

Was 2010 the New Normal?

WHY 2010 WAS SUCH A BRUTAL SUMMER, AND WHAT
Plus: WHAT SUPERINTENDENTS ARE DOING TO PREPARE

You've probably heard the old joke that you know you're going to have a bad day when a "60 Minutes" camera crew is waiting for you when you get to work. Well, for superintendents the same thing could be said about the *Wall Street Journal* headlining a golf story with "The Ugly Summer of 2010."

From the Atlantic Coast all the way to parts of the Great Plains, superintendents battled extreme weather, and their courses suffered turf stress and turf losses unlike anything seen in recent years.

For Scott Anderson, superintendent at Huntingdon Valley Country Club near Philadelphia, last summer was difficult, but he says he's not looking back as much as he is looking forward.

The course got national notice last summer when it closed two of its three nines in mid-July in response to extreme conditions that had put the greens on his A and B nines at risk. Anderson said the C nine, which is newer, did much better in the heat. The A and B nines were

closed for about six weeks.

In the Philadelphia area, the conditions for a tough year were set up by the cooler, wetter years in 2008 and 2009. According to Anderson, he got 73 inches of snow during the winter of 2009-2010, which was followed by a wetter than normal spring.

"We had springs coming out of places we'd never seen before, it was incredible," he said, adding that his staff added drainage pits and pumps in an attempt to dry things out.

But the weather didn't cooperate. In early July the area was hit with 100-degree daytime temperatures, lows in the mid-70s, and occasional thunderstorms. The combination was lethal to turfgrasses.

In Leawood, Kan., Eric Bickel, superintendent at Hallbrook Country Club, witnessed it all firsthand. "We always have the heat here, what made last year so much worse was the humidity," he said. "The cool season grasses survived for eight weeks off reserves in the root systems. Those reserves and the root systems all but ran out. In addition, high humidity created con-

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WEATHER EXPERTS **PREDICT FOR THIS SEASON.** FOR THE POSSIBILITY OF ANOTHER ROUGH SUMMER.

BY KEN MOUM, CONTRIBUTING EDITOR



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stant high fungal disease pressure.”

In South Carolina, Max Morgan, Director of Golf Course Maintenance Operations at Myrtle Beach National oversees 14 courses — ten of which are owned by the resort. Four of the 14 courses have bentgrass greens.

Morgan said the problem in 2010 was that it got hot early, and started raining early for the area.

“We had temperatures in the 90s for 21 of 30 days in June, compared to only about six or seven in a typical year. Worse than that were the high nighttime temps we had. We only had about four nights in the 60s all summer.”

Record minimums

Deke Arndt, Chief of Climate Monitoring, National Climatic Data Center, said that for much of the Midwest and Atlantic regions the hot, humid summer of 2010 was preceded by a “not hot” summer in 2008 and that 2009 was “quite cool,” especially compared to the last 10 to 15 years.

Then, the winter of 2009-2010 was marked by colder than usual temperatures and snow. Or, as Arndt put it, “The winter was marked by more big snow events, especially in the mid-Atlantic. We haven’t seen that in 10 to 15 years, either. There were huge, repeated events, more like what we saw in the mid-1970s,” he said.

The culprit, according to Arndt, is Arctic Oscillation, a pattern of winds circulating counterclockwise around the North Pole. In its positive phase it confines colder air across Polar regions.

In its negative phase, the band of wind becomes weaker and more distorted, allowing southward penetration of colder, arctic air masses and increased storminess into the mid-latitudes. According to Arndt, the AO value was so far into the negative that it went off the chart, even forcing a change in the design of the graph.

What followed, however, bludgeoned golf courses with cool season grasses across a significant part of the country.

Scott Anderson (with his dog Fergie) says the summer of 2010 created positive changes for the future.



Spring was marked by record retreat of drought, Arndt said. Much of the country entered summer with saturated soil, another slam for turf.

Then, according to Arndt, 2010 was the warmest summer on record for about 20 states, mostly along the Atlantic coast.

As if that wasn’t bad enough, the real driver of the heat wave was not daytime highs; it was the prevalence of hot nights. “There were overnight lows in the 70s and 80s in areas that just don’t see that,” Arndt said. Up to 60 percent of the country experienced above-normal minimum temperatures in 2010 — something that hasn’t happened in the past century.

“It was relentless. There were plenty of record highs, but it was the generally high daytime temperatures combined with record minimums that were unusual,” according to Arndt.

In Kansas, Bickel said the generally cool weather in 2009 was definitely a factor.

“Both 2008 and 2009 were cool. *Poa annua* and *Poa trivialis* proliferated in our rough. The conditions were perfect, and we might have had triple our normal density. Then, when it got so hot and humid in 2010 we had about 90 percent mortality of those grasses.”

“We had springs coming out of places we’d never seen before, it was incredible.”

— SCOTT ANDERSON,
SUPERINTENDENT,
HUNTINGDON VALLEY (PA.)
COUNTRY CLUB, ON THE 73
INCHES OF SNOW THEY
RECEIVED IN THE WINTER
OF 2009-2010.

But it was restricted to the rough because Hallbrook has zoysia fairways. Superintendents in the area with cool-season fairways faced a much more dire situation.

The most significant effect Morgan and the superintendents at Myrtle Beach National saw was a severe thinning of the bentgrass on the greens. Being located in South Carolina, there's also Bermudagrass in the greens, he said. With the heat, and thinning of the bent, Bermudagrass tends to take over.

Humidity was also an issue. Although the area gets about 45 inches of rain a year, last year they had 9 inches in June alone.

Why so hot?

So what made the summer of 2010 so hot?

The simple answer is a big blue H that shows up on weather maps every summer off the east coast of the U.S. Called the Bermuda High, Arndt says it's a persistent feature that can be expected every summer. The clockwise circulation around this high-pressure area brings hot and humid air to the Southeast.

The Bermuda High isn't always the same size or power, however, and in 2010 it dominated the eastern seaboard, essentially bringing Florida weather to places like Philadelphia.

A final blow was the transition during the summer of 2010 from an El Niño to a La Niña, which, Arndt said, typically loads the dice for warmer weather on the east coast.

"La Niña wasn't the biggest factor," he said. "The bully that threw the punch was the Bermuda High."

Because it was situated abnormally west, it delivered warm, humid conditions as far inland as the Midwest, leading to record heat and blocking smaller storm systems from entering the regions. It was the hottest June on record for several states along the mid-Atlantic Coast as well as Louisiana.

According to the National Climatic Data Center, it was the eighth warm-

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est June and August on record for the country. Hundreds of maximum high and minimum high temperatures were broken, contributing to the third and the fifth warmest July on record for the Southeast and Northeast climate regions, respectively. For June through August, 12 states had record warmth, while only two experienced average temperatures below normal. Overall, it was the fourth warmest summer on record for the continental U.S. with an average temperature of 1.9 degrees F (1.0 degrees C) above the 20th century average.

Proactive for 2011

Looking forward, Anderson said he won't fundamentally change the way he manages his courses. HVCC is noted for playing fast and firm, which Anderson has worked on since he took over at Huntington Valley in 1986.

"We've already done some tree work to improve air flow to greens that were pocketed. We hadn't had any problems until last year, but we've opened them up a bit to improve circulation," Anderson said.

For superintendents whose primary


source of water is surface-fed ponds, hot weather can bring a double whammy. When air and soil temperatures are both high, using a syringe cycle or hand watering can offer some relief, unless the irrigation water is 90 degrees. That's the situation faced by both Anderson and Morgan at Myrtle Beach National.

At HVCC, the irrigation system pumps out of a stream-fed pond that is supplemented by well water. The well delivers cooler, cleaner water into the irrigation system's intake box, improving the quality and lowering the temperature during the heat of summer. Anderson said he's already put in a new well pump to help ensure quality water, and will test monthly to make sure it is being delivered.

In addition, the course has added a pair of portable fans to help with circulation where needed.

In the end, Anderson said, the stress his greens faced resulted in some positive changes for the future. Like many courses with long-established greens, his have more than one strain of grass. And, like many superintendents at older courses, Anderson has faith in the old turf.

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— **DEKE ARNDT**,
CHIEF OF CLIMATE
MONITORING, NATIONAL
CLIMATIC DATA CENTER

PHOTO COURTESY: MAX MORGAN



The greens at the River Course in Pawleys Island, S.C., are bentgrass, and some of Max Morgan's hardest to maintain.

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"While we were closed, the heat removed *Poa annua*, and some weaker bents, leaving us with 90- to 100-percent bent putting surfaces.

"The recovery was quite remarkable. Our strains of lateral-growing bent filled in very quickly. A turf consultant friend of mine said, 'It's unbelievable how quickly you recovered.'"

Morgan is converting the greens at the River Club to Champion Bermuda after the resort's busy spring season is over.

"We already converted three courses in 2005 and 2006, and had very good luck with them," he said. The River Club already has a number of fans, including six 54-inchers and one 30-inch.

Bickel says his plans for 2011 at Hallbrook Country Club are pretty simple. "Because our root system suffered such

a decline, our main concern is getting it back to where it was. We are in recovery mode, and probably will be until May. We are usually aggressive with mowing heights in the spring, but we're going to hold off until I'm confident that the root systems are stronger."

And he's going to add a couple of fans. "With cool summers in 2008 and 2009 it looked like we weren't going to need them. Now we're going to put a fan on one more green and add one to one of the six that already have them."

Forecast for 2011

So is this the new normal?

Deke Arndt said simply, "I am not a



The wet, cool summer in 2009 — including this 3-inch deluge in June — didn't help matters at Hallbrook CC in Leawood, Kan.

forecaster, but the current state of the science suggests that seasons like this will be less unusual in a warming world."

The folks at the National Weather Service's Climate Prediction Center are forecasters, and they do make long-range predictions.

Mike Halpert, Deputy Director of NOAA's Climate Prediction Center, said La Niña is expected to weaken and could end by summer of 2011. However, the CPC is still forecasting an increased chance of above-average summer temperatures in the southeast and much of the west.

Regarding climate change and whether the general warming is going to have an effect on a specific area, Halpert said, "Our experience has shown us that climate models aren't particularly effective for projecting the regional representation of climate change."

As far as 2011 weather goes, Halpert said the best any long-range forecast can do is describe a shift in the probabilities toward above or below average conditions. When forecasters see no shift in the probabilities, the forecast says there's an equal chance of either.

So, while the southeast and west are most likely looking at a warmer summer, for much of the country, there's no definitive answer. So superintendents will continue to do what they've always done when it comes to weather — prepare for the worst, and hope for the best. ■

Contributing editor Ken Moum lives in Topeka, Kan.

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