Climate change brings mostly bad news for Ohio

May 20 2014, by Pam Frost Gorder

Scientists delivered a mostly negative forecast for how climate change will affect Ohioans during the next year or so, and well beyond.

Researchers report that the projected increase in precipitation and the associated runoff will likely lead to a larger-than-average bloom of harmful blue-green algae in Lake Erie this summer. In addition, the development of an El Niño over the Pacific later this year may result in a very dry 2015 in Ohio. But Ohio may fare better than its neighbors in one respect: While drought and high temperatures are expected to shrink crop yields in 2015, Ohio farmers will likely suffer less than those in the rest of the Corn Belt.

These were some of the findings delivered by scientists speaking at a conference at The Ohio State University on Thursday. On the heels of the recently released 3rd U.S. National Climate Assessment, nearly 200 researchers, educators, and policy makers gathered with the public to discuss how climate change is projected to affect Ohio.

The meeting was hosted by the university's Byrd Polar Research Center and the Office of Energy and the Environment.

Among the gloomy outlooks for Lake Erie and the farm industry, researchers and other experts offered more encouraging news about the recovery of Ohio forests and improved energy efficiency in electricity distribution and the operation of hospital systems statewide.

The meeting was emblematic of a transformation in the way states are approaching climate change, said Ellen Mosley-Thompson, director of the BPRC and Distinguished University Professor of geography at Ohio State.

The conversation at the forefront of critical American infrastructure—including agriculture, energy, and public health—has shifted from whether climate change exists to how best to manage it and mitigate the likely impacts, Mosley-Thompson said.

"The climate is changing. The debate on that part is over," she said. "The impacts of climate change are already evident, and will become more widespread and pervasive over the next half-century. The public and our policy makers need the best scientific information available to help them make important decisions, but communication is often challenging."

Attendees got a preliminary look at the Lake Erie 2014 Harmful Algal Bloom (HAB) forecast, which will be officially released by the National Oceanic and Atmospheric Administration at Stone Laboratory on July 10. Jeffrey Reutter, director of Ohio Sea Grant, revealed that he expects a larger-than-average bloom of harmful blue-green algae this year. Longer storm seasons and more severe storms are contributing to an excessive amount of phosphorus in the lake—mostly from domestic and agricultural runoff—that feeds the HABs.

It is too soon to tell if the 2014 algae bloom could approach the size of the one in 2011—the largest in Erie's history. As these blooms move into the Central Basin east of Sandusky, they tend to die and sink to the bottom where their decomposition sucks the oxygen out of the bottom portion of the lake and creates a dead zone covering thousands of square miles.

The dead zone will likely reappear this year, Reutter said.

"Eliminating the blue-green algae that cause the HABs would require a 40 percent reduction in phosphorus and other nutrients draining into the lake. Even with a 75 percent reduction, we could still experience a dead zone," he added.

Lake Erie often produces more fish for human consumption than all the other Great Lakes combined, he explained. Algae not only hinders swimming and boating—it also affects the fishery. So tourism and fisheries are both likely to be impacted. But the consequences will be strongest for Toledo and Maumee Bay, where the bloom is likely to be most severe.

Some other discouraging news came from Lonnie Thompson, Distinguished University Professor in the School of Earth Sciences and Senior Research Scientist at BPRC: there is a 60-70 percent chance that an El Niño will occur over the Pacific Ocean later in 2014. This climate phenomenon generates warm winds that drive weather in North and South America as well as Australia.

"If an El Niño develops, Ohio will likely be very dry and warm next winter," he said.

From piecing together thousands of years of climate data preserved in ice cores around the world, Thompson has learned that periods of extended drought correspond with major world crises—famine, disease and war. Throughout history, such events have spread across travel and trade routes to affect entire countries and continents.

"It's a bigger issue today than ever before, because now we are so connected," he said. "A disruption in food supply in one place could affect people on the other side of the world."

But some relatively good news for Ohio did emerge at the meeting.

While drought and high temperatures are expected to shrink crop yields in 2015, Ohio farmers will likely suffer less than those in the rest of the Corn Belt. Similarly, Ohio's forests—which are now recovering from heavy timber exploitation in the early 20th Century—are expected to fare better than those in the arid west or along the coasts.

That news came from Peter Curtis, a professor of evolution, ecology, and organismal biology who specializes in forest ecology; and Richard Moore, professor of environment and natural resources, who studies agricultural trends in the state.

Bruce Braine, Vice President for Strategic Policy Analysis at American Electric Power, said that Ohio utilities are preparing for more frequent severe storms, which were forecast by the recently released climate assessment.

"We're in a world where over the last 30 years we've become much more efficient in our use of electricity than ever before, but we've developed more uses for electricity than ever before," he said.

The company is using new technologies such as infrared detectors to monitor power lines for preventative maintenance. A pilot project to install "smart" power meters in homes has cut the average length of power outages by 30 percent, and reduced power consumption as much as 3 percent. Those strategies, coupled with increased tree trimming to reduce the chance of fallen lines, has led to some success: service disruptions in the company's territory have fallen from around 4,000 in 2009 to only 1,000 in 2013.

Meanwhile, the Ohio Hospital Association (OHA) is leading an initiative that is unique in the nation: to reduce power consumption in healthcare through energy audits.

"I wanted to save hospitals money, and I saw an opportunity," said Rick Sites, Regulatory Counsel for OHA. "Six of the 10 largest employers in Ohio are hospitals. There's a chance to make a big impact."

By enabling Ohio hospitals to obtain Energy Star ratings, OHA encourages hospitals boost efficiency and resilience in the face of power outages. So far, the association's energy audits have earned participating hospitals more than $6 million in government energy rebates and saved more than $7 million annually in energy use.

The result is not only money saved, but less pollution from fossil fuels, which aids public health—"a natural goal for hospitals to have," Sites said.

Ironically, two of the event's scheduled speakers—an officer from the Navy's Task Force on Climate Change, and Franklin County Commissioner Paula Brooks—were unable to attend because severe spring storms had grounded their flights into Ohio.

Brooks was to talk about climate preparedness, especially regarding businesses and new buildings in Franklin County. The Naval officer was to discuss how climate change impacts national security. Both speakers may return; a similar event is in the planning stages at BPRC for the summer or fall.

Provided by The Ohio State University