PHOTO: VAQUITACPR

Researchers were able to capture two vaquitas; this one was released and the other died.

CONSERVATION BIOLOGY

After failed rescue effort, rare porpoise in extreme peril

Did conservationists wait too long to launch captive breeding effort for Mexico's vaquitas?

By **Elizabeth Pennisi**

Early this month, Frances Gulland's nightmare came true. For 2 years, the marine mammal veterinarian had labored with an international team to develop a last-resort plan to save the vaquita, one of the world's smallest and most endangered cetaceans. Last month, with fewer than 30 vaquitas remaining, the group put the plan into action. Gulland and 77 other experts from nine nations gathered on the shore of the Gulf of California in northern Mexico to try something unprecedented: Capture some of the porpoises, which grow to just 1.5 meters long, in a bid to breed them in captivity.

At first, the $5 million effort—named VaquitaCPR—went better than expected. The rescuers had a relatively easy time finding the little porpoises in the choppy, murky waters, with help from sensors that could pick up the animals' clicking sounds. But on 28 October, the first vaquita to be netted—a young female—had to be released after she showed dangerous signs of stress. Then, on the evening of 4 November, an adult female the team had netted and moved to a nearshore enclosure suddenly panicked and stopped breathing. "There's nothing worse than having an animal die in your hands," says Gulland, who works at The Marine Mammal Center in Sausalito, California. "The entire rescue team is heartbroken," VaquitaCPR leaders said shortly before announcing they were abandoning the effort, having decided the risk of losing another animal was too great.

It's unclear whether there will ever be a second try. But VaquitaCPR researchers say the take-home lesson for conservationists is not that they should never attempt such risky rescues, but that they shouldn't wait too long. "We should have done this in 2008," before vaquita numbers dropped to levels so perilous that even the loss of a single animal was unacceptable, says Lorenzo Rojas-Bracho, a conservation biologist at the Mexican Ministry of the Environment and Natural Resources in Ensenada, and co-leader of VaquitaCPR.

The failed rescue has also driven home another sobering point, biologists say: Unless the Mexican government can effectively enforce a ban on the fishing nets that are the major cause of vaquita deaths, there is little hope of saving the species. The VaquitaCPR cruises revealed that many of the remaining animals are "fat, healthy, and some have calves," notes Jay Barlow, a marine mammal specialist at the National Oceanic and Atmospheric Administration's (NOAA's) Southwest Fisheries Science Center in San Diego, California, who is part of the International Committee for the Recovery of the Vaquita (CIRVA), created in 1996 at the request of the Mexican government. That suggests "we just need to get the nets out" for the population to start recovering, he says.

The latest culprit is a lucrative gillnet fishery that targets the totoaba, a fish whose swim bladder fetches $20,000 per kilogram or more in Hong Kong, China, for use in Chinese medicine. After years of pressure from conservation groups, in early 2015 the Mexican government temporarily banned gillnets from vaquita waters, then made the ban permanent in 2016. Even so, fishing continued illegally and vaquita numbers continued to slide.

The trend prompted researchers to consider the rescue effort. The obstacles were huge: Vaquitas are secretive and hard to track; little is known about their biology; and porpoises in general are extremely sensitive to noise, handling, and captivity. There were also ethical and practical questions: What if the rescuers ended up harming, not helping, the population? Could the money be better spent on other conservation efforts? In the end, the team decided the situation was so dire they had to move ahead. VaquitaCPR recruited a team of veteran researchers with experience spotting and capturing marine mammals, and even enlisted the help of four dolphins trained by the U.S. Navy to do search missions.

It turned out the dolphins weren't needed. A network of acoustic monitoring buoys, managed by marine biologist Armando Jaramillo-Legorreta of Mexico's National Institute of Ecology and Climate Change in Ensenada, proved capable of leading rescuers to the vaquitas. Although some of the porpoises avoided the capture nets, others weren't so savvy, including the adult female.

"There was a moment when she seemed OK," Rojas-Bracho recalls. Then the vaquita panicked, and veterinarians rushed to release her from the pen. But after darting out, she returned at full speed, and several people jumped in and prevented the porpoise from hitting a wall. She stopped breathing and the veterinarians spent three fruitless hours trying to revive her.

Independent experts will soon review the necropsy results, which might indicate whether age or disease played a role in the death, and meet with CIRVA to discuss next steps. In the meantime, those struggling to save other dwindling species will need to do some "soul searching" and consider whether they are waiting too long to pursue captive breeding, says Barbara Taylor, a conservation biologist also at NOAA's southwest center. And governments and conservation groups are going to have to figure out better ways of keeping gillnets out of vaquita waters. "Something dramatically different has to happen," Taylor says, "if we are going to have vaquita in a year or two." ■

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