

GEPHYREUS PROJECT

Contribution from Uruguay to the risk assessment of the Lahille's bottlenose dolphin (*Tursiops gephyreus*) Evolutionary Significant Unit from Southern Brazil and Uruguay.

CYCLE 5 and 6: OCTOBER-NOVEMBER 2021; MARCH-MAY 2022

Team

Paula Laporta (Yaqu Pacha Uruguay)
Cecilia Laporta (Yaqu Pacha Uruguay)
Carolina Menchaca (Yaqu Pacha Uruguay)
Pedro González (Boat driver)
Manuel Gianoni (Acoustic records and filmmaker)

Introduction

Since late 2019, Lahille's bottlenose dolphin photo-identification surveys have been continued along Rocha Department coast in Uruguay, as part of the Gephyreus Project and Toninas Project of Yaqu Pacha Uruguay civil association.

This report presents the preliminary abundance estimates of Lahille's bottlenose dolphins inhabiting the Uruguayan oceanic coast to contribute to abundance estimates of Lahille's bottlenose dolphin subpopulation of Southern Brazil/Uruguay for the Gephyreus Project.

In addition, this report briefly comments on other activities carried out by Yaqu Pacha Uruguay, including acoustic monitoring of the observed groups, during the period October 2021- May 2022.

1. GEPHYREUS PROJECT

Methods

Surveys

Data collection took place in October-November 2021 and in March-May 2022 along 80 km of coastline along Rocha department, between Punta del Diablo and 20 km west of

Cabo Polonio. Surveys were conducted only during calm weather conditions (Beaufort Sea State ≤ 3) on board a 4.2m semi rigid boat powered with 50hp outboard motor, property of Yaqu Pacha Uruguay. In each survey, systematic efforts were made to follow well-established protocols of photo-identification through the individual recognition of natural marks in the dorsal fin.

Photographs were taken using a digital camera with zoom lens 80-400 mm, also property of Yaqu Pacha Uruguay. Attempts were made to photograph the dorsal fin of all animals in each group. Individual identification was made using natural long-lasting marks such as cuts, notches, scars as suggested by Würsig & Würsig (1977), as well as coloration patterns. After each survey, identified animals with long-lasting marks were included in a catalog as explained in Laporta et al. (2016) and shared with Gephyreus researchers in order to determine any match of recognized individuals between adjacent geographical areas of the project.

Additionally, acoustics records of dolphin sounds were made using a A HTI-96-MIN hydrophone (<http://www.hightechincusa.com>; -165 ± 1.0 dB re:1 V/ μ Pa, 5 Hz–30 kHz) connected to a Tascam DR-680 recorder (96 kHz sample rate). Recordings were made in presence of only one group at a time. Efforts were made to record each group until it disappeared.

Observations from land were carried out in La Coronilla and Santa Teresa National Park in order to complement photo-identification sessions and increase the extension of the study area. These took place also when oceanographic and weather conditions did not permit boat sampling.

Data analyses

All identified individuals were included in an integrated capture history for the entire ESU. This information was shared with researcher colleagues from “Projeto Gephyreus” for the construction of multi-state models in a robust closed design (MMDRF, cf. White et al. 2006) along with all information of the other MUs of the ESU. The MMDRF were constructed using MARK program routines (White & Burnham 1999). The following parameters were estimated for each study area: (i) abundance (N); (ii) apparent survival rate (S); (iii) probability of movement from one area to another (u); and (iv) capture probabilities (p). Indirectly, total abundance was estimated for the ESU.

Acoustic recordings had a primary analysis to estimate total recording effort and look for good quality whistles, clicks and burst sounds.

Preliminary results

A total of 20 surveys were carried out, 4 boat surveys during November and December of

2021; 9 (6 boat and 3 land surveys) between May and June and 7 (4 boat and 3 land surveys) between September 2022 and January 2023.

Preliminary results show a new abundance estimate of 35 individuals (CI:95%: 21-49) for Rocha department in 2022, smaller than the first one estimated in 2008 (63 individuals, 95% CI = 54–74 - Laporta et al., 2016). It is important to note that the study area for both estimates are different, being the last one in La Coronilla-Cerro Verde and the current one in Cabo Polonio-Punta del Diablo. Both areas have different occurrence frequencies of dolphins, being highest in La Coronilla-Cerro Verde (Laporta, 2009). On the other hand, this difference also could be explained due to a smaller frequency and number of surveys carried out in this study in comparison with the first one.

In addition, at least five new matches of identified individuals were recorded between southern Brazil (Patos Lagoon Estuary and surrounding coastal areas) and Uruguayan coastal waters to add to the 21 previously reported (Laporta et al., 2017).

On March 12, 2021, we observed for the first time a dolphin without the entire tail fin, possibly due to artisanal fishery interaction. This animal was observed at least eight times, moving along the Rocha department coast (Figure 1). On January 3, 2023, we observed another dolphin with injuries in the peduncle, also possible artisanal fishery interaction.



Figure 1. Lahille's bottlenose dolphin without the entire flukes. a) First sighting in March 2021 in Valizas-Aguas Dulces beach and b) Next sighting in July 2021 in La Paloma, approximately 60 km of distance for the first sighting record.

During the field surveys of 2022, fishing nets were frequently found in the first 300m of the coast, although the national regulations do not permit any kind of nets in that zone between October and April. This situation was communicated to the National Direction of Aquatic Resources, but measures still need to be taken. Efforts will continue to be made to ensure a year-round exclusion zone of 1km from the coastline, following the measures taken on the coast of Rio Grande do Sul, Brazil.

Finally, no records of stranded Lahille's bottlenose dolphins were reported in coastal Uruguayan waters during 2022 .

Regarding acoustic monitoring of the sighted groups, 88 audio files were obtained totalling 2.75 hours of recording. Those included click trains, burst sounds and whistles. Whistles with complete, clear spectral contours are being manually selected for analysis of acoustic parameters, using in Raven 1.5 (Cornell Lab of Ornithology; FFT of 512 points, Hanning window, 50% overlap). After extraction and analysis, whistles will be classified into signature/non signature whistles and will be included in the catalog that has been built since 2017. Whistles will then be compared to those of the Patos Lagoon Estuary.

2. OTHER ACTIVITIES

Citizens have continued recording Lahille's bottlenose dolphins along La Plata River Estuary and the oceanic coast of Uruguay through a [digital form](#) created by Franca Austral Project, Fauna Marina Uruguay, Karumbé and Yaqu Pacha Uruguay, as well as by a Telegram and WhatsApp groups to report cetacean sightings. During 2022, at least 124 sightings of Lahille's bottlenose dolphins were recorded, (91 in 2021), 25% of them in La Plata River Estuary, an area where their sighting frequency has been decreasing in the last 40 years.

Educational activities were carried out at the Punta del Diablo school working on photo-identification of Lahille's bottlenose dolphin with 4 and 5 years old children. A catalog of the different identified dolphins was shared with the children and they recognized the marks, number, name and special characteristic of each dolphin. They kept one photograph of the dolphin they chose.

During the week of National Protection Day of the southern right whale, organized by the Tourism Ministry, Yaqu Pacha Uruguay was invited to present educational activities regarding the marine species and the environment. In conjunction with the theater company "*Milonga rutera*", a small theater intervention was created with a southern right whale puppet. It was presented at Los pescadores beach (approx. 70 people) and at the Punta del Diablo school (224 schoolchildren and 10 teachers). In the latter, the intervention was accompanied by a song about the southern right whale, written and set to music by Inés Quintiterra with Nadia Zavadszky on the cello and Orlando Olivera on voice, all of them residents of Punta del Diablo.

See Appendix 1 for photographic records.

Accountability of funds

The funds received by Yaqu Pacha were essentially used for:

- The refund of the cost corresponding to three boat and three land surveys carried out during cycle 5 (October- November 2021).
- The cost of 10 boat surveys and 5 land surveys carried out during cycle 6 (May-June 2022 and September 2022-January 2023)

See budget table above.



Paula Laporta
Yaqu Pacha Uruguay
Directora
Celular +598-99835474

1. FIELD SURVEYS CYCLE 5 (this amount was a refund corresponding to 3 boat surveys and 3 land surveys)

Conversion (mean between 2020-2021): 1US\$---\$U41,6

ITEM	DETAILS	QUANTITY	UNIT COST	N° SURVEYS	TOTAL (\$U)	TOTAL (U\$S)
Boat supplies	gasoline (lts)	80	70	3	16800	404
	Oil boat engine (gallon)	2	4600	1	9200	221
Reserchers and boat transport	Gasoline for truck 4x4 (Punta del Diablo-Valizas roundtrip) (lts)	30	70	3	6300	151
	Gasoline for car (La Paloma-Valizas roundtrip) (lts)	15	70	3	3150	76
	Bus ticket Montevideo-La Paloma roundtrip	2	1200	1	2400	58
Food	4 person food supplies	1	2500	3	7500	180
Materials	GPS batteries, spreadsheets, others	1	650	2	1300	31
Boat driver fees	Boat driver fees	1	2000	3	6000	144
Land surveys	Gasoline for car (Punta del Diablo-La Coronilla) lts	5	70	3	1050	25
	Gasoline for car La Paloma-La Pedrera. (Leandro Borba from Fauna Marina Uruguay)	5	70	3	1050	25
	2 persons food supplies	1	1000	3	3000	72
	Observer fees (La Paloma)	1	2000	3	6000	144
TOTAL						1532

2. FIELD SURVEYS CYCLE 6 (Originally 6 boat surveys and 6 land surveys were budgeted). A total of 10 boat surveys and 5 land surveys were finally carried out). Conversion (mean between 2020-2021): 1US\$---\$U41,6

ITEM	DETAILS	QUANTITY	UNIT COST	N.º SURVEYS	TOTAL (\$U)	TOTAL (U\$S)
Boat supplies	gasoline (lts)	55	75	10	41250	992
	Oil boat engine (gallon)	2	4600	2	18400	442
Reserchers and boat transport	Gasoline for truck 4x4 (Punta del Diablo-Valizas roundtrip)(lts)	30	75	10	22500	541
	Gasoline for car (La Paloma-Valizas roundtrip) (lts)	15	75	8	9000	216
	Bus ticket Montevideo-La Paloma roundtrip	2	1200	4	9600	231
Food	4 person food supplies	1	2500	10	25000	601
Materials	GPS batteries, spreadsheets, others	1	650	6	3900	94
Boat driver fees	Boat driver fees	1	3000	10	30000	721
Land surveys	Gasoline for car (Punta del Diablo-La Coronilla roundtrip) lts	5	75	5	1875	43
TOTAL						3883

Photographs of boat survey during Gephyreus Project 2021-2022.



Yaqu Pacha Uruguay team during photo-id and acoustic record of Lahille's bottlenose dolphin in Uruguay (2021-2022).

Anexo 1. Photographic record of educational activities carried out by Yaqu Pacha Uruguay in 2022.



Photo-identification of Lahille's bottlenose dolphin in Punta del Diablo School, 11th October 2022.



Photo-identification of Lahille's bottlenose dolphin in Punta del Diablo School, 11th October 2022.

Semana de actividades por el
Día Nacional de Protección de la Ballena Franca Austral

Intervención teatral con títeres **La gigante del mar**

Actividad para
toda la familia.
Luego, conversamos
sobre las ballenas
y el mar



**Nueva fecha: domingo
23 de octubre a las 16 h**

Playa de los pescadores, Punta del Diablo. Rocha.



Ministerio
de Turismo

**Milonga
Rutera**



Poster of diffusion of theatrical intervention with puppeteers, "The giantess of the sea".



Theatrical intervention with puppet “The giantess of the sea” in Los Pescadores beach in Punta del Diablo. October, 2022.



Theatrical intervention with puppet “The giantess of the sea” in Escuela N°96 (School) in Punta del Diablo. October, 2022.



Song “Franca amistad” by Inés Quintiterra, Nadia Zavadszky on the cello and Orlando Olivera on voice, October 2022 in Escuela N°96, Punta del Diablo.