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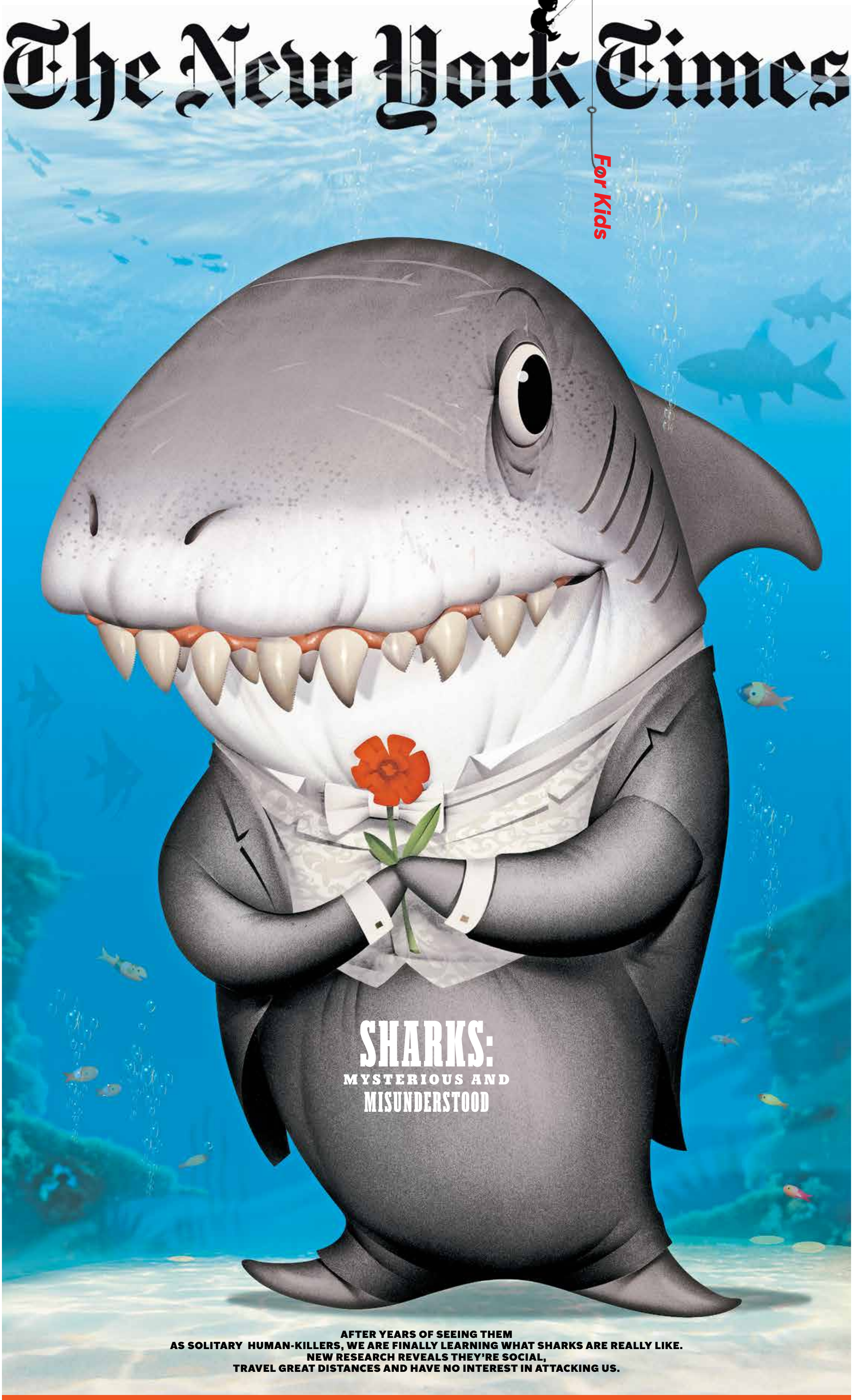
The New York Times For Kids

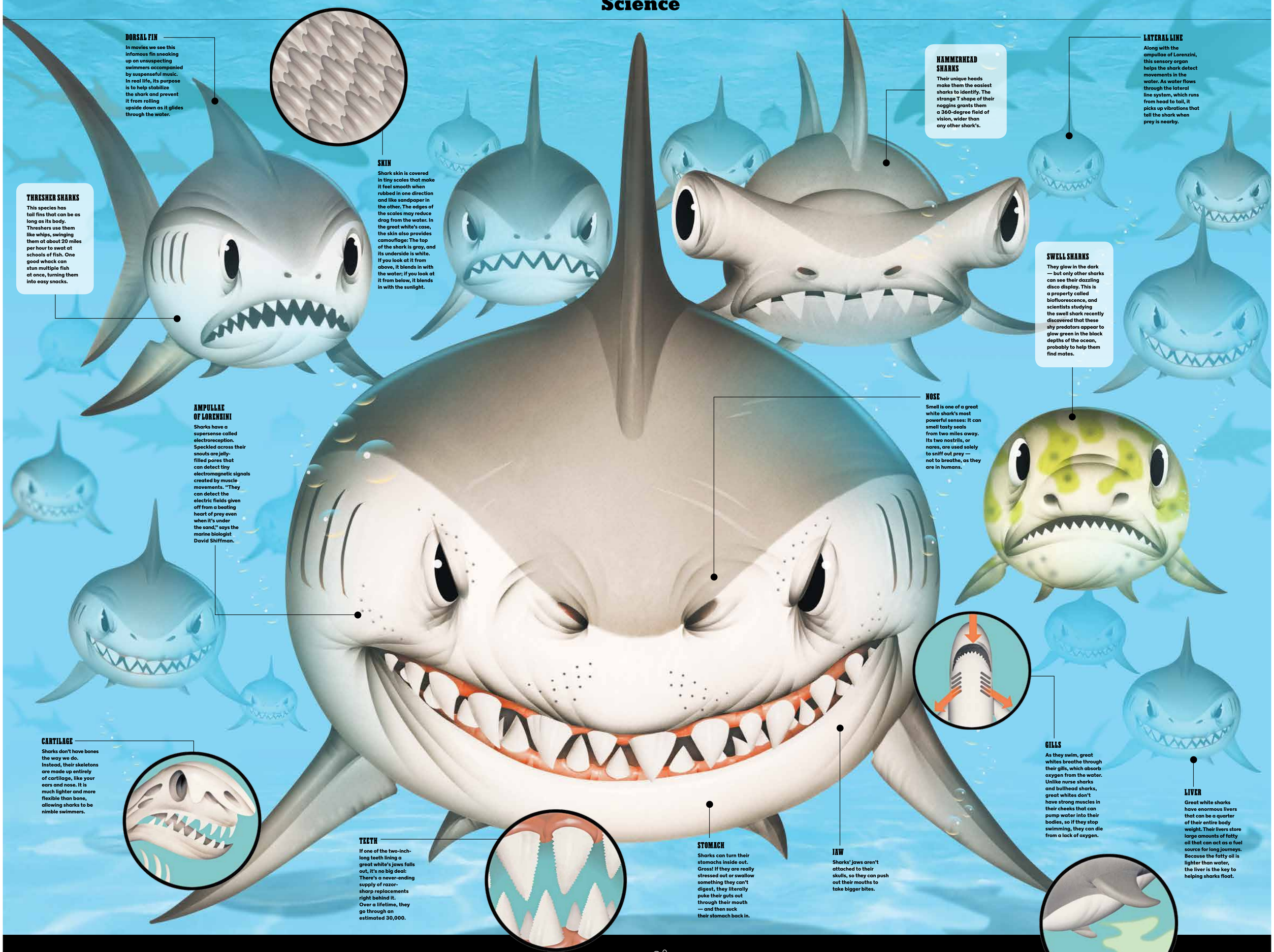


SHARKS: MYSTERIOUS AND MISUNDERSTOOD

AFTER YEARS OF SEEING THEM AS SOLITARY HUMAN-KILLERS, WE ARE FINALLY LEARNING WHAT SHARKS ARE REALLY LIKE. NEW RESEARCH REVEALS THEY'RE SOCIAL, TRAVEL GREAT DISTANCES AND HAVE NO INTEREST IN ATTACKING US.

ILLUSTRATION BY BILL MAYER

Science



MONSTERS NO MORE

BY NICHOLAS ST. FLEUR
ILLUSTRATIONS BY BILL MAYER

LISTEN, we won't disagree with you: The big, toothy grin of a shark is frightening. But there's nothing to be afraid of! For all the shark drama you see on television shows, in movies and in the local news, much of their reputation as solitary, bloodthirsty, human-hunting villains is just wrong. Because they are so elusive, it was once easy to imagine them this way, but scientists have learned more about them lately.

"Sharks are not the mindless killing machines that people used to think that they were," says David Shiffman, a marine biologist at Simon Fraser University in Vancouver. "They are capable of some really complicated activities like social interactions, problem-solving and making enormous migrations."

The 1975 movie "Jaws" played an outsize role in the public's imagination. In it, there's one type of shark, a great white, and one type of behavior: chomping people. Scientists have always known that devouring humans wasn't the defining characteristic of sharks — not to mention that there are at least 500 species, with many different types of behavior — but now, thanks to years of dedicated research and improved tracking techniques, we can see them as they really are. "Scientists are smashing the misconception that all sharks are loners," says Melissa Márquez, a marine biologist and founder of the Fins United Initiative. "In fact, many species do like to be around others of their kind — for example, scalloped hammerheads, sand tiger sharks, leopard sharks, white-tips and whale sharks."

And if you're not convinced yet, consider this statistic: Sharks kill five to 10 humans per year around the world, whereas humans kill an estimated 100 million sharks per year. So, really, we're the scary ones.

HOW TO FIND A SHARK

❶ TRACKING TAGS:

Where do sharks hang out? High-tech tags attached to the body of great whites have started to show us. For instance, researchers tagged more than 70 great white sharks and observed them via satellite. They found that every year, the sharks would swim more than 1,000 miles to a seemingly empty spot in the Pacific Ocean halfway between Mexico and Hawaii. Now known as the White Shark Cafe, the area is about as large as Colorado. Marine biologists didn't have a clue why or how many sharks in total made the long trip, so in April they visited the cafe on a research vessel.

They discovered a smorgasbord of marine life, like plankton, squid and tuna. "We thought this was a remote ocean desert," says Barbara Block, a marine biologist from Stanford University who led the research project. "But we now know the place the sharks took us to was like an oasis in the desert." Block says her team is still not sure whether the sharks travel to the cafe so they can eat, mate or both, but it's really cool that they come together like this. "By putting tags on big animals, we are learning their secrets in the ocean," Block says. "But there are still a few mysteries we don't have figured out."

❷ SHARK POOP:

Since sharks are so hard to find, some scientists have begun tracking them using an even surer sign of their whereabouts: their poop! Well, it's technically called "environmental DNA," but it's basically the body waste, mucus, saliva and shed skin cells that marine animals like sharks leave behind. "From small plankton to big whales, all of their DNA is floating around in the water," says Judith Bakker, a marine biologist at Florida International University, who is searching the seas for these clues. This technique allows scientists to collect data on shark populations without having to catch any sharks. They drop special tubes into the water from a boat or while scuba diving. They then analyze all the DNA in the water — first separating shark DNA from other marine-animal DNA and then identifying the species. The research has already been used to confirm the presence of whale sharks in the Persian Gulf, estimate rare Greenland shark populations in their home waters and detect great hammerhead sharks in the Caribbean and New Caledonia. A major goal of the work is to pinpoint where endangered sharks exist to better protect them. Thanks, poop! ◆