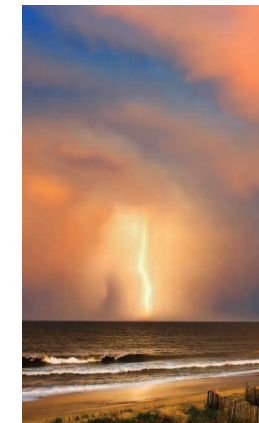


Coastal Delaware's moderate temps and sea breezes are just part of the area's appeal, but they offer both residents and visitors an irresistible embrace

Coastal Delaware's

sunny
STORMY
foggy
HOT
breezy
humid
chilly
Weather

BY LYNN R. PARKS



Sun-and-tower silhouette by Kevin Fleming; windmill, waves and snow images by Pamela Aquilani; flood photograph by Alissa Rosenstein; lightning photograph by Terry Plowman



A rainbow colors the sky near Lewes after a summer evening storm.

Gail and David Simpson have a perfectly good house, in a shaded suburb just north of Wilmington. It's a comfortable Colonial-style home, Gail says, and the development has nice streets and sidewalks for taking a stroll.

Even so, they and their daughter, Risa, enjoy spending as much time as they can in Rehoboth Beach, where they have a condo in the nearby Canal Corkran development.

A big part of their attraction to the area is the coastal Sussex weather.

"We like the temperate temperatures down at the beach," Gail says. "It can be hot in Wilmington, and then when we get down by the ocean, it's cooler."

The opposite can be true in winter, she adds. While it certainly gets cold in Rehoboth — the lowest temperature recorded at a weather station on the boardwalk is

2.8 degrees Fahrenheit, on Feb. 20, 2015 — the Atlantic Ocean has a moderating effect. On that same February day, a weather station 30 miles inland in Seaford recorded a low of 1.8 degrees. The average high in Seaford for the month was 28.1 degrees; in Rehoboth, it was 35.6.

Simpson isn't a newbie when it comes to visiting Delaware beaches. Growing up in Bridgeville, she and her family used to go to Rehoboth Beach every Sunday evening to stroll along the boardwalk and perhaps have dinner. When she was in junior high school, her parents started renting a cottage for a week each summer, a tradition that lasted until about eight years ago.

"It was always more comfortable here than in Bridgeville," recalls Simpson, speaking from her condo. "For the first five years, we rented a cottage less than a block from the beach. It didn't have air conditioning,

When we're making our way to the boardwalk, we can feel the ocean breeze get stronger and stronger."

but we opened all the windows and always had a breeze."

She's not the first person to savor that sea breeze. People have sought out the cooling ocean air for millennia: Augustus, the first Roman emperor, had a residence on Capri, an island off Italy's coast, where he would go to escape Rome's summer heat.

Two thousand years later, on another continent, the appeal is the same.

"It's about a mile from our condo to the boardwalk," Simpson says. "When we're making our way there, we can feel the ocean breeze get stronger and stronger. It's very nice."

Where north and south overlap

The climate in coastal Sussex County is not unique. "There's nothing distinctive about the weather along Delaware's shore," says Valerie Meola, a meteorologist with the National Weather Service who's based in Mount Holly, N.J. Weather up and down the mid-Atlantic coastline is pretty much the same, she adds.

But the region is special in that it's positioned near the north-south midpoint of the United States. (Rehoboth's latitude is 38 degrees, 42 minutes, 57 seconds north; the nation's geographic latitudinal center is 39 degrees 50 minutes north.)

"The climate of the state represents an escape from the rigors of the North and the languor of the South," asserts "Delaware: A Guide to the First State," published in 1938 and reprinted in 2006.

Add to that the fact that the ocean helps to keep temperatures steady, and you have a welcoming spot not just for people but plants and animals too. >

THE SALVE OF SEA BREEZES

Large bodies of water are heat sinks. They absorb heat from the sun and atmosphere, and hold on to it. According to NASA, the Earth's oceans store more heat in their top three meters (about 10 feet) than does the entire atmosphere.

By the same token, it takes more energy to increase the temperature of a body of water than it does to heat up soil and rock: about 4½ times more. So large bodies of water heat up more slowly than does land, and on summer days, the cooler ocean means cooler air above it — good news for sea-side resorts.

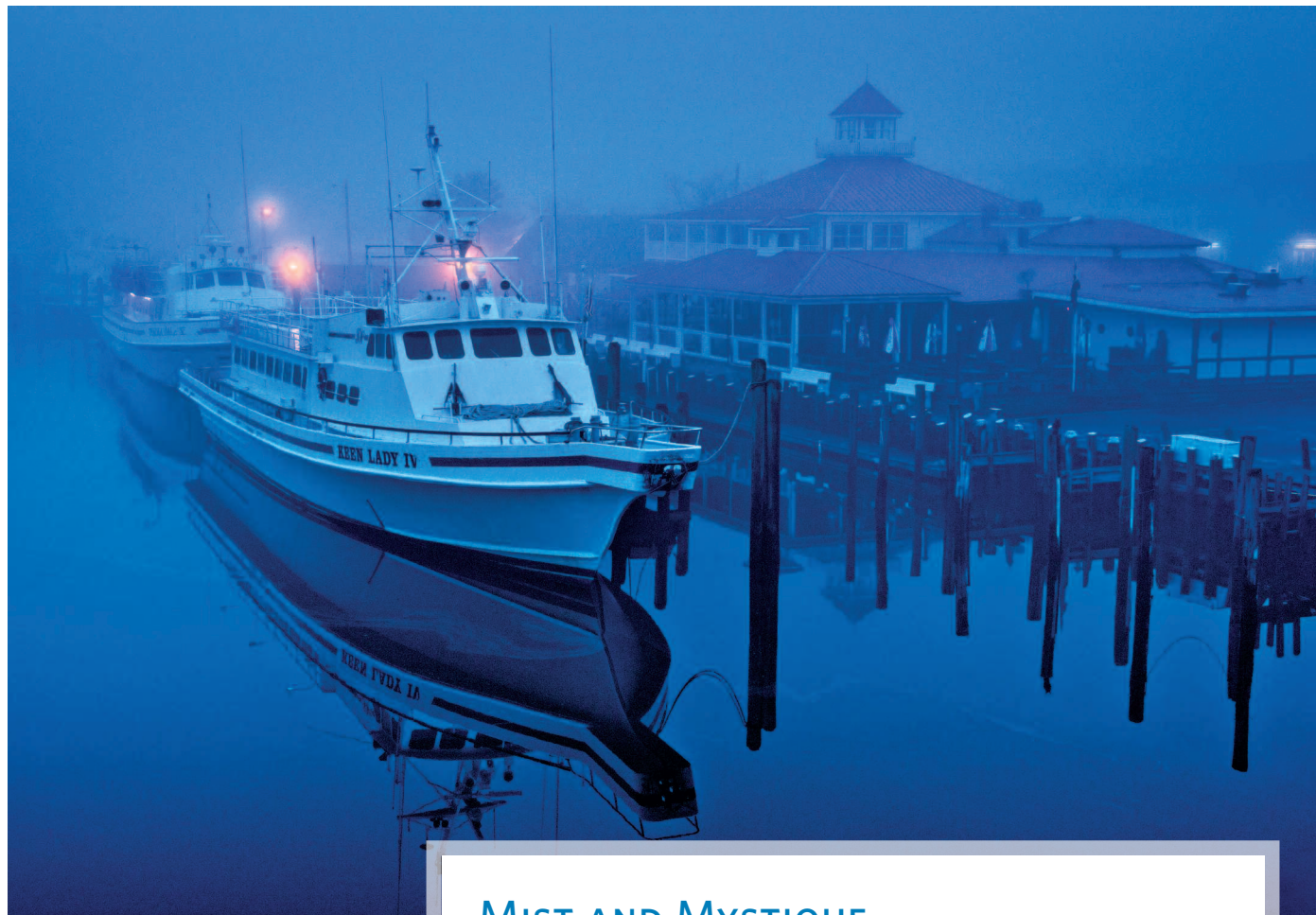
The laws of physics tell us that warm air, lighter in weight than its cool counterpart, rises. According to the National Data Buoy Center, part of the National Oceanic and Atmospheric Administration, when the warm air over land floats up toward the sky, the cool air over the ocean rushes in to replace it. That rushing in is a sea (or onshore) breeze.

At night, the opposite happens. The land surface cools more quickly than the water does, and as the air over the ocean rises, the land air blows out, creating a land (or offshore) breeze.

The disparity in land vs. water heating has a seasonal impact as well. Because water gains heat more slowly than do soil and rock, and also loses heat more slowly, temperature swings in the air near oceans aren't as extreme as they are inland. A continental summer is hotter than a coastal summer, and a continental winter is colder than a coastal winter. ■



Three girls enjoy the sea breeze, a phenomenon caused by the difference in temperature between the air over water and the air over land.



Warm, moisture-laden coastal air can become thick fog when it condenses over cooler water, as seen here on the Lewes-and-Rehoboth Canal.

MIST AND MYSTIQUE

When Delaware author Dudley Cammett Lunt spent a week in Rehoboth Beach long ago, he awoke one morning to a low bank of clouds, and waxed poetic about its effect.

It was “a day of fog,” he wrote in “Taylor’s Gut in the Delaware State” (1968). “It comes sifting through the pines, shrouding those in the distance. A gentle easterly is blowing in off the sea, bringing ashore air that is moist and mild. To breathe it is a sensuous experience. The moisture of the fog is finer than mist. Its permeating presence is a soft caress.”

Jennifer Ackerman, in “Notes From the Shore,” wrote about fog in Lewes: “Some days, by a queer coincidence of climatological circumstances ... a thick sea fog will stall on the edge of our coast, hang there like a shroud just along the littoral, while inland a quar-

ter of a mile the sun shines brightly.”

Valerie Meola, a meteorologist with the National Weather Service and based in Mount Holly, N.J., says that fog banks can form up and down the East Coast. “You have to have the perfect conditions,” including warm, moisture-laden air and comparatively cool ocean water, she explains. The air moves over the water and condenses, forming the low-lying cloud that Lunt and Ackerman described.

The fog that Ackerman saw inspired her to go exploring. “On such a day I walked a circuitous route that took me in and out of the fog,” she wrote.

But Lunt’s fog didn’t spark the same impulse. “Rather, it induces in me a mood of gentle and pleasurable melancholy,” he wrote. “I want to sit — not walk. And so I do on the butt end of a bleaching timber that is half-buried in the sand.” ■

“[Lewes] is a twin province of north and south, home to species that ordinarily do not mix,” writes naturalist Jennifer Ackerman in “Notes From the Shore,” published in 1995. “Bald cypress, muscadine grape, loblolly pine and sweetleaf push up from their southern habitats; wild cherry, beach plum, sassafras and laurel creep down from the north. Such northern species as eider ducks meet true southerners like the brown pelican and black vulture.”

Though a variety of native animals and plants find the weather accommodating, that doesn’t mean raising vegetables in coastal Sussex County is a breeze. Ellen Magee has farmed in the area since 1978. Her family business, with farms in Lewes, Ocean View and Selbyville, grows 6 million ears of sweet corn every year, and 4 million pounds of watermelons.

A coastal Sussex native, she loves living and working here. And she sings the praises of air quality along the coast. “We have good air blowing in from the ocean, fresh and clean. This area produces some of the best produce in the United States — we grow the sweetest berries — and I think that that good air really makes a difference.”

But she laughs at the idea that the local weather is always the farmer’s friend.

Last spring, “we had 16 days of rain,” she says. “We had two frosts late in April. And I pretty much know that if we want it to rain, it’s not going to.”

That variation in rain amounts — lots in one year, too little the next — is characteristic of the area. According to the Office of the Delaware State Climatologist: “Annual precipitation amounts can vary greatly from one year to another.”

Heat and humidity

There’s another feature of Sussex weather that the 1938 “Delaware: A Guide to the First State” mentions: dampness. The area “shares the excessive humidity of the Middle Atlantic Coast region in July and August,” the book says.

Surely anyone who’s spent even just a few summer days here would agree. “When the wind is from the east, the saltwater leans in strong and the sun rises pink under a moist haze,” Ackerman writes in “Notes From the Shore.” “Stamps mate shamelessly. Bread molds in a day.”

Coastal Sussex’s high humidity, of course, stems from its proximity to the

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ocean. Atlantic currents north of the equator flow in a clockwise direction, bringing warm water up from the Gulf of Mexico. That warm ocean water evaporates more quickly than cool water does. At the same time, winds along the Eastern Seaboard, often out of the south, bring warm air with them. Warm air can hold more moisture than cool air, so the area, especially at the height of the summer, can be very sticky.

Because humans rely on evaporation for cooling, and sweat doesn't evaporate quickly in air that is approaching saturation, high humidity can make the temperature feel even higher than it is. Hence the heat index, a combination of temperature and humidity measurements that give a sense of how hot the day or evening feels.

On a warm day last July, at 4 in the afternoon, the weather station on the Rehoboth boardwalk reported a temperature of 92.3 degrees and the relative humidity was 62 percent. (Relative humidity is the measure of water in the air compared to the amount of water the air can hold.) Those two factors

combined for a heat index of 115 degrees.

The National Weather Service warns that with heat indexes between 105 and 130 degrees Fahrenheit, people working or exercising outside are likely to develop cramps and heat exhaustion. Less likely, but still a possibility, is heat stroke, a more

What are you going to do? You can't do anything about the weather.

severe condition that can lead to disability and even death.

That is why, on that hot July day, Joy Tomer and her son, Jobe Tomer, owners of Jobe's Landscape in Lewes, gave their workers the afternoon off.

"All of the men were doing hand excavations," Joy Tomer says. "That's very hard labor. And we aren't slave drivers. Around noon, we let them go home."

Weatherproofed tourism?

Those landscaping crews work at sites throughout eastern Sussex County. Like Magee, the farmer, Tomer says the weather often presents a challenge. Last spring's excessive rains, for example, put everything off schedule. "The men couldn't dig,

because everything was mud. They couldn't plant. Everything got behind."

And while the fall typically brings good weather for working outside, winter puts a stop to all landscaping activities. "When the ground freezes, we can't do anything," Tomer explains. "We stop work around mid-January and start things up again around the first week of March. But what are you going to do? You can't do anything about the weather."

Coastal Sussex's temperatures and precipitation may not always be what landscapers and farmers want. But Scott Thomas, director of Southern Delaware Tourism, says the weather here usually finds favor with tourists. That's fortunate, because tourism is the area's bread and butter, to the tune of about \$1.72 billion a year. >



A low-hanging storm cloud rolls across Prime Hook National Wildlife Refuge.

THE THREAT OF STORMS

Since the early 18th century, when people started keeping track of such things, the Delaware coast has not experienced a direct hit from a hurricane. Only twice in that time, in 1878 and 1903, has the state seen hurricane-force winds (at least 74 mph).

This year's hurricane season appears unlikely to be any different. The United States Landfalling Hurricane Probability Project, operated by the Tropical Meteorology Research Project at Colorado State University and the GeoGraphics Laboratory at Bridgewater State University in Massachusetts, has not yet released its predictions for 2017, but the probabilities for coastal Delaware don't change much from year to year, and they are infinitesimally small. In 2016, there was only a 0.3 percent chance of a hurricane making landfall, and 0.8 percent of a hit by a named storm of any size.

But that doesn't mean that coastal Sussex never sees storms. That same project predicts that over the next half-century, there's a nearly 100 percent chance that at least one named storm will make landfall in the region of which the area is a part, from just north of Nags Head, N.C., to the top of New Jersey. Because of that, there's a 45 percent chance that the area will experience wind gusts of more than 75 mph in those coming 50 years.

Of course, any student of history — even recent history — knows that storms do strike the Sussex coast, and cause damage. Hurricane Sandy, on its way to the northern New Jersey coast and New York City, brushed by in October 2012, pushing in a storm surge that washed away beaches, roads and houses.

In 1954, Hazel made landfall near the North Carolina/South Carolina border and moved northward, passing near Washington, D.C., and bringing 100 mph winds to the First State. A decade earlier, what is known as the 1944 Great Atlantic Hurricane swept up the coast and pushed a steel coal freighter, the *SS Thomas Tracy*, onto the beach at Brooklyn Avenue in Rehoboth. And in the mid-19th century, the so-called Gale of 1878 created a 7-foot

storm surge in Lewes and washed out the beach in Rehoboth.

Then there are northeasters, storms that form off the East Coast, typically between September and April, and derive their name from the winds that blow from the northeast. In January 2016, flooding caused by a northeaster dubbed Snowzilla washed away dunes in Rehoboth Beach, Bethany Beach and South Bethany and badly damaged other dunes along the Sussex coast. And still talked about is the Ash Wednesday Storm of 1962, which lasted for three days and five high tides, damaged more than 1,900 coastal Delaware homes and caused \$70 million in damages in the state, most of it in Sussex County. In Rehoboth Beach alone, damages amounted to \$10 million.

It is because of these hurricanes and northeasters that Sussex County's building code contains special provisions for construction in vulnerable areas. Homes in "special flood zone areas," as determined by the Federal Emergency Management Agency, have to be designed not to float, collapse or shift on their foundations when surrounded by flood waters. Electrical, heating, air conditioning and plumbing equipment has to be at or above the first floor, unless specially designed to resist water.

In coastal high hazard areas — again, a FEMA designation — a home's lowest floor has to be at or above the level to which waters would rise during a "base flood," or a flood that is expected to occur just once a century. Enclosures below the lowest floor have to be made of material that resists water damage, and the spaces can be used only for parking, to gain access to the house, or limited storage. They also have to have openings that allow water to flow through.

In addition, in areas that can expect high winds, the county requires a statement from a professional engineer or architect certifying that the elevated portion of the house will hold up even when high winds and flooding are happening simultaneously. ■

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WEATHER STATIONS

Information about area weather conditions is readily available over the Internet. The Delaware Environmental Observing System, run by the University of Delaware, has several weather stations in coastal Sussex County: in Bethany Beach, Rehoboth Beach, Lewes (where there are three), Milford, Harbeson, Georgetown, and at the Indian River Inlet.

To see data gathered at the stations, visit deos.udel.edu. The readings, which include temperature, dew point, wind speed and direction, and humidity, are updated every five minutes.

Another station in Rehoboth reports to the website WeatherForYou.com. That site offers forecasts, details about the phases of the moon and high and low temperatures in the U.S.

The National Weather Service has a weather station at the Sussex County Airport in Georgetown. Information from it, as well as forecasts, can be found at weather.gov. ■

Coastal residents are used to seeing snow on the boardwalk, but for summer visitors, this is an unusual and fascinating sight.

“As long as it’s not forecast to be a complete washout, people want to visit the beach,” he says. On an overcast day, visitors don’t go home. They crowd onto Route 1, looking for things to do other than lie on the sand.

A bad beach day means about a 12 percent boost in the number of people visiting the Tanger Outlets on Route 1 near Rehoboth Beach, says General Manager Amy Norgate.

“If people here wake up and it’s overcast, they get dressed and come to the outlets,” she says. “If they go sit on the beach and it gets cloudy, they come to the outlets in their bathing suits. Either way, they end up here. It’s just a matter of what they’re wearing.”

The Movies at Midway complex also sees a boost in attendance on overcast days. “The best day to view a movie during the summer is when it’s 85 degrees and sunny,” theater General Manager Brooke Lowe says. “Once the weather turns cloudy, our attendance doubles.”

The same holds true when temperatures are too hot for the beach, she says.

And if it rains, “our attendance triples,” Lowe says. “If a rainy day happens to fall over the Fourth of July week, it can even quadruple.”

Thomas says that more and more, people are visiting coastal Sussex in seasons other than summer. “People are finding out that even in the winter, we have good days. [For example, on Feb. 7, the high temperature in Rehoboth hit 67 degrees, and went to 73 the next day.] And they are increasingly visiting in the fall, as they discover that it’s moderate here even into October.”

That’s not news for Gail Simpson, the Wilmington woman with a condo near Rehoboth Beach. Her family loves to visit the area in September and October.

“It’s really nice then,” she says. “And it’s really nice in the spring. And we like to visit in December. I guess you could say that we like to visit anytime.” ■

LYNN PARKS, a regular contributor to *Delaware Beach Life*, won state and national awards for her series about climate change published here in 2013.

Photograph by Kevin Fleming

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