



Synthesis of projects supported by Yagu Pacha

june, 2019

To:



Sotalia guianensis, the coastal dolphin, is the unique small dolphin that inhabit in Lake Maracaibo, it is the main distribution area in Venezuela. Is listed as “Near threatened” by the International Union for Conservation of Nature, and “Vulnerable” at regional level; it is the species in which my research is focused.

In 2017, **Yagu Pacha**, provided me an amount to complete the fieldwork of a part to my doctoral project: **Ecology and Conservation Status Assessment of *Sotalia guianensis* in southern Maracaibo Lake, Venezuela**. With this research, the quantification of the population of the coastal dolphin in the south of Lake Maracaibo was achieved for the first time. In addition, the first data related to the size and composition of the group were collected, results presented during the International Congress of Conservation Biology, in Cartagena, 2017.

Another objective was the identification of the main threats facing this species, the principal ones being the incidental capture and degradation of habitat. The different interviews carried out with the fishermen allowed us to determine an average of 3 animals per month incidentally captured, specifying that 90% of them correspond to offspring and juveniles. During this investigation, it was verified for the first time the directed hunting of coastal dolphins to be used as a protein source. In addition, through the field trips, it was possible to identify some bays used by coastal dolphins to rest and shelter of the calf, areas that coincide with the route of the fishing vessels and their daily crab fishing operations. Interaction that must be evaluated to determine possible impacts, taking into account the importance of key habitats that could guarantee population viability.

The problem of habitat degradation identified, is mainly a consequence of discharges of sewage and the constant leaks and oil spills, has been reported a total of 70 barrels of oil spilled monthly in the waters of Lake Maracaibo and at least 15 permanent oil spills in all your extension. During the field trips of the years 2016, 2017 and 2018, oil surface water was always observed in the southern region of the lake, and we have dolphin observation records in the area of accidents.

Considering the pollution problem and one more time with the support received of **Yagu Pacha**, this year (2019), it was decided to start the project to determine heavy metals such as Mercury (Hg), Cadmium (Cd), Lead (Pb) and Vanadium (V), in the tissues of fish species identified in the diet of *S. guianensis* and also in tissue of coastal dolphins of Lake Maracaibo. It will be the first time that this type of study is carried out with the population of dolphins of this estuary. Some fish species of the coastal dolphin diet, are also of commercial interest such as curvina (*Cynoscion acoupa*) mojarra (*Diapterus rhombus*), and manamana (*Potamorhina laticeps*) the last one classified as vulnerable in Venezuela. Therefore, these results may also be considered by entities with competence in human health. Preliminary results of this study indicated that 65% of the fish analyzed were positive for the presence of one or more elements in harmful amounts according to WHO/FAO regulations. All the analyzes will be made in mid-August of this year and the results will be presented.

The interest to continue with the studies of *S. guianensis* in Lake Maracaibo, beyond the development of the doctoral research, led to the creation of a macro project called "Project Sotalia", with which different investigation, education and conservation objectives were established, to be developed in a short, medium and long term.

Pictures

Project 1. Ecology and Conservation Status Assessment of *Sotalia guianensis* in southern Maracaibo Lake, Venezuela



Image 1. An individual of *S. guianensis* hunted to use its meat for the manufacture of a typical dish on the East Coast of the Lake known as “Chicharrón”. The people involved in the event faced legal charges

Reference 1: Diario La Verdad: Vendían chicharrones de delfín en la COL. Link:

<http://www.laverdad.com/zulia/107457-vendian-chicharrones-de-delfin-en-la-col.html>

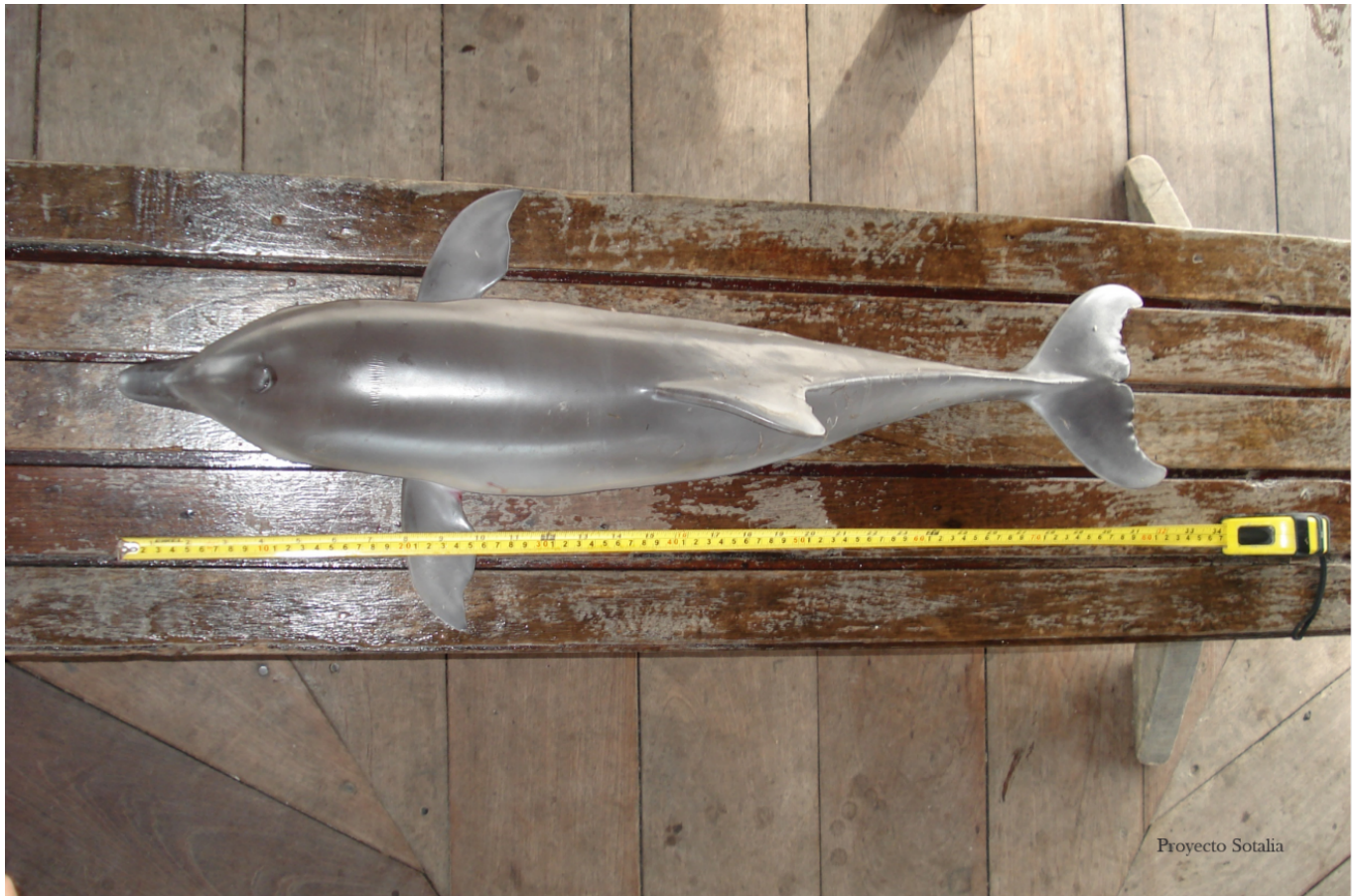


Image 2. A calf of *S. guianensis* victim of bycatch in southern Lake Maracaibo. Credits: L. Sánchez



Image 3. Groups of *S. guianensis* observed during fieldwork in southern Lake Maracaibo. Credits: L. Sánchez/ @proyectosotalia

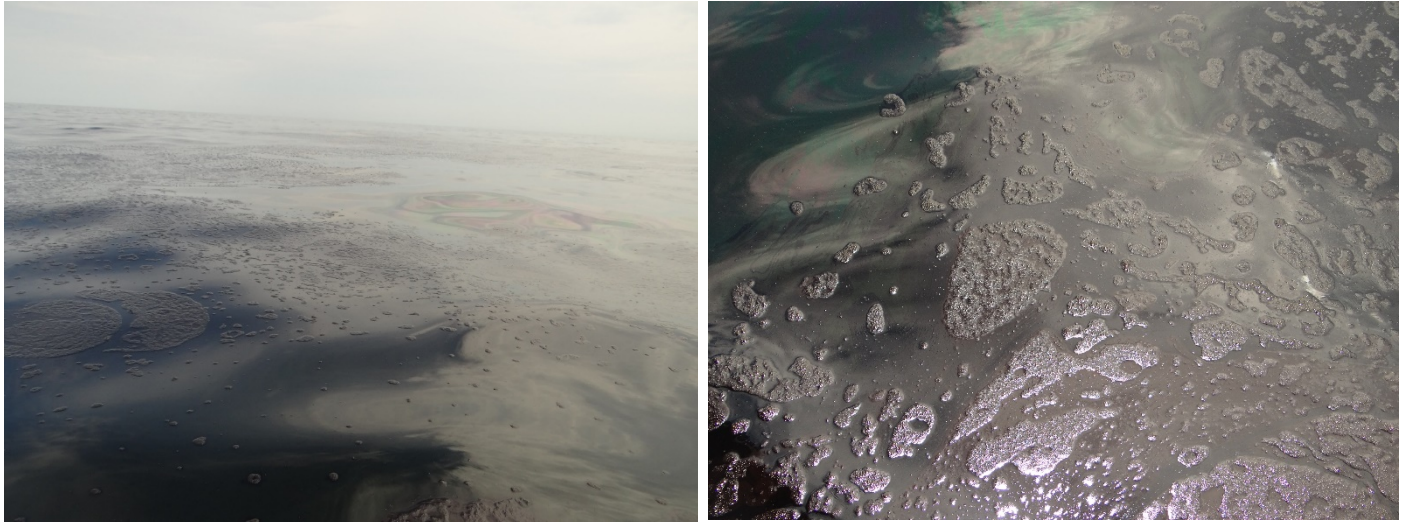


Image 4. One of the most extensive oil spills recorded during field surveys in the south of the lake. The travel of almost 15 km in a straight line was full of oil. Credits: L. Sánchez @proyectosotalia



Image 5. A typical platform oil in southern area of the lake. Almost of fifteen plataforma like that is within the 900 km² where my doctoral research has been carried out. Some of them are operational, others no longer, and due to lack of maintenance are often the cause of oil leaks. Credits: L. Sánchez/@proyectosotalia



Image 6. It is common to see dead birds, fish and rays floating in the water after a oil spill. Credits: L. Sánchez @proyectosotalia

Project 2. Heavy metals in tissue of fish and coastal dolphin from Lake Maracaibo.



Image 7. A mature female of *S. guianensis* death, with signs of anthropogenic interaction in southern Lake Maracaibo. 2018 .Photo: M.Puerto



Image 8. For the collection of fish samples for the analysis of heavy metals, we approach each fisherman we see in the area and ask them to give us a small portion of tissue and if possible save the liver. Each fish is identified, measured, weighed. The samples are refrigerated immediately. Credits: L.Sánchez/@proyectosotalia

3. Reports in national and international media about dolphin hunting, and the problematic of oil spills in Lake Maracaibo.

Hunting

a. Mongabay Latam 2018.

<https://es.mongabay.com/2018/08/crisis-economica-en-venezuela-cazan-animales/>

Crisis económica en Venezuela: ciudadanos cazan especies silvestres y animales de zoológico

por Jeanfreddy Gutiérrez Torres en 7 agosto 2018

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b. Deutsch welle 2019.

<https://www.msn.com/es-es/noticias/internacional/venezuela-biodiversidad-en-peligro/ar-AABst2J>

1. CONTENIDO MEDIO: 1. CONTENIDO



Venezuela: Biodiversidad en peligro

Victoria Dannemann (er) 16/05/2019



Es la cara menos visible, pero igualmente grave, de una crisis que está pasando la cuenta al patrimonio natural de Venezuela. Expertos temen un ecocidio generalizado.



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Oil spills:

Oil spills have been historic in this ecosystem, but before the frequency was lower and actions to contain them and clean up were more effective. At present, once the accident occurs, practically is necessary to wait until the oil is precipitated to the bottom and the rest is purified by the natural currents of the lake.

There are no studies in the last 30 years about the affectation of these spills in fish, the main food of coastal dolphins, and this impact has never been evaluated in dolphin. When a spill occurs, fishermen immediately claim a decline in their catch that includes fish, shrimp and crabs.

a. 2019

<https://elpitazo.net/occidente/derrame-de-petroleo-afecta-costas-del-lago-de-maracaibo-en-cabimas/>

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NOTICIASOCCIDENTEREGIONES

Derrame de petróleo afecta costas del Lago de Maracaibo en Cabimas

La situación aún no ha sido atendida por Pdvsa ni por la Dirección de Ambiente, denuncian pescadores y comerciantes del mercado municipal

Por **Mayreth Casanova** - 24 abril, 2019

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PhD (c). Yurasi Briceño, Centro de Ecología. Instituto Venezolano de Investigaciones Científicas

b. 2019

https://elpais.com/elpais/2019/06/18/album/1560849621_806575.html#foto_gal_1

* Raúl Navas, de 25 años, toma un baño en el lago de Maracaibo al terminar su jornada laboral en el mercado municipal. En este lago, el más grande de América Latina, se ha alertado de la grave contaminación desde hace más de cinco años ante la Comisión permanente de Ambiente, Recursos Naturales y Cambio Climático de la Asamblea Nacional. 300 kilómetros de la costa han sido afectados por el derrame diario de hasta 70 barriles de petróleo en el estuario.

c. 2018

<http://www.agendavenezuela2030.org/noticias/denunciaron-derrame-de-petroleo-en-el-lago-de-maracaibo>



d. 2016

<https://es.mongabay.com/2016/02/derrames-petroleros-en-venezuela-han-acabado-con-millones-de-especies/>

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por Jeanfreddy Gutiérrez Torres en 11 febrero 2016

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