With satellite monitoring, South American dolphins tell us their story Since 2017, scientists from the South American River Dolphin It's a regional effort led by WWF in Bolivia, Brazil, Initiative (SARDI) have undertaken an unprecedented study: the Colombia, Ecuador and Peru along with its partners first satellite monitoring of freshwater dolphins in Amazon and Faunagua, Mamirauá Institute, Omacha Foundation, and Orinoco basins, aiming to improve knowledge and conservation Prodelphinus, which are part of the SARDI and work for First monitoring results from 2017 to 2019. of their key habitats for reproduction, feeding and refuge, their the conservation of river dolphins and their habitats. movements and increasing threats that they face. How was the satellite monitoring done? Installing satellite tags on the dolphins' dorsal fins in an articulated effort Dolphins travel, on average 3 to 10 km per day. between biologists and veterinarians - to ensure the well-being of the animals - accompanied by officials from the protected areas, environmental authorities and local fishermen who already know the territory. Step by step of the tagging process Working with The dolphin is carefully removed local fishermen, from the water with a stretcher and the dolphins are is TAKEN TO THE SITE WHERE IT **SURROUNDED AND** WILL BE MEASURED, weighted **CAUGHT** with nets. and the tag will be installed. While the anesthesia starts The **DORSAL FIN**, where to work, the **DOLPHIN** the tag will be installed, IS WEIGHTED AND is ANESTHETIZED. **MEASURED; ITS SEX** IS IDENTIFIED, and Immediately after a small sample of the dorsal fin is taken to placing the tag, THE DOLPHIN IS evaluate its genetics and **RELEASED** at the the levels of mercury. same place where it was captured. Once the anesthesia takes effect, a small perforation is done to Our primary INSTALL THE TAG. concern is the well-being of the dolphins. They can weigh up to 200 kg with males being larger than females WET /DRY SENSOR THE LIFESPAN OF THE TAG: **ARGOS** The transmitter, which weighs ANTENNA **PRESSURE** 145 GRAMS, has a lifespan of **SENSOR** 5 TO 8 MONTHS and then it releases itself from the fin. Animals can measure 2.76 m of max. SATELLITE TAGS **INSTALLED IN EACH COUNTRY** What is **ATLANTIC** A total of 29 dolphins have **OCEAN** monitoring for? been monitored To identify the strategic habitats of dolphins in the **ORINOCO RIVER** VENEZUELA 1000 km Amazon and Orinoco basins. 600 mi To evaluate the importance of protected areas and Ramsar sites for the species. Ramsar Site GUYANA **PACIFIC** Bita River To understand the movement **OCEAN FRENCH** limitations of the dolphins SURINAM Ramsar Site COLOMBIA caused by the dams GUIANA Estrella Fluvial Inírida Female 24% Ramsar Site **ECUADOR** Terapoto Lakes **DOLPHINS** MONITORED **PERU ACCORDING TO SEX** Amacayacu **AMAZON RIVER** National Natural Park TAPAJÓS RIVER Male PACAYA SAMIRIA RIVER 76% BRAZIL Species of river dolphins that have Juruena National been monitored Inia boliviensis Natural Integrated Management Area Bolivia and Departmental Park (PD-ANMI) ITÉNEZ RIVER Iténez Inia geoffrensis Colombia **BOLIVIA** Peru **Brazil NUMBER OF TRANSMITTERS INSTALLED** Satellite tagging timeline **----**2018 2019 02 17 19 17 15 10 11 15 **Cuencas**: ■ TAG (transmitter) Guayabero Amazon Orinoco Tapajos Itenez Pacaya Samiria

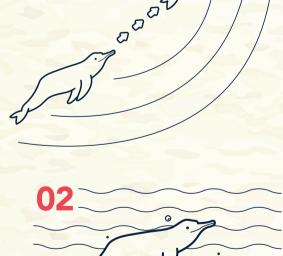
Type of water

01

Dolphins tagged according to the river flood pulses

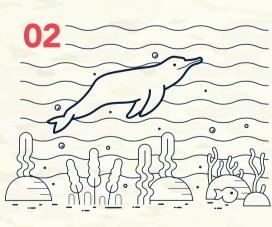


What lessons have we learned from satellite tagging?



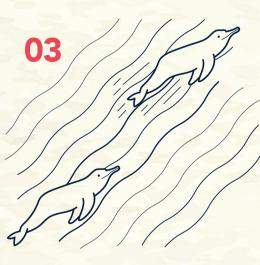
Females move less than males.

The movements of males and females are different. Females move less, possibly due to the reproductive processes of pregnancy and care of the offspring. Males have more extensive movements in search of females to reproduce and fish to feed.



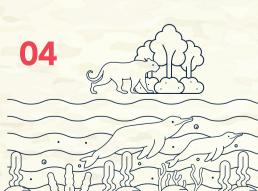
They need different aquatic environments to live in.

They need confluence areas (connection of rivers and water exchange), lagoons, river channels and tributaries, and even shallow areas near beaches, where they mate. They are sensitive to changes in these areas.



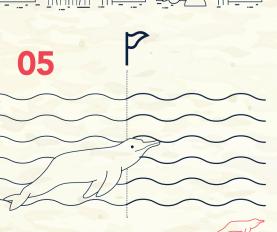
Their movements are associated with this type of water they are in.

There is a relationship between the types of water and the average displacements of the dolphins: those that live in white waters (Amazon and Pacaya Samiria rivers) move less because these areas are very productive wetlands and have more fish than black or clear waters. In Bolivia, the San Martí's river dolphins (clear waters) moved possibly in search of food and in Brazil, the Tapajos River dolphins (black waters) have average displacements.



They have larger home-ranges than other mammals.

The habitat of river dolphins is larger than other large land mammals' habitats: it's twice that of a jaguar and four times that of a tapir.



Their displacements have no borders between countries.

They use transboundary wetlands for food, shelter, and reproduction, so they need healthy and regionally connected rivers. For this reason, these sites must have national and international protection categories of

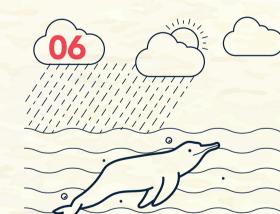




Ramsar Site Terapoto Lakes (Colombia)

conserved Protected Areas. Some key places are:

Juruena National Park (Brazil) Natural Integrated Management Area and Departmental Park, Ramsar Site Blanco (Bolivia)



The climate determines the life cycles of the dolphins.

In the rainy season, the fish reproduction processes are activated, and they leave the tributary rivers towards the confluences, where the dolphins wait for them to feed, and they move accordingly to the rhythm of fish migrations and flood pulses of the rivers.



Dolphins movements happen in groups.

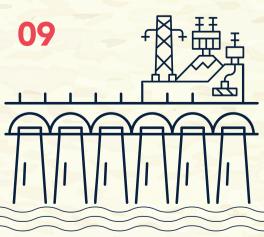
They behave like family groups such as the capybaras, which differentiates them from those of big cats like the jaguar, whose behavior is usually solitary.



River dolphins also use the flooded forest.

the flooded forest and in low water they use the main channel of the river.

In high water season, they can move in



Hydroelectric power plants: Today's energy solution is tomorrow's food problem?

causing the reduction of their populations. These barriers block the natural flow of the sediments, the natural fertilizers of the forest, change the river flow and affect flood pulses of the rivers, which normally provide seeds and fruits for the feeding of fish.

Dams isolate river dolphins and interrupt fish migrations,



Illegal mining and mercury threaten life in the Amazon and Orinoquia.

100% of the dolphins tagged between 2017 and 2018 has levels of mercury, especially those in the Orinoco basin, where there is a large illegal mining arch near the Ventuari and Atabapo rivers on the Colombia-Venezuela border. Mercury is a metal used in the extraction of gold, pollutes water and air, threatening human health and livelihoods (fishermen) and biodiversity.



By 2022, SARDI expects to have at least 50 dolphins tagged with transmitters to have evidence of the most widely used habitats, which are key to conservation in all the countries where they are distributed. Also, to show that the loss of connectivity of rivers caused by dams limits movements and access to key habitats of dolphins, fish, and other aquatic vertebrates.











