The Fall of the Vaquita Porpoise

SCED 530

Wendy Martinez

March, 26, 2023

Jacques-Yves Cousteau said “We only protect what we love, we only love what we understand, and we only understand what we are taught.” This quote resonates with me as a teacher, because I have an opportunity to teach students about the ocean and all of its living things. Students love to learn about living things, and are the “who” when discussing the future of ocean conservation. Ocean literacy tells us that the ocean and humans are inextricably interconnected, this relationship unfortunately explains the fall and near extinction of the vaquita porpoise in the Gulf of California.

NOAA’s species directory describes the vaquita as a shy member of the porpoise family with the smallest range of any whale, dolphin or porpoise. Dark circles around the eyes with a dark gray back and light belly, and a quick look at this porpoise and your heart will melt. The vaquita is only found in a section of the Gulf of California circled by the Mexican town of San Felipe. The vaquita is a small porpoise, measuring only four to five feet, most weighing from 70-100 pounds. Historically the vaquita is naturally rare due to the tiny area where it is endemic, and probably numbered somewhere near 2,500 for hundreds of thousands of years (Rojas-Bracho, 2022, 225). The first year vaquita were counted, there were an estimated 600 in the gulf. The population declined quickly due to being bycatch in gillnets intended for a neighboring species of similar size in the area called the totoaba. Many of this species would swim into gill nets cast purposed for totoaba catch, and the vaquita would drown. (NOAA Species Directory, 1985) Most recent estimates show that between seven and 15 vaquita were left in 2019, and five to 13 were counted in 2021 (West Coast International NOAA, 2022). The vaquita is the most endangered ocean mammal on the planet (Lai, n.d.).

By no fault of its own, the value of the totoaba led to the decline of the vaquita population. The fish is similar in size to the vaquita, so the gill nets used to catch it left the porpoise helpless. The totoaba is sought after because of its swim bladder alone, which are valued at $5,000 when caught and then sold for $10,000 to Chinese connoisseurs. The bladder is dried and used in traditional Chinese medicinal soups. The bladder is believed to have benefits such as vitality and longevity among other health benefits. As it turns out, the totoaba was fished to extinction in the oceans of China, so suppliers are extending territory to the US and Mexico to sustain supply of the swim bladder. (Eveleth, 2013) NOAA lists the totoaba as endangered throughout its range in the Gulf of California. The totoaba and the vaquita are considered dual species headed for extinction because gill net fishing for the sought after medicinal bladder. Porpoise.org explains, “Gill-nets are particularly dangerous because they are indiscriminate. While usually designed for a single species, large amounts of unwanted by-catch are inevitable” (*Home*, 2019).

The decline of the vaquita happened fast in extinction terms. In 1997, 567 individuals were counted. Porpoise.org claims that the decline accelerated to 90% between the years of 2011 and 2016 when the porpoise was most often victim to drowning in gill nets (*Home*, 2019). The Gulf Of California is a long, narrow gulf mostly surrounded by Mexican land. There isn't an open ocean nearby for the animal to retreat to. In response to the rapid decline of the species, “the Mexican government announced a two-year ban on gill-net fishing in the vaquita habitat, to be enforced by the Mexican navy” in April of 2015 (*Home*, 2019). This ban was made permanent in 2016, but the illegal fishing trade continued as if there was no ban in place at all. In the documentary,

“Sea of Shadows” from National Geographic and Leonardo DiCaprio, the black market for totoaba and the illegal fishing massacre of the vaquita is described in brutal detail. The Mexican fisherman seeking this prized fish describe how a single bladder can feed and clothe their families for years. This is an extinction that is 100% human caused, and is economic in nature (Ladkani, 2019).

Fig. 1. Vaquita pair in front of a shrimp fishing boat setting gillnets within the Zero Tolerance Area in 2019.

As illustrated in the image and caption above, a zero tolerance gillnet rule imposed by the Mexican government remains anything but enforced in the Gulf of California. In a study by Rojas-Bracho in 2019 and 2020, researchers explained that there were days when research vessels were unable to count the species because there were too many illegal fishing vessels operating in broad daylight. The cartel influence in totaoba trade, illegal fishing and removal of acoustic detectors make the conservation of the vaquita increasingly difficult (Rojas-Bracho, 2022, 226). An effort to captively breed the vaquita in an effort to save the species went terribly wrong for

scientists in 2017. An effort was made by the organization Vaquita CPR, who gathered a 67 person team along with 4 US Navy dolphins trained to herd using sonar. The team managed to capture two vaquita. One, a calf, was released immediately due to stress. The second, an adult female, died in captivity before it could be released (Fitzner, 2022). This failure and heartbreak was too much to tolerate, and ended the captive breeding program immediately. So little is known of this small porpoise, but most agree that it is an extremely shy and elusive animal, who avoids contact and vessels. This was strike two for the conservations of the vaquita, a ban on gillnet fishing being ignored, followed by the failure of a captive breeding program.

The most recent numbers in a study titled, “More vaquita porpoises survive than expected” give a small dose of hope to the effort to save the vaquita from extinction. While the study starts out to describe that the species was declining by 47% a year in 2018, it goes on to conclude that the remaining vaquita are both calving and healthy, and possibly learning to avoid entanglement. The study details the still increasing gillnetting in the area, yet somehow the population of vaquita is holding steady. The experts involved in the survey found both good news and bad. The bad news is that, “Through expert elicitation, we estimated between 7 and 15 unique individuals were seen in 2019 and 5−13 were seen in 2021” (Rojas-Bracho, 2022, 229). The good news is, “Calves were seen in both years, and all vaquitas appeared healthy” (Rojas-Bracho, 2022, 232). Unfortunately however the authors contend that is illegal fishing in this small bay near San Felipe, Mexico does not end, the population will continue to decline. Moreover should their acoustic monitoring equipment continue to be stolen, researchers will no longer be able to feasibly count and monitor the vaquita.

In 2007 and 2008 researchers set out to study continued illegal poaching of sea turtles for consumption in Baja California Sur, Mexico. They found that, “Despite complete legal protection, improvements in infrastructure, and market conditions that provide easier access to other protein sources,” illegal poaching continued, and remains a major threat to the recovery of this species (Mancini, 2011, 743). In a series of interviews conducted with poachers from local Baja communities, researchers were unsurprised by the reasons why poachers continued this practice. In summary, it was found that, “The most prevalent reasons for illegal poaching were direct economic benefits, lack of law enforcement and ease of escape from or bribery of authorities, and strong family tradition” (Mancini, 2011, 743). The authors found that without enforcement of the ban on taking sea turtles for food, and unless social acceptance of this practice was reduced, it is likely that the tradition will continue. Mancini and others found that economics and tradition were strong forces, and would continue the killing of endangered sea turtles.

A similar story is playing out in the adjacent Gulf of California, and it has led to only a dozen or so of the vaquita left on our planet. The fall and near extinction of the vaquita porpoise has less to do with Mexican culture and tradition than the continued poaching practice described with sea turtles. This near extinction is a result of vaquita being bycatch in gillnets which are set out to grab money, tens of thousands of dollars accessible every time nets pull in totoaba. This amount of money positively changes the lives of illegal fishermen in the vicinity of San Felipe, Mexico. Mexican officials have all but given up completely on enforcing any ban on gill nets in recent months.

When Jacques-Yves Cousteau said “We only protect what we love, we only love what we understand, and we only understand what we are taught” it seems that there are important verbs to be pulled out of this statement. Protect, love, understand, and taught (teach) are powerful actions within this idea. In order to understand what is happening with regard to the decline of endangered species on our planet. The Ocean Literacy handbook is an important publication from various experts in the sciences to describe the basics of what one needs to know to understand the importance of our world ocean. The principle that sticks out in the fall if the vaquita reads, “the ocean and humans are inextricably interconnected” (NOAA, Nat Geo, Sea Grant, 2021). It is quite obvious that if humans did not walk or sail the planet in the region of San Felipe Mexico or the Gulf of California the vaquita porpoise would still be in great numbers, in the thousands in that region.

Please forgive the large quote from the human interconnectedness page of Ocean Literacy, “Humans affect the ocean in a variety of ways. Laws, regulations, and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution (point source, nonpoint source, and noise pollution), changes to ocean chemistry (ocean acidification), and physical modifications (changes to beaches, shores, and rivers). In addition, humans have removed most of the large vertebrates from the ocean” (NOAA, Nat Geo, Sea Grant, 2021). This says it all, we have removed most of the large vertebrates from the ocean; humans have. If laws and regulations were honored in Baja California, Mexico and surrounding waters, would we be losing species at alarming speed?

There is hope on the horizon, as stated above in the study where vaquita may actually be learning how to avoid nets in water, and are still reproducing in the midst of hardship. These small glimpses of hope keep the feeling of progress alive. Information leading us to loving what we understand is the first step to guide others into action. It is very difficult to influence other countries and cultures, but information is all we have for now. “Everyone is responsible for caring for the ocean,” says ocean literacy. If buy in can come from the generation in school currently, maybe more will come out to protect that they love.

References

Eveleth, R. (2013, April 26). *Fish Bladders Are Actually a Thing People Smuggle, And They're Worth a Lot of Money*. Smithsonian Magazine. Retrieved March 25, 2023, from https://www.smithsonianmag.com/smart-news/fish-bladders-are-actually-a-thing-people-smuggle-and-theyre-worth-a-lot-of-money-43006353/

Fitzner, Z. (2022). *Verge of Extinction: How Efforts to Save the Vaquita Backfired*. Earth.com -- Earth News, Earth Images, Earth Videos, Earth Knowledge. Retrieved March 21, 2023, from http://www.earth.com

Home. (2019, April 11). YouTube. Retrieved March 26, 2023, from https://porpoise.org/save-the-vaquita/?gclid=EAIaIQobChMIgN7u_Yv6_QIVryCtBh2uiQheEAAYASAAEgJuIPD_BwE

Ladkani, R. (Director). (2019). *Sea of Shadows* [Film]. National Geographic.

Lai, O. (n.d.). *11 of the Most Endangered Species in the Ocean in 2023*. Earth.Org. Retrieved March 22, 2023, from https://earth.org/endangered-species-in-the-ocean/

Mancini, A. (2011, 12). To Poach or Not to Poach an Endangered Species. *ASU Elsevier*, *Human Ecology*(39), 14. https://asu.pure.elsevier.com/en/publications/to-poach-or-not-to-poach-an-endangered-species-elucidating-the-ec

NOAA, Nat Geo, Sea Grant. (2021, May). *Ocean Literacy* (3.1). Retrieved 03 01, 2023, from https://aambpublicoceanservice.blob.core.windows.net/oceanserviceprod/education/literacy/OceanLiteracy_ENG_V3.1_2021-1.pdf

NOAA Species Directory. (1985, February 8). *Vaquita*. NOAA Fisheries. Retrieved March 18, 2023, from https://www.fisheries.noaa.gov/species/vaquita

Rojas-Bracho, L. (2022, July 28). More vaquita porpoises survive than expected. *Endangered Species Research*, *48*, 225-235.

West Coast International NOAA. (2022, July 28). *Survivor Vaquita Porpoises Escape Extinction Longer Than Expected*. NOAA Fisheries. Retrieved March 21, 2023, from

https://www.fisheries.noaa.gov/feature-story/survivor-vaquita-porpoises-escape-extinction-longer-expected