities.” She did not offer specifics, but local officials have complained that FEMA often will pay to rebuild a road or a bridge only just as it was. Thus an opportunity is lost to move part of a road or extend a bridge to make it more flood-resistant in the future.

There is a second disconnect, other speakers said: between what state government sees as desirable policies — for example, zoning ordinances that keep development out of floodplains — and how those policies are viewed at the local level, where land-use decisions are made. (There appeared to be few local officials in the audience at the law school.)

Some towns have declined to impose tough zoning restrictions for reasons that include a reluctance to tell landowners what they may or may not do with their property. In some towns, many residents are convinced a better solution is to dredge a river and armor its banks to protect

existing and future development.

“We rely on municipalities to make decisions that affect the state as a whole,” said Brian Shupe, executive director of the Vermont Natural Resources Council. “There is strength in that ... but if we are expecting communities to regulate development to avoid encroachment on floodplains, they need a lot more direction from the state.”

Chris Kilian of the Conservation Law Foundation was more blunt. In the wake of Irene, he said, many of those making recovery decisions “looked at our environmental laws as obstacles” rather than as important protections.

The day’s final speaker, Environmental Conservation Commissioner David Mears, said Tropical Storm Irene served as the kind of shock that opens people up to rethinking their relationship to the landscape around them.

“Irene taught us how connected we are to this landscape. Everybody gets that now,” he said. “And the majority of Vermont feel very connected to their government. They get it that in a state like this the government is us.”

“So what are the opportunities?” he continued. “Within this room there is the capacity and knowledge to solve the problems of protecting this state against future flood damage,” but “We need to find leaders. ... We need (financial) resources. ... We need the cultural competency to reach across the table to talk to people we might not usually talk to.

“There will never be an opportunity like this again,” he continued, “where there is such understanding of the relationship between humans and the environment.”