

## Investigating Cetacean Diversity in El Salvador: A “Training-While-Doing” Approach to Aid Conservation and Management of Threatened Coastal Populations

### Abstract

Whilst cetacean research grew worldwide, El Salvador was in the midst of civil war, and still little is known of cetacean presence. Coastal populations are likely threatened by intense anthropogenic activities of fisheries, shipping and uncontrolled tourism. Fundamental information on cetacean abundance and distribution is critical for effective management. I am part of a team undertaking the first dedicated cetacean surveying along the entire Salvadorian coastline, which involves boat trips along the coast using a survey design of transects. At the same time, we are training local biologists in cetacean surveying to aid in their career development as cetacean researchers. This will provide vital baseline data on cetacean presence for efficient population management and threat mitigation, whilst simultaneously building local capacity to ensure continued research. I have also been part of workshops to help train whale watching guides and captains in cetacean biology and good practices in whale watching. This year we will also be doing classes in local schools and asking children to help us name the humpback whales that we have photo-identified in the country’s waters, and teaching classes about whales and dolphins. I am just a small piece of the jigsaw of the development of cetacean research in the country, and I feel very fortunate to be part of this work in El Salvador.

### Progress in 2021

Having received funding from the Rufford Foundation in January 2020, our field work and community work has been majorly limited during the following 21 months due to the worldwide pandemic. However, I really am so amazed at everything that has been achieved even during such times of global difficulties, and so grateful for everything the grant has enabled us to do already.

### Cetacean Surveys

Our study involves research along Salvadorean Pacific coast to investigate cetacean presence and abundance. The study design involves 21 transects (Fig. 1) running the entire length of the coast and stretching out from 23 – 52 km.

In February 2020, we were able to complete nine of the transects before the pandemic hit. We also trained five biologists and collected data on four species of cetaceans. In 2021, we were not able to continue with the transect work as it involved extensive travel. However, due to improved freedoms and more limited restrictions we hope to be completing the surveys in February 2022. We are very excited to finally be able to do finish our study and to see what data we collect, and more importantly, what species we find!

Many people had heard of our new cetacean work in El Salvador funded by the Rufford Foundation. Due to us commencing the study in 2020, I was contacted by Cascadia Research to be the country representative of an ocean basin wide study of humpback whales, called SPLASH 2.

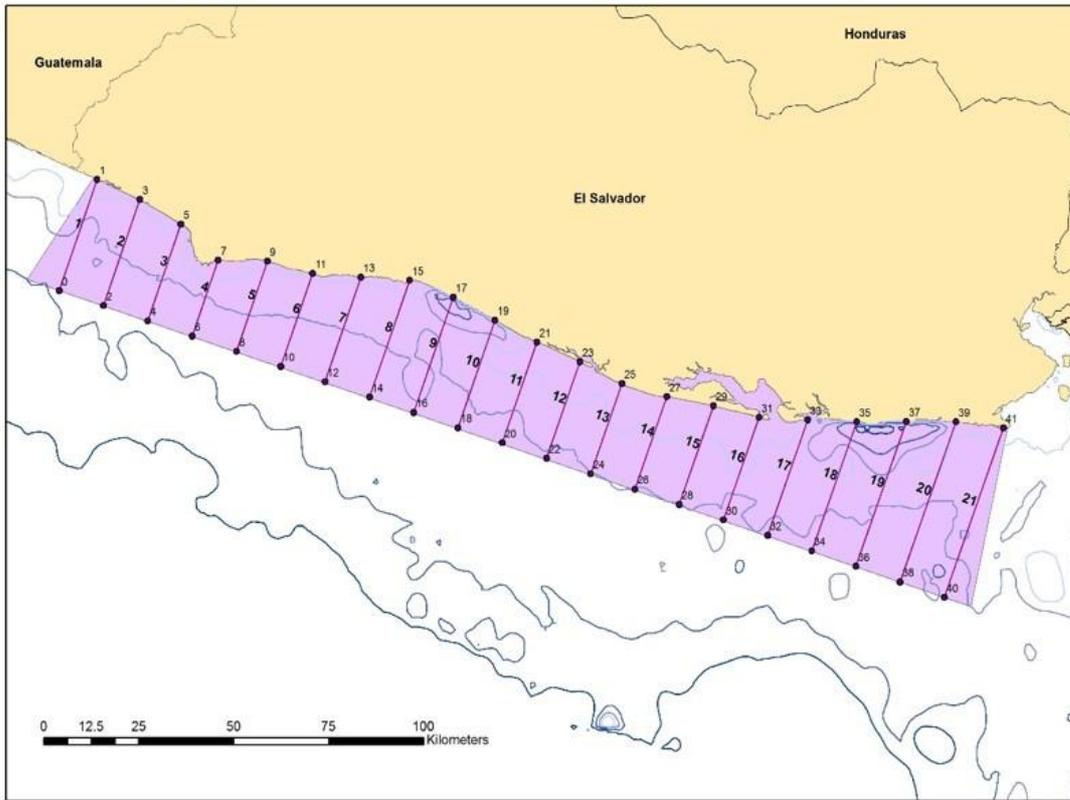


Figure 1. Study design of transects along the Salvadorian coast.

Therefore, although due to the ongoing health crisis we could not travel the coast to finish our planned field work, we were able to take part in the humpback whale research funded by NOAA. All team members of our 2020 Rufford Foundation fieldwork took part in this work, which we were able to achieve by being based in just one town called Los C6banos. We undertook 41 different survey trips (Fig. 2). If it had not been for the work we had completed through Rufford Foundation funding in 2020, we would not have been asked to undertake this work.



Figure 2. (LEFT) Survey results from SPLASH 2 work in El Salvador. (RIGHT) Team in the field for SPLASH 2.

### Community workshops

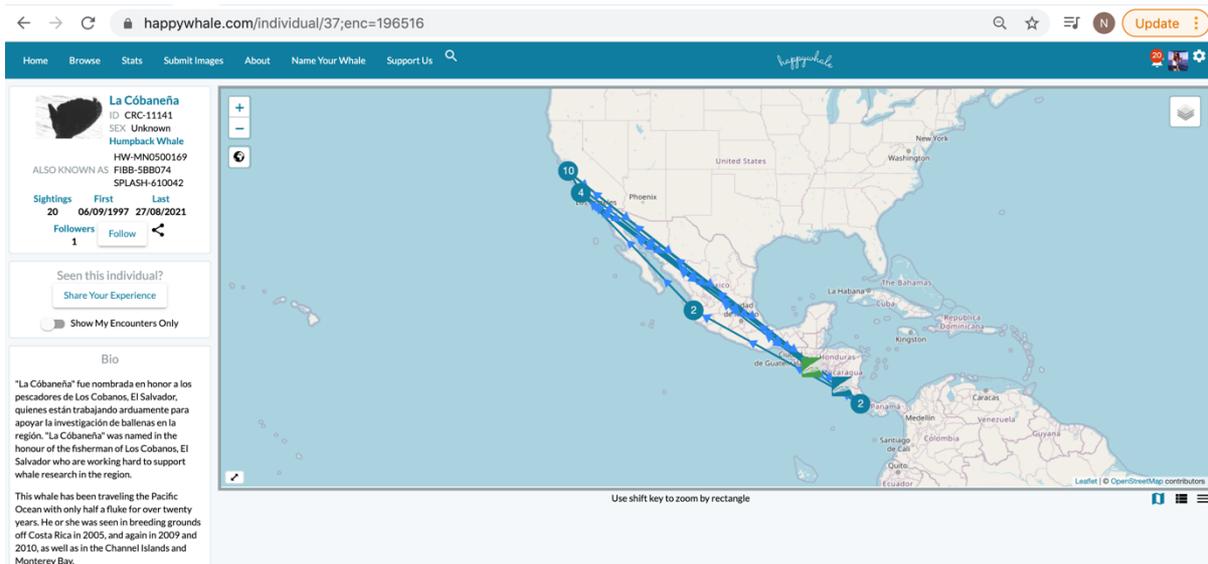
Whilst we could not do work with the schools as hoped, we were still able to hold two workshops and one field trip with the fisherman of Los Cóbános in 2021 (Fig. 3).



**Figure 3.** Workshop for fisherman of Los Cóbános on collecting citizen science research data whilst on the ocean.

This work involved over 30 participants from the fishing community of Los Cóbános, the location of the largest whale watching industry in the country. We completed two half day workshops on land, and one three-hour field trip involving three fishing boats, where we took to the ocean to teach the fisherman how to collect citizen science data when they encountered cetaceans.

One of the workshops on land we had the pleasure of having an invited speaker (via ZOOM), Ted Cheeseman, the founder of internet humpback whale matching platform Happy Whale. The fisherman were overjoyed when lived during the workshop, Ted named a whale on the international platform after Los Cóbános (Fig. 4), and officially put the name of their community on the website, telling the story of the fishing community and their work with the whales.



**Figure 4.** La Cóbaneña, a whale internationally named after the fisherman of Los Cóbános.

Supervisor role to Salvadorean students

At the end of 2020, and later in 2021, two of the young biologists I work with (Fig. 5) received grants for their own projects on humpback whales in El Salvador from Fundación Naturaleza El Salvador. I am the “madrina” (supervisor) for both of their projects, and I am very proud to be so. An excellent video about this, can be seen here

<https://www.facebook.com/1933558586882119/videos/535838757602552>



**Figure 5. Melvin Castaneda and Rebecca Valencia receiving funding for research into humpback whales in El Salvador.**

Another great achievement of our work was four of our presentations were accepted for the marine mammal conference of the Society of Marine Mammalogy in Florida in 2021. Although the conference has been postponed our work will still be presented, all-be-it in 2022. This is the first-time work on cetaceans in El Salvador has been presented in an international conference.

Rufford Conference in El Salvador 2021

I presented at the El Salvador Rufford Foundation Conference in October 2021 on our work so far (Fig. 6), and everything that we have achieved up until now. With this report I have sent you a video of the presentation in English.



**Figure 6. Presentation on our work for The Rufford Foundation Conference 2021.**

### Other recent achievements

I was asked to take part in the International Whaling Commission meeting for El Salvador in April 2021. We are now preparing the first ever report on humpback whale presence for the humpback whales of El Salvador for the next meeting in October 2022.

We were asked to be part of a special edition of a scientific journal of Costa Rica, focusing on “Marine Mammals of Central America”. We have sent in the abstract for a note on humpback whale migratory destinations and we hope it will be accepted and form our first publication on the cetaceans of El Salvador.

I am a co-author of two technical reports by NOAA for the humpback whales of Central America, as part of the US Endangered Species Act review for the species which happens every five years.

### Plans for 2021/2022 and ahead!

In December 2021, we will undertake a workshop training students and fisherman as guides for whale watching. The workshop is being organised by the Ministry of Environment of El Salvador, and we will be conducting two half day independent workshops during this time.

We will start our field work again in February 2022. We will complete the surveys along the coast, and plan to start data analysis in the middle of the year.

We are constructing a full PDF version of our humpback whale Photo-Id catalogue, which will be available online for download.

We will be teaching classes in the local school, and children will help name our humpback whales in the photo-ID catalog. We also have been asked to name several of the whales after important members of the Los Cóbános fishing community who have recently passed away.

I am first author on a paper which is in the final stages of preparation, investigating Central American humpback whale presence in Mexico. This will be using all data collected so far from El Salvador.

We will be undertaking a new study this year when doing our Rufford Foundation surveys where we will be attempting to measure humpback whales with drones using photogrammetry. This will allow us to measure calf size, to determine if they are being born locally, and to measure adults size for comparison with Mexico.

We will be holding two more workshops in Los Cóbános in February, to aid with ongoing training for local whale watching guides and captains.

We will be producing a full Final Report for the end of the 1<sup>st</sup> stage funding from the Rufford Foundation, including detailed expenditure against budget.

THANK YOU FOR YOUR SUPPORT AND FOR MAKING THIS ALL POSSIBLE!