EPIC RAIN NOT UNPRECEDENTED, BUT IT CHANGES DAILY LIFE, OUTLOOK



WATER, WATER, EVERYWHERE

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On a rare sunny afternoon, the clear waters of Lake Hartwell ripple over the words stenciled into the concrete.

"Got life jackets?"

We might say that, on a normal day in a normal season, this message leading up to the public access boating dock would be well-placed — yards before your feet leave the shore.

But what is normal? At this point, can the windshield wipers work hard enough to let us see through?

The same docks that are submerged underwater today were just this time last year stranded in a desert of cracked earth —

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1"
Rainfall above normal in April

2"
Rainfall above normal in May

5.5"
Rainfall above normal in June

Lake Hartwell became so full from all the rain this year that the Army Corps of Engineers had to open all 12 floodgates to ease flooding risks. KEN OSBURN/ STAFF

BIG RUSH

Watch as the U.S. Army Corps of Engineers opens the dam gates at Lake Hartwell in a video and photos at GreenvilleOnline.com.

WATER

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merely six months removed from the beginning of the end of a punishing drought.

The rain the Upstate has seen in the first half of 2013 has broken records, altered expectations of daily life and given birth to sights not seen for years.

Roads and bridges have been ripped apart.

Baseball tournaments have been washed out.

Flaws in home construction that owners never envisioned have manifested.

The phone is ringing at pest control companies.

Gardeners — last summer praying for any bit of rain — are learning that, yes, there can be too much of a good thing.

Suddenly, water can carry a little more of the load in meeting the region's energy needs.

So when will it end? The experts can only say that there's no sure sign that it will anytime soon.



At this time last year, boaters on Lake Hartwell were warned to look out for exposed trees as water levels fell. This year, they are being warned of submerged retaining walls just below the surface. KEN OSBURN/STAFF

Opening the floodgates

Lake Hartwell has literally overfilled, forcing the U.S. Army Corps of Engineers recently to open all 12 of the dam's floodgates, unleashing a magnificent torrent attracting thousands of people to witness mankind's attempt to control Mother Nature.

The last time the lake was this full was 1964, two years after it was opened to fulfill the government's first directive: control flooding, generate electricity and manage downstream navigation.

"We're following one of our original missions," corps spokesman Billy Birdwell said.

"To us, this is routine. It's not something we do every day, or even every year, but it's something we plan for and train for and have written instructions how to handle."

In the past year, the corps has managed water levels on Hartwell from two extreme ends.

Last summer, boaters were warned to look out for trees exposed from the lake bottom as water levels dropped.

Today, they are being warned of retaining walls submerged just under the surface.

Six months ago, hydroelectricity and flood control were at the bottom of the corps' priori-

The corps released water through its spillways because it had to, not because it wanted to, Birdwell said.

The water is better used flowing through hydroelectric turbines, but there was simply too much, he said. The electricity created is managed by an agency of the U.S. Department of Energy and sold.

"There's an abundance of water out there, and we are generating to the max," he said. "It's not because we need to generate the power. It's because we need to reduce the reservoir levels. We do not like to spill water, because that's just electricity nobody gets to use."

Nuclear concerns

Upstream from Hartwell, lakes Keowee and Jocassee are a few feet below full level.

The steward of those lakes, Duke Energy, insists that there is enough room to manage the increased supply of water, which is used both for hydroelectricity and for cooling the Oconee Nuclear Station's three atomic reactors.

In recent months, the 385-foot earthen Jocassee Dam has been of concern to federal nuclear regulators who have ordered Duke to study the issue, particularly whether the station could protect its backup power system from flood in the unlikely event of a dam break.

A pair of Nuclear Regulatory Commission engineers have said that a dam break would lead to reactor meltdown.

One recent Duke assessment determined that about 40 inches of rain would have to fall over the course of 72 hours to cause overtopping of the Jocassee dam. That's about how much rain has fallen in the past six months.

The dams are inspected every two weeks and again if the area receives 2 inches or more of rain in a 24-hour period, Duke spokeswoman Lisa Hoffmann said.

"Even though the current rainfall is higher than normal, it is not unexpected and is well within the original design of the lakes and our plant systems," Hoffmann said.

Through the course of the rainy season, Jocassee has risen more than 20 feet.

The rise in Keowee's waters is less pronounced, Hoffmann said, because its levels must be maintained closer to full level in any season to ensure enough water can be pumped to cool the reactors.

The added water has allowed Duke to capitalize on cheap hydroelectric generation.

"The company has slightly decreased the amount of fossil fuels burned and slightly increased the use of hydroelectric power," Hoffmann said.

The shift will save customers the cost of the offset fossil fuel, she said, but "the actual amount saved is difficult to quantify until we are through the high-water event."

H2 ... whoa

The National Weather Service has described the rainfall as "epic."

Year to date, rain totals measured at the Greenville-Spartanburg International Airport put the record for most rain in a year — dating back to 1901 — within reach.

"We might make a run for it," National Weather Service meteorologist Scott Krentz said.

The rain of recent weeks and days has been particularly spectacular, with amounts high enough in some areas to meet what would be normal monthly

"It's not unprecedented, but it certainly is extraordinary."

DENNIS CHASTAIN, a Pickens County naturalist and member of the state's drought response committee

totals.

The risk of flooding increases after each heavy rainfall, he said, because the ground is too wet to absorb the water.

The Upstate has been subject to a weather pattern that brings moisture from the tropical Gulf and Atlantic and develops into thunderstorms that are "very efficient" in wringing the most moisture out of the air, Krentz said.

The storms are slow-moving, causing them to stall and dump heavy rain in a short amount of time in confined areas, he said.

Suburban roads across the area have been rendered impassable as pavement gives way to floods and sinkholes.

As rainy as it's been, it wasn't but last fall that it felt as if the Upstate was mired in a drought that might never loosen its grip.

Climatologists could only say that there were "equal chances" for either above-normal or below-normal rainfall in the winter.

However, come December the rain came — and kept coming as winter turned to spring turned to summer.

The winter saw mostly normal rainfall, which, compared to drought conditions, felt like more.

As the days became warmer, the rain fell harder. April finished an inch above normal, May ended 2 inches above normal and June ended 5.5 inches above normal.

"It really is an extraordinary turnaround," said Dennis Chastain, a Pickens County naturalist who is a member of the state's drought response committee. "It's not unprecedented, but it certainly is extraordinary."

Typically, it takes about a year or two to build up water reserves after the end of a drought cycle, Chastain said, "but when this one was over, it was over."

The latest climate predictions show a similar pattern to what was projected last November, and it would take at least eight months of no rainfall for the specter of a drought to reappear, he said.

"It's really hard to imagine a better situation to be in when the next drought comes along," Chastain said.

More rain, new problems

In the evenings across damp open fields, not one second can be counted where a lightning bug doesn't flash.

The bugs love the rain — and unfortunately not just the pretty ones.

"While the rains we have been experiencing seem excessive to us, insects tend to benefit from the excess," said Jeremy Greene, a Clemson University professor of entomology, soils and plant sciences. "We will likely see a very significant problem with mosquitoes for the remainder of the summer and early fall."

Phil Pearson, owner of American Exterminating Co. in Greenville, said the rain has caused pests to flourish in and around homes, such as millipedes emerging from grass that has been too wet to cut.

"We're getting calls for all insect problems," he said.

In addition to bugs, Pearson said the rain has exposed moisture problems underneath homes that hadn't manifested in recent years.

"You're seeing way, way more water accumulating in crawl spaces than before," Pearson said.

In normal years, he said, a vapor barrier under the home would suffice to prevent mold, insects and rotted wood — but heavy rains have caused the barriers to float and condensation to form on air-conditioning ducts.

Given all the rain, homeowners should inspect their crawl spaces anew, Pearson said.

The deluge of rain also draws out the flaws in construction, such as poorly drained retaining walls and dry creeks, said Kyle Neds, owner of Landscape Management Services.

"Water helps reveal poor construction," he said.

For landscapers, the rain can be both welcome and worrisome.

The grass and trees are growing, he said, but whether it's a benefit depends on the business.

For landscapers who do seasonal work, the rain means they will mow and clip four times a month instead of two, Neds said, but for landscapers who work on yearly contracts, the rain isn't helping.

"It's great for the seasonal guys, but for the contract guys it's a pain in the rear end," he said.

"They're going to have to show up either way, and with all the rain, they're just going to have a lot more hours of labor trying to do what they were getting paid to do anyway."