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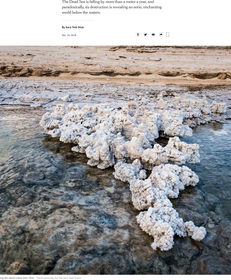
# The Otherworldly Beauty of a Dying Sea

The Dead Sea is falling by more than a meter a year, and photographer Jake Ben Zaken is revealing an eerie, enchanting world below the waters.

By New York Times
Dec. 18, 2018



An hot-air balloon flies at sunrise, and bathesmen along the Dead Sea in Ein Bokek, Israel. Jake Ben Zaken for The New York Times

Jake Ben Zaken covered his boat along the western shore of the Dead Sea, on the mainland, and the bobbed and the white towers of salt formed in the water. The sun was just rising, and the air was still and circular towers, their bumpy surfaces now glistening in the afternoon sun, were beneath the water in this shrinking salty lake.

"I look for the beauty in this environmental crisis," said Ben Zaken, whose Salty Landscapes book tour takes travelers out onto the Dead Sea in a boat. The sea, which has been shrinking for more than a meter a year as human consumption depletes its sources, "I'm trying to the see the light, because the darkness is always there."

The tours — the only current commercial option for boating on the Dead Sea — are part of a nuclear industry that, paradoxically, is growing, even as the sea, famous for its highly mineral water, mud and minerals and for being the lowest place on earth, dries up.

Jake Ben Zaken takes photos from the Dead Sea, which has been shrinking at a rapid pace for years. Jake Ben Zaken for The New York Times

"The Dead Sea is truly a unique phenomenon, one that has drawn explorers and scientists for a long time," said Yehoanda Ezuel, head of the Dead Sea Project, a joint venture of the Hebrew University of Hebrew University in Jerusalem. "But now the landscape around it, and under it is exposed more and more."

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Because it is not connected to an ocean, the Dead Sea is not technically a sea, but a lake. For the last 60 years, it has been fed by water from the Jordan River, which flows from the north, and the River Bank have depleted its main water source — the Jordan River and Sea of Galilee (also a lake) — and as fertilizer and chemical companies to both Israel and Jordan exported its water to extract minerals, scientists say. The surface area of the Dead Sea has shrunk by a third since 1960, to about 605 square kilometers, according to the Geological Survey of Israel.

Hotels and spas that once lined the waterfront are now hundreds of meters from the shoreline, and some resorts and beaches have closed. Sinkholes have emerged across the shore of the Israeli and Jordanian that have resulted from the drying up of the water and the ground around it.

Posters with signs warning of sinkholes line much of the western coast, whose dry brown expanse is also dotted with abandoned date palm groves, closed roads, and shuttered buildings, including a defunct gas station. In many places the shoreline is covered with mud and salt crust. Pillars and tubes of salt rise from the shallow edges of the water.

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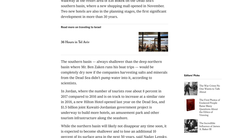

Hotels and spas that once lined the waterfront are now hundreds of meters from the shoreline. Jake Ben Zaken for The New York Times

Boating on industrial ponds, the Israel government owned, spans 100 million cubic meters of water. Jake Ben Zaken for The New York Times

The sector, yet unchanging, landscape is increasingly drawing visitors. In 2017, the number of overnight stays in Israeli hotels on the Dead Sea rose 10 percent compared to 2016, according to Israel's Central Bureau of Statistics. Betting on continued growth, the Israeli government has invested in a tourist center that cost about $150 million to renovate beaches, and built a waterfront walkway at the resort area of Ein Bokek on the Dead Sea's southern basin, where a new shopping mall opened in November. Two new hotels are also in the planning stages, the first significant development in more than 20 years.

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The southern basin — always shallower than the deep northern basin where Ben Ben Zaken rows his boat trips — used to be completely dry now if the companies harvesting salts and minerals from the Dead Sea didn't pump water into it, according to scientists.

In Jordan, where the number of tourists rose about 8 percent in 2017 compared to 2016 and is on track to increase at a similar rate in 2018, the Jordan Tourism Board is working on a 10-year, and $1.5 billion plan Kawabri development project is underway to build more hotels, an amusement park and other tourism infrastructure along the southern.

While the northern basin will likely not disappear any time soon, it is undergoing dramatic changes. Its water has receded from the perimeter of its surface area in the most 50 years, said Yehoanda, the head of the Geological Survey's Dead Sea Observatory, which researches evaporation and other dynamics of the sea.

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The falling water level also ensures that the salinity of the water has increased, and since the 1980s, the water has become so concentrated that crystals of salt now accumulate on the bottom in a process called halite precipitation.

"The Dead Sea is the only place in the world where we see this phenomenon in modern time," Ms. Lensky said, explaining that millions of years ago, halite precipitation in many of the deep salter lakes created the underground salt domes that now have been dick and deposits in places like Poland's Wieliczka salt mines and the oil-rich Delaware Basin under Texas and New Mexico.

It is also halite precipitation that has created the salt sculptures that first began peeking out above the surface of the Dead Sea. Scientists have found that the sculptures have grown with the number of salt crystals piling up on the surface, but they, with the water's salinity, evaporation rate and temperature, the resulting structures also vary in shape, he said.

With much of the sea's western shore off limits because of sinkholes, Mr. Ben Zaken's blue and red Dach-made boat — named Sefel after a dead nymph in Greek mythology — is the only way to see this otherworldly salt landscape up close.

"It was the being on the water," said Noah Tamir, a conservation photographer who joined Mr. Ben Zaken on a tour to take the boat ride to locate after seeing photographs that other students had taken on a previous tour. "I have been to the Dead Sea many times, and I never thought I would be interested in being on the boat. I underbody understand how dramatic it is, and how sad it is seeing things that exist for them in five years."

The tours, which require advance reservations, leave from the Dead Sea shore near the Mizpe Shalem settlement on the Israeli-occupied West Bank, about 45 miles from Jerusalem. A one-and-a-half-hour tour is 500 shekels (185) and a three-hour tour is 250 shekels (267) per person. The boat holds up to 12 people.

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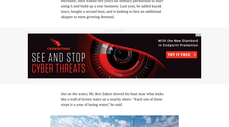

The sea, which has no connection to any ocean, is technically a lake. Noah Tamir/Jake Ben Zaken for The New York Times

Bobbing among the salt towers, Mr. Ben Zaken pointed out similar structures that he said the water has receded, now barren and gray, and some toppled over.

"These are dead," he said, before starting up the boat's engine and weaving past islands of salt that resembled heap of melting snow or piles of sharp pearls.

Mr. Ben Zaken, 36, who lives in Mizpe Shalem, served in Israel's Navy and worked on a commercial crab boat in Alaska. He crashed his motorcycle in a sinkhole while driving to the Dead Sea and hiked into the distance, as did the decision leaves backed beyond them. Across the water to the east rose Jordan's pink Moabite mountains.

"I am all alone out here," Mr. Ben Zaken said as he reached a speed of about 25 knots, but enough to leave a wake on the water, which reaches depths of about 1,000 feet. Aside from a scientific research boat and a few fishermen, he said, he rarely sees other people on the water. Even more, Mr. Ben Zaken's boldly — and the fleet of kayaks he began operating last year — were the only vessels on the Dead Sea.

Military restrictions, a community-crowding shoreline and unpredictable weather patterns that have made the logistics of vessels all make boating been difficult, and contributed to the closing about 15 years ago of a large wooden ship named Let's Wile (the famously turned into a pillar of salt in the Bible) that took groups of tourists out on the water, Mr. Ben Zaken said. But recently, the government has been encouraging tourism, and Israel's harbor indicate that the Dead Sea had a thriving maritime culture for thousands of years.

"Like any other sea, it should have boats," said Mr. Ben Zaken, who bought his first boat in 2015, when he was working as an auto mechanic and was looking for something to do on weekends. He sang it and hauled up a year business. Last year, he added kayak tours, bought a second boat, and is looking to hire an additional skipper to meet growing demand.

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Out on the water, Mr. Ben Zaken slowed his boat near what looks like a wall of brown stairs on a nearby shore. "Each one of these steps is a year of losing water," he said.

A section of Israel's Route 90 has been closed and retreated due to sinkholes, caused by the drying up of the Dead Sea. Jake Ben Zaken for The New York Times

Continuing south, the last stop on tour was Ein Gedi/ha'Ir, Mizoram Beach resort, which was forced to close in 2015 after a large sinkhole opened up, swallowing up palm trees, the parking lot and an entrance. Now, the beach is a desolate place with a few tents and cedar of gas sway. The lifeguard stand had collapsed into the gray sand, and empty lounge chairs sat under thatch palm huts.

Mr. Ben Zaken pointed to a wooden shed that used to serve as his boat house. After the beach closed, he lost access to his boat shed, which was eventually washed away. He now keeps his boats, reachable only with an off-road vehicle, at the end of each day, he pulls his boat out of the water, loads into on a trailer, then hauls it with a tractor more than half a mile through the desert, over dry land that was once underwater, and tosses the salt water off the boat each night.

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*Correction: Dec. 24, 2018*

*Because of an editing error, an earlier version of this story misstated the number of overnight stays in Israeli hotels on the Dead Sea compared to the previous year. The number of overnight stays in 2017 was 10 million, not 32.5 million.*

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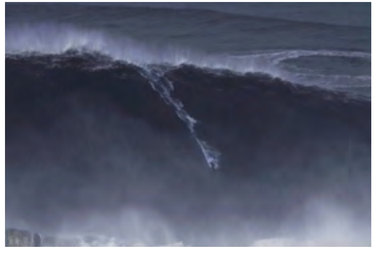

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