Case studies on best practices for a cherished and protected biodiversity
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In the context and culture of people living on the West African coast, some animal species occupy a prominent place. One can think of sawfish, a symbol of power, which once served as the counterweight for weighing gold and that appears today on the CFA franc as a modern evolution of the same symbol. Or sea turtles, sought after for their supposed medicinal properties. These species occupy a central place in the agendas of conservation organizations. Not only for their cultural value but also because they play a key role in the natural environments they inhabit.

Natural habitats are also part of conservation priorities. In particular, these environments are called critical habitats because they provide vital functions in the regeneration of natural resources and in providing services to human communities. Included in this group are coral formations, mangroves, sea grass beds or mud flats which represent hotspots of biodiversity.

One challenge for conservation is found in migratory species that escape the attention of observers during a part of the year. Similar challenges occur with very discrete species such as the manatee or widely dispersed species such as cetaceans.
The West African Regional coastal and marine conservation program (PRCM) was created in 2003 in response to conservation challenges like those that sharks confront. This partnership of international NGOs, national organization, governments and donors, operates under a shared vision and coordinates coastal conservation efforts in a 7-country region. The existence of a regional program such as the PRCM makes it possible to undertake in a coherent way, and at the relevant scale, the protection of migratory species or habitats shared by several countries as is the case for mangroves.

Another recurring difficulty encountered in the protection of species is related to certain fishing practices. Getting caught in nets, accidentally or intentionally, in fact represents a major cause of mortality for manatees, sea turtles or monk seals. The issue of climate change also constitutes a major challenge for the conservation of species and habitats. Nesting beaches for sea turtles or nesting islands for colonial birds appear to be very vulnerable to the risk of erosion or rising sea levels. Increasing temperatures in turn represent a direct threat to sea turtle populations (see box).
In the face of these various problems, for which we do not have immediate solutions, efforts are also aimed at building awareness, education, communication and advocacy. Encouraging changes in behavior have been observed. One example is the change in the perceptions and behavior of women who live on the trade of turtle meat in Senegal, and who have largely ceased this activity. Advocacy has encouraged governments to pursue regulatory measures at the national level or through international conventions. Other approaches presented in more detail in this document include three case studies of conservation efforts implemented by the PRCM: manatees, sharks, and mangroves. These examples represent different approaches to conservation - either local approaches undertaken at the field level, or at the national level, or a combination of both approaches.

**Manatees**

When the effectiveness of public institutions on the ground is limited, it is preferable to encourage communities to experiment with solutions to environmental problems with which they live on a daily basis in their local areas. Therefore, rather than relying simply on state resources to prevent the extinction of a species, effective conservation efforts work from the bottom-up by giving communities the means to act in the sites where these species are disappearing.

**Sharks**

Conservation approaches that are initiated and run by institutions and national or regional organizations are often viewed negatively. However, when migratory species are facing threats that transcend the boundaries of community lands, an integrated strategy combining complementary methods at different scales is necessary. If a participatory approach is used, the priorities identified nationally may actually coincide with the needs identified locally. This study demonstrates the participatory process used to translate and implement the regional action plan for the conservation and management of shark populations (PSRA-Sharks) at the national level.

**Mangroves**

When a natural resource or an endangered ecosystem extends beyond the artificial boundaries represented by national borders, policy making for the effective management and protection of vital habitats, such as mangroves, requires a high level of coordination at the regional level. Since most activities that threaten the survival of mangroves occur in communities living adjacent to these ecosystems, sub-regional approaches should also be accompanied by local conservation efforts. This study describes an approach that has successfully combined actions at all three scales, conducting simultaneous interventions on sites and in the area of governance.
Preserving the West African manatee from the ground up:
A case study of conservation efforts of Wetlands International

The (West African) Manatee is an aquatic mammal living in mangrove and river ecosystems. This non-threatening, gentle creature is in fact ‘threatened’ according to the IUCN Red List because while it does not harm humans, it is harmed by people’s activities. However, this species, an essential herbivore in rivers and estuaries, deserves our protection.

Sometime called “sea cows”, manatees provide significant environmental benefits, acting as natural dredgers that control the aquatic vegetation in waterways and canals. By chewing through several thousand kilograms of vegetation per year, they help to raise river depths thus improving the navigability of these waterways and increasing their capacity to store water. Through their discharges (feces), manatees also contribute indirectly to the general level of productivity of aquatic areas by assisting in the development of phytoplankton, which is an important food requirement for fish.

Furthermore, manatees are important for their cultural significance, occupying a central place in many African myths. We also can’t ignore that they bring an additional value to poor communities searching for ways to make money – the promise of glimpsing these mystical creatures can make a particular location very attractive to tourists. Finally, in specific cases, this species presents a good argument for tourism, providing an alternative means of development that benefits village communities.

For these reasons, we can justify its protection by focusing on the important function the manatee plays at the heart of these ecosystems, or on the essential place it occupies in the fabric of coastal communities. We can also find moral reasons: protecting this placid and utterly vulnerable animal is just the right thing to do. Not only for its cultural and symbolic significance, but to demonstrate our own humanity.
Infrastructure that alters the flow of the water in rivers and streams, sometimes causing algae blooms and the spread of disease, contributes to the disappearance of manatees. They can be killed in hydropower turbines or crushed in the control gates of dams, or simply prevented from reaching other parts of their habitat that are critical to their survival when rivers recede. Other threats lie in accidental entanglement with fishing nets and in the loss of habitat through the deforestation of mangrove forests or pollution. Lastly, they are still hunted in some localities for their meat or when their incursions into rice fields in the rainy season jeopardize crop harvests. While conservation and protection laws exist, they are poorly enforced and the importance of this species to ecosystem balance as well as the severity of threats they face are poorly understood.

“The conservation of the manatee is very difficult. If you lose one, the survival of its young is precarious. Therefore, building awareness and trust is very important as well as putting in place alternative livelihood activities.” - Momar Sow, Wetlands International Africa

Although governmental institutions have the power to significantly improve the health of the environment, their effectiveness on the ground is limited. In fact, the bureaucratic walls of government institutions or large intergovernmental organizations usually hinder the ease with which a community can experiment with solutions to the environmental problems that they live with on a daily basis. Therefore, instead of relying just on the resources of the state to prevent the loss of species, successful conservation initiatives work from the bottom-up by empowering communities where such species are in fact declining.
A LOCAL SOLUTION TO THE PROBLEM IN MATAM, SENEGAL

In Matam, on the banks of Senegal River, Wetlands International Africa (WIA) has established an effective local mechanism for preserving West African manatees. In this area, manatees face deadly entrapment in the grills of the Nawel hydropower dam. In response to this specific threat, WIA rallied a wide group of stakeholders not only to organize rescue missions during periods of receding waters, but to tag specimens in order to discover their movement through the maze of the river’s channels and branches.

Another mechanism was created, a local protection committee, which comes under the authority of the regional government. This committee allows timely interventions on the ground without the need for external support. Its members include local fishermen, dam managers and representatives of West Africa’s regional Senegal River management institution, the OMVS, therefore making its actions accountable to local needs and priorities. Members of the local committee execute rescues of trapped manatees in response to alerts sent out through a warning system that ensures immediate response and rescue whenever necessary.

Furthermore, to prevent further entrapment, representatives of the fishing community in Matam entered into a dialogue with the Senegal River Delta Water Management Committee (SAED) that resulted in the actual removal of the Nawel dam grills. All this work was supported by the PRCM.

NATIONAL, REGIONAL, AND INTERNATIONAL CONSERVATION STRATEGIES FOR MANATEES

What made this local effort particularly effective is its connection and contribution to strategies that are creating change at the national and regional levels, such as the inclusion of the species in construction plans. Through the data collected and lessons learned in the local conservation work in Matam, WIA convinced the mining company Rio Tinto to integrate manatee migration routes into its plans to develop a mineral port on the Guinea-Sierra Leone border. Manatees have also been included in Environmental Impact Assessments in a variety of similar economic development plans throughout West Africa.
Furthermore, public policy instruments have been reviewed, modified or created to counter the problems specific to the endangered manatee in Sierra Leone, Guinea Bissau and Guinea. These efforts have been coupled with campaigns to build the awareness of the species’ endangered status and the need for a change in human behavior. Lastly, at the regional level with the support of the PRCM and WIA, stakeholders are working with the OMVS (Organisation pour la Mise en Valeur du fleuve du Senegal) to systematically incorporate the species into its environmental impact evaluation studies. The OMVS, which covers Guinea, Mali, Mauritania, and Senegal, is showing its strong commitment to the survival of the species by developing a regional conservation strategy and demonstrating leadership in the area of conducting regional assessments.

Wetlands International is leading the process to increase the protection status of West African manatees in context of the CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) and advocating for its consideration in the Convention for Migratory Species (CMS).

These multi-scale efforts have strongly diminished the number of animals whose passage was blocked as well as the death rate of manatees in the Matam region. In Matam, Senegal not one trapped manatee was reported since the gates of the dam were removed in 2009, whereas in 2008, one was found dead and the passage of another seven was blocked.

Throughout the six target countries, increased awareness of this magnificent species has resulted in improved government policies. Specific successes include:

**Sierra Leone** – The establishment of a new Fisheries Act considerably raised the awareness of local populations about the manatee’s need for protection and the consequences for killing manatees.

**Guinea** – The country now has its own National Manatee Conservation Action Plan and is implementing local projects that follow the principles laid out in the plan.

**Guinea Bissau** – National actors have started their own process to elaborate a national action plan for the preservation of this species.

**Senegal-The Gambia** – The manatee is incorporated into the management plan of the Niumi transboundary wetland national park.
The effectiveness of national planning for conservation and management of sharks:  
A case study of efforts by the FIBA and the SRFC in West Africa

Shark fins swimming in Asian soups, piles of shark bodies minus their fins. An image that is succulent for some but scandalous for others, this image is emblematic of the ultimate danger to sharks. Instead of diminishing, this threat has worsened as West African artisanal fishermen, hoping to gain enough income joined the expanding regional markets to thwart the poverty that endangers their livelihoods. Before the early 1970s, traditional fisheries located in the 7-country region encompassing the Gambia, Mauritania, Senegal, Sierra Leone, Guinea, Cape Verde and Guinea Bissau targeted other fish species. That all changed when the establishment of regional markets for salted and dried shark meat and the expansion of more distant markets in South Asia spurred a rapid rise in shark fishing.

The fact that traditional fishermen have gotten better at hunting these top predators, using improved fishing techniques to increase fish catches, has increased the pressure on shark species. Today, almost all countries in the 7-country region have artisanal fisheries that specialize in the exploitation of sharks and rays. Indeed, artisanal shark fisheries account for nearly 7% of total jobs in the fishing industry and generated about 9 million euros in revenue per year between 2005 and 2008 (Diop and Dossa 2011).

In spite of the fear that sharks inspire in people, in reality, sharks should fear man. As with all large predators, sharks take a long time to grow, they start reproducing late in their lives, and they have few babies. Therefore, sharks are extremely vulnerable to the heavy pressure of increased fishing effort. As mature shark fish are hunted to extinction, the average size of those that are caught has been declining. The disappearance of sharks, which has happened over just a few decades, will have an unimaginable effect on the marine ecosystems
that they help regulate, particularly in terms of controlling predatory fish populations. In short, all of these changes have resulted in the scarcity or disappearance of many species, which has aggravated biodiversity losses and the tenuous economic situation for fishermen who are seeing a sharp drop in yields.

For example, the sawfish, a symbol of wealth in West Africa has now almost disappeared. A unique species distinguished by its long snout decorated by teeth, its slow growth, late sexual maturity and small number of young made it especially vulnerable to exploitation. Chosen as an emblem of the region because of its cultural and ecological value and critical endangered status, it epitomizes the tension between development and conservation. Its disappearance, and the dwindling number of other shark species, has spurred cross-border migration of fishermen within the region, with Senegalese fishermen traveling as far as Sierra Leone in search of sharks. This is a truly regional problem in need of a regional and international solution.

The PRCM funded the project entitled the “Sub-Regional Plan of Action for Sharks” (SRPOA-Sharks) highlighted in this case study, and which focuses on shark conservation. Based on the recommendations of the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks) adopted by the United Nations Food and Agriculture Organization (FAO), the project aims to implement a Regional Action Plan and a series of national action plans with governments and local stakeholders of the countries concerned.

“Top-down” approaches to conservation, that is, those that are initiated and led by national institutions, and regional or international organizations are often perceived in a negative light. Many top-down preservation initiatives are criticized for being too theoretical or narrowly defined, for being restrictive and for downplaying the importance of the needs and priorities of local populations. Concerned stakeholders emphasize the importance of taking into account local factors that influence the environment, the economy and the landscape. However, when endangered migratory species face threats that extend beyond the borders of local sites, an integrated strategy that incorporates complementary approaches at multiple scales is necessary. If accomplished in a participative manner, nationally defined priorities can actually coincide with locally driven needs. The participative process used to translate the Sub-Regional Plan of Action for conservation and management of populations of sharks (SRPOA-Sharks) into national action plans and strategies is an excellent example of such an approach.
Benefiting from the technical support of FIBA and the SFRC, member states developed National Action Plans on sharks (NPOA-Sharks) inspired by the principles delineated in the sub-regional plan. The first problem to be tackled was the inability to distinguish shark species and to understand the status of each species. To address this problem, PSRA-Sharks helped to build a knowledge base on the status of the species in the region through data collection and monitoring. Additional priorities included raising awareness, implementing sustainable management measures, influencing policy and expanding research capacity.

The validation process of these NPOA-Sharks started in 2005, with activities to build the awareness of policy makers leading to expressions of formal political commitment to the process in all PRCM countries. This process involved the dissemination of the documents through the organization of national workshops to ensure that all the national plans incorporated the feedback of all stakeholders including fishermen, fish processors, researchers, government officials, and wholesalers. This was followed by the formal validation and adoption of each NPOA-Sharks by their respective national institutions.

Today, in all PRCM countries – Gambia, Senegal, Guinea, Cape Verde, Mauritania, Sierra Leone and Guinea-Bissau – the national action plans have been officially adopted and validated, demonstrating a strong commitment of the states to the conservation of shark populations.

COMBINING TOP-DOWN WITH BOTTOM-UP FOR EFFECTIVE CONSERVATION

What made this effort particularly successful was its combination with on the ground activities and the capacity building of actors. To lure direct stakeholders (fishermen, women fish processors) away from the “goldmine” that a boat load of shark fins represents, project leads from the SRFC and FIBA along with national stakeholders conducted outreach efforts to help convince producers of the need to convert to other income-generating activities. Financial support was then provided to women shark processors in Senegal and Guinea allowing the construction of new smoking ovens and training on new processing techniques for other fish species. Furthermore, a total of 140 researchers and fish observers received training on shark biology and data collection over the life of the project. During these training sessions, participants from all over the region were able to share their own experiences and challenges as they learned together how to improve their methods for tracking shark species. An average of 71
technicians received training each year at the national level. Another 17 students throughout the region received support to develop research skills related to this family of species. The studies they conducted became a part of their theses and dissertations and some also resulted in scientific publications and posters.

Consultation with stakeholders remains an essential mechanism in achieving effective results in conservation efforts. The work described in this case study engaged action plan managers, researchers, students and professionals. The project's multi-disciplinary approach linked various stakeholders (administrators, researchers, students, fishing professionals and indigenous populations), connecting professionals at the ground level with decision-makers at the national level to implement a regional strategy. Each party contributed to the conceptualization and effective implementation of NPOA-Sharks in their respective countries. Involving multiple parties in data collection (students and researchers as well as fishing professional who participated in landing and socio-economic data and who provided historical indigenous knowledge), also helped to accurately characterize the fisheries. A major result was the listing of the sawfish species *Pristis pectinata,* and *Pristis pristis* under Appendix I and *Pristis microdon* under Appendix II of the Convention on International Trade in Endangered Species (CITES).

Furthermore, thanks to the formalization process of NPOA-Sharks, the project has helped to change laws regarding the exploitation of sharks within the countries of the SRFC. This has enabled countries to take measures to better and more sustainably manage ray and shark resources. Examples abound, including:

- **The banning of all shark finning in territorial waters in Cape-Verde, Guinea, and the Gambia.**
- **Passage of a fisheries law protecting sharks in Guinea-Bissau.**
- **Introduction of a special shark fishing license and an export tax on shark products in Sierra Leone.**
- **The placement of three sawfish species on the list of protected species in Senegal and other countries.**
- **Establishment of a minimum landing size of 60 cm for houndsharks in Mauritania.**

Today, West Africa is one of the rare regions in the world where NPOA-Sharks have been adopted and implemented by countries in response to the IPOA-Sharks. It is a great success, which should be perpetuated to ensure greater protection of this endangered species throughout the world.
Conservation at multiple scales: A case study of efforts by Wetlands International and IUCN to save mangroves in West Africa

Mangrove ecosystems play a critical ecological and economic role in coastal countries throughout West Africa. Characterized by a high level of biodiversity and biological productivity, these ecosystems offer abundant fish and wood resources, and their mangrove forests are used for many activities including agriculture and fishing. In addition to providing refuge for numerous species, these areas also serve as protection against the effects of climate change and help with carbon sequestration.

Over the years, mangrove ecosystems in the West African region spanning Mauritania to Sierra Leone have experienced an accelerated rate of degradation. In spite their significance, the mangroves of a large part of West Africa are being threatened by intensified human activities, such as agriculture, infrastructure developments, salt production, fish smoking, unsustainable timber harvesting, and land clearing for rice production. Sea level rise and drought caused by climatic variation are also accelerating the degradation.

As early as 5,500 BC, mangroves were at their greatest extent spanning 3 million hectares between Mauritania and Sierra Leone. However, as of 2007 only approximately 780,000 hectares remain. A drop in the fertility of the land due to acidification and increases in salinity has led to a severe decline in the productivity of agriculture and fishing resources, and a general decline in biodiversity.

These effects are detrimental to the people who depend on mangrove ecosystem services and resources since the economic value and revenue coming from resources extracted from the ecosystem have also declined. Subsequent increases in the poverty of indigenous coastal populations can further destabilize the ecosystem as they exert even more pressure on biodiversity resources to alleviate income losses.
When an endangered natural resource or ecosystem extends beyond the artificial lines of national borders, the development of national policies needed for better management and protection of a critical habitat such as the mangrove demands a high level of coordination at the regional scale. Because many of the activities that threaten the survival of mangroves occur in local communities in close proximity to these ecosystems, local conservation efforts must also accompany sub-regional approaches. Furthermore, policy-making at the national level to establish legal mechanisms for protection is also necessary. In the region, the West African Mangrove Initiative (WAMI) has successfully combined action at all three scales, conducting interventions simultaneously on the ground and in the area of governance.

Established in 2007, funded by the MAVA Foundation, and coordinated under the framework of the PRCM, WAMI benefited from the technical support of the IUCN and Wetlands International. By using a participative approach at the local and national levels, the project was able to effect change on the ground, in the policy arena, and in the implementation of concrete activities. The project was designed to conserve and restore the mangrove ecosystem by improving the well-being of local communities that depend on it, and by strengthening national policies as well as their coherence at the sub-regional scale. WAMI also addressed the enhancement of the knowledge base on mangroves in the sub-region, which is necessary for monitoring this ecosystem in the long term.

Several steps were undertaken during the implementation of the project.

1. **Creation of baseline data** on the extent of mangroves including the development of reference studies on mangrove ecology, climate, socioeconomic conditions of neighboring communities, mapping, and a diagnostic of national policies and laws.

As a first step, a preliminary survey was conducted to determine the data that did exist. Several significant gaps were identified including the tendency to have paper files and little digital data, a limited range of data (most of it consisted of satellite images and topographic maps), an inadequate area of coverage, and the fact that most information found was very old. With the development of the reference studies, some of these information gaps were filled, and training was conducted to teach stakeholders how to collect and analyze the data for their future use.
**Building awareness** at all scales about the nature of the problem and the need for concerted regional action and coordination.

Knowledge transfer to the local community and at the national and regional scales helped motivate actions to improve the management of the mangrove. Posters and presentations were done at regional and international conferences and local populations were reached through the transmission of radio programs and interviews on the topic. Through these various forms of communication, the problem and the positive results of the project were widely disseminated in the countries of the PRCM, ECOWAS and UEMOA.

Implementation of **pilot activities** on the ground relating to restoration, diffusion of best practices, and alternative livelihood projects.

Priorities were determined through a participative process with the communities regarding their needs and preferences. Best practice solutions were taken from countries in the PRCM region through facilitated knowledge exchanges and from throughout the world. Examples include the dissemination of solar salt production techniques in Sierra Leone and the diffusion of improved stoves for smoking fish. Both of these pilot activities combined alternative livelihood actions with conservation to significantly reduce the amount of mangrove forest that is cut down in those communities.

Identification of **gaps and inconsistencies in national policies**, laws and management mechanisms for the conservation of mangrove habitats.

A review of the institutional and regulatory frameworks at the national level resulted in country reports detailing the existing laws and mechanisms to protect mangroves and gaps in these public policies and in their implementation. This analysis allowed the WAMI team and the pilot committee comprised of regional stakeholders to develop broad guidelines that informed the development of the Regional Charter and targeted national conservation efforts.

Facilitation of the **creation and adoption of a regional Mangrove Charter** and its translation into national action plans to ensure coherence.

The full participation and engagement of all stakeholders was solicited at national validation workshops to discuss the content of the charter and practical arrangements for its signature and adoption. The implementation of national Action Plans was also dealt with at these meetings. These gatherings brought together experts in mangroves, lawyers, economists and other experts from a variety of ministries (environment, fisheries, tourism, agriculture, mining, hydraulics, land use planning, etc...). Elected officials at all levels also participated as well as regional and international partners.
In all countries, the workshops concluded with unified declarations of recommendations - provided that the proposed changes would be taken into account by the respective Governments, through the leadership of the Ministries in charge of mangroves - to advance the necessary legal provisions in order to pass and ratify the charter for its full implementation throughout the sub-region.

The impact of the WAMI project is positive and evident in many areas. Quality baseline data were gathered to develop a better understanding of the ecology and use of mangroves as well as effective monitoring of their evolution. Communities associated with demonstration projects have become increasingly engaged in mangrove restoration and in alternative economic activities that will reduce the pressure on these ecosystems. Furthermore, the six governments have jointly developed and signed a Charter for sub-regional mangrove conservation, an excellent example of collaborative management of shared ecosystems. This charter has served to guide the development of specific national conservation plans which take into account the specificity of each country’s climate, language, cultural and economic situations.

The process by which this consensus was reached emphasized a respect of each country’s national situation. For example, in Mauritania, mangroves are completely protected and cannot be exploited by local populations. However, in other countries such as Sierra Leone or Guinea Bissau, the ecosystem services provided by mangroves represent a significant amount of income for populations. Attempting to forbid the exploitation of mangroves would have failed. Instead in these countries, the pursuit of sustainable management practices that follow the general guidelines described in the Regional Charter is more practical and feasible.

The high level of engagement and motivation of local communities who now understand the need to conserve their resources and who have the ability to do so will ensure the sustainability of the successes described above. Without building the awareness of local population, this engagement, and the sustainable adoption of conservation practices would remain insurmountable.
The coastal zone stands out more than ever before as an area of strategic importance for the African countries. Coastal zone management zone presents a complex equation given the heavy dependence of its populations on natural resources from an economic and food security standpoint.

These states need to be able to benefit optimally from the development opportunities that the coastal zone offers while at the same time considering future outlooks such as population density, which could triple along the coast by 2050, as well as the impacts of climate change.

The West African Marine and Coastal Conservation Program – PRCM, was founded in 2003 precisely to rise to these challenges with the aim of building, together with the main stakeholders in the region, i.e. Mauritania, Cape Verde, Senegal, Gambia, Guinea-Bissau, Guinea and Sierra Leone, an environmental governance system for the West Africa marine and coastal zone.

This document presents case studies of conservation efforts implemented by the PRCM that represent different approaches to conservation - either local approaches at field level, or at the national level or using a combination of both approaches.