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

VAQUITA EXPEDITION 2008

CHIEF SCIENTISTS:
Barbara Taylor
Lorenzo Rojas-Bracho

CRUISE LEADER:
Shannon Rankin

SURVEY COORDINATOR:
Annette Henry

SCIENTISTS:
René SWIFT

COLLABORATORS:
Jonathan Gordon
Tom Akamatsu
Satoko Kimura

VESSEL:
Captain Rodrigo Olson of the Corsair

Scientist René Swift and Captain Rodrigo Olson on the Vaquita Express!

CORSAIR REPORT

03 October 2008

Shannon Rankin

Our team on the *Vaquita Express* is finishing up two weeks of trials in the waters off San Felipe, Mexico. Of the three vessels that make up the Vaquita Expedition, our 24 foot trimaran sailboat is the wild card of the group. The NOAA ship *David Starr Jordan* will arrive in the upcoming week with a full complement of experienced visual observers, and the *Koipai* has been conducting acoustic surveys for vaquita since its christening. Meanwhile, our little *Vaquita Express* is a newcomer to these waters, and to the world of marine science research. While our methods of using an array of towed hydrophones to detect porpoise echolocation clicks have been used successfully in the past, this extra few weeks was critical to see how well we could use these methods on this vessel, in these waters, to listen for this particular porpoise.

The first issue we had to conquer was the logistics of powering our electronic equipment on a small sailing vessel. Without the benefit of 110v AC power, we first had to modify our computer equipment to run off 12v batteries. This is a rather simple task, as most of these components require AC Adaptors to run off typical wall sockets. By simply removing these big boxy units on the power supply cables, we were able to connect the power directly to our 12v batteries.

A more complicated problem was power consumption. Our electronic setup required two large marine batteries, each weighing in at over 60 lbs. As much as we loved hauling these batteries back and forth between the boat and the charger at home, we were nonetheless relieved when our 60 watt solar panel arrived. If there is one thing in the world that San Felipe has to spare, it is sunshine. A typical 24 foot sailboat would not have enough deck space for mounting a solar panel that would suit our needs; however, a trimaran offers exceptional surface area on the 'trampolines' that stretch between the main hull and the pontoons. We are now self-sufficient: the solar panels stretch out on the sunny windward side of the boat, while we stretch out in the shade of the sails.

The hydrophone array (gold tube) and solar panel, side by side on the trampoline.

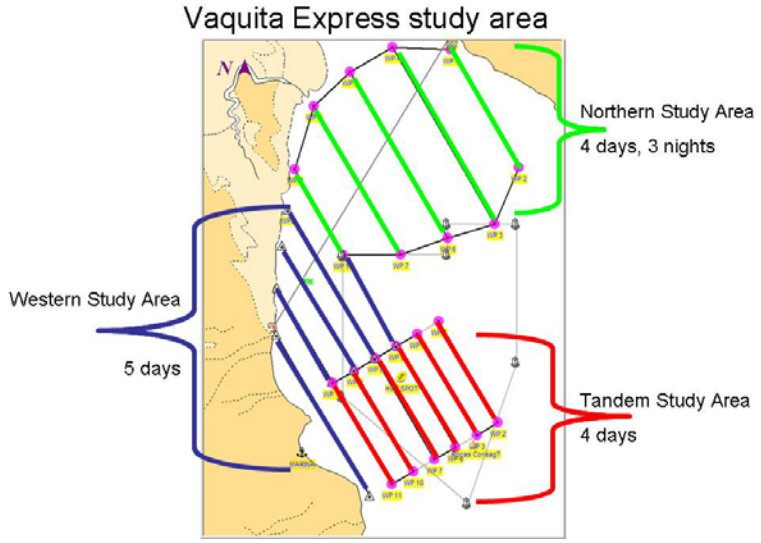
Once we had our equipment up and running, we could focus on getting to know our new study area. We knew from previous reports that the winds were typically low in the upper Gulf of California, and this is one of the reasons this particular lightweight sailboat was chosen for this mission. If there is wind, even a little, she can sail. How *well* she can sail will depend on the local conditions, and we needed to understand our limitations before we could design our survey transect lines for studying vaquita. Typical surveys maintain a straight line and a constant speed, which is not a problem for motorized vessels. Will we be able to accomplish similar survey methods?

Electronic setup in the cabin of the Corsair.

Our first lesson is that an accurate weather forecast requires you to open up your eyes and look around. We found some fantastic online weather sites for large-scale weather conditions, such as hurricanes. But for local conditions, it is difficult to predict what you will get from one hour to the next. For our first week, the winds might begin very light and from the north, picking up to 10-15 knots and from the east/southeast by mid-day, and then decreasing again in the afternoon. During the second week, the trends were similar, but perhaps with a little more wind for more of the day (which is helpful for sailing). Unfortunately, these were general trends, and conditions would change hour-by-hour. Nonetheless, Rodrigo and I decided on series of lines that would allow us to survey the area under sail in most of the conditions we had encountered to date.

And so tracklines were designed around this pattern, assuming a southerly transect in the morning when the winds were out of the north, and a northerly transect in the afternoons when the winds have shifted to the southeast.

During this two week training period, we learned that we could most definitely achieve our goals with a little flexibility for wind conditions. Since we are shore-based, we have rather long transits to/from our survey tracklines. Winds tend to be low while we are in transit, and we make up for this by running many of our transits under outboard power. As long as we have 6 knots of wind we are able to maintain enough speed to tow the hydrophones and conduct our surveys. With the exception of the northern study area, we are able to complete all survey transect lines during daytrips. The northern study area requires a full day of transit in either direction, and we have plans to complete this during a 4 day 'camping' trip. This trip was planned for October 5-8, but as of this writing it had to be postponed. Our new plans for next week include a mass bombardment of our home and research quarters by the group of collaborating acousticians from around the globe that are assisting on this project. Stay tuned for more information from these meetings!



After two weeks of tests, our trackline design reflects the local weather conditions.