Southwest Fisheries Science Center, NOAA Fisheries
Instituto Nacional de Ecología, SEMARNAT

VAQUITA EXPEDITION 2008

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Captain Juan 23, Jose Arce and the Koipai Yú-Xá

Koipai Yú-Xá Report

13 - 27 October 2008

Armando Jaramillo-Legorreta

We had adverse weather conditions that prevented us from performing any field work from Oct 11th -17th. The Jordan reported 45 knot winds, making it impossible for the Koipai to navigate safely. We used this off time to do some maintenance to the boat, and set up all the acoustic and visual equipment. We also had some training on the use of the new Rainbow Click detector from the inventor and experts.

On Oct 15th we met with the entire team of acoustics experts, just before they left our country the next day. We presented results from our past 11 research years, using the porpoise box (designed by International Fund for Animal Welfare). Also, the acousticians presented their ideas about the new autonomous acoustic equipment detect porpoise, which were tested on the Jordan during the past bad weather days. The visiting researchers made recommendations for the future work during this cruise to gather data that will allow the best design for the Vaquita Monitoring System.

On Oct 18th we headed out as the strong winds turned to a light breeze, with a subsequent increase in the air temperature. Our work consisted in setting anchor in different points in the study area, as we have done for the past ten years, and then trying to complete at least 12 hours listening with the acoustic equipment. When anchored and listening for vaquita, the ship's engine was turned off, and we used the electric generator only when needed

The Koipai Yú-Xá. on its departure from Puerto Peñasco to San Felipe to start the Survey

One of the surveillance boats from PROFEPA.

Captain Juán 23 and José Arce "El Güero" holding the hydrophones for Rainbow and Porpoise detectors.

to charge the battery. These batteries provided us with 120V that allow us to operate the computers and all the other scientific equipment. Our survey was conducted using the Rainbow Click Detector and the Porpoise Box. Later we added the C-pod and the T-pod, in stations 6, 7 and 8.

Fig 1 shows our survey stations, with a total of 118.1 hours of effort. We are still analyzing all the collected information, but we can say that at least 3 vaquita groups were acoustically detected, all of them inside the Alto Golfo Biosphere Reserve, although we did survey south and outside of this area. On table I is a list of hours of effort by station and the station's geographic location.

On Oct 21, at sunset, we detected a group of five vaquitas when we were in transit to station #5. In fact, this sighting occurred one nautical mile southeast of that station. This sighting was an unprecedented 50 minutes duration. The vaquitas were diving repeatedly in a relatively small area apparently feeding. We also detected a fish school in their vicinity, reinforcing this assumption. The porpoises were not disturbed by the boat but this event ended because of sunset. The group included a cow/calf pair. We had these porpoises as close as 30 meters.

The same night, at station #5, we had 3 acoustic detections. They took place during the night, as an indication of a high concentration of vaquitas. On the 26th, heading to station #6, we saw a group of around 30 bottlenose dolphins (*Tursiops truncatus*). Close to this group we found another group of 3 vaquitas. This group was more shy than the one we had the night before, and it was impossible to approach them closer than 100 meters. We lost them 30 minutes later.

Station #7 was located half mile away from buoy #3. The Koipai personnel were in charge of recovering the C-pod package attached to this buoy. It was easy to get this equipment out of the water with the help of the panga that we are towing for this purpose. The C-pod was taken to the Koipai to download the information collected, and to reset it for the next deployment. The downloaded data from this C-pod represented 3 hours and 18 minutes, although this buoy was working for more than a week.

All these recordings will be send to Nick Tregenza for further analysis.

In general, the zones where acoustic detections of vaquita occurred correspond to the area previously identified as the Hotspot for porpoise concentration. With all this information for the first part of the cruise we can confirm that vaquitas still exist in the Upper Gulf of California, that reproduction is taking place, and that their distribution has not changed.

From Oct 28th to Nov 5th there will be brief break in which we will rest, backup all the collected information, plan the next part of the survey and make the necessary changes in our methodology and equipment. On Nov 6th the Koipai will resume operations. We look forward to cover stations that were left during the first part of this cruise, but also collect more data from the stations that we already surveyed.

Computers deck aboard Koipai showing the electronics of Rainbow and Click detectors and computers running the software.

A couple of vaquitas during the amazing sighting on October 21st.

"El Vaquero Cárdenas" and Güero Smith on the Koipai´s flying bridge during the October 21st sighting.

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Tabla I. Desription of effort Turing the first part of the Vaquita Expedition 2008.

Station	Date	Time	Latitude	Longitude	Effort (h)	Enounters
1	18/oct/2008	18:11	31°07.10’	114°38.00’	19.6	2 probable
2	19/oct/2008	21:32	31°14.57’	114°35.20’	14.6	
3	20/oct/2008	15:39	30°51.05’	114°30.00’	16.1	
4	21/oct/2008	09:36	30°57.95’	114°38.20’	4.4	
5	21/oct/2008	18:58	31°07.33’	114°31.60’	11.6	3 verified 2
6	24/oct/2008	18:09	31°14.85’	114°30.20’	20.5	1 probable
7	25/oct/2008	17:46	31°18.83’	114°37.30’	19.8	
8	26/oct/2008	15:48	31°02.14’	114°39.80’	11.5	

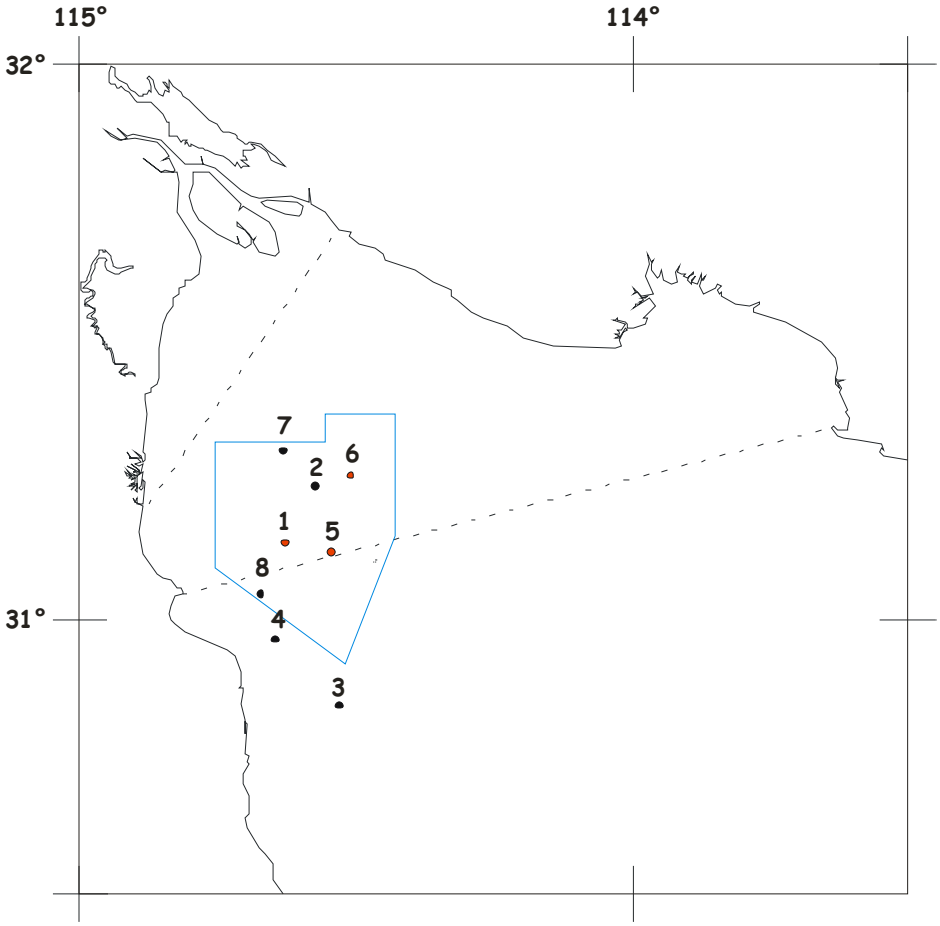

Figura 1. *The study area showing the limits of the Biosphere Reserve of the Upper Gulf of California and Delta of the Colorado River (dashed lines; nuclear zone in the north and the buffer zone in the Routh) and the Vaquita refuge (the blue polygon). The points represent the Koipai sampling stations (the numbers correspond to those in Table 1). The points in red mark the stations in which vaquita were detected.*