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BRRRRRR!

Why is the water so cold down the Shore? See below

A phenomenon called upwelling chills the midsummer surf.

Why toes are blue at the Shore

By Jacqueline L. Urgo
INQUIRER STAFF WRITER

ATLANTIC CITY — The temperatures may be steamy outside, but, baby, it's cold in the water.

Just ask Melinda Castile, down the Shore for a week from Brooklyn, N.Y., and determined to go in the ocean no matter what the temperature. She bought a wetsuit.

"I know it looks weird, but too bad. The water's freezing," said Castile, 28, as she emerged from the chilly surf near the Brighton Avenue beach.

Then there was Lacy Julius, 3, clad in a tiny red swimsuit, who burst into tears every time she ran into the surf Friday, then immediately ran back out, her tiny toes reddened by the icy-feeling water.

"She doesn't understand that it's too cold," said her mother, Denise, 26, of Bordentown, who tried to comfort the toddler — and keep her out of the water.

Up and down the Jersey Shore, tourists and locals alike have been lamenting ocean temperatures that have hovered in the 50s through most of June and the first two weeks of July, when the water typically is in the upper 60s or low 70s.

See WATER on A14



Chased by an incoming wave — and a very cold one at that — Ezenje Murray (foreground) and friends retreated to high, dry ground at the beach in Ocean City.

APRIL SAUL / Inquirer Staff Photographer

Angels on the Atlantic

A nonprofit group at the Jersey Shore gives Philadelphia and Camden kids who have never seen the ocean a day at the beach. Daniel Rubin, B1.

A14 A www.philly.com

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It's called upwelling; it's downright chilling

WATER from A1

"It's cold, cold, cold," said Charlie Bowman, deputy chief of Ocean City's Beach Patrol. "We don't like it, but we deal with it. We have no choice."

Meteorologists blame a phenomenon called "upwelling," which occurs when cold water from the ocean floor is pulled upward and the warm surf — which commonly lies on the surface of the waves during the summer — is pushed out to sea by southwest winds that blow parallel to the coast.

When upwelling occurs, it usually happens after the sea has warmed appreciably from early spring.

But this year, the ocean here has never seemed to reach uniformly warm temperatures. And the cool water temps have lingered into the middle of July.

Oddly, just 40 miles to the south, in Cape May, the water briefly reached the lower 70s on Fourth of July weekend, but then dropped back down, according to the National Weather Service.

A week later, around 11 a.m., the water temperature off Atlantic City was a frigid 58 degrees, while at the same time off Cape May, it was charted at a slightly warmer 65 degrees.

By afternoon, the water in Atlantic City had climbed to 64 degrees, while in Cape May it was inching closer to normal at around 70.

"It really all depends on the wind. The southwest winds strip the 'skin' temperature off the ocean and carry the warm water out, away from the beach," said National Weather Service meteorologist Jim Eberwine, who began an intense study of upwelling 20 years ago when the summer of 1988 was plagued by unusually cool ocean water off New Jersey's coast.

That summer — on Aug. 19, 1988 — the water at the Jersey Shore dropped by nearly 20 degrees in one day, from a balmy 78 to a chilly 59 degrees. The average water temperature at the Shore that

How Upwelling Chills

In the summer months winds blowing along the coast and a current put on the water by the Earth's spin push the warmer surface water away from the coast. The warm water is replaced by colder water from the ocean's bottom.

Normal waters



Chilled by upwelling



SOURCE: Rutgers University Coastal Ocean Observation Lab

KÉITA S. SULLIVAN / Inquirer Staff Artist

year was 63 degrees, while the normal average is 68 degrees.

The warmest the sea off New Jersey has ever been was 71.7 degrees in 1952, Eberwine said.

Eberwine forecasts that for at least the next week, a continued southwest flow of winds may bring more even upwelling.

He also predicts that big waves from Hurricane Bertha, now near Bermuda, may create rip currents off New Jersey that, coupled with the cool water temperatures, could mean problems for swimmers. Theories about the cold water abound among tourists, who blame everything from melting Arctic glaciers and climate change to an old-fashioned cool spring and a Farmer's Almanac prediction of a warm fall.

But the professionals contend that upwelling — and the corresponding cold ocean that goes with it — is quite common.

"The winds create a cascading effect as the water moves away from the coast," said Eberwine, who nowadays relies on data gathered from satellites, coastal radar, and underwater weather stations to forecast weather patterns.

Back in '88, some of what Eberwine and other experts surmised about upwelling was strictly theory. Without today's real-time satellite imagery, experts couldn't chart precisely how the warm water was pulling away from the coast toward the continental shelf. Or what effect ocean currents such as the cool Labrador Current or the warm Gulf Stream may have on the Jersey Shore, which lies sandwiched between the two.

But through advanced technology and an elaborate network of coastal sites feeding into data-monitoring stations — operated by the National Oceanic and Atmospheric Administration, the Davidson Laboratory at Stevens Institute of Technology, and Rutgers University — forecasters can get a better picture of the effects upwelling and other phenomena have on the Shore.

And the public, which can use the NOAA site, also can go to a Web site created with tourists in mind called www.thecoolroom.org, operated by Rutgers University's Coastal Ocean Observation Laboratory.



APRIL SAUL / Inquirer Staff Photographer

Cold water at the beach

does change tourists' habits — but only to a certain degree.

"They're still coming in and buying what they would normally buy, like suits and boards and things like that for the beach," said Dana Guerrina, women's buyer for Heritage Surf & Sport in Sea Isle City, Ocean City and Margate. "But we've seen a spike in wetsuit sales. People coming in to take surfing lessons or just going to the beach are buying them."

Scott Wall, a spokesman for the Borough of Avalon, said the town's beach patrol was reporting that while the number of people going into the water seemed to be normal for this

time of year, the duration of their swims was much shorter.

"If they're on vacation, they want to be able to say they went in the water," Wall said. "But when it's cold, they get in and get out fast."

It's not only beachgoers that are affected, but also the things that naturally swim around in the sea.

"I haven't seen one bluefish yet this summer," said Ralph Steeleman, 52, who said he has been fishing off Atlantic City his entire life. "The water's even too cold for them, I guess."

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