

VAQUITA EXPEDITION 2008

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BUOY LAUNCHING AND VISUAL SURVEYS

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BARBARA TAYLOR



“We made a trip into the Gulf; sometimes we dignified it by calling it an expedition. Once it was called the Sea of Cortez, and that is a better-sounding and a more exciting name.”

The Sea of Cortez, or Gulf of California, is a long, narrow, highly dangerous body of water. It is subject to sudden and vicious storms of great intensity.”

John Steinbeck, Sea of Cortez

A leisurely Journal of Travel and Research, 1941

We normally refer to our at sea research as a “cruise”. Our cruises are not to be confused with luxury cruises though we all thoroughly enjoy our work. We dignified this “trip into the Gulf” with the title of Expedition because of its importance to providing the best scientific data possible to Mexico to continue its management efforts for vaquita. Expedición and Expedition also capture the international effort between Mexico and her sister countries in North America that share efforts to conserve species: the U.S. and Canada. In fact, this report coincides with the launch of the North American Conservation Action Plan, a collaborative effort by all three countries to conserve species of mutual concern.



Rugged land and rugged sea.



The buoy launchings are a smooth routine operation by the Jordan's able deck crew.

The “*storm of great intensity*” abated and the sea calmed to a lake with no hint of her hidden power. Nearly a week after we had hoped to begin our surveys, we finally start cruising down our track lines in the sea that will, we hope, allow us to better determine the status of the vaquita. We are repeating our visual line transect survey of 1997 as closely as possible following in our previously mapped tracks. In the early part of the week, we launch our remaining 3 buoys at dawn and dusk at the western, southern and northern boundaries of the vaquita reserve. The porpoise detectors will record data until we retrieve them towards the end of this first part of the cruise. The launchings are now a smooth routine operation by our able deck crew. The last buoy is named “Annette” for our survey coordinator, Annette Henry. Annette has poured her heart and soul into this expedition and is largely responsible for putting our buoy assembly together.

Abundance estimation of mammals in the sea is made easier by their compulsory need to surface for air. Still, these animals lead most of their lives below water and allow us only tiny glimpses of their bodies and their lives. For the smallest marine porpoise, this glimpse is fleeting indeed. The scientist's job is to detect a tiny triangle with a rolling motion from out of the millions of triangles presented by the seas' waves. We do this using huge binoculars called “big eyes” that allow us to see miles ahead of the ship. Vaquita, however, are so small that we usually get to see only a few rolls of their distinctive triangular dorsal fin at a relatively close range and then only if the seas are glassy or nearly so. Conditions must be so perfect that we plan our expedition to last nearly two months in hopes of a few weeks of acceptable porpoise-viewing weather.

We spend a few days surveying the transect lines closest to San Felipe. In the area between San Felipe and the vaquita reserve, we observe hundreds of fishermen in their twenty-foot-long open boats, called pangas, putting out nets to catch the valuable blue shrimp that also live in this rich sea. This year's shrimp season differs from any previous time by the presence of enforcement agents keeping the vaquita reserve gillnet free. Shrimp



Shrimp trawler on its way back into San Felipe at sunset.



Very young killer whale calf, separated from its mother and swimming alone just off San Felipe.



Anna Hall learns the recording position rapidly as vaquita sightings come fast and furious.

are caught both by nets from pangas and also by the more traditional trawlers that drag a heavy net across the sea floor. Our tracklines take us up to the border of the reserve so we get a good view of this new concentrated area of panga fishing outside the reserve. Trawlers are present throughout the area but in far greater numbers outside the reserve.

Near San Felipe we spot what is clearly an animal in trouble swimming in toward shore among the pangas. We launch our small boat to see whether it is an entangled animal, as whatever it is seems to be struggling to swim. We find a very young killer whale swimming feebly and all alone. The calf appears exhausted. Who knows how this individual became separated from its mother and group, but it cannot survive alone. We leave the young whale with Mexican researchers and later learn of its death.

I remember clearly the perfect porpoise day from 1997 when we spotted about a quarter of the porpoise seen in the entire two-month period in a few hours. The water surface was like glass allowing observers to see each ripple made as the porpoise broke the surface. A “group” of porpoise is defined as animals swimming closely together, usually less than a body-length apart. Like many other porpoise, group size averages only two. And, also like other porpoise, the distribution tends to be clumped. Whether the patchy distribution results from feeding on common prey or because the animals are loosely associated in a dispersed school is unknown but the result is frenzy for the scientists. The combination of four observers on big-eyes and a single scientist at the computer recording angles, distances, numbers of animals, and what the vaquita are doing, with the general excitement of seeing such a rare species, makes the flying bridge an area of high energy and intensity.

Even though we are only on our third day of visual observation, with some observers just learning our computer system to record sightings, we get the perfect porpoise day. October 18, on glassy seas, we cruise into the center of the area known from past surveys to have the highest density of vaquita



Sarah Mesnick and Jay Barlow scan for vaquita through “big eye” binoculars.



Ernesto (vaquita-) Vásquez scans for the last vaquita sighting at the end of what is for marine mammal biologists a perfect, perfect day.

and find vaquita in all directions. Not long after, the first shout of “I think I have vaquita” by veteran observer Bob Pitman, similar shouts come from the other observers as well. One, two, three ... up to five vaquita, are sighted together in tight clusters. They surface briefly, all that is visible is a bit of their backs and the dorsal fin. They hardly move the water at all, only once all day did we see even a splash, they dive and are gone again. Throughout the afternoon, from 1pm to after sunset, we continue to spot glimpses of vaquita, the longest sightings still lasting only several seconds.

Everyone pitches in to help record this amazing event. Crew and officers get to see a few vaquita speeding away from our vessel. Everyone is thrilled. Viva vaquita...they survive in numbers that give us hope. As the day fades into the warm October light of the Sea of Cortez no one wants to leave the flying bridge and let the day end. We call our counterparts on the other parts of the project: the *Vaquita Express* had vaquita swimming near them today as well. Colleagues on an independent photo boat got excellent pictures. The next day brings luck to the *Koipai* with vaquita near their boat. Their captain who has been a trawler captain here for 40 years sees his first vaquita. How fortunate we all are.

The weather holds for several more days and we get much of our needed trackline completed in good conditions. Although we see a few more vaquita, we see no vaquita in the northern part of our study area where they were fairly common in 1997. We do, however, see a few in more southern areas, areas where they were also seen in 1997. Only the completion of the Expedition will allow us to make an updated estimate of vaquita abundance based on both the vaquita perfect day and the other days with few to no vaquita. The addition of the acoustic component will enlighten the snapshots we get on visual survey.

Following our fine weather, the Sea of Cortez brought forth another *sudden and vicious storm of great intensity*. This time the winds and our spirits are high with the understanding that every aspect of our trip, dignified into a vaquita expedition, will be a

success and provide information Mexico feels is critical in its management of this rare species.

The storm is followed by another period of fine weather that allows us to complete our primary tracklines. We also retrieve the acoustic devices from the buoys and relocate two of the bouys further east into the areas of highest vaquita concentrations. Although it is too early for any interpretation of the data, we do know that we did detect vaquita. We hope to get acoustic sampling using the autonomous porpoise detectors in area with different vaquita densities. Using the visual data and the acoustic detection rates corresponding to different densities we will be able to design a monitoring scheme.



The full complement of observers at work on the flying bridge.

The data for Leg 1 of Vaquita Expedition 2008 from NOAA Ship *David Starr Jordan*:

	Kilometers of effort	No. of sightings	Sightings per 1000 km
Total	882.6	162	183.54
By sea state (Beaufort)			
0	30.1	19	631.33
1	377.6	91	240.97
2	366.7	47	128.17
3	108.1	5	46.24

Species recorded:

Phocoena sinus
Tursiops truncatus
Balaenoptera sp.
 unid. dolphin
Balaenoptera physalus
Balaenoptera edeni
Delphinus sp.
Orcinus orca
Megaptera novaeangliae
 unid. medium delphinid
 unid. large delphinid
Pseudorca crassidens
 unid. cetacean
 unid. small delphinid