



In the Gulf of California, illegal fishing for totoaba, an endangered fish whose swim bladder is prized in China for its purported medicinal properties, has forced another species, the vaquita porpoise, to the edge of extinction.



An aerial photograph of a coastal town and bay. The town is situated on a flat, arid plain with some buildings and a small harbor. The bay is a vibrant turquoise color, and a long pier extends into the water. In the foreground, a rugged, rocky coastline with a sandy beach meets the water. The background features a range of mountains under a clear blue sky.

**A  
TALE  
OF  
TWO  
SPECIES**

**Wild Lens**, a wildlife conservation media company, has just released the first installment of *Souls of the Vermillion Sea*, a documentary about the vaquita's plight and the efforts underway to protect it. **Wild Hope** spoke with filmmaker Sean Bogle to find out first hand how the future looks for the vaquita.

**WILD HOPE: Before going into your reasons for making a documentary, what can you tell us about the vaquita's life history?**

**SEAN BOGLE:** The vaquita is the most endangered marine mammal in the world — there are probably fewer than 60 left. The reason they're in trouble is because they become entangled in the gillnets fishermen use to catch shrimp and totoaba and then drown. Not much is known about the vaquita, which is one of the reasons why we're making this documentary. Apart from trying to save the species from extinction, we hope to learn more about it.

Vaquita are elusive, shy animals, so they're difficult to study. They're hard to detect because they leave a small footprint. They only surface for about three seconds and then dive down, come up again three-to-four minutes later, and then they're gone. They're also sensitive to noise pollution from large boat engines and keep their distance.

The vaquita is the smallest cetacean in the world, at the opposite end of the spectrum from the blue whale. An adult measures four or five feet long. Infants aren't much bigger than a rugby ball. They don't travel in large pods. You usually just see individuals or pairs. The most that have been seen at one time is four or five, which are likely families.

Vaquita have a slow reproduction rate and deliver off-

spring every other year. It's not known if that's due to an imbalance in the male-to-female ratio. So that's a conservation concern — we're not sure if there are enough males or females to repopulate the species.

**WH: Where do vaquita live?**

**SB:** Vaquita inhabit the upper Gulf of California. It's thought that their ancestors split off from a common ancestor of the Burmeister porpoise, a species that lives along the west coast of South America, and then became trapped in the upper Gulf of California 1 to 2 million years ago. If you're a creature that wants to avoid any kind of contact, the upper Gulf of California is the perfect place to be because the sediment coming in from the Colorado River makes the water extremely murky. Visibility is no more than two or three feet. So the vaquita have a wonderful curtain to hide behind. Their only predators, historically, were sharks. But sharks have been virtually eliminated from the area because of overfishing, and also gillnetting. So the vaquita don't really have any natural predators anymore.

The vaquita's range used to be from shore-to-shore, from San Felipe to Santa Clara. But now, because there are so few of them, they're isolated in an area just north of San Felipe

where there are underwater canyons and their food is concentrated. The totoaba are there for the same reason. And that's where the trouble lies. The fishermen fish these canyons because they know the totoaba are going to be there. It just so happens that the vaquita eat the same prey as the totoaba, so they get caught in the gillnets the fishermen use to catch totoaba.

**WH: But the totoaba is also an endangered species, so isn't it illegal to fish for totoaba?**

**SB:** Yes! The Mexican Government declared a total ban on totoaba fishing in 1975, and in 1976 the totoaba was placed on the endangered list of the Convention on International Trade in Endangered Species (CITES). But because of the demand for totoaba swim bladders in China and because enforcement has been lacking, fishermen are willing to risk getting caught fishing for totoaba illegally. They can get as much as US\$4,000 for a single swim bladder, which will sell for upwards of US\$20,000 in China. If they can sell a few bladders, they've made enough money to support their family for a year. And because there's so much money to be made, there's corruption. If they get caught fishing illegally, they just pay a bribe and go back to what they were doing. Corruption is really what's killing the vaquita. Gillnets are the direct cause, but the indirect cause is corruption.

It's a sad story really because this region of Mexico was built around the totoaba fishery back in the 1920s. People moved there because of totoaba, which are big fish, and there were plenty of them. They could feed their families, and they could sell them. They also had an economy based on totoaba sport fishing. But once the Chinese started exporting the bladders and they became so valuable, and fishing for totoaba became illegal, they stopped eating the fish. Because they knew it was illegal to catch totoaba, they began gutting the fish, taking the bladder and then dumping the fish because they don't want to be caught with it. They can hide a bladder, but not a whole fish.

**WH: Why is there a demand for totoaba swim bladders in China?**

**SB:** Historically, the Chinese used the bladders for medicinal purposes, primarily as an ingredient in skin creams and ointments that supposedly make you look or feel younger. It's also used as an aphrodisiac. Now, demand has increased along with the growth of China's middle class, creating more of a demand for totoaba bladders as status symbols and currency. Essentially, they've become the "ivory of the ocean."

**WH: How do we know the vaquita population is declining?**

**SB:** When American biologists Ken Norris and William McFarland first documented and described the vaquita in 1958, it was thought even then that the species was in decline. In 1986 the International Union for Conservation of Nature listed the vaquita as “vulnerable”; by 1990 the status had changed to “endangered”; and then in 1996 they were declared “critically endangered.”

The first full-scale survey of vaquita was conducted by the US Southwest Fisheries Science Center (SFSC, a branch of the National Oceanic and Atmospheric Administration) in 1997. They estimated there were 567 animals. In 2005 the Mexican government set aside a Vaquita Refuge in the upper Gulf of California, which encompassed about 775 square miles of the vaquita’s core range, and prohibited the use of gillnets in the area, however the ban wasn’t enforced.

Another vaquita survey was done in 2008, and the number had decreased to 245 animals. Around that time the Mexican government established a compensation fund to buy out fishermen in order to reduce fishing in the region. Our documentary focuses on the 2015 survey, which was a joint effort between Mexico’s Department of Environment and Natural Resources and the SFSC,

that showed the population is down to 60. That’s a 92% decline since 1997. Obviously, the gillnet ban hasn’t worked.

**WH: How are these surveys conducted?**

**SB:** They use a combination of visual surveys — actual vaquita sightings done from a ship — and acoustic monitoring surveys. That information is then extrapolated to come up with a population assessment. Dr. Lorenzo Rojas-Bracho and Dr. Armando Jaramillo-Legoretta from Mexico’s Instituto Nacional de Ecología began doing acoustic monitoring of vaquita back in the ‘90s. Because their high frequency echolocation clicks are unique, vaquita can be distinguished from other cetaceans in the area. From the data, scientists can determine trends in vaquita abundance. Initially, the acoustic monitoring was done from the survey ships. But in 2011, they set up a grid of 48 acoustic monitoring devices, called “c-pods,” throughout the vaquita’s range. The c-pods are deployed and retrieved seasonally to recover data and exchange batteries. The program is operated by local fishermen. They would like to do the monitoring year round, but there isn’t enough funding.

**WH: What’s being done today to protect the vaquita?**

**SB:** In April 2015, Mexico’s President, Enrique Peña Nieto, announced a two-year ban on gillnets throughout the vaquita’s range — so he expanded the size of their protected area beyond what was established in 2005. In July 2016, the ban was made permanent.

**WH: How is the ban being enforced?**

**SB:** Primarily, the Mexican Navy is responsible for patrolling the waters and enforcing the ban. But during one of the times I was there filming, I saw two Navy cruisers just sitting out at sea and two Navy patrol ships that stayed in the harbor the whole time. And I saw illegal fishing happening every day. The rumor was that the Navy didn’t have enough fuel to operate the ships. Later I learned that the Navy ramped up their efforts after the Sea Shepherd showed up and started acting as another set of eyes. The Sea Shepherd doesn’t have the power to arrest people, but if they find someone fishing illegally, they can report them to the Navy. The problem is, there are many more fishermen than the Sea Shepherd and the Navy can keep up with. The Sea Shepherd and the Navy are also pulling up gillnets, both nets that are in use and “ghost nets” — ones that have been abandoned and left adrift by fishermen.

**WH: What impact has the government compensation program for fishermen had?**

**SB:** The compensation program that the government implemented in 2008 was supposed to give fishermen money for turning in their gillnets and getting into some other livelihood like eco-tourism or sport fishing. They were told they would receive what they would make in a year from fishing. But in 2008 the world economy collapsed. When that happened, everything stopped; no tourists showed up, and the fishermen went back to fishing illegally for totoaba because they didn’t have any money. So here we are in 2017. When the expanded gillnet ban was implemented last year, the compensation program was supposed to support fishermen while they transition to using alternative fishing gear like trawl nets with excluders for totoaba, vaquitas and turtles. The problem is the program has no oversight. A lot of the fishermen I talked to aren’t receiving any compensation, and there are people who are collecting money from the program who aren’t even fishermen.

# Vaquita

(*Phocoena sinus*)

The vaquita is the world's smallest cetacean. Adults grow to 4 or 5 feet long and weigh about 120 pounds. Tail, fin, flippers and back are dark gray; underside is white. Distinguished by dark lip patch and eye rings. Vaquita are shy and elusive, so not much is known about their habits. They forage in shallow, turbid waters and lagoons and find prey using echolocation.



# Totoaba

(*Totoaba macdonaldi*)

The totoaba is a large fish that can grow up to 6 feet in length and can weigh up to 220 pounds. Totoaba spawn in the Colorado River Delta, which drains into the Gulf of California. The species is critically endangered due to poaching.



Vaquitas are endemic to the northern end of the Gulf of California. They are the most endangered marine mammal in the world. Fewer than 60 remain.



**WH: Is anything being done by US organizations to help protect vaquita?**

**SB:** The Association of Zoos and Aquariums (AZA), in collaboration with the federal Marine Mammal Commission, has implemented a campaign to raise awareness about the vaquita and to invest funding in vaquita conservation. And in 2016 the non-profit organization, Viva Vaquita, organized the fourth International Save the Vaquita Day to raise awareness and to collect signatures for a petition that was sent to the Mexican government. It was the largest organized vaquita event that's ever occurred, and the attention it generated may have played a big part in making the gillnet ban permanent.

World Wildlife Fund Mexico, with backing from the Marine Mammal Commission and the Southwest Fisheries Science Center, is launching a buy Vaquita-Friendly Seafood campaign, similar to the Dolphin-Safe Tuna campaign that was so effective. They hope to create a demand for responsibly sourced seafood from Mexico in the US. This is only going to work though if there is a market incentive for the fishermen to do it.

Learn more about "Souls of the Vermillion Sea" and what you can do to help the vaquita at [vaquitafilm.com](http://vaquitafilm.com).

**WH: Are there enough vaquita to get the population growing again?**

**SB:** Everybody says yes, if we can enforce the gillnet ban and if there is zero fishing activity in the region. Essentially what they're saying with this gillnet ban is that you can't fish in this region anymore. If we just let the vaquita breed for 10, 20, 30 years, yes, there's a good chance they'll make it, but they have to be left alone completely.

**WH: So why did Wild Lens choose to do a documentary about the vaquita? It sounds daunting.**

**SB:** I've worked in the marine mammal world for a long time now, primarily as a field biologist monitoring northern fur seals and Steller sea lions in Alaska and Hawaiian monk seals in the Northwest Hawaiian Islands. When I first learned about the vaquita, what I was reading wasn't really giving me any insightful information. I felt like this particular species needed more attention. And regardless of the outcome — of course, I pray that the species will make it — I wanted to tell a story where we would see a real effort to save a species unfold in real time and, hopefully, this can be a learning mechanism to address other species that might approach extinction in the future. And maybe next time we won't wait until they are just 60 animals left. My hope is that this film will show that we can do this. A lot of

people just shrug their shoulders and say, "The number is so low. What's the point?" But there are a lot of success stories of species declining to double digits that were able to come back. This is just another challenge that the human race needs to confront, and this is the story to show that it can be done.

**WH: What are your goals with the documentary? You've just released a 12-minute version. Are you planning to create a longer film?**

**SB:** We released this short film to help build awareness now. Last spring, after the survey was completed, three vaquita turned up dead, and we knew the situation was dire. And we wanted to share the film with all of the organizations that are becoming involved so they could show their constituents what the region looks like, who the people are that are involved, and how the story has evolved. We've also released a two-minute trailer in four different languages — Spanish, Cantonese, Mandarin and English. The Ocean Park Grand Aquarium in Hong Kong is using the two-minute version to raise awareness in China. We're now working on a 30-minute cut for broadcast television. And then we'll be filming through most of 2017,

including in China. After that we'll release a full feature length documentary and hit the film circuit.

**WH: What challenges have you faced in making the documentary?**

**SB:** One of the main challenges when you start a project like this is trust. You have to gain the confidence of everyone involved and show them that you mean well and that you're in it for the long haul. There are people who have dedicated their lives to researching and protecting the vaquita — scientists and conservationists — and those whose lives are being heavily impacted by this endangered porpoise — fishermen — and you want them to trust you so they will open up. The biggest challenge though is timing. And that's essentially why we've come up with this array of releases because we want to be able to tell the story while the vaquita is still on the planet and can still be saved. We want the vaquita to be a symbol of hope, not only for itself, not only for humanity, but for all species on this planet. That's the importance of a story like this; it's much greater than the vaquita. No matter what the outcome is for the vaquita, this story is something that we'll be able to look back on and say, "This was a worldwide effort to save a species." **WH**