Advances in the Knowledge and Conservation of the River Dolphins of the Amazon Biome

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In South America, the river dolphins live mainly in the basins of the Amazon and Orinoco rivers, in countries such as Colombia, Venezuela, Ecuador, Peru, Bolivia and Brazil. In these large basins they are highly distributed, but yet have different population densities. They inhabit lowland rivers and white water that originate in the Andes, which have high content of sediments and high productivity. Also found in clear rivers and black water rivers of Amazonian origin. In the Orinoco River basin river dolphins are often found in areas of mixed waters.

There is a kind of gray dolphin (*Sotalia fluviatilis*) and three species of pink dolphins in South America, (*Inia geoffrensis)* distributed in the Orinoco and Amazon basins. The Bolivian bufeo (*Inia boliviensis)* is an endemic species of Bolivia and this year was published the first discovery in 100 years of a new species of river dolphin: *Inia araguaianens* which is restricted to the Araguaia-Tocantins basin area in Brazil and which appear to have been in geographical isolation for the last 2,000,000 years.

Since 2006, WWF, WCS, WDCS, the Omacha Foundation (Colombia), the Association FaunAgua (Bolivia) and the Institute for Sustainable Development Mamirauá (Brazil) among others, with combined efforts have made over 15 scientific expeditions to estimate the population of river dolphins in South America (Fig. 1). Until now there is a record of more than 8,000 dolphins of the four species and so far they have traveled for more than 6500 km on major rivers of the Amazon. Estimates of the amount of population for each species are detailed in Table 1.

TABLE 1. Estimate population of river dolphins in the Amazon Biome between 2006 and 2014.

Path Km	**Rivers**	**Number of registered dolphins**			
		I. geoffrensis	*I. boliviensis*	*I. araguaianensis*	*S. fluviatilis*
315	Amazons – Javary (Col. Brasil, Perú)	195			327
332	Putumayo (Col. Ecu. Perú)	68			1
368	Samiria – Marañon (Perú)	346			318
437	Ucayali (Perú)	418			365
197	Yasuní – Napo – Cuyabeno (Ecu)	27	418		5
366	Ichilo – Mamoré (Bolivia)				
599	Itenez (Bolivia)		905		
295	Aguarico, Lagartococha (Ecu. Perú)	32			
461	Purus (Brasil)	**528**			**1640**
912	Madeira (Bolivia)		792		
500	Tefé (Brasil)	250			150
500	Tocantins (Brasil)			196	19
1210	Tefé (Brasil)	456			680
	Caquetá-Japura (Col. Brasil)				
	Miritί-Parana (Col.)				
	Solimões (Tabatinga-Tefé) (Brasil)				
	Madeira (Bolivia) (**in progress**)				
Total		**2320**	**2115**	**196**	**3505**

In addition to estimating the abundance of dolphins, these expeditions have allowed to a) standardize sampling methodology of river dolphins, b) train 200 researchers from the participating countries in these methods, c) create a network of researchers with their own dolphin website (http://www.sardpan.com/Index.html), d) visualize the species, the health of their habitat and their main threats with the support of renowned media (National Geographic, Discovery, BBC, New York Times, Boston Globe, Time, Trade, etc.)

The criteria for selecting the areas of these expeditions in the Amazon Biome, include several factors, for example the rivers must travel through protected areas and should coincide in most cases with priority landscapes of the WWF Living Amazon Initiative (Fig. 1), this way providing key insights into the conservation strategies of this Initiative, which include improved management or declaring new protected areas (e.g. National Parks) or designating conservation areas (e.g. Ramsar sites).

STATISTICS OF RIVER DOLPHINS IN SOUTHAMERICA

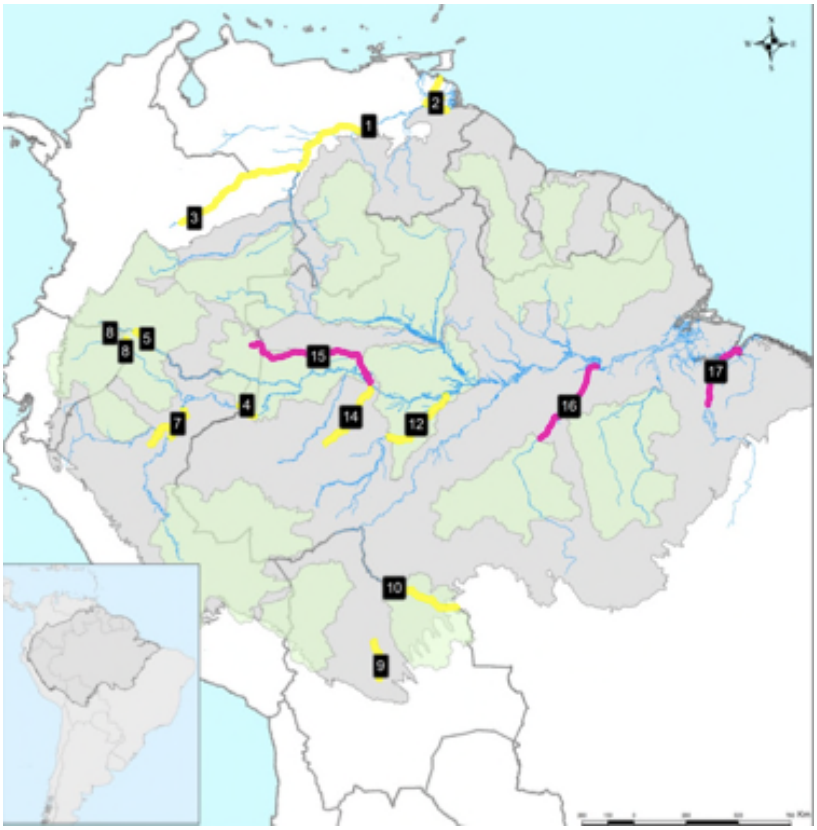

FIGURE 1. Population estimate of river dolphins in the Amazon and Orinoco basins. In green color are the priority areas of the Living Amazon Initiative.

One of the successes in the formulation and effective implementation of this inter-species conservation strategy, is that from the beginning it has succeeded in managing the interests and coordinating the work of environmental and fisheries authorities of the countries involved and several non-governmental organizations. When "The Action Plan for the River Dolphins of South America from 2010 to 2020," was published in 2010, the countries involved began to formulate action plans adapting them to national contexts, to mitigate threats and make better use of opportunities provided.

Thus, in 2012 the “National Plan for the Conservation of the Bolivian Bufeo (*Inia boliviensis*) 2012-2016" was published, and in 2013 it was declared as a national flagship species by President Evo Morales (Act

No. 284). In 2013, the "Diagnosis of the state of knowledge and conservation of Aquatic Mammals in Colombia" and the "Plan of Action for Aquatic Mammals of the Ecuadorian Amazon" (Fig. 2) were published. In late April 2014, the national workshop "Bases for Building an Action Plan around Manati and River Dolphins in the Peruvian Amazon" was held in Iquitos, Peru.

FIGURE 2. (From top left to right) Covers of the action plans for dolphins of South America, Bolivia, Ecuador and Colombia.

Lastly, the direct threats to the population of the river dolphins like the mercury contamination caused by mining, the hunting of dolphins to be used as bait for fishing a scavenger catfish, piracatinga or mota (*Calophysus macropterus*), conflicts with fishermen and other issues, are being dealt with strategies that involve: a) evaluation of mercury concentrations in piracatinga to determine not only the contamination it causes to the dolphins but also its potential effect on public health in the coastal communities, b) work on

river borders with fisheries authorities of Colombia and Brazil, that will allow to tackle the problem together, c) fisheries management of the areas where these problems are being held, as well as building strategies which will increase / strengthen the processes of sustainable tourism with the local communities. (Fig. 3)

FIGURE 3. Book of sustainable tourism in the Amazon published in 2013.