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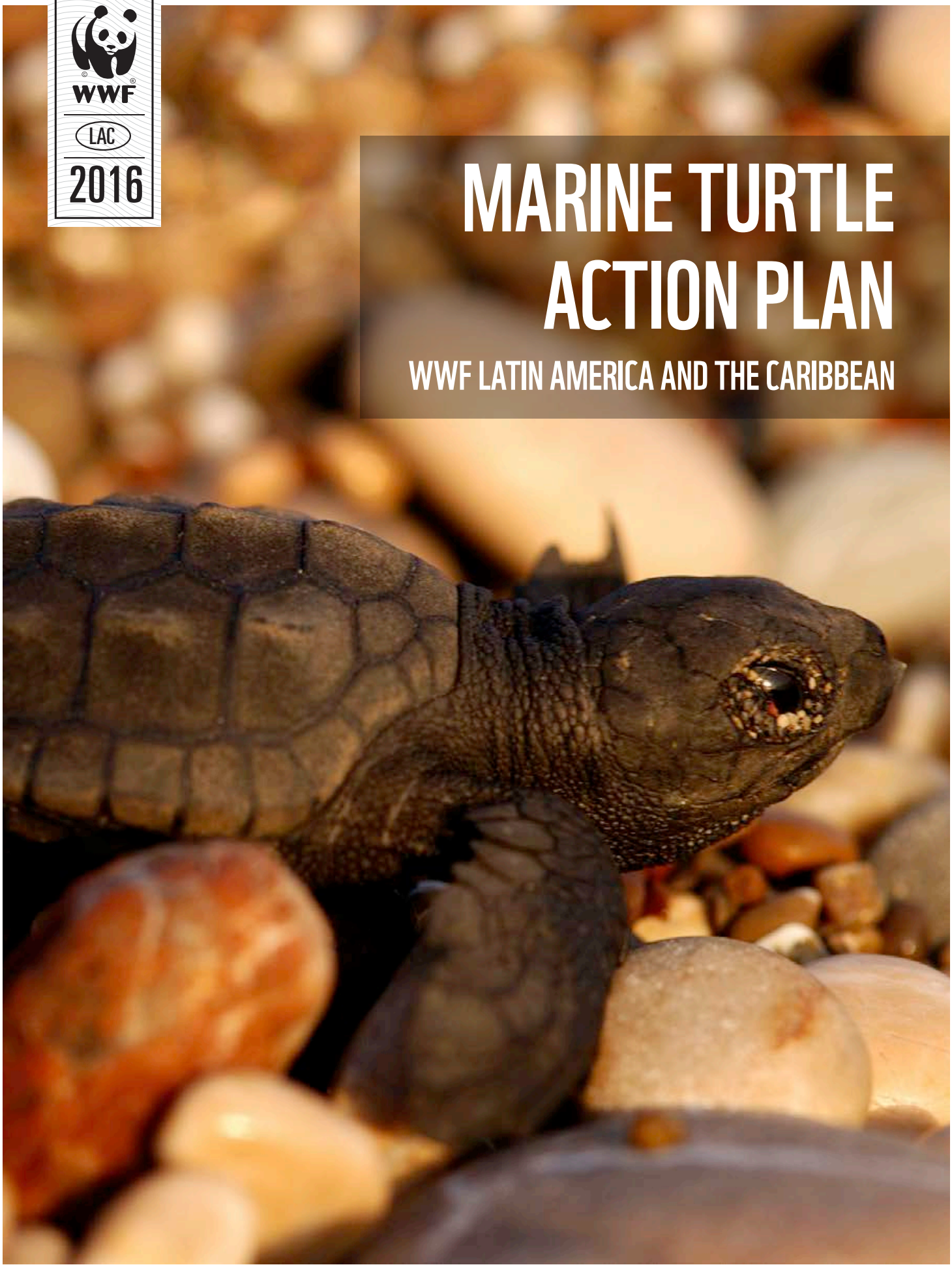

MARINE TURTLE ACTION PLAN

WWF LATIN AMERICA AND THE CARIBBEAN

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WWF LATIN AMERICA AND THE CARIBBEAN

2015-2020

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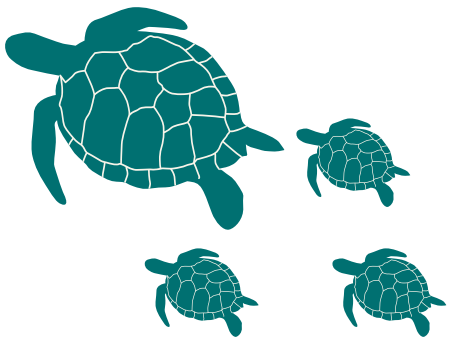

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FOREWORD

All six species of marine turtles distributed in Latin America and the Caribbean (LAC): green, hawksbill, loggerhead, olive ridley, Kemp's ridley and leatherbacks are threatened with extinction.

Dr. Diego Amorocho
Coordinator Species Program for Latin America and the Caribbean, WWF-Colombia
June 2015

"The activities planned in the LAC-MTAP will consolidate collaboration amongst partners within and outside the Caribbean and Eastern Pacific. There is agreement to work towards more coordinated and integrated strategies for better research management, and the LAC–MTAP provides not only insight on the current plight of marine turtles, but also prioritizes species, and highlights their most critical sites on which to focus and contribute efforts."

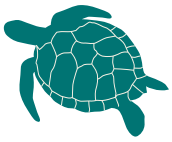
Marine turtles are highly migratory reptiles that combine terrestrial and aquatic environments during their life cycle that generally span the political boundaries of many nations. Biological characteristics of longevity and delayed sexual maturity in marine turtles, imply that the effects of both, threats and conservation actions, will take decades to be revealed at a population level. Marine turtles face multiple risks accomplishing their life cycle, such as: 1) incidental capture in artisanal and industrial fisheries (long lines / gill nets), 2) overexploitation in nesting and foraging grounds, 3) habitat destruction / modification, and 4) climate change impacts (high temperatures, sea level rise and flood).

The following WWF LAC – Marine Turtle Action Plan (MTAP) compiles useful information to address issues currently hampering marine turtle conservation in the region. The LAC-MTAP outlines WWF's GPF priorities for marine turtle conservation; taking into account their endangered status as well as WWF's regional role. The activities planned in the LAC-MTAP will consolidate collaboration amongst partners within and outside the Caribbean and Eastern Pacific. There is agreement to work towards more coordinated and integrated strategies for better research management, and the LAC–MTAP provides not only insight on the current plight of marine turtles, but also prioritizes species, and highlights their most critical sites on which to focus and contribute efforts. The LAC-MTAP integrates information from over 250 scientific papers, reports and research publications from regional experts, as well as findings presented in national and international fora.

The WWF LAC-MTAP (2015-2020) focuses on the mitigation of human induced threats to stop marine turtle population decline. It provides comprehensive and updated knowledge about their conservation status and possible options to deal with management issues from a local to a regional scale. The LAC-MTAP maintains a long-term perspective in its approach. It is supported by the conservation expertise of the WWF network and specialists that contribute valuable knowledge for the strategic development of a regional vision in which marine turtles are protected and restored to levels where they are no longer at risk of extinction. Thus, this five-year MTAP is a platform thought as a flexible framework that provides comprehensive base line information about regional WWF work and proposes guidelines to orientate actions for implementation of WWF Global Marine Turtle Strategy (2012-2020) in the LAC region.

EXECUTIVE SUMMARY

Marine turtles are charismatic species of special concern and a flagship group for WWF's Latin America and Caribbean Species Program. Marine turtles exhibit complex population structures characterized by sex-biased gene flow, population overlap during migrations and in developmental habitats, such that the degree of genetic population structuring increases with life stages within populations. Thus, impact on particular life stages of marine turtles result in different population-level effects, needing stage-specific conservation strategies.



THE LAC-MTAP RESPONDS TO **urgent conservation priorities** IN THE REGION TOWARD THE RECOVERY OF SEA TURTLE POPULATIONS IN THE EASTERN PACIFIC, THE CARIBBEAN AND THE CENTRAL AND WESTERN ATLANTIC.

The Latin America and the Caribbean Marine Turtle Action Plan (LAC-MTAP) materializes a regional approach and will align all WWF initiatives toward marine turtle conservation in the region. The LAC-MTAP responds to urgent conservation priorities in the region toward the recovery of sea turtle populations in the Eastern Pacific, the Caribbean and the Central and Western Atlantic. The LAC-MTAP is target-driven and maintains a long-term perspective on its approach for a better future for people and marine turtles.

LAC Latin America and the Caribbean **Long-term vision** (100 + years)

Marine turtles flourish in the marine environment providing multiple benefits to coastal communities throughout Latin America and the Caribbean (LAC).

LAC Goal (25 + years)

Marine turtles in the Latin America and Caribbean region have stabilized or fully recovered.

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LAC Overarching Objective (3-15 years)

The decrease of threats to selected populations of marine turtles, which are plummeting to low levels due to the loss and degradation of their critical habitats and to the impacts of unsustainable use and bycatch.

The LAC-MTAP is mainly focused on leatherback (*Dermochelys coriacea*), hawksbill (*Eretmochelys imbricata*), loggerhead (*Caretta caretta*), green (*Chelonia mydas*), and olive ridley (*Lepidochelys olivacea*) turtles. Kemp's ridley turtle (*Lepidochelys kempii*), is not currently considered a priority for WWF's work largely because of their restricted geographic range and the success of current interventions by other stakeholders; specifically the governments of Mexico and the USA, and other NGOs working in the region.

THREATS TO MARINE TURTLES IN LAC

THE MAIN NESTING SITES FOR THE THREATENED EASTERN PACIFIC HAWSKBILL WERE DISCOVERED IN 2008 AT ESTERO PADRE RAMOS (NICARAGUA) AND BAHÍA DE JIQUILÍSCO (EL SALVADOR). OVER 400 NESTS HAVE BEEN PROTECTED SINCE THEM DUE TO REGIONAL PARTNERSHIP AND COMMUNITY ENGAGEMENT WORKING TOGETHER AGAINST EXTINCTION.

The causes of decline and the present and future threats to marine turtles are diverse. Four realms, however, have been recognized as the main threats to marine turtles worldwide: i) habitat destruction and alteration/degradation, including proliferation of fossil fuel operations both exploration and extraction, ii) overexploitation for meat, hides, eggs and shells, iii) incidental capture in and iv) climate change. The LAC-MTAP focuses its agenda on these four realms, but acknowledges that pollution and disease are consequences of habitat degradation that requires attention by the conservation community.

Under natural conditions, turtles suffer high hatchling, post-hatchling and juvenile mortality, but those that survive the early days grow into long-lived animals with delayed sexual maturity and very low natural adult mortality. Unfortunately, conditions nowadays are far from “natural” and turtles suffer mortality at all stages of their life cycle, leading to increasingly regular population crashes. The number of female leatherbacks nesting on the Pacific beaches of Mexico has declined by more than ten fold in less than a decade; the number of nesting loggerheads in Eastern Australia has declined by 50 to 80% since the mid-1970s; Kemp’s ridley nearly went extinct.

All of the six species of marine turtles in LAC are currently listed in the IUCN Red List as threatened with extinction. Three species are classified as vulnerable (loggerhead, leatherback and olive ridley), one species (green) as endangered and the remaining two (hawksbill and Kemp’s ridley turtles) are considered critically endangered.

The causes of the observed population declines are many and varied, but have their roots in two basic characteristics of turtle biology which render populations particularly vulnerable to the pressures described above: (1) nesting is highly localized on beaches allowing easy access to eggs and nesting females, and thus,

Juvenile hawksbill (*Eretmochelys imbricata*) after surfing to breath in waters of the Utria National Park, Colombian Choco - Darien Gap, region.

leaving nesting populations vulnerable to changes in these areas, e.g. coastal development, and (2) their slow maturation masks the effect of overexploitation for decades.

The precipitous decline in the Eastern Pacific leatherback populations during the past two decades has been extensively documented (e.g. Santidrián Tomillo *et al.* 2007; Sarti Martínez *et al.* 2007), and was recently identified as one of the most endangered sea turtle RMUs in the world (Wallace *et al.* 2011). Comprehensive reviews of long-term nesting abundance in Mexico and Costa Rica - which together comprise nearly 90% of EP leatherback breeding grounds - concluded that nesting had declined more than 90% since the 1980s. For this reason, the Eastern Pacific leatherback subpopulation continues to be considered critically endangered in this region.

MARINE TURTLE CONSERVATION HAS BEEN LINKED WITH THE IMPROVEMENT OF COMMUNITY LIVELIHOODS AND WELL-BEING INCLUDING INCOME SOURCES AND THE FULFILLMENT OF A SERIES OF OTHER FUNDAMENTAL HUMAN NEEDS

The WWF marine turtle approach

WWF directs its conservation efforts towards achieving three global goals: protecting endangered places (ecoregions), addressing global threats, and saving endangered species. Marine turtles are among the species of special concern or flagships selected by WWF for action at an international and network-wide level, and whose protection cannot be secured by habitat conservation alone. These species were prioritized not only because they require attention but also because they act as flagships for important conservation and environmental issues, as well as being charismatic ambassadors for their habitats and for the myriad of less well-known species in their ecosystems. In general, marine turtle conservation has been linked with the improvement of community livelihoods and well-being including income sources and the fulfillment of a series of other fundamental human needs, like subsistence and employment opportunities, health and security, environmental protection, human relations and communication, education and creativity, local identity and traditions, participation and recreation (Vieitas *et al.*, 1999; Montoya and Drews, 2004; Montoya, 2009).

Considering marine turtles biological features and man-induced threats, conservation actions need to be sustained over decades, carried out over vast areas, be relevant to diverse marine and terrestrial environments, and involve international cooperation and coordination. The huge size of individual home ranges and the vast area requirements of marine turtles during their life cycle are unusual for other reptiles. WWF has skilled experts and resources for networking in LAC to reduce threats considering social, economical and political issues in order to develop a regional conservation approach tailored to local communities, keeping in mind marine turtles' biological characteristics.

Leatherback (*Dermochelys coriacea*) long dive of more than 70 m seeking jelly fish.

WWF LAC MARINE TURTLE ACTION PLAN (2015-2020)

The WWF LAC–MTAP contributes jointly toward the vision of the WWF Global Marine Turtle Strategy (McLellan *et al.*, 2012). This action plan focuses on the regional priority issues and places (Figure 1), and it will keep track of the Smart Fishing and Climate Change Network Initiatives to reach this important WWF species conservation goal.

The LAC–MTAP addresses the causes of the population declines, and focuses on the mitigation of the most imminent current and future threats to marine turtles in Latin America and the Caribbean, and the generation of benefits to both marine turtles and local human communities. The LAC-MTAP helps define the conservation issues concerns, and prioritize the areas and actions that WWF will focus on in the years to come following the Global Marine Turtle Strategy (2012-2020) principles and objectives. The LAC-MTAP is set out for the next 5 years, starting in 2015. If this endeavor is successful, by the year 2020 marine turtle populations will live in a marine and coastal environment, in which their recovery is likely.

Given the commonalities observed between regions regarding threats to marine turtles, these threats are grouped under a relatively small number of general global objectives from which precise targets and milestones for Latin America and the Caribbean are derived. The details of each objective of the LAC-MTAP are described in Table 2. The profile of the targeted priority nesting beaches and foraging areas for LAC-MTAP implementation are shown in Table 3 and Table 4 respectively. Table 5 corresponds to LAC-MTAP logical framework that can be adapted and adjusted over time in accordance to particularities of each country and WWF regional capacity to tackle marine turtle threats. Finally, Table 6 summarizes prioritized species for WWF, main threats they face and potential partners to overcome current population in LAC region.

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Detailed information about marine turtle distribution and conservation status is included in Annex 1.The more important regional and global treaties/agreements for marine turtle protection and habitat conservation are mentioned in Annex 2. Main nesting sites and identified DNA stocks in LAC are presented in Annex 3. Relevant published papers about marine turtle tagging projects in the LAC region are described in Annex 4. Some of the more significant satellite tracking published papers are cited in Annex 5.

LAC-MTAP GENERAL OBJECTIVES

The LAC-MTAP objectives to reduce current marine turtle conservation threats by 2020 are:

Species

1. By 2020, leatherback populations are stabilized or increasing at four important nesting beaches in the Eastern Pacific (Mexico, Costa Rica) and Caribbean (Colombia, Guianas) with long-term monitoring schemes, while important threats to leatherbacks in priority sites are measurably reduced working together with RFMO and its nations to avoid bycatch in open ocean and coastal fisheries.
2. By 2020, hawksbill populations are stabilized or increasing at two important nesting beaches in the Caribbean (Mexico, Colombia) with long-term monitoring schemes, and important threats to hawksbills in priority sites are measurably reduced.
3. By 2020, Eastern Pacific loggerhead populations are stabilized or increasing in at least one important nesting beach in Mexico, as well as bycatch assessed in Peru and Chile with long-term monitoring schemes, and important threats in priority sites such as in Baja California are measurably reduced.
4. By 2020, green turtle populations are stabilized or increasing at four important nesting beaches (Costa Rica, Galápagos, Cuba, Guianas) with long-term monitoring schemes, and important threats to green turtles in priority sites are measurably reduced.
5. By 2020, olive ridley turtle populations are stabilized or increasing in at least one important beach in French Guiana, with long-term monitoring schemes, and particularly important threats (i.e. oil exploration/exploitation) to olive ridleys in priority sites are measurably reduced.

Overarching

6. By 2020, the Adaptation to Climate Change for marine turtles (ACT) is implemented to significantly reduce the threats from climate change to marine turtles at priority nesting sites in LAC.
7. By 2020, the development and application of policies and legislation that benefit marine turtle conservation has been facilitated in at least 2 range states covering our priority sites and through the Inter American Convention for the Protection of Marine Turtles (IAC) or other relevant instruments.
8. By 2020, the livelihoods of fishermen and people living in coastal areas in at least two countries of LAC are improved through economic activities linked to marine turtle conservation.

Table 1. Marine turtle population geographical distribution, estimates and trends in LAC (Source: Wallace 2014). The Regional Management Unit (RMU) will be the biological and ecological concept driving the LAC – MTAP. RMU integrates information from nesting sites, genetics, tag returns, satellite telemetry and other data to identify geographically defined and biologically discrete population segments for global marine turtle species conservation management (Wallace *et al.*, 2010, 2011).

Project Location	Species	RMU	RMU risk-threat rank	RMU abundance (nesting females per year)	RMU population trend (recent)	RMU population trend (long-term)	RMU highest threat	GMTS objective
French Guiana	Olive ridley	W Atlantic	Low risk-high threat	1,000-10,000	Increasing	Increasing	Bycatch	Habitat protection
Cuba	Hawksbill	W Atlantic	Low risk-high threat	1,000-5,000	Increasing	Decreasing	Take, climate change	Consumption/trade
Cuba	Hawksbill	W Atlantic	Low risk-high threat	1,000-5,000	Increasing	Decreasing	Take, climate change	Bycatch reduction
Cuba	Hawksbill	W Atlantic	Low risk-high threat	1,000-5,000	Increasing	Decreasing	Take, climate change	Climate change
Peru	Loggerhead	S Pacific	High risk-high threat	100-1,000	Increasing	Decreasing	Bycatch, climate change	Bycatch
Guianas	Green	S Caribbean	High risk-low threat	1,000-5,000	Decreasing	Stable	Take, climate change	Habitat protection
Guianas	Leatherback	NW Atlantic	Low risk-low threat	>10,000	Increasing	Increasing	Bycatch	Habitat protection
Cuba	Green	NW Atlantic	Low risk-high threat	>10,000	Increasing	Increasing	Direct take	Climate change
Canada	Leatherback	NW Atlantic	Low risk-low threat	>10,000	Increasing	Increasing	Bycatch	Bycatch
Baja California, Mexico	Loggerhead	N Pacific	High risk-high threat	1,000-5,000	Increasing	Decreasing	Bycatch, development	Bycatch
Colombia	Leatherback	E Pacific	High risk-high threat	100-1,000	Decreasing	Decreasing	Bycatch	Policy
Colombia	Hawksbill	E Pacific	High risk-high threat	<100	Data Deficient	Decreasing	Bycatch, take	Habitat protection
Baja California, Mexico	Olive ridley	E Pacific	Low risk-low threat	>100,000	Increasing	Decreasing	Bycatch, take	Climate change
Baja California, Mexico	Leatherback	E Pacific	High risk-high threat	100-1,000	Decreasing	Decreasing	Bycatch	Habitat protection
Baja California, Mexico	Leatherback	E Pacific	High risk-high threat	100-1,000	Decreasing	Decreasing	Bycatch	Climate change
Baja California, Mexico	Hawksbill	E Pacific	High risk-high threat	<100	Data Deficient	Decreasing	Bycatch, take	Habitat protection

Figure 1. WWF priority places and program offices for Latin America & the Caribbean with marine turtle projects.

Table 2. WWF LAC-MTAP (2015-2020). Objectives and priority places in accordance with objectives stated in the Global Marine Turtle Strategy (2012-2020)

LAC general objectives	LAC specific objectives	LAC target priority sites
Species Objective 1: By 2020, leatherback populations are stabilized or increasing at five important nesting beaches with long-term monitoring schemes, and LAC important threats to leatherbacks in priority sites are measurably reduced.	**LAC-MTAP Objective 1.1:** By 2020, the bycatch of leatherbacks in selected fisheries (longlines and/or gillnets) is quantified and illegal fisheries reduced.	**Western Atlantic**: Guyana and Suriname. **Eastern Pacific:** Peru and Chile
	LAC-MTAP Objective 1.2: By 2020, at least two globally important leatherback´s nesting beaches are protected from inappropriate coastal development and well managed.	**Western Atlantic**: Colombia (Playona, Acandí). **Eastern Pacific:** Mexico (Baja California Sur).
	LAC-MTAP Objective 1.3: By 2020, the local consumption of leatherback turtles and eggs is reduced in 15%.	**Western Atlantic**: Guyana (Shell beach), Colombia (Acandí, La Playona). **Eastern Pacific**: Mexico, Costa Rica (Junquillal).
Species Objective 2: By 2020, hawksbill populations are stabilized or increasing at five important nesting beaches with long-term monitoring schemes, and LAC important threats to hawksbills in priority sites are measurably reduced.	**LAC-MTAP Objective 2.1:** By 2020, bycatch of hawksbill turtles in selected fisheries (coastal gillnets and/or purse seines in the Pacific) is reduced by at least 15%.	**Western Atlantic:** Wider Caribbean (Cuba). **Eastern Pacific:** Panama, Colombia and Ecuador.
	LAC-MTAP Objective 2.2: By 2020, at least two globally important hawksbill turtle sites (nesting and feeding) are protected from poaching and sustainable managed.	**Western Atlantic:** Wider Caribbean (Trinidad & Tobago), Cuba (Jardines de la Reina NP and San Felipe NP).
	LAC-MTAP Objective 2.3: By 2020, the local consumption of hawksbill turtle eggs/meat in at least five priority sites is reduced to less than 10% of current levels.	**Western Atlantic:** Colombia. **Eastern Pacific:** Panama, Colombia and Ecuador.
	LAC-MTAP Objective 2.4: By 2020, the availability of commercially traded hawksbill products (shell, eggs) is reduced by at least 25% in at least two domestic or international market sites.	**Western Atlantic:** Cuba and Colombia.
Species Objective 3: By 2020, loggerhead populations are stabilized or increasing at least at one important nesting beach with long-term monitoring schemes, and LAC important threats to loggerheads in priority sites are measurably reduced.	**LAC-MTAP Objective 3.1:** By 2020, bycatch of loggerheads in selected fisheries (longline and/or gillnets) is reduced by at least 25%, especially in foraging aggregations.	**Eastern Pacific:** Mexico (Baja California Sur), Peru, Chile.
	LAC-MTAP Objective 3.2: By 2020, at least one important nesting site for loggerhead turtles is protected from inappropriate coastal development and well managed.	**Western Atlantic:** Colombia
	LAC-MTAP Objective 3.3: By 2020, the local consumption of loggerhead turtles and eggs is reduced to less than 25% of current levels.	**Western Atlantic:** Colombia.

LAC general objectives	LAC specific objectives	LAC target priority sites
Species Objective 4: By 2020, green turtle populations are stabilized or increasing at four important nesting beaches with long-term monitoring schemes, and LAC important threats to green turtles in priority sites are measurably reduced.	**LAC-MTAP Objective 4.1:** By 2020, bycatch of green turtles in selected fisheries (trawl, gillnets and/or longlines) is reduced by at least 15%.	**Western Atlantic**: the Guianas (French Guiana and Suriname, The greens from French Guiana go to Brazil a lot!. **Eastern Pacific:** Mexico, Central America, Colombia, Ecuador.
	LAC-MTAP Objective 4.2: By 2020, at least two globally important habitats (nesting and feeding) of green turtles are protected and well managed.	**Eastern Pacific:** Ecuador (Galapagos Islands).
	LAC-MTAP Objective 4.3: By 2020, no more than 10% of the nests laid by green turtles are poached and no more than 2% of the nesting females are killed for their meat.	**Western Atlantic**: Guyana **Eastern Pacific**: Colombia, Peru.
Species Objective 5: By 2020, olive ridley turtle populations are stabilized or increasing at least at one important nesting beach with long-term monitoring schemes, and LAC important threats to olive ridleys in priority sites are measurably reduced.	**LAC-MTAP Objective 5.1:** By 2020, bycatch of olive ridley turtles is reduced by at least 15% in selected fisheries (trawl and/or gillnet) through responsible fishery practices.	**Western Atlantic**: (Marowijne river mouth and adjacent waters) in French Guiana down into Brazil. **Eastern Pacific**: Mexico (Gulf of California), Chile and Peru.
	LAC-MTAP Objective 5.2: By 2020, at least one globally important nesting site for olive ridley turtles is being protected by environmental authorities.	**Western Atlantic:** population recovery has been observed since 2002 in French Guiana.
Overarching Objective 6: By 2020, adaptation measures are implemented to significantly reduce the threats from climate change to marine turtles at priority sites.	**LAC-MTAP Objective 6.1:** By 2020, climatic baselines of nesting habitats (sea level, sand temperature, and water tables) are established at half of the nesting sites with WWF interventions in LAC.	**Western Atlantic:** Cuba, Guyana, Colombia (Playona, Acandí). **Eastern Pacific:** Mexico (Gulf of California), Costa Rica (Junquillal), Colombia (Gorgona Island), Ecuador (Galapagos Islands).
	LAC-MTAP Objective 6.2: By 2020, marine turtle nesting habitats are undergoing adaptation efforts in five priority sites, and adaptation is part of national legislation, strategies and/or local marine turtle conservation and management plans.	**Western Atlantic:** Mexico, Belize, Cuba**,** Panama. **Eastern Pacific***:* Mexico (Gulf of California), Costa Rica (Junquillal and Playa Grande), Colombia (Gorgona Island) and the Galapagos.
	LAC-MTAP Objective 6.3: By 2020, vulnerability assessments have been carried out for all foraging areas of priority species with WWF interventions in LAC.	**Western Atlantic:** Cuba (Cayos San Felipe**,** Jardines de la Reina**),** Dominican Republic. **Eastern Pacific:** Colombia (Gorgona Island), Ecuador (Galapagos).

LAC general objectives	LAC specific objectives	LAC target priority sites
Overarching Objective 7: By 2020, the development and application of policies and legislation that benefit marine turtle conservation has been facilitated in all range states covered by our target sites and through at least five international marine turtle (or other relevant) instruments.	**LAC-MTAP Objective 7.1:** By 2020, marine turtle habitats are covered under climate change adaptation resolutions/guidelines in at least two international or intergovernmental instruments or agreements.	Inter American Convention for the protection of Marine Turtles (IAC), South Pacific Permanent Commission (CPPS) and SPAW-UNEP.
	LAC-MTAP Objective 7.2: By 2020, harvest and trade control measures for marine turtles are effectively enforced and demand is reduced in a minimum of two countries in Latin America.	**Western Atlantic:** Dominican Republic, Meso American Reef (MAR) countries, Colombia, Cuba. **Eastern Pacific:** Mexico (Gulf of California).
	LAC-MTAP Objective 7.3: By 2020, at least one RFMOs managing fishing activities that interact with marine turtles has implemented management actions (through a management plan) that significantly reduces marine turtle bycatch to a level that does not harm the status of the more currently depleted populations (EP leatherback, EP loggerhead, EP hawksbill – Caribbean hawksbill, green turtles and leatherback.	**Western Atlantic:** Wider Caribbean, the Guianas. **Eastern Pacific:** Mexico, Central America, Galapagos, Colombia, Peru and Chile.
Overarching Objective 8: By 2020, the livelihoods of people living in coastal areas in two countries are improved through economic development activities linked to marine turtle conservation.	**LAC-MTAP Objective 8.1:** By 2020, social well-being has improved measurably through marine turtle conservation at least in two priority sites in Latin America.	**Western Atlantic:** Suriname, Colombia, French Guiana.

Building capacity to enhance protected areas staff on turtle flipper and satellite tagging is transforming conservation management in protected areas of the LAC region.

Table 3. Profile of targeted priority nesting beaches and coastal communities in countries with WWF presence.

Country	Nesting beach name	Nesting beach long. (km)	Beach coordinates	Nesting species	Approx. Nesting population density[1]	Projects and activities	Coastal community name	Coastal community description (culturally, socioeconomically)	Population density	Coastal community involvement in the project
Mexico	Cabo San Lucas - San José del Cabo, BCS.	140 km	22°53′23″; 109°54′56″	Olive Ridley, Leatherback, Green turtle	2026 nests, 34 nests, 9-10 nest	Monitoring & outreach	Cabo San Lucas - San José del Cabo, BCS.	Massive tourism development.	More than 150,000 inhabitants.	La Ribera, y Corredor San José-Cabo San Lucas.
Mexico	Cabo Pulmo, BCS.	6 km	23°39′37″; 109°40′01″	Olive Ridley Leatherback	178 nests, 1 nest	Monitoring & outreach	Cabo Pulmo, BCS.	Fishing town but now most fishers are dedicated to tourism.	Less than 1000, inhabitants.	Amigos de Cabo Pulmo.
Cuba	Cayo Sijú (cayos de San Felipe NP).	4 km	21° 56' 41"; 83° 30' 55"	Green turtle, Loggerhead, Hawksbill.	68 22 26	Monitoring, protection & outreach.	La Coloma	Fishing town with processing industry. Main fishing port in Cuba for spiny lobsters. 20km south of provincial capital.	More than 5000	Limited so far. Provides labor for the NP. Participation in environmental education and outreach.
Cuba	Cayo Real (cayos de San Felipe NP).	8 km	21° 57' 22"; 83° 33' 53"	Green turtle, Loggerhead, Hawksbill	61 33 12	Monitoring protection & outreach.	La Coloma	Fishing town with processing industry. Main fishing port in Cuba for spiny lobsters. 20 km south of provincial capital.	More than 5000.	Limited so far. Provides labor for the NP. Participation in environmental education and outreach.
Cuba	El Guanal, South of Isle of Youth.	12 km	21° 26' 55"; 82° 49' 30"	Green turtle, Loggerhead, Hawksbill.	261 42 16	Monitoring & protection	Remote beach not directly related to any community, but with lots of pressure from poachers coming from towns far away. The closer community is Cocodrilo, located 23 km away.			Limited so far, except labor for the protected area and participation in environmental education and outreach.

1. Values presented here are rough estimates from literature review and are only used as a reference value to estimate population mean size.

Country	Nesting beach name	Nesting beach long. (km)	Beach coordinates	Nesting species	Approx. Nesting population density[1]	Projects and activities	Coastal community name	Coastal community description (culturally, socioeconomically)	Population density	Coastal community involvement in the project
Cuba	Cayo Largo	15 km, but most of nesting occurs in around 5 km.	21° 35' 57"; 81° 31' 17"	Green turtle, Loggerhead, Hawksbill.	1850 180 0 (rarely)	Monitoring, nest management (relocation), tourism	Remote beach not directly related to any community. This is a resort cay with several hotels and a floating population of around 1000 workers.			ND
Cuba	Doce Leguas (Jardines de la Reina National Park) Actually composed of a dozen of small nesting beaches.	ND	20° 47' 35"; 78° 56' 43"	Hawksbill, Green & loggerhead.	217, ND, ND	Monitoring	Remote beach not directly related to any community, but with some pressure from poachers.			ND
Colombia	Playona beach	12 km	8° 30′ 41″ 77°16′ 40″	Leatherback, Green	246 nests (total)	Monitoring	Acandí	Fishing town	Approx. 9,800 inhabitants	GILA (Local Research Group Acandí) and Coriacea Research group, University of Antioquia. National Parks.
Colombia	Palmeras beach in Gorgona Island.	1.2 km	02° 56' 57"; 78° 12' 03"	Olive ridley and Green turtles	78 nests per season 6 nest per season	Monitoring	National Park: officials and tourists.	National Park: ecotourism.	Approx. 400 inhabitants and tourists.	CIMAD, Colombian National Parks, WWF.
Galapagos Ecuador	Quinta Beach and Barahona Bay at Isabela Island	2 km	Quinta Beach: 01° 0' 56"; 91° 4› 49» Barahona Bay: 0° 59' 77" 91° 01' 52"	Green turtle	4,074 turtles	Monitoring	Puerto Villamil	Economic development is mostly oriented towards tourism	180,000 visitors a year	Charles Darwin Research and GAIAS Station

Country	Nesting beach name	Nesting beach long. (km)	Beach coordinates	Nesting species	Approx. Nesting population density[1]	Projects and activities	Coastal community name	Coastal community description (culturally, socioeconomically)	Population density	Coastal community involvement in the project
Guyana	Shell Beach (Iron Punt, Luri, Kamwatta, Foxes, Almond, Gwennie and Tiger Beach)	144.8 km (8 km effectively monitored)	8° 17′ 30″ 59° 33′ 25″	Leatherback, green and olive ridley turtles	Dc: 700 Cm: 115 Lo: 2	Monitoring of poaching and by-catch	Waramuri and Santa Rosa	Fishing	150 inhabitants	Guyana Marine Turtle Conservation Society (GMTCS); WWF
Suriname	Matapica (Diana, Dwarsi, Braamspunt) & Galibi (Alusiaka, Babunsanti, Eilanti, Wia wia)	20 km		Leatherback, green and a small numbers of olive, ridley and hawksbill turtles	# of nests as opposed to nr of females are recorded: Dc: 5.300 Cm: 11.000 Lo: 90 Average nr of nests/ year	Monitoring poaching & by-catch	Galibi (G) Johanna Margreta (JM)	Fishing & tourism G: Indigenous (Amerindian) community	G: 900 JM: 300	Nature Conservation Division, WWF
French Guiana	Awala Yalimapo, Aztec, Cayenne/ Montjolie	20 km 20 km		Leatherback, green, olive ridley and a small numbers of hawksbill turtles	Dc: 8.600 Cm: 1.800 Lo: 2200 Average nr of nests/ year	Monitoring poaching & by-catch. Research	Awala Cayenne	A: Fishing & Indiginous (Amerindian) community Tourism Professional Fishermen	A: 1000 C: 150.000 3000 people depend on fisheries	Kwatta, CNRS, Amana Reserve CRPMEM (French Guiana Regional Fisheries Committee)

Country	Nesting beach name	Nesting beach long. (km)	Beach coordinates	Nesting species	Approx. Nesting population density[1]	Projects and activities	Coastal community name	Coastal community description (culturally, socioeconomically)	Population density	Coastal community involvement in the project
Trinidad and Tobago	Matura and Grande Riviere beaches.	1.6 km	10° 40′ 60″ 61° 03′ 60″	Leatherback turtles	5,000 turtles per season and during peak season can have more than 500 nests in a single night.	Training workshop with fishers.	Matura village, Grande Riviere village.	Artisanal fishing and ecotourism.	330 inhabitants	The leatherback sea turtle bycatch reduction Program. WIDECAST

ND: No Data

Olive ridleys is the more common species in the Eastern Pacific and despite its Vulnerable status, remaining gaps about their life cycle continue to hampers regional conservation efforts.
Biologist releases olive Ridley turtle (*Lepidochelys Olivacea*) hatchlings from study nest, Santa Rosa National Park, Costa Rica

Table 4. Profile of priority foraging areas and coastal communities in countries with WWF presence.

Country	Foraging area name	Foraging area size (km^2)	Projects and activities	Coastal community name	Coastal community description	Coastal community involvement in the project
Peru	Paracas bay	30 km^2 (gross estimate)	Currently none	San Andrés	Small fisher port with individual fishermen targeting green turtles.	Until 2002 we worked with a local NGO to curb sale, purchase and consumption of turtle meat. Our partner still works in similar issues in the area.
Peru	Humboldt current, offshore	200,000 km^2	Currently none	Ports of Paita, Chimbote, Pucusana, Ilo, Salaverry.	Main ports with significant longline fisheries.	Since 2004. Fishermen were engaged in a hook substitution project to find out the best hook and best practices to reduce bycatch.
Mexico	Cabo San Lucas-Cabo Pulmo	ND	Distribution area and habitat use of olive ridley.	Cabo Pulmo and San José del Cabo.	Cabo Pulmo small fishing and toursim town, San José and Cabo San Lucas Tourism Development.	Municipality and CONANP
Mexico	Loggerhead Cabo San Lázaro-Pta Abreojos.	15,000 km^2	Investigation, outreach, sustainable fisheries, alternative markets.	Puerto López Mateos, San Juanico, San Lázaro y Punta Abreojos.	Small fishing communities.	Puerto López Mateos, San Juanico, San Lázaro y Punta Abreojos.
Argentina	Bahía Samborombón and Cabo San Antonio (Buenos Aires Province) Samborombón and Cabo San Antonio (Buenos Aires Province)	Bahía Samborombón: +400.000 ha (this is the area that is under protection, so actual area must be bigger) Cabo San Antonio: NA.	Green, loggerhead and leatherback turtle's habitat use, population genetics, feeding ecology and bycatch assessment.	San Clemente del Tuyú, Mar de Ajo, San Bernardo.	Community of artisanal fishermen using mainly gillnets, although there is intensively fish trawling of fleets from distant ports, especially Bahía Samborombón. Bycatch reported.	The community has been participating in the testing of alternative fishing gear such as artisanal longlines and reflective nets to reduce the bycatch of a coastal dolphin inhabiting in the area. Fishermen have also been contributing by reporting live and dead turtles captured and in releasing and marking tasks.

Country	Foraging area name	Foraging area size (km^2)	Projects and activities	Coastal community name	Coastal community description	Coastal community involvement in the project
Argentina	Bahía Blanca estuary (Buenos Aires Province).	~210.000 (this is the area that is under protection, so actual area must be bigger).	Green turtle habitat use, population genetics.	Ingeniero White, Puerto Rosales, Villa del Mar	Community of artisanal fishermen using mainly gillnets and shrimp nets. Bycatch reported.	Fishermen have been contributing reporting live turtles captured and in releasing and marking tasks.
Argentina	Bahía San Antonio (Río Negro Province).	ND	Green turtle habitat use, population genetics. This southern area could be used to assess changes in sea turtle distribution due to climate change, however, long-term data is need and it is recently being collected.	San Antonio Oeste.	Community of artisanal fishermen using mainly longlines. No bycatch has been reported.	Communities of artisanal fishermen and local researchers have been reporting stranded green and loggerhead turtles.
Cuba	Golfo de Ana Maria – Jardines de la Reina.	11,150 km^2	Help Cuban authorities to enforce protection in the area.	Casilda, Tunas de Zaza, Playa Florida y Júcaro.	Fishers	Staff of the different agencies involved in protection activities as well as the environmental education of stakeholders.
Colombia	Playa Blanca and La Azufrada in Gorgona Island.	0.2 km^2	Satellite telemetry, Trophic Ecology, Environmental and rehabilitation program.	Guapi, Bazán	Fishers	Two local experts from the community. The National Parks System has an environmental education program and CIMAD a rehabilitation program.
Galapagos, Ecuador	Foraging sites in La Loberia and Punta Carola at San Cristobal Island.	4 km^2	Monitoring	Baquerizo Moreno Port.	Commercial and tourism port.	Volunteers of the Charles Darwin Research and GAIAS Station.

Table 5. LAC Marine Turtle Logical Framework 2015 - 2020

LAC MT Objective 1.1	By 2020, the bycatch of leatherbacks in selected fisheries (longlines, gillnets, fish trawls) is reduced an average of 25%.
Indicators	% of reduction in incidental catch of turtles in longline fisheries % of reduction in incidental catch of turtles in gillnet fisheries
Verification source	Marine turtle projects reports
Implementation partners	LAC SFNI Support Unit and WWF Program offices (POs) in the Eastern Pacific (WWF: Mexico/MAR, Colombia, Peru and Chile)
Target sites	**Western Atlantic:** Suriname and French Guiana: Marowijne river mouth and adjacent waters (bycatch). **Eastern Pacific:** Mexican Pacific; Colombian Pacific; Ecuador, Peru and Chile.

Expected results	Performance indicators	Verification sources	Activities
25% of long-line fleets use circular hooks (during season where leatherbacks are migrating to and from nesting beaches) and follow other recommended mitigation measures in the nine target countries.	% of Eastern Pacific vessels adopted circular hooks and following the best fishing practices. Number of countries with longline fleets using circular hooks and following the best fishing practices.	Eastern Pacific Bycatch reports. Project records of hook exchanges, indicating number of vessels. Observer records (from the WWF Observer program) Fleet/skipper commitments.	Promote in longlines' fishing vessels the use of turtle-friendly circle hooks and the use of tools and techniques to handle leatherback turtles on board and release them properly.
Bycatch risk is reduced in 25% in longline and gillnet fisheries of the nine target countries. Also trawl fisheries which have been shown to capture leatherbacks (Uruguay for example).	% Bycatch probability % Fishers trained on techniques to avoid catching marine turtles or to increase chances of post release survival. Testing TEDs in fishing trawlers.	Eastern Pacific Bycatch reports.	Support Bycatch monitoring Implement training programs for fishermen.
Bycatch mortality is reduced in 25% in the seven target countries in long line and gillnet fisheries.	% Bycatch mortality. % Fishers trained on how to handle and release them properly.	Eastern Pacific Bycatch reports. Workshop materials and evaluations.	Support workshops for fishers on hooking and recovery of sick marine turtles. Support Bycatch monitoring Implement training programs for fishermen.

Expected results	Performance indicators	Verification sources	Activities
National and regional agreements on implementation of mitigation measures recommended by the Eastern Pacific Bycatch Program are reached in the nine target countries.	National longline fishing observer programs in target countries. National longline fisheries bycatch plans in target countries. OSPESCA resolution requiring circular hooks and other best practice measures to reduce bycatch.	OSPESCA resolution National observer program documents. National longline fisheries Bycatch plans.	Ensure compliance with existing resolutions to protect leatherbacks, and the dissemination of relevant information about leatherback conservation to policy-makers and decision-makers.
The shift of longline vessels in the Eastern Pacific to turtle-friendly gear and practices is scaled up to the global program (SFNI).	Number of lessons learned and transferred to the SFNI strategy.	SFNI strategy	Promote integration of WWF Eastern Pacific Bycatch Program with SFNI.
Measures recommended by the Eastern Pacific Bycatch Program are exported to the Western Atlantic and adopted, and vice versa.	Amount of recommended measures exported and adopted.	Bycatch team	Collect, integrate, and make analysis of information on leatherback bycatch and population status.
25% of leatherbacks' gillnets bycatch is reduced in LAC target sites.	% of reduction of incidental catch of turtles in gillnet fisheries.	TALCIN reports WIDECAST report and Eastern Pacific Bycatch Program reports.	Promote the avoidance of leatherback turtle entanglement in gillnet fisheries.

LAC MT Objective 1.2	By 2020, at least five globally important leatherbacks nesting beaches are protected from inappropriate coastal development and well managed.
Indicator	Number of nesting sites protected from inappropriate coastal development and effectively managed.
Verification source	Marine turtle projects reports
Implementation partners	WWF: Colombia, Guianas and Mexico/MAR. Others: Nature Seekers (Matura beach, Trinidad), Sea Turtle Conservancy (Chiriquí Beach, Panama)
Target sites	**Western Atlantic:** Suriname: Matapica, Babunsanti French Guiana: Awala Yalimapo (Amana Reserve) Guyana: Shell beach Trinidad & Tobago: Matura beach and Grande Riviere Colombia: Playona, Acandí Panama: Chiriquí beach **Eastern Pacific:** Costa Rica: Junquillal and Playa Grande Mexico: Barra de la Cruz and Cahuitán in Oaxaca, Los Cabos in Baja California Sur, Punta Maldonado, Barra de Tecuanapa in Guerrero, and Mexiquillo in Michoacán.

Expected results	Performance indicators	Verification sources	Activities
Migration routes identified Improved understanding of turtle habitats.	Number of turtles tracked and followed. Number of nesting beaches used by tracked turtles.	www.seaturtle.org	Deploy satellite transmitters Track the leatherback turtles (both nesting females and males/juveniles caught as bycatch).
Definition and implementation of a monitoring guideline and compilation of baseline data in nesting beaches.	A guideline implemented	Marine turtle projects reports.	Protect nesting sites in the priority places, and monitor them whilst promoting the creation of patrolling teams that consistently monitor key nesting beaches and collect leatherback nests and incubate them at nesting camps.
Nesting sites protected and with a monitoring program established that allows in situ incubation.	Amount of nesting sites protected and monitored.	Marine turtle projects reports. Legal documents defining status of the surrounding beaches.	Protect nesting sites establishing protection and monitoring mechanisms. Support monitoring and enforcement of protected nesting sites through grants agreement.
Nesting beaches with a program of sustainable use and best practices for hawksbill turtle population and habitat conservation.	Amount of nesting beaches with implementation of a sustainable use program.	Marine turtle projects reports.	Reduce or eliminate disturbances in nesting beaches.

Expected results	Performance indicators	Verification sources	Activities
An environmental education program established, coupled with the public release of hatched turtles, the regulation of pets' tenure at nesting beaches, and the implementation of solid waste management on nesting beaches.	Number of sites/localities with the education program implemented.	Marine turtle project reports	Develop an environmental education program, coupled with the public release of hatched turtles, the regulation of pets' tenure at nesting beaches, and the implementation of solid waste management and waste on nesting beaches.
An urban growth Plan, redirecting development away from nesting areas to guide integrated coastal planning.	Number of urban plans developed using the integrated coastal zone management approach.	Marine turtle project reports	Develop and contribute to urban growth plans, redirecting development away from nesting areas.

MT Objective 1.3	By 2020, bycatch of hawksbill turtles in selected fisheries (coastal gillnets and purse seines) is reduced by at least 15%.
Indicators	% of reduction in incidental catch of turtles in gillnet fisheries % of reduction in incidental catch of turtles in purse seines fisheries
Verification source	Eastern Pacific Bycatch reports, WIDECAST reports
Implementation partners	LAC SFNI Support Unit and POs in the Eastern Pacific (WWF: Mexico/MAR, Colombia, Peru and Chile)
Target sites	Caribbean islands Wider Caribbean: Mexico **Eastern Pacific:** Central America: El Salvador and Nicaragua. Ecuador and Peru.

Expected results	Performance indicators	Verification sources	Activities
Eastern Pacific Bycatch program			
15% of hawksbill gillnets bycatch is reduced in LAC target sites.	% Of reduction in incidental catch of turtles in gillnet fisheries.	Eastern Pacific Bycatch Program reports. Project records of hook exchanges, indicating number of vessels. Observer records Fleet/ skipper commitments.	Promote the avoiding of hawksbill turtle entanglement in gillnet fisheries.
Bycatch risk is reduced in 15% in the target countries.	% Bycatch probability % Fishers trained on techniques to avoid catching marine turtles.	Eastern Pacific bycatch reports.	Support Bycatch monitoring Implement training programs for fishermen.
Bycatch mortality is reduced in 15% in the target countries.	% Bycatch mortality % Fishers trained on how to handle and release them properly.	Eastern Pacific Bycatch reports. Workshop materials and evaluations.	Support workshops for fishers on unhooking and recovery of sick marine turtles. Support bycatch monitoring Implement training programs for fishermen.
15% of the purse seine fleets avoid the encirclement of hawksbill turtles in purse seines fisheries, through the not use anchored fish-aggregating devices, and the periodically monitor of the purse seines and to release of turtles if they are captured.	% of reduction in incidental catch of turtles in purse seines fisheries.	Eastern Pacific Bycatch reports, WIDECAST reports.	Promote the avoiding of the encirclement of hawksbill turtles in purse seines fisheries, the not use anchored fish-aggregating devices, and the periodically monitor of the purse seines and to release of turtles if they are captured.

National and regional agreements on implementation of mitigation measures recommended by the Eastern Pacific Bycatch Program are reached in the nine target countries.	National longline fishing observer programs in target countries National longline fisheries bycatch plans in target countries OSPESCA resolution requiring circular hooks and other best practice measures to reduce bycatch.	OSPESCA resolution National observer program documents National longline fisheries Bycatch plans.	Ensure compliance with existing resolutions to protect leatherbacks, and the dissemination of relevant information about leatherback conservation to policy-makers and decision-makers
Successful measures applied in the Eastern Pacific bycatch program could be exported to the Western Atlantic and locally adopted.	Number of recommended measures exported and adopted.	Bycatch team	Collect, integrate, and make analysis of information on leatherback bycatch and population status.

LAC MT Objective 1.4	By 2020, the local consumption of leatherback turtles and eggs is reduced by 25% of current levels.
Indicator	Number of leatherbacks nesting at target sites.
Verification source	Marine turtle projects reports.
Implementation partners	WWF: Guianas, Mexico/MAR and Colombia.
Target sites	**Western Atlantic:** Guianas: Shell beach Trinidad: Matura beach Colombia: Acandí and La Playona. **Eastern Pacific:** Mexico; Nicaragua Costa Rica: Junquillal

Expected results	Performance indicators	Verification sources	Activities
Management plans implemented for the conservation of leatherback turtles with emphasis on non- consumable use, like ecotourism, scientific tourism, researchers.	Number of management plans implemented.	Marine turtle projects reports.	Develop and implement management plans for the conservation of leatherback turtles.
Raising activities about the importance of conserving leatherback turtles alive.	Number of activities implemented.	Marine turtle projects reports.	Contribute to the awareness-raising activities.

% Reduction of eggs in black market.	% of nests protected from poachers during the season.	Number of nests per season and % of survival	Training local communities for surveillance of nesting areas.
Consumption of leatherback eggs does not exceed 10% at all prioritized nesting sites.	% of eggs poached per nesting location. % nests poached # of poachers apprehended	Field data sheets (# of nests poached) from beach patrols. Police reports of poaching and poachers.	Conduct beach, river and forest patrols by game wardens or environmental police at priority nesting sites. Monitor market places and egg consuming communities. Awareness and education Increase penalties for poachers and vendors.

LAC MT Objective 2.2	By 2020, at least five globally important hawksbill turtle sites (nesting and feeding) are protected and well managed.
Indicator	Number of nesting sites protected from inappropriate coastal development and effectively managed.
Verification source	Marine turtle projects reports.
Implementation partners	WWF: Mexico/MAR, Guianas and Cuba.
Target sites	**Western Atlantic:** Wider Caribbean: Trinidad & Tobago and the Guianas Cuba: Jardines de la Reina **Eastern Pacific:** Central America: Mesoamerican reef (El Salvador, Nicaragua, Honduras, Mexico, Belize and Guatemala); Panama: Chiriquí beach and Ecuador.

Expected results	Performance indicators	Verification sources	Activities
Hawksbill turtles tracked aiming to identify migration patterns and key feeding grounds in the region as well as raising collective awareness on marine turtles' plight.	Number of turtles tracked and followed. Number of nesting beaches and feeding grounds used by tracked turtles.	www.seaturtle.org	Track the hawksbill turtles
Nesting beaches protected in El Salvador, Nicaragua, Cuba and Ecuador.	Number of nesting beaches protected.	Marine turtle projects reports	Contribute to the protection and assessment of nesting beaches in El Salvador, Nicaragua, Cuba and Ecuador.
Key feeding grounds protected in Panama, Colombia and Ecuador.	Number of nesting beaches protected.	Marine turtle projects reports	Contribute to the protection and assessment of key feeding grounds in Panama, Colombia and Ecuador.

Confirmation of nesting sites in two historical areas in Mexico (Nayarit and Islas Marías).	% of nests and % of survival	Field data sheets, number of people trained and agreements.	Agreements for the protection of the nests with local communities and developers. Training local communities to monitor nests.
Identifying new aggregation sites.	Number of turtles tagged	Data sheets, records of turtles aggregating each year.	Develop new alternatives fishing gear to avoid gillnet bycatch
Nesting sites protected, establishing protection and monitoring mechanisms that allow in situ and ex situ incubation.	Number of nesting sites protected.	Marine turtle projects reports	Protect nesting sites establishing protection and monitoring mechanisms that allow in situ and ex situ incubation.
Nesting beaches with a program of sustainable use and best practices for hawksbill turtle population and habitat conservation.	Amount of nesting beaches with a sustainable use program implemented.	Marine turtle projects reports	Reduce or eliminate disturbances in nesting beaches.
An urban growth Plan, redirecting development away from nesting areas.	Number of urban plans developed.	Marine turtle projects reports	Develop and contribute to urban growth plans, redirecting development away from nesting areas.

LAC MT Objective 2.3	By 2020, the local consumption of hawksbill turtle eggs/meat in at least five priority sites is reduced to less than 10% of current levels.
Indicator	Number of hawksbills nesting at target sites.
Verification source	Marine turtle projects reports.
Implementation partners	Ecuador and Peru.
Target sites	**Western Atlantic:** Central America: Nicaragua, Costa Rica and Jamaica. Cuba. **Eastern Pacific:** Central America: El Salvador and Nicaragua. Ecuador and Peru.

Expected results	Performance indicators	Verification sources	Activities
Have egg and meat's domestic markets investigated with the aim of shedding light on the demand and level of the hawksbill turtle harvest; and have a strategy of conservation developed.	Number of domestic markets investigated.	Marine turtle projects reports	Investigate the domestic markets for eggs and meat with the aim of shedding light on the demand and level of the hawksbill turtle harvest; and use the results of this investigation for the development of a strategy of conservation.
Management plans developed and implemented for the conservation of hawksbill turtles with emphasis on non-consumable use, like ecotourism, scientific tourism, researchers.	Amount of management plans developed and implemented.	Marine turtle projects reports	Develop and implement management plans for the conservation of hawksbill turtles.
Changes in socio-cultural patterns and behavior for the non-consumption of hawksbill turtles and eggs.	Number of communities changed.	Marine turtle projects reports	Encourage the adoption of changes in socio-cultural patterns and behavior for the non-consumption of hawksbill turtles and eggs.
Raising public awareness about the importance of conserving hawksbill turtles alive and in their natural habitat.	Number of activities	Marine turtle projects reports	Contribute to raise awareness on the importance of conserving hawksbill turtles alive and in their natural habitat.

LAC MT Objective 2.4	By 2020, the availability of commercially traded hawksbill products (shell, eggs) is reduced by at least 25% in four domestic or international market sites.
Indicator	Number of hawksbill products available in the region.
Verification source	TRAFFIC reports, marine turtles project reports.
Implementation partners	WWF: Cuba and Colombia.
Target site	**Western Atlantic:** Cuba, Dominican Republic and Colombia.

Expected results	Performance indicators	Verification sources	Activities
Establishment of the role and importance of hawksbill turtles in the diet and income of the people in the area, and sustainable alternatives that ensure the conservation of turtles.	Number of communities evaluated. Number of alternatives proposed.	Marine turtles project reports	Evaluate the role and importance of hawksbill turtles in the diet and income of the people in the area, and propose sustainable alternatives that ensure the conservation of turtles.
Reduction of the illegal trade of turtles and products (scutes, stuffed animals and meat) in main touristic hubs in Latin America.	% of reduction of illegal trade.	TRAFFIC reports, marine turtles project reports.	Promote the reduction of illegal trade of turtles and products (scutes, stuffed animals and meat) in main touristic hubs in Latin America, using campaigns to discourage traders, buyers and potential buyers of hawksbill turtle products and aware of the laws of conservation of marine turtles and forbidding the trade.
Government authorities, research institutes and non- governmental organizations against illegal exploitation and trade in hawksbill turtles and their parts.	Number of institution/organizations against illegal trade of turtles.	TRAFFIC reports, marine turtles project reports.	Support and expand the efforts by the government authorities, research institutes and non- governmental organizations to address illegal exploitation and trade in hawksbill turtles and their parts.
A Regional Anti-trade campaign in collaboration with TRAFFIC at the foreign market sites implemented.	Number of market sites with an anti-trade campaign implemented.	TRAFFIC reports, marine turtles project reports.	Participate and promote a Regional Anti- trade campaign in collaboration with TRAFFIC at the foreign market sites (e.g. in Japan and China).
Ban the local and the international trade of hawksbill products, including tackling the domestic illegal trade.	% of reduction of international trade.	TRAFFIC reports, marine turtles project reports.	Ensure compliance of existing regulations banning local and international trade of hawksbill, including tackling domestic illegal trade and increasing efforts to detect and prevent smuggling of hawksbill turtle.

LAC MT Objective 3.1	By 2020, bycatch of loggerheads in selected fisheries (longline and gillnets) is reduced by at least 25%, especially in foraging hotspots.
Indicators	% of reduction in incidental catch of turtles in longline fisheries % of reduction in incidental catch of turtles in gillnet fisheries.
Verification source	Eastern Pacific Bycatch Program reports.
Implementation partners	LAC SFNI Support Unit and WWF: Mexico/MAR, Peru and Chile.
Target sites	**Eastern Pacific:** Mexico (Baja California), Peru, Chile and Brazil.

Expected results	Performance indicators	Verification sources	Activities
25% of long-line fleets use circular hooks and follow other recommended mitigation measures in the target countries.	% of Eastern Pacific vessels transformed to circular hooks and following the best fishing practices. Number of countries with longline fleets using circular hooks and following the best fishing practices.	Eastern Pacific bycatch program reports. Project records of hook exchanges, indicating number of vessels. Observer records (from the WWF Observer program) Fleet/skipper commitments.	Promote in longlines' fishing vessels of each priority place (especially in Golfo de Ulloa in Mexico and in limits between Peru and Chile) the use turtle-friendly circle hooks and the use of tools and techniques to handle loggerhead turtles onboard and release them properly.
Bycatch risk is reduced in 25% in the nine target countries.	% Bycatch probability %Fishers trained on techniques to avoid catching marine turtles.	Eastern Pacific Bycatch program reports.	Support Bycatch monitoring Implement training programs for fishermen.
Bycatch mortality is reduced in 25% in the nine target countries.	% Bycatch mortality % Fishers trained on how to handle and release the turtles properly.	Eastern Pacific bycatch program reports. Workshop materials and evaluations.	Support workshops for fishers on unhooking and recovery of sick marine turtles. Support Bycatch monitoring Implement training programs for fishermen.
25% of loggerheads gillnets bycatch is reduced in LAC target sites.	% Of reduction in incidental catch of turtles in gillnet fisheries.	Eastern Pacific bycatch program reports.	Promote avoidance of loggerhead turtle entanglement in gillnet fisheries (specially in Golfo de Ulloa in Mexico and in limits between Peru and Chile): deeper setting, using alternative net materials, setting nets perpendicular to the shore, using deterrents (e.g. sonic "pingers", shark silhouettes, turtle lights or chemical repellents), and establishing management approaches such as area or seasonal closures.

LAC MT Objective 3.2	By 2020, at least one important nesting site for loggerhead turtles is protected from inappropriate coastal development and well managed.
Indicator	Number of nesting sites protected from inappropriate coastal development and effectively managed.
Verification source	Marine turtle projects reports.
Implementation partners	WWF: Guianas, Mexico/MAR, Cuba and Colombia. Nature Seekers (Matura beach, Trinidad), Sea Turtle Conservancy (Chiriquí Beach, Panama)
Target sites	**Western Atlantic:** Bahamas, Cuba, Mexico (San José del Cabo) and Brazil.

Expected results	Performance indicators	Verification sources	Activities
Loggerhead turtles tracked aiming to identify migration patterns and nesting sites in the region as well as raising collective awareness on marine turtles' plight.	Number of turtles tracked and followed. Number of nesting beaches used by tracked turtles.	www.seaturtle.org	Track the loggerhead turtles
Definition of a monitoring guideline and compilation of baseline data in nesting beaches.	A guideline implemented	Marine turtle projects reports	Protect nesting sites in the priority places, and monitor them promoting the creation of patrolling teams that consistently monitor key nesting beaches for the collection of loggerhead nests and incubation at nesting camps.
Nesting sites protected and a monitoring program established that allows in situ incubation.	Amount of nesting sites protected and monitored. Number of nests protected	Marine turtle projects reports % of turtles released	Protect nesting sites establishing protection and monitoring mechanisms that allow in situ incubation and the release of sea turtles.
Nesting beaches with a program of sustainable use and best practices for hawksbill turtle population and habitat conservation.	Amount of nesting beaches with a sustainable use program implemented.	Marine turtle projects reports	Reduce or eliminate disturbances in nesting beaches.

Expected results	Performance indicators	Verification sources	Activities
An environmental education program established, coupled with the public release of hatched turtles, the regulation of pets' tenure at nesting beaches, and the implementation of solid waste management and waste on nesting beaches.	Number of sites/localities with the education program implemented.	Marine turtle projects reports	Develop an environmental education program, coupled with the public release of hatched turtles, the regulation of pets' tenure at nesting beaches, and the implementation of solid waste management and waste on nesting beaches.
A urban growth Plan, redirecting development away from nesting areas.	Number of urban plans developed.	Marine turtle projects reports	Develop and contribute to urban growth plans, redirecting development away from nesting areas.

LAC MT Objective 3.3	By 2020, the local consumption of loggerhead turtles and eggs is reducing to less than 25% of current levels.
Indicator	Number of loggerheads nesting at target sites.
Verification source	Marine turtle projects reports.
Implementation partners	WWF Mexico
Target site	**Western Atlantic:** Bahamas and Mexico.

Expected results	Performance indicators	Verification sources	Activities
Have egg and meat's domestic markets investigated with the aim of shedding light on the demand and levels of the hawksbill turtle harvest; and have a conservation strategy developed.	Number of domestic markets investigated.	Marine turtle projects reports	Investigate the domestic markets for eggs and meat with the aim of shedding light on the demand and levels of the loggerhead turtle harvest; and use the results of this investigation for the development of a strategy of conservation.
Management plans developed and implemented for the conservation of hawksbill turtles with emphasis on non-consumable use, like ecotourism, scientific tourism, researchers.	Amount of management plans developed and implemented.	Marine turtle projects reports	Develop and implement management plans for the conservation of loggerhead turtles with emphasis on non-consumable use, like ecotourism, scientific tourism and researchers.
Changes in socio-cultural patterns and behavior for the non-consumption of hawksbill turtles and eggs.	Number of communities changed.	Marine turtle projects reports	Encourage the adoption of changes in socio-cultural patterns and behavior for the non-consumption of loggerhead turtles and eggs.
Raising public awareness about the importance of conserving hawksbill turtles alive and in their natural habitat.	Number of activities	Marine turtle projects reports	Contribute to raise awareness on the importance of conserving hawksbill turtles alive and in their natural habitat.

LAC MT Objective 4.1	By 2016, bycatch of green turtles in selected fisheries (trawl, gillnets and longlines) is reduced by at least 15%.
Indicators	% of reduction in incidental catch of turtles in trawl fisheries % of reduction in incidental catch of turtles in gillnet fisheries % of reduction in incidental catch of turtles in longline fisheries
Verification source	**Eastern Pacific Bycatch Program reports**
Implementation partners	LAC SFNI Support Unit and WWF: Mexico/MAR, Ecuador, Peru and Chile.
Target sites	**Western Atlantic:** Guianas: French Guiana and Suriname. **Eastern Pacific:** Mexico; Central America; Colombia, Peru and Ecuador.

Expected results	Performance indicators	Verification sources	Activities
15% of green turtle's trawl fisheries bycatch is reduced in LAC target sites.	% of reduction in incidental catch of turtles in trawl fisheries.	Eastern Pacific Bycatch program reports.	(Promote the use of Turtle Excluder Device (TED) in the shrimpers (trawl fisheries).
15% of green turtle's gillnets bycatch is reduced in LAC target sites.	% of reduction in incidental catch of turtles in gillnet fisheries.	Eastern Pacific Bycatch program reports. Project records of hook exchanges, indicating number of vessels. Observer records (from the WWF Observer program). Fleet/skipper commitments	Promote the avoidance of green turtle entanglement in gillnet fisheries: deeper setting, using alternative net materials, setting nets perpendicular to the shore, using deterrents (e.g. sonic "pingers", shark silhouettes, turtle lights or chemical repellents), and establishing management approaches such as area or seasonal closures.
15% of long-line fleets use circular hooks and follow other recommended mitigation measures in the target countries.	% of Eastern Pacific vessels adopted to circular hooks and following the best fishing practices. Number of countries with longline fleets using circular hooks and following the best fishing practices.	Eastern Pacific Bycatch program reports. Project records of hook exchanges, indicating number of vessels. Observer records (from the WWF Observer program). Fleet/skipper commitments	Promote in longlines' fishing vessels of each priority place the use of turtle-friendly circle hooks and the use of tools and techniques to handle green turtles onboard and release them properly.

Expected results	Performance indicators	Verification sources	Activities
Measures recommended by the Eastern Pacific Bycatch program are exported to the Western Atlantic and adopted, and viceversa.	Amount of recommended measures exported and adopted.	Eastern Pacific Bycatch program reports.	Collect, integrate, and make analysis of information on green turtles bycatch and population status.
National and regional agreements on implementation of mitigation measures recommended by the Eastern Pacific Bycatch Program are reached in the target countries.	National longline fishing observer programs in target countries. National longline fisheries bycatch plans in target countries. OSPESCA resolution requiring circular hooks and other best practice measures to reduce bycatch.	OSPESCA resolution National observer program documents. National longline fisheries Bycatch plans.	Ensure compliance with existing resolutions to protect green turtles, and the dissemination of relevant information about green turtles conservation to policy-makers and decision-makers.

LAC MT Objective 4.2	By 2016, at least four globally important habitats (nesting and feeding) of green turtles are protected and well managed.		
Indicator	Number of nesting sites protected from inappropriate coastal development and effectively managed.		
Verification source	Marine turtle projects reports.		
Implementation partners	WWF: Guianas, Colombia and Ecuador		
Target sites	**Western Atlantic:** Guianas (Suriname) and Costa Rica (Tortuguero).	**Eastern Pacific:** Galapagos Islands and Peru.	

Expected results	Performance indicators	Verification sources	Activities
Green turtles tracked aiming to identify migration patterns and links between nesting and foraging populations of green turtles in the Region that will in turn contribute to a well-informed conservation strategy for marine turtles.	Number of turtles tracked and followed. Number of nesting beaches and feeding grounds used by tracked turtles.	www.seaturtle.org	Track green turtles
Key feeding grounds protected	Number of key feeding grounds protected.	Marine turtle projects reports	Contribute to the protection and assessment of key feeding grounds.
Nesting beaches protected	Number of nesting beaches protected.	Marine turtle projects reports	Contribute to the protection and assessment of nesting beaches, establishing protection and monitoring mechanisms that allow in situ and ex situ incubation.
Nesting beaches with a program of sustainable use and best practices for hawksbill turtle population and habitat conservation.	Amount of nesting beaches with a sustainable use program implemented.	Marine turtle projects reports	Reduce or eliminate disturbances in nesting beaches.
An urban growth Plan, redirecting development away from nesting areas.	Number of urban plans developed.	Marine turtle projects reports	Develop and contribute to urban growth plans, redirecting development away from nesting areas.

LAC MT Objective 4.3	By 2020, the local consumption of green turtle eggs and meat is reduced to less than 25% of current levels.
Indicator	Number of greens nesting at target sites.
Verification source	Marine turtle projects reports.
Implementation partner	WWF: Colombia, Ecuador and Peru
Target sites	**Western Atlantic:** Nicaragua (Miskitus Cays), Costa Rica (Tortuguero and Junquillal beach) and Guiana. **Eastern Pacific:** Colombia, Ecuador and Peru.

Expected results	Performance indicators	Verification sources	Activities
Have egg and meat's domestic markets investigated with the aim of shedding light on the demand and levels of the green turtle harvest; and a strategy of conservation developed.	Number of domestic markets investigated.	Marine turtle projects reports.	Investigate the domestic markets for eggs and meat with the aim of shedding light on the demand and levels of the green turtle harvest; and use the results of this investigation for the development of a strategy of conservation.
Management plans developed and implemented for the conservation of green turtles with emphasis on non-consumable use, like ecotourism, scientific tourism, researchers.	Amount of management plans developed and implemented.	Marine turtle projects reports.	Develop and implement management plans for the conservation of green turtles with emphasis on non-consumable use, like ecotourism, scientific tourism and researchers.
Changes in socio-cultural patterns and behavior for the non-consumption of green turtles and eggs.	Number of communities changed.	Marine turtle projects reports.	Encourage the adoption of changes in socio-cultural patterns and behavior for the non-consumption of green turtles and eggs.
Raising public awareness about the importance of conserving hawksbill turtles alive and in their natural habitat.	Number of activities.	Marine turtle projects reports.	Contribute to the awareness raising activities about the importance of conserving green turtles alive and in their natural habitat.

LAC MT Objective 5.1	By 2020, bycatch of olive ridley turtles is reducing by at least 15%.
Indicator	% of reduction in incidental catch of turtles in gillnet fisheries.
Verification source	Eastern Pacific Bycatch reports, WIDECAST reports.
Implementation partners	WWF: Mexico/MAR, Colombia, Ecuador, Peru and Guianas.
Target sites	**Western Atlantic:** Suriname (Maronie river mouth and adjacent waters) and French Guiana. **Eastern Pacific:** Mexico: Puerto Angel in Oaxaca and Gulf of California. Central America: Guatemala, El Salvador, Nicaragua; Panamá and Costa Rica. Colombia: Colombian Pacific. Ecuador: Ecuadorian Pacific; Peru: Peruvian Pacific.

Expected results	Performance indicators	Verification sources	Activities
15% of olive ridley turtle bycatch reduced in coastal fisheries through integration in Marine Protected Area (MPA) and fisheries management.	% of reduction in bycatch of turtles in coastal fisheries.	Eastern Pacific Bycatch reports MPA reports.	Develop and promote protection/mitigation measures to reduce olive ridley turtle bycatch in coastal fisheries by developing a temporary and voluntary measure to displace fishing efforts at times were the olive ridley are gathered in front of nesting beaches.
15% of olive ridley turtle gillnets and trawl fisheries bycatch is reduced in LAC target sites.	% of reduction in incidental catch of turtles in gillnet and trawl fisheries.	Eastern Pacific Bycatch reports.	Promote the use of best practices in fisheries to reduce the bycatch of olive ridley turtles (e.g. use turtle-friendly circle hooks, use tools to avoid the olive ridley turtle entanglement in gillnet fisheries, and the use of Turtle Excluder Device (TED) in the trawl fisheries), and contribute to building local capacity on olive ridley turtle reanimation techniques and release methods.

Expected results	Performance indicators	Verification sources	Activities
Measures recommended by the former WWF Eastern Pacific Bycatch program are exported to the Western Atlantic and adopted, and vice versa.	Amount of recommended measures exported and adopted.	Bycatch team.	Collect, integrate, and make analysis of information on olive ridley turtle bycatch and population status.
National and regional agreements on implementation of mitigation measures recommended by the Eastern Pacific Bycatch are reached in the nine target countries.	National longline fishing observer programs in target countries. National longline fisheries bycatch plans in target countries OSPESCA resolution requiring circular hooks and other best practice measures to reduce bycatch.	OSPESCA resolution National observer program documents National longline fisheries Bycatch plans.	Ensure compliance with existing resolutions to protect olive ridley turtles, and the dissemination of relevant information about olive ridley turtle conservation to policy-makers and decision-makers.

LAC MT Objective 5.2	By 2020, at least one globally important nesting site for olive ridley turtles is being protected and well managed.
Indicator	Number of nesting sites protected from inappropriate coastal development and effectively managed.
Verification source	Marine turtle projects reports.
Implementation partners	WWF-Guianas.
Target sites	**Western Atlantic:** French Guiana (Cayenne beaches) and Mexico. **Eastern Pacific:** Mexico, Nicaragua and Costa Rica.

Expected results	Performance indicators	Verification sources	Activities
Olive ridley turtles tracked aiming to identify migration patterns and nesting sites in the region as well as raising collective awareness on marine turtles' plight.	Number of turtles tracked and followed. Number of nesting beaches used by tracked turtles.	www.seaturtle.org	Track the olive ridley turtles. Tracking of males caught as bycatch in French Guiana in collaboration with the CRPMEM (French Guiana).
Nesting sites protected, establishing protection and monitoring mechanisms that allow ex situ incubation.	Number of nesting camps incubating.	Marine turtle projects reports.	Protect nesting sites in the priority places, and monitor them promoting the creation of patrolling teams that consistently monitor key nesting beaches for the collection of olive ridley turtle nests and incubation at nesting camps.
Nesting sites protected, establishing protection and monitoring mechanisms that allow in situ incubation.	Number of nesting sites protected.	Marine turtle projects reports.	Protect nesting sites establishing protection and monitoring mechanisms that allow in situ incubation. Manage the financial sustainability to operate hatcheries or for the protection of beaches incubation in situ.
Nesting beaches with a program of sustainable use and best practices for hawksbill turtle population and habitat conservation.	Amount of nesting beaches with a sustainable use program implemented.	Marine turtle projects reports.	Reduce or eliminate disturbances in nesting beaches. Establish sustainable economic activities with coastal communities as an alternative to trade in eggs.

Expected results	Performance indicators	Verification sources	Activities
An environmental education program established, coupled with the public release of hatched turtles, the regulation of pets' tenure at nesting beaches, and the implementation of solid waste management and waste on nesting beaches.	Number of sites/localities with the education program implemented.	Marine turtle projects reports.	Develop an environmental education program, coupled with the public release of hatched turtles, the regulation of pets' tenure at nesting beaches, and the implementation of solid waste management and waste on nesting beaches.
An urban growth Plan, redirecting development away from nesting areas.	Number of urban plans developed.	Marine turtle projects reports	Develop and contribute to urban growth plans, redirecting development away from nesting areas.

LAC MT Objective 6.1	By 2020, climatic baselines of nesting habitats (sea level, sand temperature, and water tables) are established at half of the nesting sites with WWF interventions in LAC.
Indicator	Number of nesting beaches in LAC with monitoring of climate impacts, vulnerability assessment projects or adaptation measures.
Verification source	Marine turtle projects reports.
Implementation partners	WWF: Guianas, Mexico/MAR, Colombia, Ecuador and Cuba. Others: WIDECAST and RETOMALA.
Target sites	**Western Atlantic:** Cuba: Jardines de la Reina and Cayos de San Felipe. Trinidad & Tobago: Grande Riviere and Matura beaches. Suriname: Matapika, Babu Santi, Galibi community (nestings sites). French Guiana: Awala Yalimapo (Amana Reserve), Cayenne beaches. Guyana: Shell beach Colombia: Playona, Acandí Panama: Chiriquí beach. **Eastern Pacific:** Costa Rica: Junquillal and Playa Grande Colombia: Gorgona Island Ecuador: Galapagos Islands Mexico: Gulf of California.

Expected results	Performance indicators	Verification sources	Activities
All nesting sites with WWF intervention in LAC and other marine turtle priority sites in the region are addressing the impacts of climate change through monitoring, vulnerability assessment and/or implementation of adaptation measures.	Number of nesting beaches carrying out monitoring activities, vulnerability assessment projects or implementing adaptation measures.	Marine turtle projects reports.	Provide technical assistance to field sites wishing to carry out monitoring, vulnerability assessments and implement adaptation measures in the region.

Expected results	Performance indicators	Verification sources	Activities
A regional network of coastal adaptation practitioners that acts as a hub for communication and support, in coordination with, and as a contribution to, the Ecosystems and Livelihoods Adaptation Network (ELAN).	Regional ACT (Adaptation to Climate change for marine Turtles) network running and available. Number of relevant scientific information, tools and outreach materials analyzed and disseminated.	Marine turtle projects reports.	Maintain and expand the regional ACT (Adaptation to Climate change for marine Turtles) network as a key support forum for marine turtle climate-adaptation practitioners to share experiences and distribute and access information. Analyze and disseminate relevant scientific information, tools and outreach materials, (e.g. up-to-date information on climate research, meetings, training opportunities and ongoing adaptation efforts; articles, press releases and blogs about project activities). Make information and tools available through the ACT website, WWF Adaptation Learning Platforms on www.AdaptationPortal.org and Climate Prep www.ClimatePrep.org, email list and social media.
Baseline data on climate-related variables (sea level, sand temperature, and water tables) at nesting sites are collected; monitoring of these variables is ongoing; adaptation measures to climate change are selected if necessary, based on vulnerability assessment and prioritization assessment; implementation of adaptation measures at selected sites is ongoing.	% of nests that survive under different environmental. Reports and databases with baseline on relevant variables at selected monitoring sites are available. Monitoring protocols for each of the variables are developed and being applied.	Records of environmental conditions and # of nests # of Published project reports Field visits.	Nest and environmental conditions monitoring. Make a general framework assessment and select monitoring sites. Develop monitoring protocols and training materials. Develop first measurements and establish baseline. Carry out training workshops with local MPA staff. Develop accessible/shared database tools to collect and analyze data from monitoring. Publish reports.

Expected results	Performance indicators	Verification sources	Activities
WWF ACT Toolkit for marine turtle habitats is expanded and refined and available in at least 20 nations of the Wider Caribbean, including all countries with a WWF presence, particularly through the Caribbean Marine Alliance (CMA).	Number of needs of marine turtle conservation practitioners identified. Number of works done with other regional organizations involved in climate adaptation. New tools/resources to meet the requirements of adaptation practitioners in the region developed.	Marine turtle projects reports.	Assess the needs of marine turtle conservation practitioners for addressing climate change in marine turtle projects. Work closely with other regional organizations involved in climate adaptation (e.g. CCCCC, CARIBSAVE, CANARI, WHMSI), the WWF Network Adaptation Team and ELAN to share tools and resources. Develop new tools/resources to meet the requirements of adaptation practitioners in the region: a) Sector-specific outreach and awareness materials. b) Monitoring for climate change manual. c) Vulnerability assessment manual d) Educational component for Toolkit e) Online database for the storage and analysis of beach profile and temperature data to facilitate regional level information gathering and analysis. f) Broad cost/benefit analysis of potential adaptation measures for marine turtles.
Trained personnel (or "multipliers") at local, national and regional levels. Strengthen the implementation of climate adaptation measures and the capacity of government officials and other decision makers to address climate change impacts through improved understanding of the value of including adaptation to climate change in integrated coastal management policy.	Number of climate adaptation training sessions in Spanish and English kept live and online. Number of regional, capacity-strengthening workshops to build scientific and technical capacity in assessment techniques and adaptation option development for coastal habitats used by marine turtles developed. Number of train-the-trainer materials for coastal climate adaptation workshop. Number of local or national level training workshops for marine turtle conservation practitioners and decision-makers held.	Marine turtle projects reports.	Hold live, online climate adaptation training sessions in Spanish and English. Hold two regional, capacity-strengthening workshops to build scientific and technical capacity in assessment techniques and adaptation options development for coastal habitats used by marine turtles. Develop train-the-trainer materials for coastal climate adaptation workshop of three to five days and make accessible online. Hold local or national level training workshops for marine turtle conservation practitioners and decision-makers.

Expected results	Performance indicators	Verification sources	Activities
Nesting sites continuously monitored and climate change impacts assessed annually.	Number of nesting sites characterized. List of vulnerability indicators for nests, hatchlings and foraging locations. List of adaptation measures taken.	Marine turtle projects reports	Monitor sand/nest temperatures and record nesting areas, nest success, hatchlings sex ratios (through histological examination of dead hatchlings).
Future impacts of climate change on nesting beaches determined.	Number of beaches evaluated.	Marine turtle projects reports.	Measure beach profiles and beach dynamics for modeling future impacts of sea-level rise/ storm surge.

LAC MT Objective 6.2	By 2020, marine turtle nesting habitats are undergoing adaptation efforts in five priority sites, and adaptation is part of national legislation, strategies and/or local marine turtle conservation and management plans.
Indicator	Number of countries monitoring climate change (CC) impacts on LAC nesting sites as part of national legislation, strategies and/or local marine turtle conservation and management plans.
Verification source	Marine turtle projects reports.
Implementation partners	WWF: Guianas, Mexico/MAR, Colombia, Ecuador and Cuba Other: Nature Seekers, WIDECAST (Trinidad) and RETOMALA.
Target sites	**Western Atlantic:** Suriname: Matapika, Babu Santi, Galibi community (nesting sites). Trinidad: Matura beach. French Guiana: Awala Yalimapo (Amana Reserve), Cayenne beaches. Cuba: Cayos San Felipe, Jardines de la Reina; Panama: Chiriquí beach. **Eastern Pacific:** México: Barra de la Cruz and Cahuitán, in Oaxaca, Punta Maldonado, Barra de Tecuanapa, in Guerrero, Mexiquillo, in Michoacán, Loreto marine Park and San Juan de Los Planes, Los Cabos area in the Gulf of California. Costa Rica: Junquillal and Playa Grande. Ecuador: Galapagos Island.

Expected results	Performance indicators	Verification sources	Activities
At least five countries in the region have incorporated adaptation planning into national legislation, national strategies and/or local conservation and management plans that cover marine turtles and their habitats.	Number of countries implementing adaptation to climate change in marine turtle nesting or foraging sites in LAC as part of national legislation, national strategies and/or local conservation and management plans that cover marine turtles and their habitats.	Management plans, National reports / legislation.	Carry out participatory project planning workshops with relevant institutions to assist field sites in: a) Carrying out vulnerability assessments of key nesting and foraging habitats to climate changes. b) The identification, prioritization and implementation of adaptation measures at field sites and to guide national adaptation policy development. c) Establishing or enforcing existing setback regulations that prohibit construction within a set distance from the high water mark.

Expected results	Performance indicators	Verification sources	Activities
Coastal managers, sea turtle groups and other interested stakeholders in the region are trained to carry out vulnerability assessments and/or implement adaptation options in the present nesting sites of turtles and in the potential nesting sites.	Number of managers, sea turtle groups and other interested stakeholders trained.	Management Plans, Reports.	Identify nesting areas that may be used in the future. Continue evaluate impacts, and design and test adaptation measures, including the reduction of non-climate stressors, to enhance the resilience of marine turtle populations and the habitats on which they depend. Contribute to build capacity for coastal managers, sea turtle groups and other interested stakeholders in the region wishing to carry out vulnerability assessments and/or implement adaptation options. Incorporate climate change into land beach-use planning.
Management plans for core and buffer areas in every locality.	Number of management plans elaborated in coordination with local communities and national strategies.	Management plans.	Develop management plans in main nesting areas including adaptations to climate change measures and contingency plans.
Results of adaptation measures are drafted and submitted to national management authorities.	Adaptation measures in place.	WWF CC adaptation reports.	Hire a consultant to asses adaptation measures and draft a report. Include components of the reports in regional symposium.
At least three of the most important MPAs for marine turtle conservation in LAC are implementing adaptation measures according to local vulnerability assessments and recommended actions that have been incorporated into their management plans.	Selected MPAs with nesting sites have incorporated adaptation actions into their management plans and serve as showcases for its wider introduction into the planning system Climate change vulnerability analysis and adaptation measures are incorporated in the official national methodology for the development of Protected Areas Management Plans. Selected PA area and planning staff in LAC countries are trained on Climate Change vulnerability analysis and adaptation implementation.	Approved MPA management plans. Official Management Plan methodology. Project reports Training workshop photographic reports. Field visits Communication materials	Compile best practice experiences and related available materials on Climate Change vulnerability analysis and adaptation for protected areas. Assist LAC countries authorities in developing the content for the Management Plan Methodology Carry out training workshops. Develop vulnerability analysis and identify adaptation measures for selected MPAs and include the results in its management plans. Develop communication materials with most outstanding results.

LAC MT Objective 6.3	By 2020, vulnerability assessments have been carried out for all foraging areas of priority species with WWF interventions in LAC.
Indicator	Number of LAC priority marine turtle foraging grounds included in climate change vulnerability assessment.
Verification source	Research reports and publications, Management plans.
Implementation partners	WWF: Colombia, Ecuador, Cuba (Cayos San Felipe, Jardines de la Reina). Others: Grupo Jaragua (Dominican Republic), WIDECAST and WCS.
Target sites	**Western Atlantic:** Cuba: Cayos San Felipe, Jardines de la Reina Dominican Republic: Bahía de las Águilas. **Eastern Pacific:** Colombia: Gorgona Island Ecuador: Galapagos Islands.

Expected results	Performance indicators	Verification sources	Activities
Vulnerability of foraging grounds of priority species has been assessed in LAC.	Number of priority foraging grounds included in vulnerability assessment of foraging grounds to climate change at LAC marine turtle foraging grounds.	Research reports and publications	Analyze vulnerability of hawksbill foraging grounds in the Wider Caribbean.
Key foraging sites/ refuge/areas of high coral/sponge identified and protected.	Number of foraging sites/refuge/ areas of high coral/sponge identified and protected.	Research reports and publications. Management plans	Identify key current and future foraging sites for marine turtles of Latin America. Identify and prioritize protection of key foraging sites/refuge/ areas of high coral/ sponge cover by ensuring their coverage in a network of protected areas. Identify key foraging areas and ensure adequate coverage of these areas in marine protected areas. Contribute to control land-based activity to reduce pollution and sedimentation.

LAC MT Objective 7.1	By 2020, marine turtle habitats are covered under climate change adaptation resolutions/guidelines in at least two international or intergovernmental instruments or agreements in IAC, CPPS and SPAW.
Indicator	Adaptation resolutions/guidelines under IAC, CPPS and SPAW.
Verification source	Marine turtle projects reports.
Implementation partners	LAC Species Regional Coordinator and Cuba. WWF: Guianas, Mexico, Ecuador and Cuba
Target sites	**Western Atlantic:** Wider Caribbean, Trinidad & Tobago, Guiana and Suriname. **Eastern Pacific:** Mexico, Central America, Colombia, Ecuador, Peru and Chile.

Expected results	Performance indicators	Verification sources	Activities
Adaptation resolution passed at Conference of the Parties of IAC.	Adaptation resolutions/guidelines.	Marine turtle projects reports.	Continue following and updating the resolution/guidelines.
Regional agreement for adaptation of marine turtle habitats reached under SPAW	Regional agreement adaptation under SPAW.	Marine turtle projects reports.	Consolidate a regional adaptation project (MacArthur Phase II) and then advocate for adoption of a regional commitment to implement adaptation.
Adaptation of marine turtle habitat is part of the regional marine turtle strategy under CPPS in the Eastern Pacific.	Marine turtle habitats under CPPS.	Marine turtle projects reports.	Continue including and updating information in the CPPS.
Established and implemented strategies to improve resilience and adaptation of species, ecosystems and local communities to the impacts of climate change.	Number of strategies implemented.	Marine turtle projects reports.	Development of predictive models of climate change detailed resolution. Assessment of potential impacts of climate change on biodiversity and its consequences on the livelihoods and life of local communities.
LAC countries' government representatives support the introduction of a regional agreement on climate change adaptation for marine turtles at SPAW.	Official position of LAC countries representatives at SPAW meetings.	SPAW Meeting reports.	Lobbying the LAC countries' government for the support of the adoption of a regional commitment to implement adaptation.

LAC MT Objective 7.2	By 2020, harvest and trade control measures for marine turtles and turtle products are effectively enforced and demand is reduced in a minimum of two countries in Latin America.
Indicator	Number of countries implementing marine turtles harvest and trade control measures
Verification source	TRAFFIC reports
Implementation partners	WWF: Mexico/MAR, Guianas, Colombia and Cuba. Grupo Jaragua (Dominican Republic) and TRAFFIC.
Target sites	**Western Atlantic:** Dominican Republic, MAR countries, Suriname, Colombia and Cuba. **Eastern Pacific:** Gulf of California.

Expected results	Performance indicators	Verification sources	Activities
Harvest and trade control measures are implemented in at least three target countries.	Joint agreement amongst all relevant protection and enforcement agencies is in place to enhance control on marine turtle harvesting and trade. Number of enforcement/protection officers properly trained and equipped to effectively control marine turtle harvesting and trade.	TRAFFIC reports. Seizures at sea. Volume of product in market surveys. Number and volume of seizures in CITES database.	Promote the implementation of specific, effective legislation for the protection of marine turtles. Ensure compliance with existing resolutions that prohibit the local and the international trade of marine turtle products, including tackling the domestic illegal trade and increasing efforts to detect and prevent smuggling of marine turtle products.
Harvest and trade is reduced in at least three target countries	Reduction of availability and sale of marine turtle products Increase in the number of successful seizures of marine turtle products Joint agreement amongst all relevant protection and enforcement agencies is in place to enhance control on marine turtle harvesting and trade. New and refined management plans completed. New and refined regulations/controls implemented (including harvest/management. Number of enforcement/protection officers properly trained and equipped to effectively control marine turtle harvesting and trade.	TRAFFIC reports. Seizures at sea. Volume of product in market surveys. Number and volume of seizures in CITES database.	Contribute to find, to divulgate or highlight the benefits derived from non-consumptive use of marine turtles by local communities. Consumer awareness campaigns established in key markets in target countries. Capacity building (including train the trainer) materials and workshops focused on marine turtle ID and trade issues for wildlife related authorities Advocacy efforts targeted at regional instruments and key fora such as the IAC or ISTS to encourage strengthened management, harvest and trade controls. Support national level management plans and policies to ensure long term sustainable conservation practices and strategies. Explore the applicability of molecular techniques to track down marine turtle products in trade (funding dependent).

Expected results	Performance indicators	Verification sources	Activities
Consumer awareness campaigns established in key markets in target countries.	Materials developed, produced and distributed in selected sites in close coordination /collaboration of relevant actors.	Project reports Field visits Interviews with key persons.	Implementation of a Make a good buy campaign with a strong marine turtle related component.
Capacity building (including train the trainer) materials and workshops focused on marine turtle ID and trade issues for wildlife related authorities.	Materials developed, produced and distributed in selected sites in close coordination. /collaboration with relevant actors.	Project reports Field visits Interviews with key persons.	Provide capacity building materials with a train the trainer approach focused on marine turtle ID and trade issues to wildlife related authorities.

LAC MT Objective 7.3	By 2020, at least one RFMOs managing fishing activities that interact with marine turtles have implemented management actions (through a management plan) that significantly reduce marine turtle bycatch to a level that does not harm the status of the population.
Indicator	% of reduction in incidental catch of turtles in longline fisheries.
Verification source	Eastern Pacific Bycatch reports.
Implementation partners	LAC SFNI Support Unit.
Target sites	**Western Atlantic:** Wider Caribbean, Trinidad & Tobago, The Guianas. **Eastern Pacific:** Mexico, Central America, Galapagos Island, Colombia, Ecuador, Peru and Chile.

Expected results	Performance indicators	Verification sources	Activities
A policy document presented at Inter - American Tropical Tuna Commission (IATTC) and ICCAT (Atlantic) Annual Meeting.	% of reduction in incidental catch of turtles in longline fisheries.	Eastern Pacific bycatch reports.	Contribute to the writing of a policy document and present it at Inter-American Tropical Tuna Commission (IATTC) Annual Meeting.
Conservation issues at the IATTC, ICCAT (Atlantic), with a particular focus on tuna bycatch conservation measures.	Number of monitoring and analysis.	Eastern Pacific bycatch reports	Conduct monitoring and analysis that charts the development of conservation issues at the IATTC, with a particular focus on tuna bycatch conservation measures.

LAC MT Objective 8.1	By 2016, social well-being has improved measurably through marine turtle conservation at least in one priority site in Latin America.
Indicator	Number of nesting beaches with marine turtle conservation plans and improved social well-being.
Verification source	LAC Species Regional Coordinator.
Implementation partners	WWF: Mexico/MAR and Guianas.
Target sites	**Western Atlantic:** Suriname. **Eastern Pacific:** Costa Rica and Junquillal.

Expected results	Performance indicators	Verification sources	Activities
Local capacity in Junquillal beach strengthened to wean the turtle conservation project from WWF support. Sharing of methodologies and lessons learned with other community-based projects in LAC, which may improve their well being by capitalizing on their turtles and other marine tourism assets.	Number of tourists each year coming to Junquillal to view nesting marine turtles.	Junquillal field reports Notibaula	Support business planning and implementation to achieve that nesting colony management becomes economically self-sustained through ecotourism. Support the Notibaula.
Non-consumptive use of marine turtles produces benefits and improves livelihoods to at least three coastal communities.	# of benefits/scale of benefits derived from non-consumptive use of marine turtles by local communities. Number of tourists each year coming to view nesting marine turtles. Perceived importance of marine turtle conservation to local people. New jobs created by economic alternative sustainable activities.	Participatory appraisals to identify benefits relevant to each community (e.g. marine park entrance fees, employment and training options, development opportunities as identified by community, improvement in well-being). Questionnaires pre- and post-projects Anthropologist study reports CLIP´s.	Support business planning and implementation to achieve that nesting colony management becomes economically self-sustained through ecotourism. Implementing Communities Livelihood Improvement Plans (CLIP) and alternative productive activities for coastal communities in nesting beaches at two priority sites in Latin America and the Caribbean (Junquillal in the Eastern Pacific, and one in the Caribbean).

Expected results	Performance indicators	Verification sources	Activities
Community members integrated in marine turtle conservation programs, sustainable activities and other related services and benefited.	Number of community members integrated and benefited.	Marine turtle projects reports, social statistics.	Integrate and involve community members in marine turtle conservation programs, sustainable activities and other related services. Provide to the community members indirect benefits from the program of marine turtle conservation (e.g., education, per capita income, access to consumer goods, health).
Develop economic and sustainable alternatives according to the protection of main nesting areas.	# of community project operations in buffer areas. # of person employed	Interviews, number of visits.	Design and implementation of projects according to management plans.

LAC MT Objective 9	By 2020, the LAC Regional Marine Turtle Action Plan has been implemented with adequate funding, coordination, monitoring and evaluation.
Indicator	
Verification source	Marine turtle projects reports
Implementation partners	LAC: Species Regional Coordinator, Marine Adaptation Leader, SFNI Support Unit, and Climate Change Program. WWF: Guianas, Mexico/MAR, Colombia, Cuba, Peru and Chile. Nature Seekers /WIDECAST (Trinidad) and Grupo Jaragua (Dom. Rep.).
Target sites	**Western Atlantic:** Wider Caribbean, Trinidad & Tobago, The Guianas. **Eastern Pacific:** Mexico, Central America, Galapagos Island, Colombia, Ecuador, Peru and Chile.

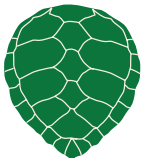
Expected results	Performance indicators	Verification sources	Activities
Regional Action Plan.	Number of management plans according to regional planning at a local and national level.	Management plans.	Develop agreements of local, regional and national plans.
Fundraising: Funding needs are covered to implement the LAC Marine Turtle Action Plan (MTAP).	Amount secured against amount needed.	Marine turtle projects reports Yearly budgets and progress reports of Fundraising Strategy.	Funding opportunities for species and financial support to WWF Program Offices (POs). Coordinate the drafting of a regional fund-raising strategy. Position LAC in the multi-National Office (NO) funding agreement for the Global Marine Turtle Strategy. Funding opportunities for marine turtle adaptation and financial support to POs. WWF: Guianas, Mexico/MAR, Colombia, Cuba and Peru.

Expected results	Performance indicators	Verification sources	Activities
Communications: LAC is recognized by WWF network as a leading team for marine turtle conservation delivery. Marine turtle conservation communities approach WWF LAC as a reference for technical advice. Stakeholders increasingly adopt WWF LAC's tools and lessons learnt for better regional marine turtle conservation. WWF´s LAC marine turtle conservation approach and priorities are increasingly adopted by governments and other players from the global marine conservation community.	WWF is recognized as an important actor in marine turtle conservation in all levels.	Marine turtle projects reports Published materials Corporate image of the Program. Forum reports.	Representation of LAC marine turtles work at international meetings. Disseminate results of the LAC Action plan in internal communication vehicles and external media. Strengthen species communications (regional and global visibility of LAC). Representation at technical meetings and global outreach, as a member of the WWF adaptation staff network. Promote regional and global visibility of LAC as leader in climate adaptation. WWF: Guianas, Mexico/MAR, Colombia, Cuba, Peru and Chile.
Capacity strengthening (internal and external): Capacity gaps pertinent to the implementation of the LAC - MTAP filled among LAC staff and partners.	LAC action plan is integrated in staff and partners.	Diagnostics of capacity needs among staff and partners.	Raise funds to recover the position of a Coordinator and establish at least one new position for a project manager. Identify capacity gaps amongst partners. Develop and/or support training of WWF partners. Identify capacity needs and facilitate capacity strengthening opportunities for LAC staff and partners. Coordination of the multi-institutional Adaptation to Climate change for Turtles (ACT) initiative. Capacity strengthening of POs staff and partners and support in strategic planning for climate adaptation.

Expected results	Performance indicators	Verification sources	Activities
Monitoring & Evaluation: LAC - MTAP implemented successfully, as a targeted contribution to the Global Marine Turtle Strategy. LAC - MTAP is revised and adapted periodically, incorporating lessons learned and new developments into marine turtle conservation planning as pertinent.	LAC action plan contributed to marine turtle conservation.	Marine turtle projects reports.	Coordinate implementation of LAC Regional MT Action Plan, provide regional strategic leadership and adjust planning in relation to WWF Global Marine Turtle Strategy. Alerts LAC about new developments in the field of species conservation and emerging issues. Oversight of regional turtle budget. Regional adaptation budget & contracts oversight Evaluate progress of climate adaptation work and make recommendations for planning.
Tools: Tools needed to implement the LAC - MTAP are available to Program Offices staff and partners.	LAC action plan is implemented.	Marine turtle projects reports.	Research and development (R&D) of adaptation tools. Make an assessment of tools needs. WWF Field Office seeks for and promotes implementation of cutting edge tools to support success in program implementation. WWF and partner staffs are properly trained. Tools implemented according to identified needs. Rollout of Adaptation Toolkit in LAC.

CONSERVATION PRIORITIES

Prioritization of conservation efforts and sites for action takes into account the level of threat to the species concerned and the opportunities for synergy with ecoregions.



BECAUSE TURTLES ARE HIGHLY MIGRATORY SPECIES **their conservation needs to be addressed at a scale beyond ecoregion** CONSERVATION PLANNING.

The following are priority species for conservation efforts in the LAC region:

Leatherback, *Dermochelys coriacea:* while the Eastern Pacific leatherback population is in greatest danger of extinction than the Atlantic one and as such deserves immediate attention, parallel efforts will focus on the reduction of threats to the Western Atlantic population to prevent a change in their current recovery.

Hawksbill, *Eretmochelys imbricata:* conservation focuses in the Caribbean and the Eastern Pacific population, which is likely to be genetically unique.

Loggerhead, *Caretta caretta:* loggerheads of Australian origin are highly threatened and travel as far as the cold waters of Southern Peru and Northern Chile, where they coincide with the presence of fisheries fleets. Efforts will be undertaken towards the mitigation of bycatch to Eastern Pacific population and North Pacific population, which nests in Japan and is threatened with bycatch off the coast of Baja California, Mexico.

Green, *Chelonia mydas:* efforts will be undertaken towards the mitigation of threats to the populations of this species in the Eastern Pacific (Mexico, Colombia, Chile) and the Western Atlantic (Colombia, Guianas).

Olive ridley, *Lepidochelys olivacea:* efforts will be undertaken towards the mitigation of threats to the populations of this species in the Eastern Pacific (Mexico, Panama, Colombia) and the Western Atlantic (Guianas).

The program benefits from linking the MTAP with WWF's conservation efforts in the following LAC focal ecoregions: (1) Gulf of California and (2) the Galapagos Islands and Chocó Darién in the Eastern Pacific, (3) Mesoamerican Reef and (4) Greater Antillean Marine in the Caribbean, (5) the Guyana Shield and (6) the South Western Atlantic Coast. Other relevant marine ecoregions in LAC include the Panama Bight, Humboldt Current, Southern Caribbean Sea and North Eastern Brazilian Coast Marine Ecosystem. Such ongoing efforts can be used to draw greater attention to marine turtle conservation. Nonetheless, because turtles are highly migratory species, their conservation needs to be addressed at a scale beyond ecoregion conservation planning.

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The division of LAC into sub regions illustrates the issues, the species involved and where there's a level of capacity on behalf of WWF or its partners on which a major component of the action plan can be based (Table 6). These are: Western Atlantic (Suriname, Guyana, French Guiana, Suriname, Brazil, and Argentina) and the Eastern Pacific Ocean (from Mexico to Chile).

Table 6. Species of interest, key threats and sub regional partners for LAC-MTAP implementation.

Sub region	Principal nesting / foraging species / populations	Key Threat/Issue	WWF Presence
Western Atlantic	Leatherback, loggerhead, green, olive ridley.	Bycatch, inappropriate coastal development, local consumption, climate change.	WWF: Guianas and Brazil. Fundación Vida Silvestre-Argentina and CRPMEM Guyane.
	Hawksbill.	Bycatch, inappropriate coastal development, local consumption, commercial trade, climate change.	WWF: Mexico, Colombia and Cuba. Bonaire and TRAFFIC-Mexico
Eastern Pacific	Leatherback, loggerhead, hawksbill, Pacific green, olive ridley.	Bycatch, inappropriate coastal development, climate change.	WWF: Mexico, Colombia, Ecuador, Peru, and Chile.

Strategic principles of the LAC Marine Turtle Program

1. Outcomes of the Marine Turtle Program take into account the needs of **humans and wildlife in a partnership** of shared benefits.
2. The underlying theme of the Program's efforts to stop overexploitation is **"A turtle is worth more alive than dead"** (Troëng and Drews, 2004). The logical link between conservation and benefits to coastal communities is a key component in the Program's vision. In addition, this message is the umbrella of the communications strategy of the Program.
3. The Program will base its conservation actions on available **scientific knowledge** and work with scientists to improve knowledge where it is lacking.
4. Program interventions are guided by the highest priority, geographical, biological and political **conservation needs of the marine turtles**, rather than by complete geographical coverage of LAC with regard to participation of nations in the Program.

THE PROGRAM ACKNOWLEDGES THAT THE CHALLENGE OF **marine turtle conservation implies** A JOINT EFFORT BETWEEN ALL STAKEHOLDERS, INCLUDING GOVERNMENTS, COMMUNITIES, ENVIRONMENTALISTS, INDUSTRIES, OTHER INTEREST GROUPS AND KEY INDIVIDUALS

5. The LAC Program envisions a **team of collaborators**, to cover the following areas of expertise: leatherbacks, hawksbills, habitat protection, overexploitation, bycatch, tourism, climate change, communications and information management.

6. A series of **conservation models,** case-study learning experiences with strong conservation impact, will feedback on the working strategies and act as seeds in the generation of models and/or lessons for widespread application in the region. The thematic fields for the conservation models are:

   6.1 An alternative to extractive uses of marine turtles: community-based ecotourism, in which marine turtles are the flagship species. Two cases are envisioned: an ecotourism scheme run by an indigenous community, and underwater observation of marine turtles as an international attraction, which benefits a coastal community or a country as a whole.

   6.2 Country level implementation of measures to reduce bycatch of marine turtles.

   6.3 Establishment of a turtle protection time/area closure for fisheries in international waters.

   6.4 Marine turtle habitat protection: linking nesting and feeding sites through international cooperation.

   6.5 Adaptation measures to climate change that benefit marine turtles, their habitats and associated human coastal communities.

7. The LAC Program envisions a **horizontal transfer of best practices** through peer encounters and networking.

8. The program acknowledges that the challenge of marine turtle conservation implies a joint effort between all stakeholders, including Governments, communities, environmentalists, industries, other interest groups and key individuals. The LAC - MTAP foresees **alliances and coordination with key players** in the conservation arena.

9. Considering that marine turtles distributed in LAC travel to other regions (*e.g.* North-American Atlantic, Europe and West-Africa, East-Asia and Oceania) the Program seek **synergies** with marine turtle conservation opportunities and initiatives **outside LAC**.

10. The Program includes **various levels of intervention** through policy and field approaches: international agreements, national legislation, advocacy with stakeholders (government, industry, natural resource managers, communities), and communications to the general public.

11. The Program is a **dynamic process** that responds to emerging threats and pertinent opportunities as they arise, through periodic review of targets and required outputs.

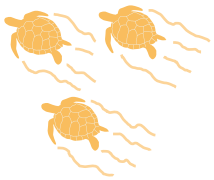
12. The **success indicator** of the LAC - MTAP goal is a positive trend in the nesting population of adult, female marine turtles in all species of the region, at key monitoring sites. Such trend may take between 15 to 25 years to be revealed, depending on the species concerned and the impact of WWF's conservation measures and the collective impact of all conservation efforts in the region.

13. **Achievement indicators** measure changes in pressure on, or threats to, turtles. These indicators and the choice for the monitoring of the impact of the LAC - MTAP more closely reflect the result of WWF's interventions and are amenable to a qualitative analysis of the relative contribution of WWF to changes in pressures.

14. **Performance indicators** show the compliance of WWF and partners with planned responses to a given problem.

There are seven leatherback subpopulations: Northwest Atlantic Ocean, Southeast Atlantic Ocean, Southwest Atlantic Ocean, Northeast Indian Ocean, Southwest Indian Ocean, Eastern Pacific Ocean, and Western Pacific Ocean.

OVERVIEW OF WWF'S INVOLVEMENT IN LAC



The migratory behavior of turtles,

WHICH SPANS COASTS AND WATERS OF SEVERAL NATIONS, MEANS THAT A REGIONAL APPROACH IS NEEDED TO PROTECT THEM THROUGHOUT THEIR RANGE.

Since it was founded in 1961, WWF has supported numerous sea turtle conservation efforts worldwide. Much of the early work involved mapping the distribution of nesting beaches, with surveys in more than 40 countries. Other projects focused on survival of eggs and hatchlings, establishment of protected areas, research on sea turtle biology, ecology and behavior, monitoring the trade in turtle products, investigating the threats from fisheries, and sponsoring international conferences and workshops on sea turtle conservation. In 1999, WWF co-funded production of a state-of-the-art publication: Research and Management Techniques for the Conservation of Sea Turtles, prepared by the IUCN/SSC Marine Turtle Specialist Group.

In Latin America and the Caribbean, WWF has concentrated on the conservation of leatherbacks, and Caribbean hawksbills, due to their highly threatened status. There have been various marine turtle conservation projects supported by WWF in the region, such as in Cuba, Mexico and the Mesoamerican Reef, Costa Rica, Colombia, Guianas, Galapagos, Peru and Argentina. These include interventions on national legislation; fisheries best practices, collaborative/cooperative activities with fishermen as well as local community work. In addition, WWF seeks conservation impact at the level of international treaties (e.g. Convention on Migratory Species (CMS), Convention on International Trade of Endangered Species of Fauna and Flora (CITES), Inter-American Convention (IAC) for Marine Turtle Conservation).

The migratory behavior of turtles, which spans coasts and waters of several nations, means that a regional approach is needed to protect them throughout their range. Bridging local and global efforts is a task for the LAC-MTAP. To do this the LAC-MTAP was drafted in consultation with several scientists and WWF offices. Its aim is to link turtle conservation with community livelihoods, reducing bycatch

mortality and adapting turtle habitats to climate change. The priority species are leatherbacks (vulnerable) and hawksbills (critically endangered). The following is a quick review on the current status of marine turtles and work carried out by WWF and partners in LAC.

WWF *Marine Turtle Conservation in Argentina*

The Regional Sea Turtle Conservation and Investigation Program (Spanish acronym for PRICTMA), has been supported by WWF through Fundación Vida Silvestre FVSA. PRICTMA has identified two conservation problems: 1) turtles are accidentally caught in fishing gear (bycatch) and 2) they are swallowing anthropogenic waste. Bycatch poses the main threat for marine turtles in these waters; gillnets used in artisanal fisheries and industrial trawlers have the most impact. Although no turtle deaths due to waste swallowing have been documented, different kinds of waste were detected in all the stomachs analyzed.

WWF *Marine Turtle Conservation in the Gulf of California and Mexican Pacific with special attention to loggerheads*

The Gulf of California and the Mexican Pacific are of great national and international relevance, because five of the six species of marine turtles nest, feed and grow on their coasts. There are five species of marine turtles present in this area: olive ridley, green, leatherback, loggerhead and hawksbill turtles. Populations of some of these species have declined severely and risk extinction.

The main threats for marine turtles in the Gulf of California and Mexican Pacific are: 1) capture of nesting females and egg collection for human consumption and marketing; 2) illegal fishing for meat consumption, fish bait and skin marketing; 3) impact of the growth of human settlements and coastal development near nesting beaches; 4) incidental capture on longline hooks set for finfish or sharks, in gillnets, longlines and trawls of artisanal and commercial fleets; 5) pollution by toxic discharges from agricultural areas adjacent to sea turtle breeding and developmental habitats. Marine turtles are priority conservation species for WWF-Mexico. Since 1990, when a total and permanent marine turtle ban was established in Mexico, protection initiatives have been based on action at the beach level, using camping facilities, guard patrols and regulation of Turtle Excluder Devices (TED) on shrimp vessels. Nevertheless, very little has been done regarding longlines and gillnets. The North Pacific loggerhead population is critically endangered due to precipitous declines in nesting over the past three generations to fewer than 2000 nesting turtles a year. Scientists reported bycatch of 2250 ± 500 a year in two small scale fishing fleets in the South Eastern Coast of Baja California (Peckhan *et al.,* 2008).

WWF *Marine Turtle Conservation in Cuba*

Marine turtles and particularly hawksbills suffer in Cuba as in elsewhere, due to a number of pressures, mainly legal and illegal harvesting for meat and shell, bycatch in fishing lines and nets, as well as alteration and destruction of habitat, particularly due to tourism development on nesting beaches and climate change. Illegal hunting and trade of hawksbill carapaces (tortoiseshell) is an increasing issue hampering the capacity of customs authorities to reduce wildlife threats. WWF has provided broad support for the development of a national conservation program of sea turtles in Cuba (Azanza *et al*. 2013). In particular, WWF has helped to coordinate the work of different institutions involved, giving scientific-technical and material support to strengthen the monitoring program especially focused in protected areas. WWF has been active promoting and developing training workshops and providing technical support for the design and implementation of management plans for Cayos de San Felipe y Jardines de la Reina national parks. WWF is currently leading, along with the National Enterprise for the Protection of the Flora and Fauna, a national campaign to raise awareness to stop marine turtle illegal take and trade.

WWF'S INVESTMENT IN SAFEGUARDING HUMAN ASSOCIATIONS WITH **marine turtles is increasing** TO ENSURE THAT TURTLES CONTINUE TO PLAY AN IMPORTANT SOCIAL, CULTURAL AND ECONOMIC ROLE.

WWF *Marine Turtle Conservation in Guianas*

The Guianas host large nesting populations of green and leatherback turtles.

Changes in monitoring effort and quality over this time period do not allow population trends to be identified. However one can consider that both the leatherback and the green did not face any significant change in population range over the last decade.

Olive ridleys have shown population recovery between 2002 and 2014 mainly in French Guiana were numbers in nests increase from less than 1000 in 2002 to more than 3000 in 2012. This number has dropped down to 1548 in 2014. The WWF Guianas program is designed to conserve turtle species present in the region through reduction of threats, facilitation of population recovery and strengthening of benefits to local people. WWF Guianas, works with the fishing sector to focus on bycatch reduction in gillnets and fish trawls, as these are considered to be one of the most significant threats facing the marine turtles in the Guianas. Increased attention to a growing yellow fin tuna longline fleet operating out of Suriname needs to occur (i.e onboard observer program during leatherback migration times). In addition to the bycatch reduction work with fisheries, WWF is also actively involved in the reduction of poaching of turtles and turtle products in association with governments and local communities. WWF's investment in safeguarding human associations with marine turtles is increasing to ensure that turtles continue to play an important social, cultural and economic role. Support is given to capacity building for ecotourism and other alternative income generating

Thousands of nesting Olive ridleys come ashore to lay their eggs during massive “arribadas” along Eastern Pacific beaches of Costa Rica, Nicaragua and Panama.

programs. It is realized that only through voluntary support for conservation will the turtles' future be secured. WWF has been engaged in various forms of turtle conservation in the region since the 1960s.The WWF Guianas programs have been ongoing since 1999 and efforts to increase and stabilize current populations need to continue.

WWF *Marine Turtle Conservation in Ecuador*

One of the threats to marine turtles is their interaction with fisheries, which leads to their incidental mortality. In Ecuador there is an important artisanal longline fleet consisting of more than 4,000 vessels fishing mainly for tuna, billfish, sharks and mahi-mahi in different seasons. In 2003, the government of Ecuador, in coordination with the private sector and other stakeholders, promoted the design and subsequent implementation of a program that has helped find solutions to the marine turtle bycatch problem. The objectives of this program were: 1) replace J fishhooks with circular ones, 2) improve techniques and procedures for releasing hooked or entangled turtles, 3) change the attitude of fishers, and 4) reduce marine turtle mortality. The program's implementation strategy was based in four elements: 1) fishhook exchange, 2) observers' Program, 3) training in the use of instruments for releasing turtles, and 4) workshops for fishers and other interested parties. After more than a decade, the program has proven to succeed in a way that the Government passed legislation for the mandatory use of circle hooks in all artisanal and industrial longline fisheries. For this purpose, Ecuador reduced taxes for hook retailers and promoted incentives for law compliance by the fishing sector.

WWF *Marine Turtle Conservation in Colombia*

Colombia is an important habitat for five of the world's seven marine turtle species. Beaches, coastal and pelagic zones of eight protected areas in the Caribbean and five in the Pacific of Colombia, are visited all year-round by individuals to grow, feed and reproduce. WWF conservation endeavors started in 2005 supporting the work done by local NGO and the National Parks Service to reduce serious threats to marine turtle populations in both coasts. The principal threats faced by marine turtles in Colombia are: 1) bycatch in coastal / pelagic longlines, shrimp trawling and artisanal gillnets; 2) predation on nesting beaches by domestic and wild animals; 3) habitat degradation (loss of nesting areas, pollution from foraging areas, beach erosion, artificial lights and sand mining); 4) local consumption of eggs and meat and, 5) illegal trade. WWF has contributed to tackle these threats by replacing J hooks with circle hooks in order to reduce bycatch mortality, by improving monitoring and conservation management of environmental

authorities to set up a scientific base line and to enforce law to reduce poaching, while providing technical support for the Ministry of Environment to update management plans and declare new protected areas for marine turtles.

WWF *Marine Turtle Conservation in Peru*

THE PROGRAM HAS WORKED COOPERATIVELY WITH FISHERMEN, BOAT OWNERS, GOVERNMENTS, ACADEMY, NGOS AND OTHER KEY STAKEHOLDERS TO IDENTIFY AND TEST MEANS TO **reduce marine turtle bycatch.**

Artisanal longline fishing in the Peruvian waters still has an undetermined impact on marine turtles. The most targeted fish is mahi-mahi (*Coryphaena hippurus*) locally called "perico", especially in the summer months when warmer waters bring the fish closer to the coast, as well as some marine turtle species. In winter the seasonal species are sharks, which require a larger hook, while the interactions with marine turtles are much less. Longline fishermen are not interested in selling the captured marine turtles, although some are sacrificed for consumption in the boat, and depending on the availability of space in the freezers, some are brought to land. Many turtles are thrown back to the sea, after recovering the longline hooks. The recovery is done without much consideration to the health of the marine turtles, so a large number of them are returned to sea with injuries of different degrees of severity. In 2004, an inventory by the "Instituto del Mar del Perú" (IMARPE) registered more than 1,500 artisanal longliners, so that the impact on the five species of sea turtles, especially the leatherback turtle, appeared to be substantial.

WWF *Bycatch Initiative: Towards Sustainable Fisheries in LAC*

In the Eastern Pacific Ocean (EPO), leatherback and loggerhead turtles are species of concern because of their critical population condition. The Eastern Pacific leatherback is critically endangered, and population consisting of one single RMU could disappear entirely within a decade, if the main threats are not abated effectively and soon.

Bycatch during fishing operations must be reduced in order to minimize fishing related mortality and to increase the chances of survival of these marine reptiles. From 2003 to 2013, WWF carried out a joint venture project with the Inter-American Tropical Tuna Commission (IATTC) with the support from NOAA and other partners to save marine turtles from long-line fisheries bycatch in the EPO. The Bycatch Initiative was originated and fully supported by Ecuador, and from there it expanded to eight other countries in the region, from Mexico to Peru. A critical element in this effort was to find solutions needed to show that they were effective and beneficial to both marine turtles and fishermen. The program has worked cooperatively with fishermen, boat owners, governments, Academy, NGOs

Drift gillnets are amongst the main threats currently jeopardizing marine turtles.

and other key stakeholders to identify and test means to reduce marine turtle bycatch. This initiative ends in a massive transformation of the longline fleets towards the adoption of best fishing practices for sustainable fisheries in EPO.

As a result of the work of the WWF EPO bycatch program team conducted from Mexico to Peru, it was possible to recruit 545 artisanal longline fishing vessels to test circle hooks (as a replacement of the J hooks to reduce turtle hooking), test modified gear (use of monofilament to reduce turtle entanglements), and collect critical information from the fishery and its bycatch interaction with marine turtles in 2,183 experimental fishing trips with onboard observers. As a result, there is a regional database of incredible value for conservation and fisheries management, consisting of data strings from a hook sample size of 3,731,288 hooks. This data has helped countries not only to understand their bycatch problems but also to identify fisheries management measures towards sustainable fisheries.

As of 2013, the program had also taken 193,628 J hooks out of the water and replaced them with circular hooks, with direct conservation benefits, actually saving turtles in commercial longline fishing trips.

More than 5,000 people from the fisheries sector, including fishermen, boat owners, captains, and fishing authorities, have participated in trainings and sharing events. Data collected by on board observers showed that circle hooks reduced the probability to be swallowed by marine turtles. The vast majority of the turtles hooked or entangled in the surface long-line fisheries were encountered alive, and released in good conditions. Circle hook tests have shown, not only that in the tuna, billfish and shark fisheries the marine turtle bycatch can be reduced, while maintaining target catch rates.

Governments have approached WWF bycatch team in each country to seek help to create their own observers and bycatch reduction programs. Several seafood companies in Central America and Ecuador have taken further steps to seek sustainable seafood markets in partnership with WWF. Marine turtle bycatch reduction is the first step and the cornerstone to a new culture in the use of ocean resources, and WWF has proposed a smart way of fishing.

IMPLEMENTATION AND PARTNERS

LAC Regional Species program will coordinate the LAC-MTAP implementation with the support of the Network. WWF offices will be invited to joint efforts in the region and allocate resources through the PIA to develop LAC-MTAP common tasks in alignment with WWF Global Marine Turtle Strategy (2012-2020). The LAC-MTAP will be linked to the advance of National Plans and cooperate for WWF Offices (National and Program offices) conducting marine turtle projects in LAC to deal with local conservation challenges.

Partnership and strategic alliances with governmental agencies, NGO, communities, scholars, and international bodies will be fortified through strong networking. A solid participatory regionally integrated platform will offer possibilities for local stakeholders to truly engage in LAC-MTAP activities development. Activities were planned to target the more vulnerable populations identified by experts, the IAC and MTSG in the region. Impacts of LAC-MTAP implementation will be measured in terms of threat reduction and commitment of local stakeholders to save marine turtles.

Funding for LAC-MTPA to be fully implemented will be requested to donors, private sector and MoUs between national NGO and governments signed for collaborative work towards achievement of strategic goals. Suggested programmatic timetable and budget for LAC-MTAP implementation is summarized in Table 7.

Table 7. Basic implementation schedule for the five years of the LAC-MTAP

Fiscal Year (FY)	Implementation Steps	Estimated Budget USD
FY15 / 17	• Design and launch of a fundraising strategy for the LAC-MTAP implementation. • Design of two year project concepts for each specific objective. • Implementation of initial two years LAC-MTAP work plan. • Evaluation and adjustment of LAC-MTAP for next two years.	$ 30,000.00 $ 10,000.00 $ 250,000.00 $ 35,000.00
Subtotal		**$ 325,000.00**
FY17 /19	• Implementation of second year of the fifth year work plan. • Evaluation and adjustment of LAC-MTAP for next two years	$ 250,000.00 $ 35,000.00
Subtotal		**$ 285,000.00**
FY19 / 20	• Implementation of the fifth year work plan • Evaluation of LAC-MTAP progress and contributions towards WWF GMTS (2012-2020). • Further steps and sustainability assessment per WWF NO or PO	$ 250,000.00 $ 35,000.00 $ 25,000.00
Subtotal		**$ 310,000.00**
TOTAL		**$ 920,000.00**

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MONITORING AND EVALUATION

Evaluation of project performance will be monitored annually by the LAC Species program with respect to outputs and achievement indicators listed in Annex 6.

The focal point of each WWF offices will produce a yearly report about the progress on the implementation of the national action plan in each subregion. WWF LAC Species program will report annually to WWF LAC secretariat and WWF Global Species Programme. LAC- MTAP will be distributed to the network following standards and shared with other audiences as requested.

THREE YEAR BUDGET IMPLEMENTATION

Verifiable outputs and budget to comply with the aim of implementing the LAC-MTAP by 2020 with adequate funding, coordination, monitoring and evaluation must be defined for the geographies included in the Marine Turtle Strategic Plan[2].

Interventions toward accomplishing the Specific Objectives are based on tools listed to mitigate the current threats on marine turtle populations. Interventions and yearly targets of the LAC - MTAP are included in a three year work plan which is not part of this document.

International trade in turtle products was formerly a major cause of population depletion. Since all species of marine turtles were listed on Appendix I of CITES, trade between countries decreased. In the northern Caribbean, for example, the shell and trades appear to have been greatly reduced since the entry into force of CITES and related national legislation during the course of the last 25 years; an indicator of this is the reduction of the seemingly common current practice found in several areas visited of discarding the carapace after removing the meat (TRAFFIC North America, 2001). WWF opposes a resumption of international trade in marine turtles, until it can be shown that such trade will not negatively affect the recovery of populations to fulfill their ecological roles, and the maintenance of their demographic health and genetic diversity. However, illegal tortoiseshell trade and hunting for international markets outside the CITES framework remains of concern, and local illicit traffic consumption continues in several LAC countries (TRAFFIC 2006).

2. https://dl.dropbox.com/u/38162092/Marine%20Turtle%20Action%20Plan%202013-2015.xlsx

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Community engagement has resulted crucial for conservation management of marine turtles in the LAC region.

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ANNEXES

Annex 1: Distribution and Conservation Status of Marine Turtles in LAC

WESTERN ATLANTIC

There are six of the seven extant species geographically distributed in the Western Atlantic.

Atlantic leatherback, ***Dermochelys coriacea***

Distribution

One of the largest concentrations of nesting leatherbacks in the world occurs on the beaches of Trinidad (Matura beach and Grande Riviere), Suriname and French Guiana (Yalimbo) (Eckert, 2001; Dow *et al.*, 2007; NMFS, 2009). In contrast with the dramatic decline of nesting populations in the Pacific Ocean, these Atlantic leatherback rookeries have recently been reported to be stable or increasing (IUCN 2013) and the conservation status of the Atlantic leatherback has been updated from 'critically endangered' to 'vulnerable'. Leatherback turtle nesting is very important in Chiriquí Beach, in the Comarca Ngöbe-Buglé on the Caribbean coast of Panama (Ordoñez *et al.*, 2007). In Cayenne beaches at Eastern French Guiana, lesser numbers of leatherback turtles were reported more than a decade ago. In Colombia the beaches of La Playona and Acandí in the Gulf of Urabá are the most important nesting sites for leatherbacks.

Conservation

In some Wider Caribbean countries, gravid leatherbacks are killed for meat, oil, and/or eggs during nesting. In some cases the harvest occurs in a range state, as is the case of Costa Rica, Panama and Colombia, where between 100 and 250 nesting females arrive per year (Eckert 2001; Ceballos-Fonseca, 2004; Patino-Martinez, *et al.*, 2008). The major recognized threat for leatherbacks is incidental capture of breeding adults and nesting females in coastal gillnets. Also to this date we do not have a handle on the levels of interactions and post release mortality from longline fisheries occurring in international waters, even though many have observer programs. Sea turtles in the southwestern Atlantic (SWA) interact with virtually all fisheries. Trawl fisheries are the major threat because the large number of boats in southern Brazil, Uruguay and Argentina, where the extensive continental shelf and the muddy or sandy bottom make this gear favorable.

Sargassum is a key habitat for marine turtle hatchlings in the Caribbean as they provide food and shelter during the "lost years" (1-7 years)

Despite decades of conservation efforts on the nesting beaches, the critical status of leatherback turtles shows that their survival predominantly depends on our ability to reduce mortality at-sea. Leatherbacks temporarily occupy coastal commercial fishing grounds and face substantial accidental capture by illegal coastal fisheries. Southwest Atlantic trawls could not be ranked, but bycatch of leatherbacks has been reported for fish trawls therefore these should be candidates for the testing of experiment TEDs. Longlines and trawls in the northwest Atlantic are urgent conservation priorities (Wallace *et al.*, 2010).

Caribbean hawksbill, ***Eretmochelys imbricata***

Distribution

The Caribbean hawksbill is the most tropical of all marine turtle species and plays an important ecological role in the coral reef ecosystem being an internationally shared resource. Hawksbills nest in the 43 countries and territories of the Wider Caribbean and foraging sites are found throughout most of the region but mainly in Nicaragua, Honduras, Cuba, Puerto Rico, and possibly Mexico (Troëng *et al.*, 2005a; Horrocks *et al.*, 2011). Lighthouse Reef Atoll in Belize is also an important foraging ground for juvenile hawksbill turtles (Jackson *et al.*, 2010). Furthermore, individuals released in Cuba were tracked for the last time in the Caribbean coast of Colombia (Manolis *et al.*, 1998). Despite recent increases in some areas, fewer than 5,000 females were estimated nesting in the Wider Caribbean fifteen years ago (Meylan and Donnelly, 1999). Large nesting colonies are rare; there are only three sites reporting more than 1,000 tracks/year, while 52% receive less than 25 tracks/year (Dow *et al.*, 2007). A recent satellite tagging study highlights the importance of the Cuban shelf to hawksbill turtles: a range of life stages of hawksbill turtles are found in Cuban waters year-round, and given that Cuba has the second largest reef in the Caribbean, it likely provides foraging habitat for significant numbers of hawksbills turtles from at least the following different countries: Cuba, USA, Mexico, the Bahamas, Canary Islands and Spain (Moncada *et al.*, 2010).

Conservation

Hawksbills are threatened by legal and illegal direct take for meat, eggs and international trade of its scutes, traditionally used for handcrafts, jewelry and luxury worldwide. This species has been exploited for hundreds of years for European tortoiseshell markets and is well known the historical demand to supply the Japanese market (Chacón *et al.*, 2009). Hawksbill nesting and foraging habitats have been lost or modified in LAC due to coastal development, sand mining, lights, and pollution. Climate change is likely to further alter conditions at existing nesting and foraging grounds with serious impacts on critical nesting and foraging sites (Mortimer and Donnelly, 2008). The conservation of the rich mosaic of genetically distinct subpopulations in the Caribbean requires inclusion of many, scattered nesting areas and of mixed stocks at their feeding grounds in the conservation plan for this species.

Atlantic loggerhead, ***Caretta caretta***

Distribution

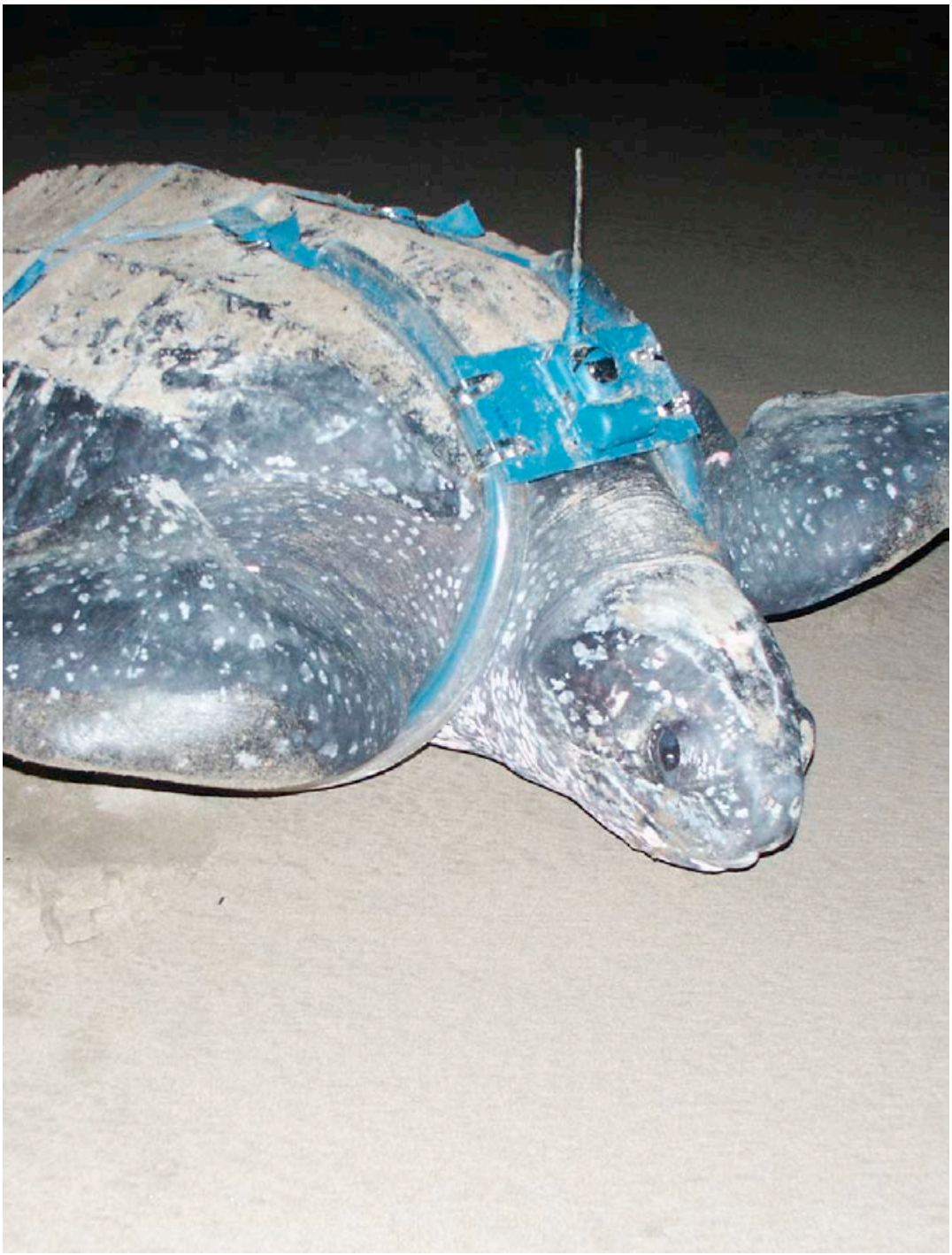
Caribbean countries host relatively few major nesting beaches for loggerhead turtles (< 5% of total Atlantic Ocean nesting) and these are concentrated in the northern extremes of the region: the Bahamas, Cuba and Mexico. The main nesting sites of Atlantic loggerhead of LAC are in Brazil, where the loggerhead-nesting assemblage is about 4,000 nests per year (Ehrhart *et al.*, 2003; Dow *et al.*, 2007). Atlantic loggerheads move widely across the Atlantic to the coast of Africa and Southern Europe. A juvenile loggerhead turtle travelled more than 8,000 km from the South coast of Spain to the coast of Nicaragua over a period of 363 days (Eckert *et al.*, 2008). Juvenile loggerhead sea turtles in pelagic habitats of the Eastern Atlantic are derived from nesting populations in the Western Atlantic (South Eastern United States and adjacent Yucatan Peninsula, Mexico) (Bolten *et al.*, 1998).

The northern coast of Brazil, specifically the coast of the state of Ceará, is an important foraging ground for loggerheads nesting along the northern coast of Bahía. Two subpopulations of Brazilian loggerheads exist throughout the region, the southern stock nesting at Rio de Janeiro and Espirito Santo and the northern stock nesting at Bahía and Sergipe. Movements between nesting and foraging areas comprised more than1500 km along the coast of 10 Brazilian states. This behavior exposes the turtles to different impacts depending on habitat and jurisdiction. The fact that the nesting and foraging areas for adult females from the same population are located within a single country is noteworthy.

Conservation

Loggerhead populations in Honduras, Mexico, Colombia, Bahamas, Cuba and Panama have been declining. This decline continues and is primarily attributed to incidental capture in fishing gear, directed harvest, coastal development, increased human use of nesting beaches, and pollution.

Different fisheries and respective time closures and varying licensing criteria in different states, highlight the need for integrated and complementary actions along the entire delineated migratory corridor. Because loggerhead nests in Rio de Janeiro are presumed to produce a large proportion of male hatchlings because of lower average incubation temperatures, this area is an important component of loggerhead population biology and conservation in Brazil and the South Western Atlantic region (Paes e Lima *et al.*, 2012).



Satellite telemetry indicates that nesting rookery at Guianas travel long distances up to their foraging grounds in Canada after the end of their breeding season.

Atlantic green, *Chelonia mydas*

Distribution

The Atlantic green is one of the most abundant (relatively speaking), fecund, and heavily exploited species. The nesting female subpopulation in 2001 for the Western Atlantic and the Caribbean was estimated to be between 31,000 and 32,000 (Seminoff, 2004) being, perhaps the more common nester in the region. In the Western Atlantic, some of the most important nesting sites are in Brazil, the Guianas, Costa Rica, Trinidad and Tobago, Cuba (i.e. more than 2000 nests per year only in Cayo Largo) and Mexico (McLellan *et al*., 2012).

Tortuguero, Costa Rica, hosts the largest remaining green turtle rookery in the Atlantic basin (Troëng and Rankin, 2005). Satellite tagging revealed that post-nesting migrations from Costa Rica ended on benthic feeding grounds in shallow waters (<20 m) of Belize, Honduras and a majority in Nicaragua, and they feed on *Sargassum* sp. concentrations (Troëng *et al*., 2005b). The Nicaraguan rise, where extensive sea grass beds exist, is the major feeding ground for this species in the Caribbean.

In Venezuela green turtle nesting activity on the mainland coast is concentrated in small beaches, mainly in Sucre State, but such activity developed extensively in the country's island coast: Isla Tortuga, Los Roques, Margarita Island and Wildlife Refuge Isla de Aves, the latter region is recognized as the second nesting colony more important for the Caribbean, and for the 2010 season presented estimates of 2,029 traces, 1,511 nests, and 1,106 nesting females (Espinoza *et al*., 2012). In Brazil the main breeding sites of this species are in oceanic islands Trinity, Atol das Rocas and Fernando de Noronha, however there are also sporadic spawns on the continent, mainly in Northern and Southern Bahia Sergipe. Each year, about 4,000 nests are recorded on average. Genetic studies proved that juvenile green turtles found in feeding areas in Brazil and Argentina belong to a mixed stock, the main contribution are Ascension, Isla de Aves, Suriname and Trinidad. On average over 11.000 nests are recorded each year in Suriname.

In Colombia different sites have been reported as nesting and feeding areas for green turtles especially in the Caribbean coast, however the lack of robust monitoring programs do not identify the size of their populations. In this region there are places like the Tayrona National Park, Mendihuaca beach, and Guachaca beaches, well acknowledged as nesting areas. Colombian Caribbean archipelagos of San Andres, Old Providence and Santa Catalina, as well as northern Caribbean coast of La Guajira, seem to be feeding areas for this species. One area recently reported with green turtle nesting is Bobalito, a beach 13 km long, in which the main threats to the nests laid on this beach are erosion and driftwood (Barreto *et al*., 2012).

Conservation

Fishermen in Nicaragua target green turtles along migratory corridors and on foraging grounds. Nearly 10,000 green turtles are exploited in Nicaragua annually for subsistence and local markets (Garland and Carthy, 2010). Management efforts are urgently needed in Nicaragua, particularly in the high-density feeding areas Southern and Eastern of the Witties in the Miskitus Cays. Costa Rica protects "Tortuguero" what is likely the most important nesting beach remaining in the region (Troëng *et al.*, 2005b). However, during 2011, illegal poaching activity was observed on 51.1% of surveys (González and Harrison, 2012). Also in Suriname the green turtles are affected by the poaching of eggs, and incidental bycatch from near and offshore fisheries, many of which are IUU, and there is a high rate of marine turtle bycatch in the Suriname fisheries (www.wwfguianas.org).

Currently the incidental capture in illegal fishing is the greatest threat. Longlines, gill nets, and drift nets have captured mainly juveniles. However there are higher catch rates in artisanal fisheries, where gillnets, widely used throughout the Brazilian coast, cause a high number of turtle mortalities (Giffoni *et al.*, 2012). In Uruguay, the area of Cerro Verde and Coronilla islands is one of the areas with the highest abundance of juvenile green turtles and a major feeding area. Genetic studies showed that this population comprises a mixed stock, coming from 10 nesting beaches located along the Atlantic Ocean. The main threats to green turtles of Uruguay are bycatch due to interactions with fisheries and anthropogenic waste, the massive colonization by epibionts and the exposure to pollutants (Vélez-Rubio, 2012).

Atlantic olive ridley, ***Lepidochelys olivacea***

Distribution

The most important remaining nesting area for olive ridley turtle in the Western Atlantic is around Cayenne, French Guiana, where the estimated number of olive ridleys nesting annually in 2002–2007 was 1,716–3,257, the highest ever recorded in the country and similar to nesting numbers recorded in neighboring Suriname 40 years ago (Kelle *et al.*, 2009). TEDs are mandatory for shrimp trawls in the Guyanas with French Guianas program dating to 2009. A few hundred nests are also found in Sergipe (northern Brazil). Olive ridley turtles nesting on the coast of Sergipe displayed a range of post-nesting movements heading to coastal sites along the continental shelf as well as offshore oceanic areas.

Conservation

The incidental captures of olive ridleys occur worldwide in trawl fisheries, longline fisheries, purse seines, gillnet and other net fisheries and hooks and line fisheries (Frazier *et al.*, 2007). Poaching in nesting beaches and bycatch of olive ridleys in the shrimp trawl fishery in the Western Atlantic is believed to have been the

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The largest nesting site for green turtles in the Western Hemisphere is located in Tortuguero, Costa Rica.

main cause of the significant population decline observed in Suriname since the 1970s. NOAA inspects Nets & TEDs annually at the docks in the Guyanas for turtle certification, it would be very informative to inspect boats at sea to see if TEDs are fully adopted as they are in French Guiana where inspections at sea do occur.

The species nesting status in French Guiana therefore appears less critical than previously documented but ongoing threats suggest the need to reinforce regional conservation efforts in the Western Atlantic. Inter-nesting habitats, migration routes and foraging grounds showed great overlap with a variety of coastal fisheries, as well as with longline fishing in oceanic waters; bycatch in trawl fisheries off Sergipe is considered the most pressing threat to that population (Silva *et al*., 2011). In the Western Atlantic, the direct take of adults has diminished over time to negligible levels but egg poaching continues from Mexico to Colombia (Cornelius *et al*., 2007).

Atlantic Kemp's ridley, *Lepidochelys kempii*

The LAC - MTAP is mainly focused on leatherback, hawksbill, loggerhead, green and olive ridley turtles. Kemp's ridley turtle, despite their critically endangered status, is not currently considered a priority for WWF work largely because of their restricted geographic range and the success of current interventions by other stakeholders; specifically the governments of Mexico and the USA, and NGOs working in the LAC region (McLellan, *et al.*, 2012).

Distribution

Kemp's ridley turtles nest primarily on Rancho Nuevo, in the state of Tamaulipas, a beach in the Gulf of Mexico and have the most limited range of any marine turtle species in the world. Female Kemp's have been tracked migrating to and from nesting beaches in Mexico and USA (from Florida to New England). Females leave breeding and nesting areas and continue on to foraging zones ranging from the Yucatán Peninsula to southern Florida (Byles and Plotkin, 1994; Shaver *et al.*, 2005; Rubio, 2008). In 2009, the sea turtle nesting season broke all records on the Texas coast with 197 documented nests. This was the sixth consecutive year for nesting increases. It set a new record for the number of Kemp's ridley nests found since record-keeping efforts began on the Texas coast in the early 1980s. The previous record was 195, set in 2008. In 2009, the total number of nests recorded at Rancho Nuevo and adjacent beaches exceeded 20,000, which represents about 8,000 females nesting during the 2009 nesting season. Inter-nesting residency was documented off south Texas and post-nesting residency in the Gulf of Mexico, from south Texas to the tip of Florida (Rubio, 2008).

Conservation

After years on the brink of extinction, the Kemp's ridley nesting population is exponentially increasing and the Kemp's ridley recovery team "is cautiously optimistic that the population is on its way to recovery". Under the Endangered Species Act, which protects sea turtles, a total of 10,000 nesting females must be recorded by 2014 before consideration is given to listing the species as "threatened" instead of endangered. To be removed from the Endangered Species List by 2038, 40,000 nesting females per season would be required over a six-year period. Subsequent to two decades of joint action between the governments of Mexico and the United States, as well as the broad adoption of Turtle Excluder Devices (TEDs) in the U.S. shrimp fleet, the species appears to be rebounding, though it still remains at a fraction of its estimated population size in the 1940s. Current conservation efforts including the use of TEDs on shrimp trawls and protection of nesting beaches must be continued.

EASTERN PACIFIC

There are four species distributed in the Eastern Pacific Ocean. Although scientists have not agreed yet on the taxonomic definition of *Chelonia mydas/agassizii*, we will consider, for the purposes of this document, the Black turtle a subspecies of *Chelonia mydas*.

Pacific leatherback, ***Dermochelys coriacea***

Distribution

Primary nesting sites are found in the states of Michoacán, Guerrero, and Oaxaca, in Mexico, and in the province of Guanacaste, Costa Rica. Secondary nesting sites occur in Nicaragua. Scattered nesting also occurs in Guatemala, El Salvador, Panama, Colombia, and Ecuador. Leatherback feeding areas have been documented off Panama, Colombia, Ecuador, Peru, and Chile (Shillinger *et al.*, 2008, 2010; Bailey *et al.*, 2012).

Conservation

The Pacific leatherback turtle has shown a 95% decline of nesting females throughout its range in the last 22 years, from 91,000 in 1980 to less than 5,000 in 2002 (or from thousands of nesting females per year to no more than 1,000 adult females total in the population today), and a number of leading research scientists consider Eastern Pacific leatherbacks to be in imminent danger of extinction (Leatherback survival conference 2002, Sarti Martínez *et al.*, 2007; Santidrián Tomillo *et al.*, 2007; Eckert *et al.*, 2012). The Eastern Pacific leatherback has been identified as one of the most endangered sea turtle Regional Management Units (RMUs) in the world (Wallace *et al.*, 2011).

Fisheries have been a major threat to Pacific leatherback turtles. The Chilean swordfish driftnets fishery may have caused population declines in the 1980s and 1990s (Frazier and Montero, 1990; Sarti *et al.*, 1996; Eckert and Sarti, 1997). In driftnets off Central Chile approximately 250 leatherbacks were caught annually (Frazier and Montero, 1990). Between 2000 and 2003 Eastern Pacific driftnet fisheries killed 101 leatherbacks in Peru, and it is estimated that approximately at least 70 leatherbacks are captured annually in driftnet fisheries (Alfaro-Shigueto *et al.*, 2007). Human-induced mortality must approach zero to prevent this population from going extinct (Spotila *et al.*, 2000). Excellent survivorship in all life-stages is essential for recovery.

Pacific hawksbill, *Eretmochelys imbricata*

Distribution

Currently small numbers of hawksbills nest on beaches throughout the region in Baja California, Mexico, Central America, Colombia and Ecuador (McLellan *et al.*, 2012). Hawksbills near Baja California apparently shift from the epipelagic juvenile phase to the neritic juvenile phase at a size consistent with that of populations in other regions of the Pacific Ocean. Although nesting data are scant for hawksbills in the Eastern Pacific, the presence of hawksbills in neritic habitats of Baja California and the Gulf of California suggests that this species continues to nest in proximity to these areas. The stock structure for hawksbill turtles are, however, in the Eastern Pacific Ocean not known, genetic data are needed from nesting and foraging areas to completely elucidate the hawksbill turtle stock structure (Seminoff *et al.*, 2003).

The population of Pacific hawksbill is probably the least known of genetically distinct hawksbill stocks. Until recently, most scientists thought hawksbills were wiped-out in the Eastern Pacific Ocean, but groundbreaking research and discoveries by ICAPO (Spanish acronym for the Hawksbill Initiative for the Eastern Pacific) members have changed the conservation outlook for this population. Prior to 2007 hawksbills were thought to be essentially extinct in the Eastern Pacific by most sea turtle scientists. Via ICAPO's efforts, Pacific hawksbills have been documented using cryptic nesting sites, often located inside estuaries in Nicaragua (Estero Padre Ramos Nature Reserve) and Jiquilisco Bay (El Salvador), where they come ashore behind stands of mangroves to deposit their eggs. They also use these inland mangrove waterways to forage. In 2008 sea turtle monitoring conducted at several beaches within Machalilla National Park in Ecuador, found dozens of hawksbill nests at a small beach called 'La Playita' or 'The Little Beach'.

The unique life history patterns for hawksbills in the Eastern Pacific are likely why the species had gone essentially undetected for decades and makes conservation of the species in the region particularly complicated (ICAPO, 2008). Further investigation is needed to understand this aspect of their life history in the region.

Conservation

As other sea turtles, hawksbills are threatened with the collection of their eggs and meat for consumption and sale. This threat is heightened in regions of extreme poverty, where they serve as an important source of protein and income. Incidental bycatch in near-shore artisanal and industrial fisheries is also a huge problem, one for which there is no easy solution as hundreds of thousands of individuals depend on fishing for their livelihoods. With an ever-increasing human population and unsustainable coastal development running rampant, the destruction of key hawksbill nesting and foraging habitats is also a huge problem. Additional threats include: contamination, large-scale oceanic nutrient shifts and global warming.

However, exclusive to hawksbill turtles and one of the principal reasons for their decline is the collection of their shells (i.e. tortoise shell or 'bekko') for use in the

Utria National Park in Colombia is one of the more important feeding grounds for hawksbills in the Eastern Pacific.

creation of artisanal crafts such as combs, pennants, sunglasses and other trinkets. Entire individuals are also stuffed and sold for hanging on the walls of markets and homes. The result of the shell having this extra 'value' is that if a hawksbill is encountered it is usually killed instead of being returned to the sea.

While the collection of hawksbills and their shells have been outlawed in most regions of the world, a strong black market persists. There is also bycatch in coastal lobster fisheries in Mexico, and adverse human impacts in the Baja California region, Mexico (Seminoff *et al.*, 2003).

Pacific loggerhead, ***Caretta caretta***

Distribution

Two RMU have been identified for this species: the Northern and Southern Pacific. Japan is the primary source of turtles in the North Pacific Current and around Baja California. Juvenile loggerhead turtles were documented in the vicinity of Baja California before 1995, and thousands of these animals were captured in oceanic fisheries of the North Pacific. Juveniles travel across the Pacific basin from foraging grounds off the coast of Baja California back towards their natal area of Japan, more than 10,000 km apart (Peckham *et al.*, 2011). Genetic studies determined the nesting concentrations for this species were primary in Japan (95%) and in lesser degree in Australia (5%), over 10,000 km from Baja California.

The species was confirmed in 2004 in the South Eastern Pacific Ocean through a combination of onboard and shore-based fisheries monitoring (Alfaro-Shigueto *et al.*, 2004). Genetic studies have shown that the juvenile loggerhead turtles found in the South Eastern Pacific Ocean originate from Australia and New Caledonian rookeries (Alfaro-Shigueto *et al.*, 2004; Boyle *et al.*, 2009). Additional reports now also confirm the occurrence of loggerhead turtles off Ecuador and Colombia (Alava, 2008) and Chile to latitude of 32°S (Donoso and Dutton, 2010).

Conservation

The demographic link between Western Pacific nesting beaches, Eastern Pacific feeding habitats, and North Pacific fisheries invokes a prominent issue in marine conservation (Bowen *et al.*, 1995). Thus, large-scale oceanic fisheries may pose a significant threat to Pacific loggerhead turtles (Eckert, 1993). Over the past three generations North Pacific loggerheads have declined to fewer than 2000 nesting turtles a year. The overlap of intense gillnet fisheries with high-density foraging grounds of loggerhead turtles at Baja California Sur, Mexico, causes some of the highest bycatch rates recorded worldwide (2250 ± 500 a year) and may jeopardize the persistence of the endangered North Pacific loggerhead population (Peckham *et al.*, 2011).

Satellite tracks also show a substantial overlap of areas used by turtles with known Peruvian longline fishing efforts. Turtles spend 75% of their time within the area used by this fleet; therefore turtles are vulnerable to fishery interactions. Bycatch mitigation measures should be employed to minimize fishery impacts on loggerhead turtles. The loggerhead turtles spend nearly 51% of their time in Peruvian waters, 39% in international waters and 9% in Chilean waters, which emphasizes the need for a multinational approach to sea turtle conservation and fisheries management in the region (Mangel *et al.*, 2011). Loggerheads are the main species captured in SSF longliners in southern Peru, tag recoveries and genetic sampling shows that the stocks impacted are from within the Eastern Pacific (Alfaro-Shigueto *et al.*, 2011).

Loggerheads are dramatically declining in the Eastern Pacific due to bycatch in coastal waters of Peru and Chile.

Eastern Pacific green, *Chelonia mydas*

Distribution

The nesting sites of the Eastern Pacific green turtle are in Galapagos Islands, Costa Rica and Mexico (McLellan *et al*., 2012), and the foraging sites are in coastal areas, including estuaries, lagoons, near shore insular habitats, and in high-sea waters, like open waters offshore of Colombia and Peru (Amorocho and Reina, 2007; Quiñones *et al*., 2010; Blanco *et al*., 2012).

In Mexico this species is known as the black turtle *Chelonia mydas agassizii*. In this country, in the lagoons of the western coast of the peninsula of Baja California (Bahía Magdalena, Laguna Ojo De Liebre, Laguna San Ignacio, and Punta Abreojos) the number of turtles at early life stages has increased significantly in recent years. In contrast, the Gulf of California, San Jose Island and Bahia de Los Angeles, are well known for the high abundances of adult turtles. There is evidence that the green turtles in the region come from Michoacán and a smaller proportion of Revillagigedo Islands, including Hawaii with sporadic nesting beaches in other northwestern breeding grounds (Esliman *et al*., 2012). Post-nesting, Michoacán green turtles migrate both northwards and southwards along the coast of Central America (Alvarado and Figueroa, 1992).

In Costa Rica, the main nesting beaches for Eastern Pacific green turtles were Nombre de Jesús, Zapotillal, Blanca, Matapalo, Prieta and Cabuyal localized along the coast of Guanacaste. Post-nesting movements of green turtles from Nombre de Jesús were along coastal routes: some remained in Costa Rica foraging in the Gulf of Papagayo and in the Gulf of Santa Elena, and some moved southwards to the Gulf of Panama, northwards to waters off the Gulf of Fonseca in northern Nicaragua and to coastal Guatemala (Blanco *et al*., 2012).

In addition to nesting sites in Mexico and Costa Rica there is a major nesting population centered in the Galápagos Islands (Ecuador). Post-nesting migration studies indicate that Galápagos is a source rookery for Eastern Pacific green turtles in coastal areas of Central America (Green, 1984; Seminoff *et al*., 2008). Recent genetic studies confirmed that Gorgona Island, a protected area localized in Colombia, is an important foraging area of green turtles comprised mostly of populations from the Galapagos rookery (80%), and the remaining from Mexico and of an unknown stock that likely originated from more distant Western Pacific rookeries.

Pascua Island (Chile), localized in the Eastern South Pacific, is an important stop over site of the migratory routes, and serves as feeding and breeding grounds for the green turtle (Donoso and Dutton, 2010).

Conservation

Eastern Pacific green turtles have been experiencing rapid declines greater than 80% in Michoacán, Mexico, due to illegal and indiscriminate harvesting primarily in their foraging grounds in the Gulf of California. Green turtles are particularly

sought for their meat: each year poachers take 30,000 green turtles in Baja California alone. The size of the green turtle population in Michoacán (where Colola and Maruata beaches concentrate 92.3% of the total nesting) was between 17,932 and 26,898 in 1980, and between 10,228 and 15,342 adults in 2006 (CONANP, 2007).

The high proportion of green turtles departing the Galápagos (83%) indicates that marine fisheries bycatch and directed hunting on this stock outside the Galápagos may impact this population more than previously believed, and underscores the need for multinational conservation efforts that combat these threats. Although Costa Rica hosts the second largest rookery of Eastern Pacific green turtles, the most important nesting beaches lack protection (Blanco and Santidrián, 2011). More studies on their migratory routes from Central America are needed. It is thought that this population is in better shape, but no consistent monitoring has been carried out for several years, and there is lack of knowledge about their migratory routes (Seminoff *et al*., 2008). These findings contribute important information to strengthen the protection of the Eastern Pacific Tropical Marine Corridor (CMAR) (Amorocho *et al*., 2012).

In 2011 marine pollution, artisanal boat traffic, direct harvesting and meat consumption were identified as the main threats to the conservation of green turtles in Pascua Island (Álvarez *et al*., 2012). In the north of Peru, in Piura, Ñuro is an important habitat for green turtles, and the beaches of Punta Veleros and Punta Farallón (Órganos district) are identified in 2010 and 2011 as important nesting sites for this species.

Pacific olive ridley, *Lepidochelys olivacea*

Distribution

The species displays three modes of reproduction: arribada, dispersed nesting, and mixed strategy (Bernardo and Plotkin 2007). Olive ridleys exhibit large nesting aggregations known as "*arribadas*". They occur on given sites along the Eastern Pacific from Mexico to Panama, with major nesting beaches in Mexico, Nicaragua and Costa Rica (Mast, 2011). They have historically been harvested commercially in Mexico for their skin and meat. Since it became illegal to harvest eggs and turtles in Mexico in 1990, the number of nesting females has increased rapidly from 150,000 in 1990 to 700,000 in 1994 (Márquez *et al*., 1996). At Nancite beach (Costa Rica) the species has exhibited a significant reduction of 42%, 84%, and 90% in the number of nesting females per *arribada* in the periods 1971–1984, 1971–1992, and 1971–2007, respectively (Fonseca *et al*., 2009). A scheme of sustainable egg harvest exists in Ostional beach, Costa Rica, and this site has good potential for ecotourism. However, more research is required for better understanding and improvement of the current sustainable management scheme. Olive ridleys occur abundantly in Pacific Colombia and Ecuador, but only in small numbers in Peru

and Chile. Olive ridleys have also been seen occasionally in Galapagos waters. Threats to this species in northern Peru are bycatch, direct take of individuals for meat and other sub products as well as the rapid coastal development (Kelez *et al.*, 2012).

In the Western Atlantic there are only two countries in which significant numbers of olive ridley nests (totaling about 1,400-1,600 nests/year) are made each year: French Guiana (Yalima: po beach and others, both Eastern y Western of Cayenne) and Brazil (beaches of Pirambu, Abaís, and Ponta dos Mangues in the state of Sergipe). There are few, if any, records of olive ridley nests outside these areas in the Western Atlantic. Migrations and movements are known to exist (based on tag returns) along the coasts of Venezuela, the Guianas, and Brazil, but very little is known about the behavior of the species at sea, including migratory paths.

Conservation

Threats from coastal fisheries remain high and increasing. In 1999, hundreds of olive ridleys were found dead offshore Ecuadorian and Colombian coasts. The deaths were though to be caused by various factors including colder water temperatures, toxic algal blooms, and increased bycatch by shrimp boats not using TEDs, although data is still not conclusive. More recently, in 2013 hundreds of olive ridley sea turtles washed up dead on the beaches of Central America and scientists don't know why. One hypothesis is that the killer is a potent neurotoxin that can be produced by algae during red tides, which are large accumulations of algae that turn seawater red or brown. In El Salvador, for instance, from late September to the middle of October 2014, 114 sea turtles were discovered dead on Pacific coast beaches, according to the Ministry of Environment and Natural Resources (MARN). The death toll in other countries was 115 in Guatemala, 280 in Costa Rica and an undisclosed number in Nicaragua. Another 200 died in late 2013 in Panama.

In the Eastern Pacific, although olive ridley turtle fisheries are now closed, illegal take of adult turtles still occurs widely with an unknown level of impact. Incidental captures of olive ridleys in this region have been documented in shrimp trawl fisheries, longline fisheries, purse seine fishery and gillnet fisheries. Incidental capture of sea turtles in shrimp trawls is a serious threat along the coast of Central America, with an estimated annual capture for all species of marine turtles exceeding 60,000 individuals, most of which are olive ridleys. Recent growth in the longline fisheries of this region are also a serious and growing threat to olive ridleys and have the potential to capture hundreds of thousands of ridleys annually (Abreu-Grobois and Plotkin, 2008).

Incidental capture of olive ridley turtles has been recorded mostly near the Guianas and in northern Brazil, although there are records of animals caught in the waters of Venezuela, Trinidad and Tobago, and Brazil (Schulz, 1975; Marcovaldi, 2001). Transformation of nesting habitat comes from the construction

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Hawksbills are key indicators of coral reefs health and richness.

of new aquaculture ponds, fishing harbors and tourist facilities, as well as growth of existing coastal villages, which are increasing in many parts of the world within the range of the olive ridley, particularly in some zones in coastal México and Central America. These impacts contribute directly to the loss of nesting habitat or indirectly through changes in the thermal profiles of the nesting beach. In addition increased light pollution and sewage effluents contribute to exacerbate the situation.

Annex 2. International agreements: a conservation tool for marine turtles in Latin America and the Caribbean

Among the key conservation tools available with a regional conservation impact are the international agreements. WWF participates actively internationally pertaining to the conservation of endangered species. The LAC - MTAP includes active involvement in the options offered by international agreements relevant to marine turtle conservation in the region. The currently most pertinent agreements are the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES), the Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC), the Protocol concerning Specially Protected Areas and Wildlife (SPAW), the Convention on the Conservation of Migratory Species of Wild Animals (CMS), and the Permanent Commission for the South Pacific (CPPS). The Western Hemisphere Migratory Species Initiative is an additional, non-binding forum, of pertinence to the marine turtle action plan.

International agreement	LAC countries that ratified	Relevance to marine turtle conservation	Webpage
Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES)	31 countries: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago and Venezuela.	All species of marine turtles listed on Appendix I	www.cites.org
Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC)	14 countries: Netherland Antilles, Argentina, Belize, Brazil, Chile, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Panama, Peru, Uruguay and Venezuela.	Res. Conservation of leatherback turtle (*Dermochelys coriacea*) (COP 2). Res. Conservation of the hawksbill turtle (*Eretmochelys imbricata*) (COP3). Res. Reduction of the Adverse Impacts of Fisheries (COP3). Res. Adaptation of sea turtle habitats to climate change (COP4).	www.iacseaturtle.org

International agreement	LAC countries that ratified	Relevance to marine turtle conservation	Webpage
Protocol concerning Specially Protected Areas and Wildlife (SPAW)	25 countries: Antigua and Barbuda, Bahamas, Barbados, Belize, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, France, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Venezuela.	All six species of Caribbean sea turtles are listed in Annex II of the SPAW Protocol.	www.cep.unep.org/cartagena-convention/spaw-protocol
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	12 countries: Antigua and Barbados, Argentina, Bolivia, Chile, Costa Rica, Cuba, Ecuador, Honduras, Panama, Paraguay, Peru, Uruguay.	All species of sea turtles occurring in LAC are listed in both Appendix I and Appendix II of the Bonn Convention.	www.cms.int
Permanent Commission for the South Pacific (CPPS): Regional marine entity for the coordination of marine policies of its member countries	4 countries: Chile, Colombia, Ecuador, Peru	Regional Marine Turtle Action Plan.	http://www.cpps-int.org
Western Hemisphere Migratory Species Initiative (WHMSI)	Non-binding forum	Marine turtles are included in the migratory species. Support for the regional project: “Building Capacity to Care for Sick and Injured Sea Turtles: Standard Guide-lines and Criteria for the Wider Caribbean Region”, implemented by the Wider Caribbean Sea Turtle Conservation Network (WIDECAST).	http://www.eco-index.org/migratory/index.cfm

Annex 3: Number of nesting sites and DNA stocks in LAC

Some of the more representative of nesting beaches and DNA stocks in the LAC region.

LAC Region	Species	Ocean Region	# of. nesting sites	# of mtDNA stocks	# of nDNA stocks
Western Atlantic	*Dermochelys coriacea*	Northwest	422	4	3
		Southwest	11	1	ND
	Eretmochelys imbricata	Southwest	49	1	ND
		Western	819	9	ND
	Caretta caretta	Northwest	332	5	1
		Southwest	95	1	1
	Chelonia mydas	Northwest	213	2	1
		South Caribbean	197	1	1
		Southwest	21	3	1
	Lepidochelys olivacea	Western	57	1	1
		Northwest	30	1	1
Eastern Pacific	*Dermochelys coriacea*	Eastern	40	1	1
	Eretmochelys imbricata	Eastern	41	ND	ND
	Caretta caretta	North	46	1	ND
		South	30	1	1
	Chelonia mydas	Eastern	30	2	1
	Lepidochelys olivacea	Eastern	135	2	1
		Eastern (arribadas)	135	2	1

ND: no data. Source: Wallace *et al.*, 2010.

Annex 4: Main published studies of marine turtles tagging in LAC

Some main published studies on marine turtle tagging in LAC. F: adult female; M: adult male; J: juvenile; U: sex/maturity status unknown.

LAC Regions and Nations	Type Tag	No Turtles tagged	No recapture	Sampling years	Main results	Reference
WESTERN ATLANTIC						
Atlantic leatherback, ***Dermochelys coriacea***						
Costa Rica (Tortuguero)	Flipper tag	622 (F)	5	1995-2006	Annual nest deposition was estimated at 199–1,623 nests per year; nesting decreased by 67.8% between 1995 and 2006.	Troëng *et al.*, 2007
Caribbean hawksbill, ***Eretmochelys imbricata***						
Costa Rica (Tortuguero)	Flipper tag	397	20	1956-2003	A hawksbill was recaptured close to Guanaja Island in the Bay Islands, Honduras, and Nicaragua.	Troëng *et al.*, 2005a
Cuba	Flipper tag	403 (F), 122 (M), 606 (J)	68 (F), 16 (M), 59 (J)	1997-2000	Adults were recaptured in Cuban waters; some juveniles were outside Cuban waters.	Moncada *et al.*, 2012
Caiman Islands	Passive Integrated Transponder (PIT)	206	Multiple recaptures	2000-2007	One hawksbill turtle was tagged in Little Cayman and recaptured 6.7 years later in La Mosquitia, Honduras.	Blumenthal *et al.*, 2009
Atlantic loggerhead, ***Caretta caretta***						
Cuba	Flipper tag	126 (F), 84 (M,J)	15	1989-2000	Cuban waters all year-round.	Moncada *et al.*, 2010

LAC Regions and Nations	Type Tag	No Turtles tagged	No recapture	Sampling years	Main results	Reference
EASTERN PACIFIC						
Eastern Pacific green, ***Chelonia mydas***						
Costa Rica (Tortuguero)	Flipper tag	46,983	4,669	1955- 2003	The largest proportion of recaptures came from Nicaragua. The most distant recapture was found on the coast of Brazil, 5,200 km from Tortuguero.	Troëng *et al.*, 2005b
Mexico (Michoacán)	Flipper tag	5,176	47	1981-1987	Most of the recaptures were from south of Mexico, mainly from El Salvador and Guatemala.	Alvarado and Figueroa, 1992
Colombia (Gorgona Island)	Flipper tag	1,022	82	2003-2012	Growth rate of 1 cm per year in green and hawksbill turtles. Population of both composed by subadults and youth.	Payán, 2013

Annex 5: Main published studies of satellite tracking of marine turtles in LAC.

Some main published studies of satellite tracking in six species of marine turtles in LAC. F: adult female; M: adult male; J: juvenile; U: sex/maturity status unknown.

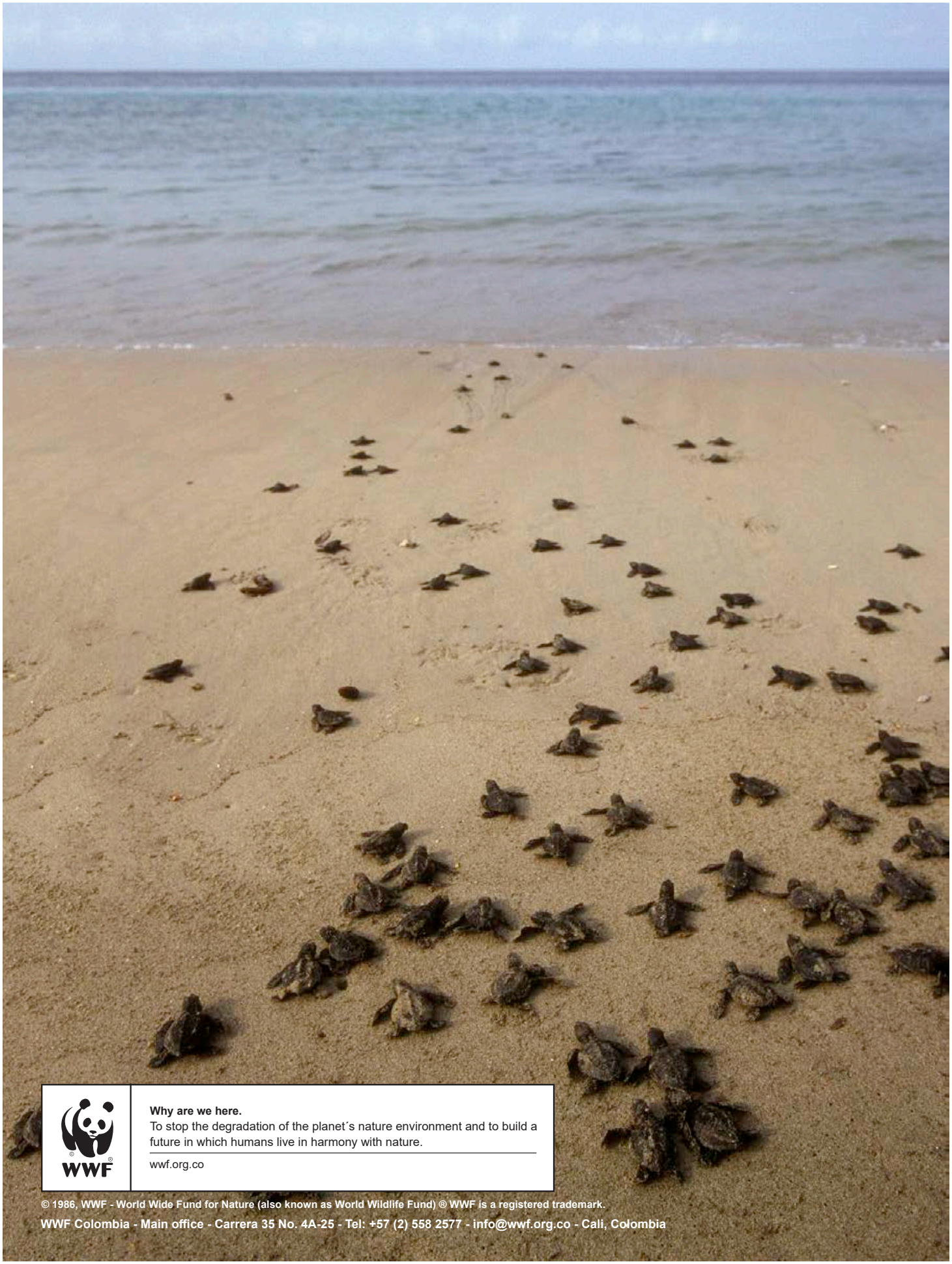
LAC Regions and Nations	Turtles tracked	Sampling years	Principal results	Reference
WESTERN ATLANTIC				
Atlantic leatherback, *Dermochelys coriacea*				
Argentina	1 (U)	2010	High-use areas occurred both in international waters and within the Exclusive Economic Zones (EEZs) of 20 countries, including Argentina.	Fossette *et al.*, *2014*
Brazil	4 (F)	2005-2006	Feeding areas in Brazilian, Uruguayan, and Argentinean waters. There are interactions with fisheries along nesting, migratory, and feeding habitats.	Almeida *et al.*, 2011
Costa Rica	2 (F)	1995-2006	One leatherback swam to Cuba and one moved into the northwest Atlantic Ocean.	Troëng *et al.*, 2007
Costa Rica (Tortuguero & Gandoca) and Panama (Chiriquí Beach).	12 (F)	2003-2006	Gulf of Mexico represents a significant foraging ground for leatherbacks from the Caribbean coast of Central America.	Evans *et al.*, 2007
French Guiana	5 (F)	2005	Four turtles headed northeast into the Atlantic Ocean (near the Azores), the fifth headed northwest (near the Eastern coast of the USA).	Fossette *et al.*, 2008
French Guiana (Awala Yalimapo)	10 (F)	2004	Turtles visited waters of Surinam for French Guiana and St. Vincent Island for Grenada.	Georges *et al.*, 2007
French Guiana at Awala-Yalimapo beach, Suriname at Samsambo beach	6 (F)	2005-2006	Turtles dispersed widely but remained into the North Atlantic.	Fossette *et al.*, 2010
Guyana and Suriname	20 (F)	2012	North Atlantic forage sites off Nova Scotia for nesting leatherbacks from Suriname and Guyana	WWF, 2012

LAC Regions and Nations	Turtles tracked	Sampling years	Principal results	Reference
Grenada	6 (F)	2003-2004	Five moved north, closed to the West-North coast of Africa, Cape Verde and the North-East coast of United States	McMahon *et al.*, 2005
	9 (F)	2002 -2004	Turtles dispersed widely from the Caribbean traveling north, northeast, and eastern.	Hays *et al.*, 2006
	13 (F)	2002-2003	Turtles visited waters of St Vincent Island.	Georges *et al.*, 2007
Panama at Chiriqui beach	3 (F)	2005-2006	Turtles dispersed in the Gulf of Mexico and some reached the North Atlantic.	Fossette *et al.*, 2010
Puerto Rico	3 (F)	1998-1999	Turtles moved 19 km of the nesting beach.	Lutcavage *et al.*, 2002
Trinidad and Tobago	9 (F)	1995-2004	Some turtles moved to higher latitude foraging areas: NE of the Flemish Cap, Bay of Biscay and along the N. Atlantic subtropical front.	Eckert, 2006
UK overseas territories of Anguilla and the British Virgin Islands	3 (F)	2003	Turtles migrated through high seas to foraging grounds in Canadian waters.	Richardson *et al.*, 2012
Uruguayan coast and International waters	2 (F), 1 (M), 1 (U)	2005-2006	Turtles dispersed within the South-western Atlantic.	Fossette *et al.*, 2010
Caribbean hawksbill, *Eretmochelys imbricata*				
Barbados	4 (F)	1998	Turtles crossed oceanic areas and moved to foraging grounds in Dominica, Grenada, Trinidad and Venezuela.	Horrocks *et al.*, 2001
Belize	10 (J)	2009	Lighthouse Reef Atoll in Belize is a foraging ground for juvenile hawksbill turtles.	Jackson *et al.*, 2010
Brazil (Bahia)	15 (F)	2005	Turtles' moved mostly over the continental shelf: 5 headed south, and 8 headed north.	Marcovaldi *et al.*, 2012
Costa Rica	2 (F)	2000	Turtles remained in Nicaragua (Miskito Cays and Man O' War Cay).	Troëng *et al.*, 2005a
Cuba	20 (F), 1 (M)	1996-2009	Eleven stayed in Cuban waters and five foraged in the waters of Mexico, Honduras, Colombia, and in the Eastern Lesser Antilles.	Moncada *et al.*, 2012
Dominican Republic	10 (F)	2008-2009	Some turtles remained in the Dominican Republic, while others migrated to waters off Honduras and Nicaragua and the Bahamas.	Hawkes *et al.*, 2012
Honduras (Roatán coast)	6 (J)	2007-2008	Home ranges of juvenile hawksbills in the region of Roatán are small (< 1 km^2).	Berube *et al.*, 2012

LAC Regions and Nations	Turtles tracked	Sampling years	Principal results	Reference
Mexico (Yucatan Peninsula)	3 (F)	2006	Turtles remained within Mexican territorial waters, reaching separate foraging grounds in Isla Mujeres and Campeche Bank.	Cuevas *et al.*, 2008
Puerto Rico	7 (F), 8 (M)	1998-2005	Females traveled to Nicaragua, Honduras and Dominican republic waters. Males traveled to Dominican republic and Puerto Rican waters.	Van Dam *et al.*, 2008
Atlantic loggerhead, ***Caretta caretta***				
Brazil (Bahia)	10 (F)	2006	Turtles migrated to the northern coast of Brazil. Ceará is an important foraging ground for loggerheads.	Marcovaldi *et al.*, 2010
Baja California	40 (J)		Juvenile turtles travelling across the Pacific from foraging grounds off the coast of Baja California back towards their natal area of Japan (>10 000 km apart).	Peckham *et al.*, 2011
Atlantic green, ***Chelonia mydas***				
Costa Rica (Tortuguero)	10 (F)	2000-2002	Post-nesting migrations ended on benthic feeding grounds in shallow waters (<20 m) mainly off Nicaragua.	Troëng *et al.*, 2005b
Atlantic olive ridley, ***Lepidochelys olivacea***				
Brazil (Sergipe)	10 (F)	2006	The majority moved along the Brazilian continental shelf to neritic foraging areas.	Silva *et al.*, 2011
Atlantic Kemp's ridley, ***Lepidochelys kempii***				
Mexico (Tamaulipas)	11 (M)	1990-2001	One traveled to Galveston, Texas, USA, others remained within waters off Tamaulipas, Mexico.	Shaver *et al.*, 2005
EASTERN PACIFIC				
Pacific leatherback, ***Dermochelys coriacea***				
Costa Rica	8 (F)	1992-1995	The corridor extends from Central America in the direction of the Galapagos islands.	Morreale *et al.*, 1996
Costa Rica (Playa Grande)	46 (F)	2004-2007	Turtles traveled from Costa Rica, past the equator, and into the South Pacific Gyre.	Schillinger *et al.*, 2008
Mexico (Michoacán)	9 (F)	1997	Turtles moved southwest toward the coast of Peru and Chile, one was killed by a poacher	Eckert and Sarti, 1997

LAC Regions and Nations	Turtles tracked	Sampling years	Principal results	Reference
Pacific loggerhead, *Caretta caretta*				
Mexico	1 (J)	1996-1997	Turtle migrated through Pacific ocean, covering more than 11,500 km between Mexico and Japan.	Nichols *et al.*, 2000
Mexico (Baja California)	1 (F), 5 (U)	2008	All turtles remained in the lagoon throughout their tracking duration.	Senko *et al.*, 2010
Peru	14 (J)	2003-2007	51% of their time in Peruvian waters, 39% in international waters and 9% in Chilean waters; and 75% within the area of longline fishing.	Mangel *et al.*, 2011
Eastern Pacific green, *Chelonia mydas*				
Costa Rica	1 (J)	2001-2003	A maximum dive depth of 91 m and minimum straight-line distance of 207 miles recorded.	Swimmer *et al.*, 2006
	10 (F)	2006-2009	Some remained in Costa Rica foraging in the Gulfs of Papagayo and Santa Elena. Others traveled to Panama, to Gulf of Fonseca in Nicaragua, and to Guatemala.	Blanco *et al.*, 2012
Ecuador (Galapagos)	12 (F)	2003-2005	Galapagos is a source rookery for green turtles in coastal areas of Central America.	Seminoff *et al.*, 2008
Mexico	10 (F)	697 tracking days	Some tracks ended in fishing-induced mortality.	Hays *et al.*, 2003
Pacific olive ridley, *Lepidochelys olivacea*				
Costa Rica	12 (F)	1990-1991	Turtles migrated to Peru, Ecuador, Colombia, Costa Rica, Nicaragua, Honduras, Salvador, Guatemala and Mexican waters.	Plotkin *et al.*, 1995
	14 (F)	2001-2003	Turtles remained in the general region of the Costa Rica Dome, a nutrient rich quasi-permanent cyclonic eddy.	Swimmer *et al.*, 2009
Mexico	1 (M)	1990-1991	Turtle traveled in tropical surface waters.	Beavers and Cassano, 1996

F = female; M = male; J = Juvenile; U = Unknown



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