WWF

STRATEGY

2020

In collaboration with:

SOUTH AMERICAN
RIVER DOLPHIN INITIATIVE
STRATEGY 2020-2030

WWF-BRAZIL

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SUMARY

1. EXECUTIVE OVERVIEW

Since 2017, the partners of the South American River Dolphin Initiative (SARDI) have been working together to conserve river dolphins in South America. All partners in this initiative have a long individual history protecting river dolphins and their habitats, from awareness raising with school children, to developing species conservation plans with governments, and diverse monitoring activities. However, due to the vast river systems the dolphins inhabit and the complexity of the South American ecosystems, there is still much more to understand about these species in terms of distribution, population estimates, trends and taxonomy, and threats.

The goal of the shared SARDI strategy is to scale up the impact of the activities throughout the region. By consolidating all available information, overcoming individual interests, collectively prioritizing actions and working towards the same agreed direction, knowledge gaps can be filled faster, expertise exchanged more effectively, and stakeholders and national government networks strengthened.

The distribution area of the South American river dolphins is vast! The threats faced by the species are diverse and severe! But, these challenges can be overcome through solid ccoperation. The ambition we share is high! We share the privilege and responsibility of conserving the world's largest remaining population of river dolphins.

To further optimize the exchange of knowledge to reduce the threats to river dolphins, to build international (government) collaboration and scale up awareness and education, this strategy is fully aligned with WWF's Global river dolphin initiative. This is a "living" document that will be regularly reviewed and adapted throughout the strategy's implementation.

Together possible.

2. REGIONAL COOPERATION

The Amazon basin represents the world´s largest river system. For the purpose of this strategy, we include the Amazon, Orinoco and Araguaia-Tocantins river basins. The region is dominated by freshwater, where everything revolves around the watercourses and the seasonal flood pulses, from livelihoods, subsistence, transportation, food production, tourism, and development. The Amazon basin has suffered from colonization and an extractive economy based on rubber, animal skins, fisheries, and more recently hydropower generation, cattle ranching and soybean plantations. These activities have been intertwined with illegal activities such as illegal gold mining and wildlife trafficking.

The first dedicated studies on Amazonian river dolphins started over 30 years ago, in Colombia and Brazil. Today there are research and conservation efforts in all six of the species range countries, at varying levels and intensity. In the mid-2000s the first attempts to estimate river dolphin abundance began. Since then, 42 expeditions have been completed in six countries, with some 47,000 km surveyed.

The long-term viability of these species depends not only on their demographic attributes, such as population size, age, sex-structure, mortality patterns and reproductive success, but also on levels of environmental disturbance, to the habitat and to the populations themselves. The role of disease should not be underestimated, and the synergy among all these parameters – highlighted in the times of CoVid - require efforts in spheres and fora beyond research and academia.

The first major river dolphin conservation initiative took place in 1986 in Wuhan, China, when 48 participants from eight countries from South America and Asia met to advance river dolphin conservation through IUCN-SSC's encouragement (Perrin et al. 1989). At that point, 300 baiji (*Genus Lipotes*) were thought to remain, and an alarm raised for quick action, to avoid losing the species. Twenty years later, the baiji was considered functionally extinct. In 2000, for the first time, the International Whaling Commission (IWC) considered including river dolphin discussions in their agenda. Twenty-two years after Wuhan, 40 specialists and government officials from 11 countries met in Santa Cruz de la Sierra, Bolivia, to discuss issues related to dolphin conservation. This resulted in the South American River Dolphins' Action Plan 2010-2020, compiled by WWF, Fundación Omacha, WCS, WDCS and Sociedad Latinoamericana de Mamíferos Acuáticos.

Some of the pressures that led to the baiji´s demise are now being replicated in South America. We should hold a mirror up to that experience to prevent the same fate from happening to Amazon river dolphins. Incredibly, the issues and threats to river dolphins identified over thirty years ago are the same today, except they have been expanding over time. For a long time, there have been no concerted efforts to implement the recommendations that came out of the discussions.

We are now in a new era. WWF and external river dolphin experts from around the world came together in Dubai in 2017 to draft a global river dolphin strategy. Since that meeting, WWF has managed to convene and connect scientists and governments into a unified initiative to protect all river dolphin species. This strategy is the result of this comprehensive effort aimed at river dolphin conservation.

Since the first initiatives, and particularly over the last few years, a large amount of knowledge and information has been generated on Amazonian river dolphins. Much of this is associated with demographics, which are enabling a greater understanding of their status. All five countries (Brasil, Bolivia, Colombia, Ecuador, and Peru) currently engaged already have National Action Plans directed at the protection of their freshwater dolphin species. And, very importantly, there is a concerted effort among individuals,

researchers, and governments to push forward SARDI, seeking out new technologies. This is possibly the most significant advance during the last few years, as it has enabled us to maximize our potential to generate range-wide information. For instance, SARDI has collated all the data on population surveys, tagging expeditions and much more in one single platform, the river dolphin dashboard, providing a consolidated baseline of river dolphin data and a decision support tool for all future conservation efforts.

This strategy engages all the range states of Amazon river dolphins. Over the last three years Bolivia, Brazil, Colombia, Ecuador, and Peru institutions, from civil society, academia and recently Governments, have all been actively participating in the initiative definition and implementation. Up to this point Venezuela's dire situation has prevented it from taking part in meetings; however, efforts to engage practitioners from the country have been made. In addition, collaborators from Guyana are expected to be involved, as current maps show the distribution of Amazon river dolphins at least up to the border with Brazil.

3. SPECIES AND HABITATS

River dolphins are a small and particularly vulnerable group of freshwater mammals distributed in only 14 countries in the subcontinent of Asia and northern South America. In South America two river dolphin species (with one subspecies) have been recognized by the Society of Marine Mammalogy's Taxonomy Committee: 1. the Amazon river dolphin (*Inia geoffrensis, and the sub-species Inia geoffrensis humboldtiana; and 2. the tucuxi (Sotalia fluviatilis)*. They are distributed throughout the wider Amazon region and with the exception of the tucuxi, the Orinoco.

In contrast, South American researchers have identified four species of Amazon river dolphin: 1. the delphinid tucuxi *Sotalia fluviatilis* (Gervais, 1853); 2. the iniid Amazon or pink river dolphin *Inia geoffrensis* (Blainville, 1817); 3. the Bolivian boto *I. boliviensis* (d'Orbigny, 1834); 4. the Araguaian boto *I. araguaiaensis* Hrbek, Farias, Dutra & da Silva, 2014 (Trujillo et al., 2010; Hrbek et al., 2014). Mitochondrial DNA (mtDNA) and nuclear introns have been interpreted as suggesting that the *boliviensis* form is on a separate evolutionary trajectory and therefore it may deserve recognition as a phylogenetic species (Banguera-Hinestroza *et al.*, 2002; Ruiz-García *et al.*, 2008; Gravena *et al.*, 2014; 2015). The putative species *I. araguaiaensis* was described for the Araguaia-Tocantins-Araguaia basin (Hrbek et al., 2014), which is no longer connected to the Amazon basin. Examination

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of tissue samples and osteological material from the Araguaia River revealed diagnostic molecular and morphological characters that justified separation of *I. araguaiaensis* from its proposed sister taxon (*I. geoffrensis*) from the Amazon basin (Hrbek *et al.*, 2014). This finding was confirmed by Siciliano et al. (2016b) with stranded specimens collected in the Marajó Island, at the mouth of the Amazon River.

Until two decades ago, the genus *Sotalia* was considered monotypic with two ecotypes, one riverine and one marine (da Silva & Best, 1996). However, genetic and morphological studies subsequently (Monteiro-Filho et al., 2002; Cunha et al., 2005; Caballero et al., 2007; Fettuccia et al., 2009) showed that the two ecotypes should be recognized as separate species: *S. fluviatilis* in the Amazon River basin and *S. guianensis* in marine and estuarine waters of eastern south and Central America (da Silva & Best, 1996; da Silva et al., 2010). At this point it is unclear how far out into the ocean, under the influence of the Amazon freshwater plume, *S. fluviatilis* occurs, or how far *S. guianensis* occurs into the estuary; there is even a possibility of some hybridization between the two species at the mouth of the Amazon River and surroundings, meriting further efforts in investigation.

Despite the taxonomy uncertainties, these species depend on extensive and unimpeded floodplains and their seasonal flood cycles. *Inia* and *Sotalia* are sympatric throughout most of their distribution, notably during the dry season when freshwater is contained in the main river stems; as the water levels rise, Inia is able to explore the flooded forest. These species are endemic to the wide Amazon and purportedly exclusively freshwater, even though conditions at the mouth of the Amazon and its plume may allow some moving and mixing.

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There is no evidence or even suspicion that these dolphins' past distribution was much larger than the present, as neither species underwent any of the commercial cull that other aquatic mammals such as manatees and otters suffered in past centuries. Eyes, genital organs, oil, teeth and bones of river dolphins have been commercialized as love charms, for traditional medicine or for handcrafts, however the demand for it and money involvement is likely low, as well as the effort to obtain those articles. The full distribution of the species is still being established, as most of the work by current research groups is heavily concentrated along the main stem of the Amazon River and major tributaries. Recent efforts have documented *Inia* in, yet another basin separate from the Amazon (the Araguaia-Tocantins), which may lead to interesting discoveries in the near future (Marmontel *et al.*, in review).

Amazon river dolphins are flagship species; charismatic, large, visible, and importantly embedded in the culture of local and traditional populations. These characteristics should be used to elicit an empathetic response from local people and society to leverage conservation actions across the region. Despite their ecological importance, no protected areas have been established specifically to protect Amazon river dolphins.

Data on abundance assessments of these species has increased significantly over the past decade. However, population trend data is scarce, with no range-wide estimate of abundance, or trends in abundance for the species. Surveys have been conducted since 1979 in many areas within the species range in Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela. For the most part, these studies reported encounter rates, instead of abundance estimates. Of these, few studies assessed the population numbers and only for relatively small areas. These estimates varied from a few dozen to a few thousand individuals, depending on the size of the survey area and season (*e.g*. Martin & da Silva, 2004; Goméz-Salazar *et al*., 2012b; Pavanato *et al*., 2016; 2019; Williams *et al*., 2016, Paschoalini *et a*l. 2020).

Estimates of population size for *Sotalia fluviatilis* are scarce, although the species appears to have been relatively abundant throughout most of its range at one time, and may still be in some areas (da Silva & Best, 1996; Leatherwood *et al*., 2000; Gomez-Salazar *et al*., 2011; Flores *et al*., 2018).

Currently, national development plans combined with a growing need for energy have led to the construction of hydroelectric dams, causing fragmentation of water courses in many regions. In recent years, reports on the rapid loss of tropical rainforest and Amazon fires have frequented the daily news. All these human-induced habitat modifications and ecological structure disruptions to river basins impact on the most charismatic aquatic species of the region; the Amazon river dolphins. Their survival, as well as the region's and its inhabitants', is closely connected to and dependent on the conservation of their habitats.

4. THREAT ANALYSIS

Below is a current ranking of the main threats faced by Amazonian river dolphins, as assessed by contributors to this strategy.

Threats	Level
Construction, operation and decommissioning of dams	High
Construction, maintenance, and operation of waterways for navigation	High
Bycatch	High
Direct killing	High
Overfishing	High
Land-use change in floodplains and flooded forests	High
Habitat destruction and/or degradation by illegal gold mining	High
Mercury contamination/ illegal gold mining	High
Deforestation of terrestrial upland habitats	Moderate
Deforestation in small stream riparian zones	Moderate
Over-exploitation of aquifers	Low
Oil and gas extraction	Low
Urban and industrial waste	Low

Construction, operation and decommissioning of dams: Considered the biggest threat to *Inia* back in 1986, the threat seems to have increased, mainly in Brazil. Multiple may be the consequences of man-made barriers to water flow onto river dolphin survival, as blockages transform the habitat, interrupt river flow and stop the most basic characteristic of the floodplains - which is the variation in water level. Oxygen and hydrogen sulfide levels change, affecting fish survival and diversity. One of the most insidious results is the splitting of dolphin populations, exemplified by at least the cases of Madeira (Gravena *et al*., 2015) and Tocantins (Paschoalini *et al*., 2020) rivers, leading to small populations subject to reduced genetic variability and fitness.

Construction, maintenance and operation of waterways for navigation: are somewhat related to the previous threat, as they interfere with normal river functions and may also isolate dolphin populations, but they also increase noise levels and vessel traffic in areas traveled by dolphins. They lead to the disruption of natural water flow and may even affect riparian vegetation, indirectly affecting food resource. An increased number of boats could lead to more stress for the river dolphins and increases the possibility of boat/dolphin collision episodes. Increase in surface oil pollution from engine waste is especially concerning in shallow water, where it may affect dolphin feeding, reproduction and resting. Acoustic pollution through increased navigation may affect the dolphins' communication processes. With more boats in the region, it will also lead to an increased amount of raw sewage and solid waste being discharged/dumped from boats into the river systems.

Bycatch: although this issue is yet to be properly documented in the Amazon, bycatch of small cetaceans could be considered the number one threat to small cetaceans across the globe. The introduction of nylon monofilament gillnets in the 1960s, in addition to increased populations in general and fishermen in particular, mostly along the margin of the productive white water rivers has increased the pressure on dolphins, especially *Inia*, which have learned to remove fish from nets. Incidental catches are more prevalent during the dry season. In the context of a growing human population, there is also accelerated growth of commercial fisheries throughout the region. In particular, juveniles, calves, and tucuxis are more vulnerable.

Direct killing of dolphins for bait: Arguably the most recent threat is the culling of dolphins (and caiman) for the purpose of attracting scavenger fish that feed on decomposed flesh - fisherman use dolphin meat and fat as bait. Originally identified in the middle-Solimões River region, it rapidly spread downstream into other Brazilian regions as a form of commerce. Bycaught animals may also be used for this purpose. Brazil imposed a 5-year moratorium on the killing of dolphins for fishing bait from 2015 to 2019 which seems to have reduced the problem there, unfortunately this activity has now flourished in other countries. Due to this threat, the conservation status on the IUCN red list of *Inia* was increased to Endangered in June 2018. Brazil reissued the moratorium for 1 year, starting from July 1, 2020. Other negative interactions with fishermen may occur due to dolphins being perceived as competitors for the fish (removal or injury) and *damaging* to nets.

Overfishing: In general, there is a lack of governance and control by authorities on overfishing quotas and fish catch size and seasons. In addition, there is an increasing number of people currently using long drift nets, which improve captures and are more dangerous to dolphins. Overfishing threatens the maintenance of a balanced food chain and may compromise river dolphin population in the long term.

Land-use change in floodplains and flooded forests: These changes occur due to encroachment by settlers and ranchers who favor the floodplain's high productivity. These areas are particularly productive due to the regeneration of the soil that is regularly fertilized by nutrients brought down through the river systems from the melting of the Andes. Expansion of cattle ranching, and crop plantations are sequestering land, and cutting trees to increase the area for timber production and farming. These changes to terrestrial habitat directly impact on the river margin's microhabitats, transforming habitats and consequently changes in primary productivity.

Illegal gold mining – habitat destruction, degradation and mercury contamination: The main threat comes from the gold mining process that uses mercury to separate the gold from the sediment, then discharges the metal into the river system. Mercury biomagnifies and bioaccumulates along the food chain , affecting fish (Hacon *et al.*, 2020). High mercury levels have already been detected in dolphins in some areas (Mosquera-Guerra *et al.*, 2019) however direct effects on dolphins have not yet been documented.

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Deforestation – terrestrial upland habitats and small stream riparian zones: Much of the Amazon's upland and floodplain forests are being deforested to convert to agriculture and cattle ranching. This increases the natural sedimentation in rivers, and it destroys trees that provide food (fruit and seed) for fish that are part of the dolphins' diet.

Water-use changes: Back in 1985 this issue was deemed as overstressed and limited to one tributary (Formoso River) of one Brazilian river basin (Araguaia). However, more and more incidents have occurred in the Araguaia Basin and in Bolivia. Irrigation systems and urbanization have changed the natural flux of rivers in some areas.

Oil and gas extraction: Although there is no clear documented evidence to date, it is likely that dolphin mortality occurs during dynamite explosions associated with oil exploration in the Brazilian Amazon. In Peru, northern Ecuador, and Venezuela oil spills are not uncommon and may cause damage to dolphins' health especially if they became trapped in a small area. Dolphins may be indirectly affected by the destruction of habitat and death of fish.

Urban and industrial waste: Aided by the powerful discharge of the Amazon River, and as the wide Amazon region is still not heavily populated, urban, and industrial waste is more of a potential problem than a current one. Close to major cities, such as Manaus, Porto Velho and Belém, there are discharges from agricultural pesticides, raw sewage, household waste and industry effluent that may contaminate the waters, affecting the whole biota; discharges along smaller tributaries may represent more of a threat. The advance of large-scale agriculture, especially soybeans, also represents an increase in the use of pesticides that can find its way into river systems and move downstream.

In addition to the threats already cited, tourism is an issue, although mostly limited to the Brazilian Amazon. Tourists are brought to specific areas to interact with river dolphins. The dolphins have learnt that they are fed in these areas and therefore regularly return. People swim with them, feed them, and undertake other therapy activities. These interactions occur with no proper protocols (although in Amazonas state they are regulated) and they can change the dolphins' behavior, hierarchy, and foraging behaviors. The dolphins have become habituated but may still compete among themselves for the food offered and become aggressive. In Colombia there are more sustainable efforts around river dolphin tourism, but caution must be exercised to avoid intensive and unregulated boat traffic that could potentially impact the dolphins' activities, like socializing, nursing, feeding and resting. As with any other threat that increases motorized boat traffic, it will inevitably increase the possibility of, potential strikes, and more noise in the environment, which may disrupt dolphin behavior and habitat use.

5. OPPORTUNITIES

In 2020 dolphin conservationists and specialists face challenging yet stimulating times. We understand human pressure is growing. Correspondingly, we need a solid network and cooperation to apply preemptive conservation strategies to face the herculean task to maintain healthy populations of Amazonian river dolphin populations into the future, especially when we see the demise of their Asian counterparts.

We work with emblematic species and need to raise awareness about their ecological, economic, and social importance and engage several sectors of society. In the Bolivian department of Beni, the bufeo is recognized as a Natural Heritage; in Brazil local people use their images in handcrafts; in Colombia indigenous peoples use their image on boats and to carve souvenirs for tourists.

In 1985 there were only two active river dolphin research groups in two countries, today we have several research groups and a critical mass of investigators working on multidisciplinary aspects of dolphin ecology throughout South America countries. We have the opportunity to work through regional and international agreements and fora, such as the Amazon Cooperation Treaty, CITES, IUCN, Ramsar Convention on Wetlands of International Importance, Minamata Convention, Conservation of Migratory Species of Wild Animals Convention, World Heritage Convention, Western Hemisphere Convention, Agreement for Flora and Fauna Conservation of Colombia and Peru's Amazon Territories, Agreement between Peru and Brazil for Flora and Fauna Conservation of the Amazon Territories. We have amassed knowledge, stimulated cooperation, articulated a regional effort and obtained international support to create an agenda to address conservation issues and progress conservation actions and research under a multi-faceted approach. Cooperation between researchers and institutions expands across river dolphin ranges and transboundary. We are working on standardization of monitoring and research methods and the application of innovative technologies. We are set to start training new and young professionals who can support our efforts now and continue the work into the future.

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The momentum is here. In 2020 we have secured support from the International Whaling Commission and the Amazon regional governments to elaborate a Conservation Management Plan for South American River Dolphins. Through a collective effort we can drive the necessary change and reduce the human-induced threats to river dolphin populations.

6. OUR APPROACH

SARDI members believe that to be able to take effective conservation actions, a strong understanding/baseline of the current population status/trends (population shifts), and the support/collaboration of the communities co-existing with the dolphins are fundamental. Both communities and river dolphins depend on the security of the food that the rivers provide. Therefore, we need to ensure there are resilient ecosystems that provide sustainable fish stocks and that non-harmful fishing practices are employed so that people and nature can thrive. The resilience in fish stocks/food security requires healthy habitats and ecosystems, hence a focus on water quality (reduced pollution, notably mercury from gold mining activities) and sustaining natural river environmental flows should support the resilience and then populations stability for the future. Advocacy with relevant stakeholders (governments, local communities, research centers, etc.) will be fundamental to these strategic priorities.

The Sustainable Development Goals (SDGs) must be interpreted as encompassing the conservation of all biodiversity and resources, including river dolphins and the environmental attributes that need to be maintained for them to flourish. The 17 SDGs goals can be cited as supporting river dolphin and aquatic ecosystem conservation, some prioritized here:

STRATEGIC PRIORITIES

Ecosystem Health

Habitat changes
Climate micro-events
Whater quality and flux
Contamination *(Mercury and other pollutants)*

Population Shifts

Distribuition
Population Density and Trends
Supported by community based monitoring

Resiliense

Fish stocks
Food securiy
Bycatch

VISION: The world's largest river dolphin populations are maintained in harmony with human development, conserving their genetic diversity in connected and healthy ecosystems in the Amazon and Orinoco basins.

GOAL: By 2030, healthy and connected habitats in the Amazon and Orinoco basins ensure stable and ecologically functional populations of river dolphins in South America.

OUTCOMES AND OBJECTIVES

Outcome 1 - By 2030, river dolphin populations are secured in a network of well-managed conserved and protected areas (CPA)

Objective 1: By 2030, the management of key CPA is improved and strengthened, and river dolphin species are recognized as conservation targets to be protected and monitored.

Specific objective 1.1. By 2026, 80% of CPA that maintain river dolphin populations ensure Conservation Assured standards.

Specific objective 1.2. By 2026, at least four new CPAs are proposed based on the identification of key ecological areas for river dolphin conservation.

Specific objective 1.3. By 2030, at least three transboundary CPAs have implemented tools to improve governance at the local and regional scale, allowing conservation actions to enhance connectivity in threatened basins.

Outcome 2 - By 2030, fishery policies are reformed and sustainable fisheries are being effectively implemented and managed

Objective 2: By 2030, a regional fisheries plan is implemented, aligning fishery regulations in transboundary basins, eliminating harmful practices towards river dolphins, and ensuring biodiversity conservation and human well-being.

Specific objective 2.1. By 2022, at least five Amazon countries have evaluated and mapped bycatch and other threats to river dolphins associated with fisheries in priority basins, as well as their causes and magnitude.

Specific objective 2.2. By 2026, the implementation of good fisheries practices in at least six priority areas reduces incidental and intentional mortality of river dolphins, while food security of local communities is improved by the sustainable use of the natural resources.

Specific objective 2.3. By 2030, at least three transboundary areas have aligned fisheries policies and implemented local governance systems.

Outcome 3 - By 2030, key river dolphin habitats are secured as clean, connected, and free-flowing rivers

Objective 3: By 2030, intra and transboundary connectivity of healthy aquatic ecosystems ensures free- flowing rivers are maintained, and stable and genetically diverse populations of river dolphin species.

Specific objective 3.1. By 2025, the implementation of the Minamata Convention in Amazon signatory countries recognizes mercury contamination of aquatic species in the Amazon and Orinoco basins as an issue.

Specific objective 3.2. By 2026, mitigation and compensation measures are implemented in at least four key river dolphin conservation areas to avoid impacts from infrastructure and other anthropogenic activities.

Specific objective 3.3. By 2026, the conservation status of river dolphin habitats and populations have been evaluated in at least eight basins, including transboundary areas (according to HISARA for macro-basins and considering the use of report card).

Specific objective 3.4. By 2030, 100% of critical areas for water connectivity in the Amazon and Orinoco basins are free from infrastructure, and governments and businesses have implemented mitigation measures in impacted zones (prioritization by free-flowing rivers).

Outcome 4 - By 2030, communities, governments and businesses become custodians of river dolphins

Objective 4: By 2030, communities, governments and businesses have a sense of ownership of river dolphins and their habitats. Community livelihoods are diversified to provide alternatives to fishing; governments allocate more resources to river dolphin conservation and play a lead role in promoting regional actions; and businesses transform their practices to be environmentally sustainable.

Specific objective 4.1. By 2026, sustainable economic alternatives associated with fisheries and tourism are implemented in at least three priority areas in each country.

Specific objective 4.2. By 2026, at least 85% of the actions defined in five national plans are effectively implemented and concerted with other formal strategies for river dolphin's conservation.

Specific objective 4.3. By 2030, regulations and environmental impact studies for 100% of large and medium-sized infrastructure projects in the Amazon and Orinoco include key aquatic species as conservation targets, indicators for identification, monitoring and recuperation.

7. GOVERNANCE

SARDI is a coalition of collaborators across the distribution range of river dolphin species in South America. It comprises a coordinator, five WWF regional office representatives (Brazil, Peru, Colombia, Ecuador, and Bolivia), core and partner institutions, and researchers. Core institutions are those most closely aligned with SARDI's objectives and whose aims and staff have been dedicated to river dolphin research for the medium term. Partner institutions constitute those that undertake river dolphin work on a more sporadic basis or with specific projects and subjects. Individual researchers, not associated with a specific institution, and dedicated to river dolphin conservation also participate in SARDI.

The coordinator for the initiative is agreed every two years by consensus among representatives from the core institutions, usually during the annual meeting. From 2017-2019 and 2019-2021 the coordination has been taken on by WWF-Brazil.

The challenges to conserve the world's largest freshwater dolphin populations are enormous. We know that overcome them will require, among other actions, a strengthening of the collaboration networks. SARDI is structured to enable other partners to join the initiative. Each member of the core group remains in constant communication with different actors at the national level and when synergies are identified new partnerships can be established. Partner institutions are an integral part of the group, invited to regular meetings and to integrate various actions in planning and implementation. SARDI was created to be agile and uncomplicated, so the partnership is formalized by agile tools. Joint actions are governed by terms of cooperation or service contracts, especially related to the implementation of financial resources. Annually, this partnership is assessed, and the effectiveness of each institution analyzed in order to make the model more effective and efficient. When necessary, the core group is revised and may be reconfigured, to maintain the dynamism and productivity. The partnership evaluation process is transparent and participatory and reflects the level of commitment to implementing SARDI´s strategy by the different participating institutions.

Transparency and coordination are two central pillars to the initiative. Therefore, an online workspace is available with access limited to the members of the group, who are encouraged to upload and share relevant documents and other assets. Additionally, a website was created in order to share content with wider audiences. Monthly meetings support the discussion and participation of all members in the decisions and actions under implementation.

Implementation of projects by partner institutions in neighboring countries can only be considered part of the SARDI framework when previously aligned with the local WWF country office. It is highly recommended that a previous alignment with the focal point in the country be ensured.

A **Scientific Committee**, composed by one representative from each country, provides advice to SARDI on scientific issues, ensuring high standards on scientific production. This committee is responsible for ensuring transparency and ethics while conducting and developing studies, safeguarding the guidelines (under the terms of Authorship and Data Sharing Agreement). Relevant topics and subjects are discussed during the Science Calls, following a regular schedule. Furthermore, a capacity building program aimed at improving the capacity of researchers to deal with complex issues such as: learning specific analytical skills (e.g. population estimates), or being updated on other relevant subjects related to the river dolphin conservation work.

A communication strategy defines roles, responsibilities, campaigns, and important topics to be produced and shared. Monthly calls with the participation of communication representatives (or specialists) support the definition of contents and campaigns.

8. BUDGET (US dollar)

	BRASIL	BOLIVIA	COLOMBIA	ECUADOR	PERU	VENEZUELA
Specific Objective 1.1	115.000	95.000	105.000	105.000	95.000	30.000
Specific Objective 1.2	205.000	175.000	175.000	160.000	130.000	90.000
Specific Objective 1.3	200.000	200.000	195.000	195.000	195.000	25.000
OBJECTIVE 1	**520.000**	**470.000**	**475.000**	**460.000**	**420.000**	**145.000**
Specific Objective 2.1	120.000	110.000	110.000	120.000	115.000	44.000
Specific Objective 2.2	110.000	110.000	110.000	110.000	110.000	25.000
Specific Objective 2.3	79.000	89.000	89.000	49.000	49.000	33.000
OBJECTIVE 2	**309.000**	**309.000**	**309.000**	**279.000**	**274.000**	**102.000**
Specific Objective 3.1	320.000	182.000	217.000	317.000	217.000	34.500
Specific Objective 3.2	165.000	35.000	35.000	35.000	35.000	-
Specific Objective 3.3	150.000	60.000	80.000	45.000	45.000	-
Specific Objective 3.4	190.000	170.000	200.000	165.000	195.000	35.000
OBJECTIVE 3	**825.000**	**447.000**	**532.000**	**562.000**	**492.000**	**69.500**
Specific Objective 4.1	170.000	190.000	170.000	205.000	190.000	-
Specific Objective 4.2	60.000	60.000	95.000	65.000	52.500	20.000
Specific Objective 4.3	55.000	25.000	40.000	30.000	25.000	5.000
OBJECTIVE 4	**285.000**	**275.000**	**305.000**	**300.000**	**267.500**	**25.000**
STAFF	**120.000**	**120.000**	**120.000**	**120.000**	**120.000**	**184.000**
COMMUNICATION	**125.000**	**125.000**	**175.000**	**125.000**	**125.000**	**75.000**
TOTAL COUNTRY	**2.184.000**	**1.746.000**	**1.916.000**	**1.846.000**	**1.698.500**	**600.500**
					Total Cost	**9.991.000**

9. MONITORING PLAN

	Indicator (what)	Indicator (How)	Sampling frequency (When)	Responsible (Who)	Sites (Where)	Cost
Specific Objective 1.1	% of PCA implementing CARDS	CARDS reports	Biennial Baseline (2022) 2024: 40% 2026: 80%	Perú	Regional	0
Specific Objective 1.2	#of new PCA proposed	Formal documents	Biennial Baseline (2019):0 2022: 1 2024: 2 2026: 4	Perú	Countries	0
Specific Objective 1.3	# connectvity toolls/actions implemented #transboundary protected areas connected	CMP monitoring tool connectivity studies	Biennial Baseline (2026) 2028: 2 2030: 3	Ecuador	Transboundary basins	12.000
Specific Objective 2.1	# river basins with bycatch mapped and threats assessments done	technical reports	Yearly Baseline (2019): 0 2021: 3 2022: 6	Brazil	Regional	0
Specific Objective 2.2	% mortality reduccion # fishery agreements Fish stocks assessments	population trend surveys technical reports	Yearly Baseline (2022) 2023: 1 2024: 2 2025: 4 2026: 6	Bolivia	Regional	0
Specific Objective 2.3	# new normatives and policies	technical reports CMP monitoring tool	Biennial Baseline (2026) 2028: 2 2026: 3	Colômbia	Regional	0
Specific Objective 3.1	# studies published # database in global plataforms	pappers global plataforms	Yearly Baseline (2022) 2023: 2 2024: 4 2025: 6	Brazil	Regional	0
Specific Objective 3.2	# measures implemented	national and technical reports	Yearly Baseline (2022) 2023: 1 2024: 2 2025: 3 2026: 4	Brazil	Regional	0
Specific Objective 3.3	# of basins surveyd conservation of key areas	reports	Yearly Baseline (2022) 2023: 2 2024: 4 2025: 6 2026: 8	Colombia	Regional	12.000
Specific Objective 3.4	# of criticial areas still as FFR areas	national reports CMP monitoring tool	Biennial Baseline (2022) 2024: 0% lost 2026: 0% lost 2028: 0% lost 2030: 0% lost	Brazil	Regional	0
Specific Objective 4.1	# sustainable economic alternatives # % of income increased # areas with actions implemented	technical reports economic surveys	Biennial Baseline (2020) 2022: 5 - 10% - 5 2024: 10 - 20% - 10 2026: 15 - 30% - 15	Bolivia	Areas prioritarias	0
Specific Objective 4.2	#of implementation of nation plans % of implementation CMP	CMP and national plans monitoring reports	Biennial Baseline (2020) 2022: 25% 2024: 60% 2026: 85%	Colombia	Regional	0
Specific Objective 4.3	# of new projects witch aquatic species included in assessments	official reports and assementes	Biennial Baseline (2026) 2028: 50% 2030: 100%	Brazil	Regional	0

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SOUTH AMERICAN RIVER DOLPHIN INITIATIVE

STRATEGY 2020-2030

Why we are here
To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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