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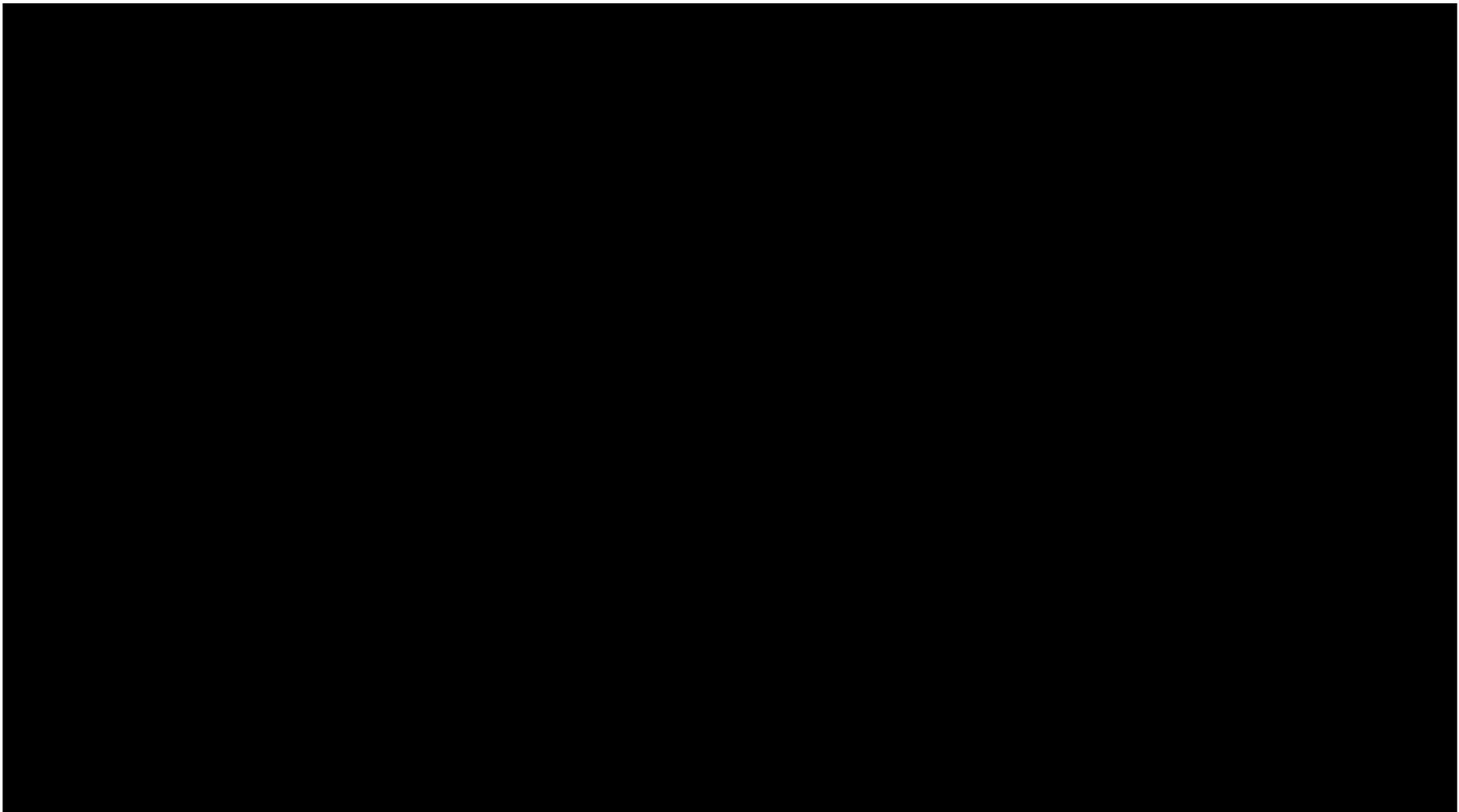
# Galveston Bay dolphins struggle to recover from Hurricane Harvey

**Researchers observe lesions covering the marine mammals**

By Alex Stuckey | November 26, 2017 | Updated: November 27, 2017 8:39am



2



Galveston Bay Dolphin Research and Conservation Program head out into Galveston Bay in search of dolphins. After Hurricane Harvey, Galveston Bay dolphins turned up malnourished and covered with skin lesions, which researchers believe is related to the inundation of freshwater into the bay. Some studies show that these skin conditions can be the result of pollution, much of which dumped into the bay during and after Harvey. (Subject Images were taken under the authority of NMFS MMPA Permit 18881)

Media: Houston Chronicle

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**GALVESTON BAY** - Kristi Fazioli first spotted the pair of dolphins swimming behind a shrimp trawler near Morgan's Point, eager to get a mouthful of breakfast.

They appeared healthy as they popped in and out of the choppy waters typical for a November day on Galveston Bay. But a second glance showed the truth: Their skin was mottled and blotchy, covered in a patchwork of white lesions that stood in stark contrast to the gray coloring characteristic of bottlenose dolphins.

Where some might have winced at the dolphins' sickly appearance, Fazioli, a research associate at the University of Houston-Clear Lake's Environmental Institute of Houston, calmly snapped photos of the lesions, documenting the time, date and place of the sighting.

This is the post-Hurricane Harvey reality for the popular bay dolphins, known to swim alongside boats and ferries throughout Galveston Bay. Nearly three months after the storm's

destruction, the more than 500 dolphins she's documented in Upper Galveston Bay still are struggling to recover.



Photo: Steve Gonzales, Houston Chronicle



### IMAGE 1 OF 20

Biologist Cory Scanes pilots a boat in Galveston Bay, where dolphins are turning up with skin lesions.

After the storm, some dolphins turned up with excessive skin lesions. Others were skinny and malnourished. Still others vacated the bay and have not returned for the season.

These changes in dolphin health and behavior have been observed in other areas after hurricanes, but Fazioli said little is

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known about the short- and long-term impacts of such an event.

So now she's expanded her research on dolphins - conducted in partnership with the Galveston Bay Foundation - to include the impacts from Harvey.

"We have a lot of questions ... so we're trying to look at these things more closely," said Vanessa Mintzer, a research and conservation fellow with the foundation.

### *Floods, pollution*

Fazioli couldn't take her mind off the dolphins as she watched feet of rain and unforgiving wind batter the Texas coast in late August.



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Were they getting enough food? Were they leaving the bay? How many survived?

She fretted over these questions for almost two weeks, waiting for the go-ahead to scour the

bay for the animals she'd been closely studying since 2013.

"My goal was to get out there as soon we could," said Fazioli, whose research has focused on documenting dolphin behavior in the upper portion of the bay.

On Sept. 5, she got her chance. But the upper bay - where Fazioli had previously documented more than 500 dolphins - was almost completely devoid of the playful marine animals.

The salt content of the water was unusually low, so she traveled to the Houston Ship Channel, where she knew the water would be saltier.

There, she found her some of her dolphins. But she could tell something wasn't right.

The animals were skinny and lethargic. They weren't socializing or swimming in the bow waves of the ships. And, of course, they were covered in skin lesions.

The lesions are nothing new to Fazioli and her colleagues. Dolphins suffered from them after major flood events in both 2015 and 2016.

Scientists often attribute the lesions to extended exposure to freshwater - an inevitability when 51 inches of rain plummets from the sky as it did during Harvey.

"This pulse of freshwater received by the Gulf of Mexico and its coastlines exceeded the volume of water of the entire Chesapeake Bay," according to the Galveston Bay Foundation. "Because the brunt of the rainfall took place on the Texas coast, including the Galveston Bay watershed, Galveston Bay has received an unprecedented volume of freshwater."

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## MORE INFORMATION

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***"My goal was to get out there as soon as we could." Kristi Fazioli, UHCL dolphin researcher***

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## TRANSLATOR

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But others also believe pollution could be the cause. During Harvey, about 149 million gallons of raw sewage and industrial discharges poured into neighboring communities and waterways. About 100 companies, including Valero Energy, ExxonMobil and Arkema, reported spilling chemicals, some of which undoubtedly reached the bay.

Fazioli can't yet pinpoint the exact number of dolphins she's found with skin lesions, but that analysis will be part of data she hopes to publish in the next year about the impact of Harvey.

She'll specifically focus on skin lesions, she said, because so little is known about them.

### *Displacement from habitat*

Dolphin departure from their habitat has been observed after other hurricanes as well, and scientists have attributed it to a change in water quality and salinity, as well as the displacement of their prey, which need saltier water to survive.

Lesions also were reported on dolphins after Hurricane Katrina in 2005. A U.S. Navy news release that year noted that a young bottlenose dolphin found stranded in a river was covered in lesions.

"The dolphin had suffered skin lesions after being out of its natural saltwater habitat for an extended period," the news release stated. "Had it remained in fresh water much longer, the lesions and eye problems could have endangered its life, experts said."

A 2012 University of Southern Mississippi study, examining an unusually high number of perinatal dolphin strandings in the northern Gulf of Mexico the year prior, noted that "bottlenose dolphins in colder, low-salinity waters may be prone to severe skin lesions and physiological stress that make them more susceptible to infection or illness from natural or anthropogenic factors."

Maddalena Bearzi, who wrote about her study of dolphins off the coast of Los Angeles in National Geographic in 2014, noted that almost 80 percent of the dolphins photographed had some type of dermal lesion.

Though she noted salinity and sea temperature contribute to these lesions, "bacterial, viral and fungal infections are also at the top of the list, possibly correlated to bad water quality or contaminated prey."

Research conducted outside of California, Bearzi wrote, suggests "these issues could be human-induced, likely in relation to poor water quality."

Pollution's role in these lesions also had been noted by the National Park Service, which found that about one-third of the dolphins near the Indian River Lagoon System at Canaveral National Seashore in Florida had lesions scientists believed were attributed to pollution.

Questions about the cause and lasting effects of the lesions still remain, Fazioli said.

"They are caused by an electrolyte imbalance, and it can affect body condition," she said.

"Some of them looked skinny, and that can affect their overall condition, which can affect things like reproduction and calf survival, these types of things."

### *A good sign*

Fazioli's well-trained eyes scanned the horizon as the 25-foot Boston Whaler sliced through the choppy waters off the coast of the Kemah Boardwalk.

Her research is essentially an expert form of Where's Waldo, but instead of looking for a man in red and white stripes, she's looking for dolphins nearly the same color as the murky bay waters.

A faint splash drew Fazioli's attention.

"Eleven o'clock," she shouted, as the boat's driver brought them to a halt.

Fazioli and a graduate student pulled out their cameras and started shooting photo after photo, as a smaller dolphin popped up alongside the larger one.

"It's good to see a mom and her calf," Fazioli said through a grin.

The blustery, mid-November day marked the first time since Harvey she'd seen a mom and her baby so close to the shore. The dolphins began returning to the area in October, when the bay returned to its brackish state. But the babies were inexplicably absent.

The sighting was further proof that things may be returning to normal.

With a smile on her face, Fazioli urged the boat's driver onward into the bay, her eyes again trained on the horizon for signs of that tell-tale fin.

Editor's note: The research described in this story was conducted under the authority of NMFS MMPA Permit 18881.

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