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VAQUITA UPDATE DURING THE PANDEMIC

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Introduction

Needless to say, we were forced to delay our work with vaquita. The communities of the Upper Gulf were heavily hit by the pandemic. And on July 31 2020, World Ranger Day, Paco Valverde, sole ranger of the Vaquita Protection Refuge in Mexico's Upper Gulf of California succumbed to COVID-19. Paco is irreplaceable and indispensable.

Despite the circumstances (lockdown, etc.) we did our best to keep the work going.

Vaquita monitoring

Acoustic effort

As we reported last year in 2019, we faced a massive loss of acoustic detectors to illegal fishing activities. This loss coupled with the severe pandemic situation caused us to pause the 2020 effort to monitor vaquita.

We tested sampling during a neap tide period. Fishing effort is reduced when the lack of tidal currents makes gillnet use inefficient. Past equipment was lost due to theft when fishing effort was high. The trial was successful. Because illegal fishing activity was known to be high during the pandemic, it was especially important to confirm the continued presence of this species. We sampled during the long neap tide period of September 8-12.

To counter the reduced probabilities to detect vaquitas because of reduced numbers of vaquitas compared to previous years, we augmented the number of acoustic detectors. The detector in the center corresponded with a regular sampling site used since 2011, and six more detectors surrounded regular detector spaced by approximately 1 Km, a distance below the detection threshold estimated for vaquitas using C-POD acoustic detectors.

In summary:

- We selected four sampling sites, characterized by high levels of acoustic activity since 2011. Three of the sites were inside Zero Tolerance Area and one just outside.
- Acoustic detections were confirmed in two of the sampling areas.

- Detections were made in 3 detectors in one area and 2 in the other.
- Without the augmented pattern, only one area would have had vaquitas (i.e. had a detection in the center position).
- The chronology of detections appears to indicate movements between detection sites.

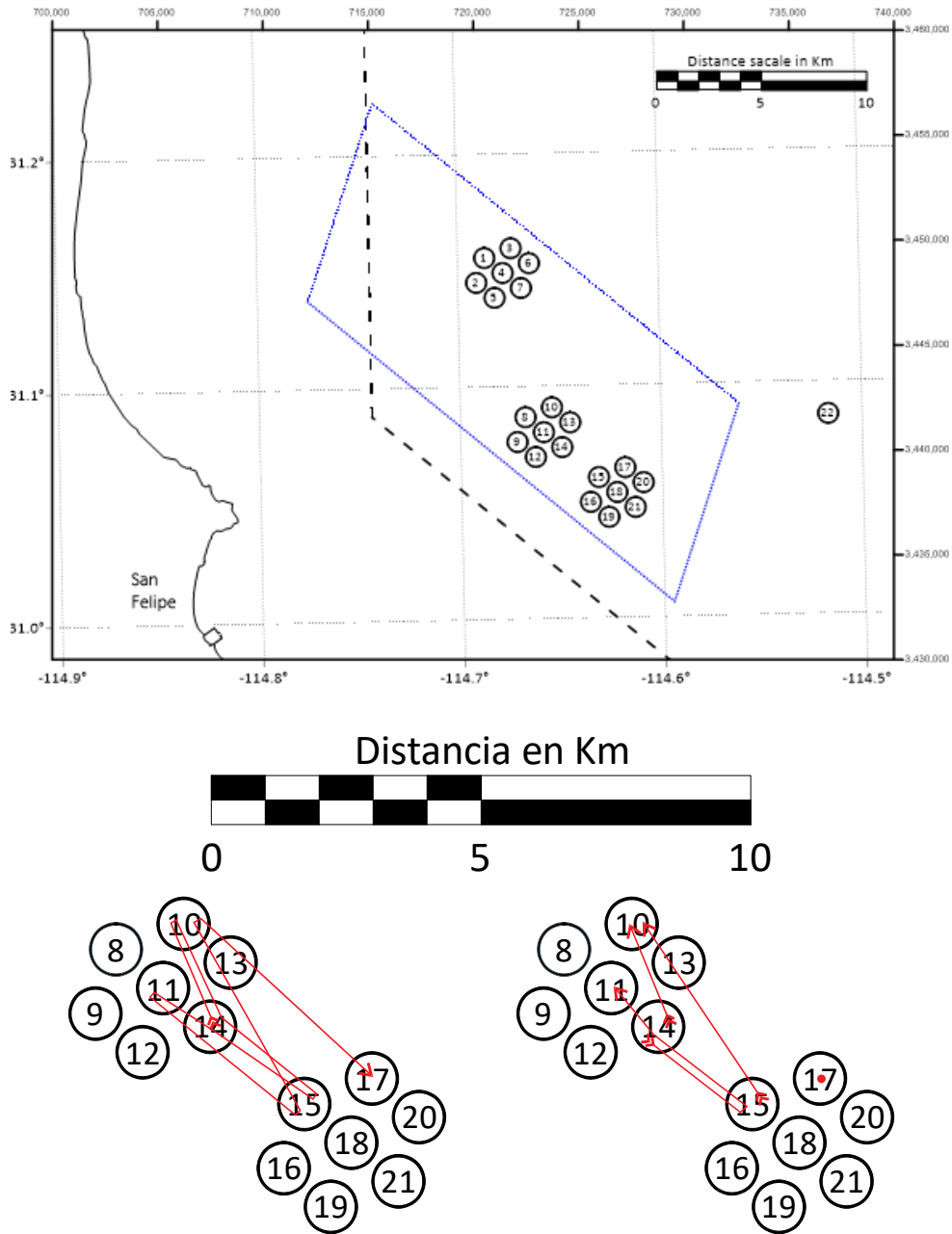


Fig. 1. Acoustic sampling scheme for 2020 (top) and acoustic detections with potential movements of vaquitas between sampling sites.

Economic hardship and lack of alternative livelihoods in the region, makes it probable that the 2021 acoustic sampling period will occur in the middle of significant fishing effort. As such, sampling during neap tide periods could be the only option to gather acoustic information on the status of the species.

Anticipating this scenario, we are prepared to return to the use of moorings with no surface buoys. Such deployment was used between 2011 and 2014 and required more time and resources. Activities must start in June, and the sampling strategy we use will depend on the occurrence of fishing activities.

The use of a formation of seven detectors per sampling site could be used in areas of known high acoustic activity, if fishing activities are low and probabilities to losing equipment are expected to be reasonably reduced.

Visual effort

In a joint effort with the National Commission for Natural Protected Areas (CONANP), the SSCS sponsored a small visual effort from November 8-23 with only two of the observers that have participated in many of the vaquita surveys, Ernesto Vázquez and Chris Hoeffler. We only had seven days, with only 32 hours of effective search under acceptable conditions (Beaufort 1-3). Observers managed to observe vaquitas on two occasions. Mention should be made that SSCS counted 1108 pangas fishing for shrimp in October.

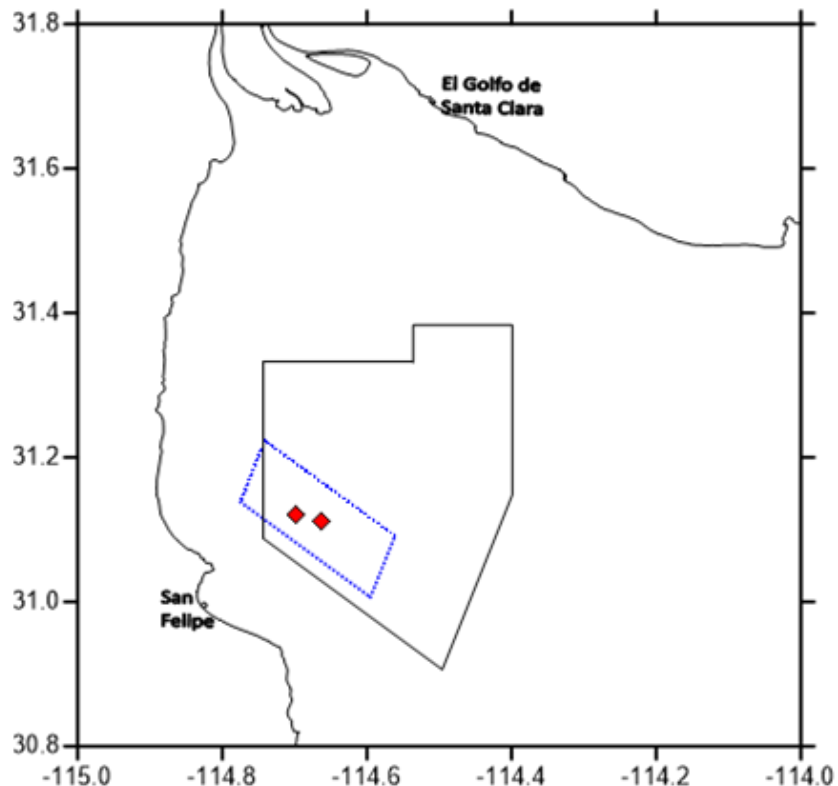


Fig. 2. Vaquita sightings on November 17 and 23.

The first sighting was on November 13 (31°07.257' N; 114°41.878' W). There were two animals, probably three, but it was not possible to follow the animals long enough to confirm it. The second sighting was on the 23rd (31° 06.698' N; 114°39.796' W) with two animals, which could be observed on several occasions. Mention should be made that both sightings were in the same area where vaquitas were detected acoustically, in September.

Despite a continued fishing effort in the Upper Gulf vaquitas were present in Summer and late Autumn.

Expert Elicitation workshop

Last year we reported that we would have a workshop on expert elicitation to better estimate numbers of unique vaquitas and calves seen within the area of highest vaquita density (SC/68B/SM/08). The results of the virtual workshop are available in the CSG webpage (link) and as For Info (xxxx).

As mentioned above, since 2019 acoustic monitoring to assess trends in abundance has not been possible because so much equipment has been stolen. With so few vaquitas remaining, a two-ship effort in October 2019 was launched in hopes of obtaining sufficient photographically identified vaquita individuals to use mark-recapture methods to estimate vaquita numbers. Although there were 7 encounters with vaquita groups, surviving vaquitas are so wary and hard to approach that insufficient numbers of high-quality photographs were obtained for the analysis. Therefore, this new approach was adopted, utilizing expert elicitation to obtain the best available estimate of the number of vaquitas seen. A workshop was held in August 2020, and included all observers who participated in the vessel-based field survey in October 2019, and was led by researchers at St. Andrews University. The report summarizes results from 3 different expert elicitation methods: Structured Expert Decision Making (SEDM), Expert Elicitation using the Roulette method (EE-Roulette) and Expert Elicitation using the Rational Impartial Observer method (EE-RIO). and. Using the latter, the results of the expert elicitation exercise found that the mean estimated number of calves seen was 3.1 with a 73% belief that there were at least 3 calves (Figure 3). The mean estimate for the number of unique vaquitas seen in all 7 sightings was 10.4 with 66% belief that there were at least 10 (Figure 3).

We would like to thank to the funders of the research and analysis: Museo de la Ballena, Sea Shepherd Conservation Society and an anonymous donor.

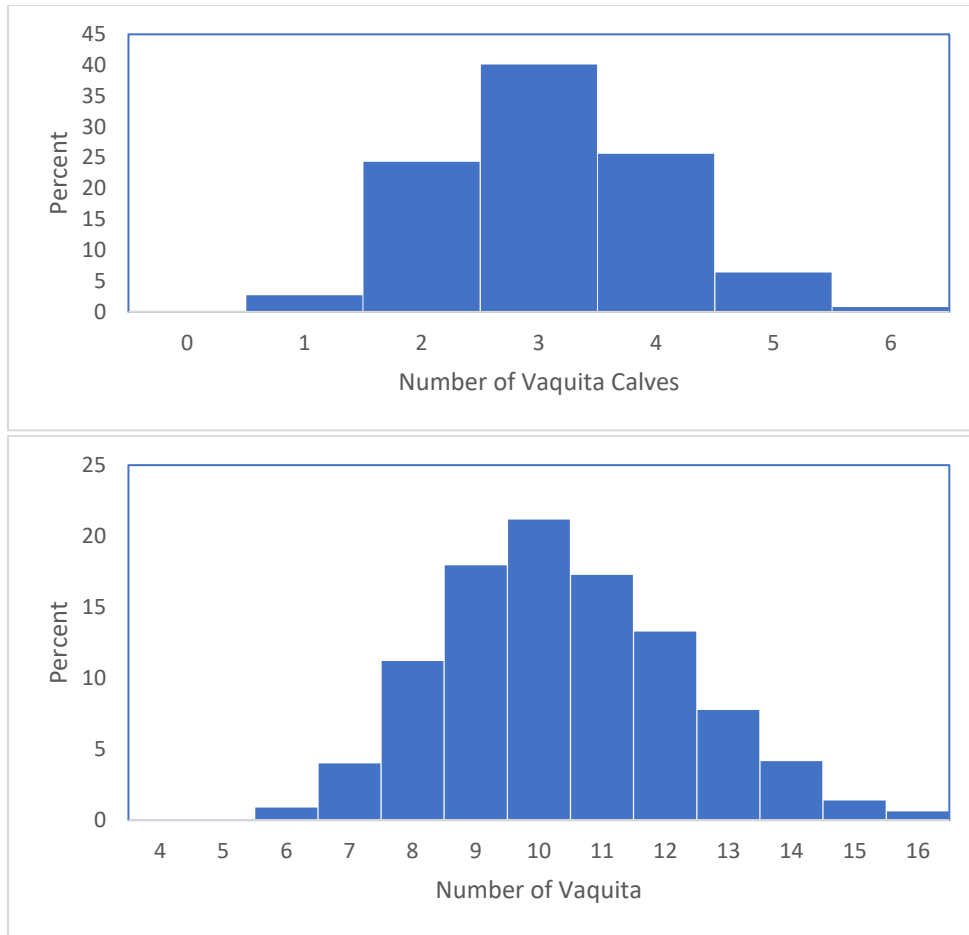


Figure 3. Top The distribution for the number of unique calves. Bottom The distribution for the number of unique vaquitas including calves.