Northwest Atlantic Leatherback *(Dermochelys coriacea)* Regional Action Plan for the Wider Caribbean Region

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in collaboration with the

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List of Acronyms

BPUE	Bycatch per Unit Effort
CITES	Convention on International Trade in Endangered Species of Wild Fauna & Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COP	Conference of Parties
GEF	Global Environment Facility
KPI	Key Performance Indicator
IAC	Interamerican Convention for the Protection and Conservation of Sea Turtles
ICT	Information and Communication Technology
ICCAT	International Commission for the Conservation of Atlantic Tuna
IUU	Illegal, Unreported and Unregulated (fisheries)
IUCN	International Union for the Conservation of Nature
MPA	Marine Protected Area
MOU	Memorandum of Understanding
MTNAP	Marine Turtle National Action Plan (French Guiana)
MTSG	Marine Turtle Specialist Group (IUCN/SSC)
NGO	Non-governmental organization
NWA	Northwest Atlantic
NWALWG	Northwest Atlantic Leatherback Working Group
RAP	Regional Action Plan
RFMO	Regional Fisheries Management Organizations
RMU	Regional Management Unit
SPAW	Protocol concerning Specially Protected Areas and Wildlife
STRAP	Sea Turtle Recovery Action Plan (WIDECAST)
SWOT	State of the World's Turtles
TT	Republic of Trinidad & Tobago
UAV	Unmanned Aerial Vehicle
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UWI	University of the West Indies
VMS	Vessel Monitoring System
WCR	Wider Caribbean Region
WECAFC	Western Central Atlantic Fishery Commission
WIDECAST	Wider Caribbean Sea Turtle Conservation Network
WWF	World Wildlife Fund

Introduction

The Northwest Atlantic (NWA) leatherback sea turtle (*Dermochelys coriacea*) regional management unit (RMU) or subpopulation ranges throughout the northern Atlantic Ocean, from nesting areas in the Wider Caribbean Region (WCR) to foraging areas that extend from the equator north into temperate latitudes (Wallace et al. 2010; Eckert et al. 2012). Major nesting areas occur in Trinidad and Tobago (TT) and the Guianas (Suriname, Guyana, French Guiana), and primary foraging areas are distributed in Atlantic Canada, United States of America (USA), and St. Pierre and Miquelon (France).

A decade ago, 10 WCR nesting beaches were recorded as receiving more than 1,000 leatherback nesting crawls per year, while most beaches (92%) hosted less than 100 crawls per year (Dow Piniak and Eckert 2011). A more recent spatial analysis of sea turtle nesting in the WCR (Eckert and Eckert 2019) records only six leatherback colonies, located in French Guiana, Panama, and Trinidad, with more than 1,000 crawls per year. This reduction reflects a worrisome decline reported by the Northwest Atlantic Leatherback Working Group (2018, 2019), based on data pooled from across the nesting range of this subpopulation. Particularly worrisome declines are noted in the Guianas and Trinidad, once among the largest nesting colonies in the world.

The recently recorded trend throughout the region highlights the fact that without increased and sustained conservation effort, this subpopulation risks collapse. This is a particularly concerning finding since many WCR nesting beaches hold long-term conservation programs, often dating from the 1980s or 90s. The NWA Leatherback Working Group (2018) discussed possible drivers for the decline, provided recommendations for priority conservation actions, and identified the need for a cohesive, regional conservation strategy to coordinate efforts across the region, given the highly migratory nature of this species. The Working Group also highlighted the importance of developing an action plan that focused on the leatherback population of the Guianas (Guyana, Suriname, French Guiana) and neighboring TT, in an attempt to implement protection measures for key nesting colonies.

The **Regional Action Plan (RAP) for the NWA Leatherback Sea Turtle** presented in this document results from this enhanced regional approach, in which key stakeholders throughout the region of interest provided input for the definition of priority actions and specific activities to address causal factors in the recorded decline of this subpopulation in recent decades. In this sense, the "region of interest" refers to the Wider Caribbean Region[1], with focus on the Guianas and TT nesting populations, and identified foraging areas and migration routes.

According to the **Vision** developed by the participants of the workshop (November 2021) for the development of the NWA Leatherback RAP, the Action Plan *aims to create conditions to address the declining leatherback sea turtle population in the Northwest Atlantic region, with a focus on Suriname, Guyana, French Guiana and Trinidad & Tobago*. It provides specific guidelines towards increasing community engagement and improved legislation at the local level, which combined with access to better scientific knowledge will support and enhance the positive impact of improved practices for the protection and management of critical habitats. In addition to this, the RAP drafts the required structure for governance and funding.

Derived from this Vision, the **Goal** of the RAP is *to define the priority actions and activities to be taken at the distribution range of the NWA leatherback sea turtle, promoting coordination, communication, and collaboration*

[1] The Wider Caribbean Region comprises the insular and coastal States and Territories with coasts on the Caribbean Sea and Gulf of Mexico, as well as waters of the Atlantic Ocean adjacent to these States and Territories and includes 28 island & continental countries.

among individuals, projects, organizations, and agencies to implement a regionally applicable strategy which will strengthen the conservation of this species across the region.

This RAP is not intended to substitute the National Action Plans developed by the region's participants, but rather to complement them and strengthen actions arising from such plans that will benefit from a regional perspective.

Conservation Status of NWA Leatherback Turtles

An earlier International Union for the Conservation of Nature and Natural Resources (IUCN) Red List assessment (Tiwari et al., 2013) used leatherback nesting data through 2010 as the index of abundance under IUCN's Criterion A (which estimates the percent decline in a species or subpopulation over the past 10 years or three [3] generations, whichever is longer) (IUCN, 2014). The result of this assessment listed NWA leatherbacks as *Least Concern*, regarding this subpopulation as extremely unlikely to go extinct in the near future. Nevertheless, in recent years, this categorization did not correspond to the observations of numerous community-based monitoring efforts throughout the NWA region, which noted with concern that annual counts of nests or nesting females appeared to be in decline.

Data compiled and analyzed in 2018 by the members of the NWALWG revealed short- and long-term regional trends in NWA leatherback annual nest abundance to be negative (Figure 1), indicating statistically measurable regional-scale declines in abundance over recent years (NWALWG, 2018). According to the assessment, the largest stock in the NWA Atlantic ("Guianas-Trinidad") declined significantly across temporal scenarios. These declines, particularly the long-term decline, were driven principally by the exponential decline in abundance observed at Awala-Yalimapo in western French Guiana. The recent trend also reflects continued declines in Guyana, Suriname, Cayenne (eastern French Guiana), and a smaller but persistent decline at Matura Beach, eastern Trinidad.

The Working Group (NWALWG, 2018) also identified and discussed anthropogenic sources, habitat losses, and changes in life history parameters as potential drivers for the observed declines in nesting abundance, noting likely synergistic relationships among various drivers and types of drivers.

The Working Group's assessment (NWALWG, 2018) coincided with the US Fish and Wildlife Service's and National Oceanic and Atmospheric Administration's review of NWA leatherback status, which, after reviewing the best available information, concluded that the NWA Distinct Population Segment (or subpopulation) has a high extinction risk (National Marine Fisheries Service and U.S. Fish and Wildlife Service, 2020). In 2019, IUCN reclassified the NWA leatherback sea turtle subpopulation as *Endangered* under criteria A2b (NWALWG, 2019).

The Wider Caribbean as a region hosts some of the longest-running sea turtle research and conservation programs in the world, some dating to the early 1960s. Many have formal population recovery commitments, supported by data accruing from these long-term studies. For example, 23 countries in the region have a peer-reviewed and published Sea Turtle Recovery Action Plan[2] (STRAP) identifying major causes of mortality, evaluating the effectiveness of existing conservation laws, and prioritizing implementing measures for the recovery of each sea turtle stock. In addition, leatherback turtles are fully protected by law in all but seven Wider Caribbean nations and territories (Eckert and Eckert, 2019).

The RAP encourages national recovery planning efforts defined and executed according to best practice and in accordance with regional priorities, reflecting the highly migratory nature of the leatherback sea turtle.

[2] https://www.widecast.org/widecast-publications/national-recovery-plans/

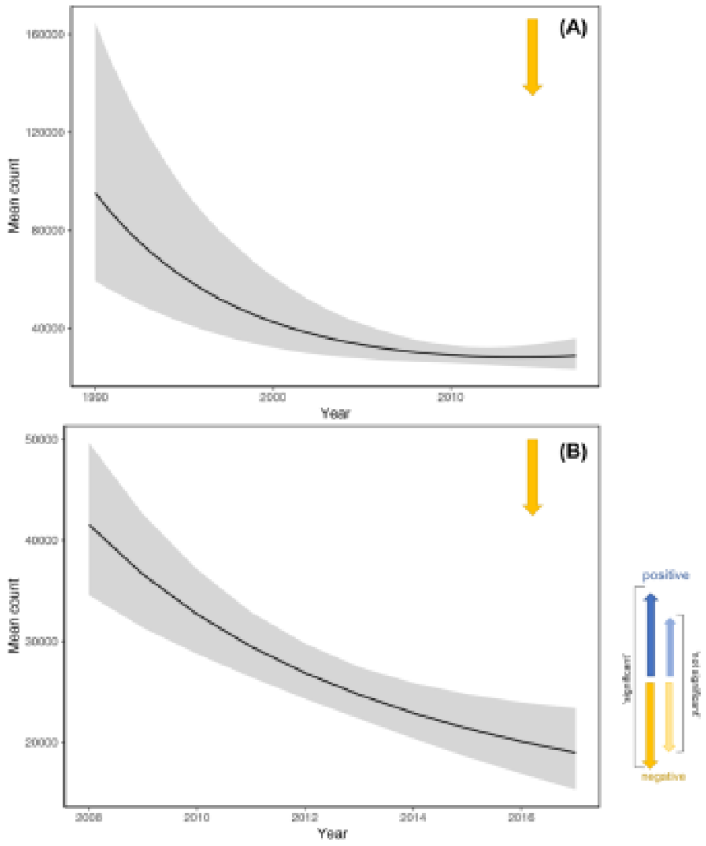


Figure 1. Regional-level trends of nest counts for the leatherback turtle in the WCR (annual geometric mean change in nest counts) for (A) 1990-2017 and (B) 2008-2017. Line is geometric annual mean trend (weighted by relative site-level abundance) and shaded area is 95% Credible Intervals. Blue up arrows = positive trends, yellow down arrows = negative trends; large arrows = 'significant' trends; small arrows = 'non-significant' trends. Source: NWALWG (2018).

Regional Legislation and Enforcement

Braütigam and Eckert (2006) concluded that the legal framework for marine turtle management in many WCR jurisdictions is inadequate, highlighting confusion as to which rules apply, conflicting language, insufficient penalties, and seasons and size limits that ignore the principles of sustainability. The authors point out that scientific knowledge about sea turtle biology and life history is not typically incorporated in the development or implementation of legislation governing exploitation and management of sea turtles, reducing the effectiveness of the legal framework as a tool for conservation. Finally, the report highlighted the incongruence between the transboundary nature of sea turtle distribution and the inconsistencies evident in sea turtle management regimes and resources from country to country.

A recent update of the WIDECAST *Atlas of Sea Turtle Nesting Habitat for the Wider Caribbean Region* (Eckert and Eckert, 2019) presents a summary of current protection policies in the region: 37 of 45 nations and territories analyzed have legislated complete and indefinite protection for sea turtles. Seven (Dominica, Grenada, Haiti, Montserrat [UK], Saint Kitts & Nevis, Saint Lucia, Turks & Caicos Islands [UK]) have no complete or permanent protection for the leatherback, although some have seasonal prohibitions on take, particularly of gravid females.

In order to move towards an ideal legislation and enforcement state in the region, an update of Braütigam and Eckert (2006) is herein recommended, which would survey existing laws (cf. Saladin, 2020) to identify legal tools currently available in each country, develop a set of mitigation measures appropriate to each country, and conduct a gap analysis between existing legal tools and conservation objectives. Ideal legislation would inter alia set an enforceable standard of compliance and detail penalties that serve as a true deterrent, while still providing flexibility for penalties outside of formal prosecution.

Regional protocols and intergovernmental agreements already in place (see the table below) can form the basis for the development of laws and standards broadly applicable to WCR countries. Collaboration should be the basis for implementing actions in a standardized manner, meaning that relevant institutions, agencies and stakeholders must have the necessary trained personnel, in addition to having the funding necessary to operate adequately.

Name of Protocol/Agreement	Characteristics
Protocol concerning Specially Protected Areas & Wildlife (SPAW Protocol) to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (UNEP 'Cartagena Convention')	The SPAW Protocol provides a basis for collaboration and coordination on sea turtle conservation and management. The Protocol was adopted in 1990 and entered into force in 2000. Parties to the SPAW Protocol are to "take the necessary measures to protect, preserve and manage in a sustainable way: 1) areas that require protection to safeguard their special value, and 2) threatened or endangered species of flora or fauna." All six WCR sea turtle species, including leatherbacks, are listed as protected under Annex II of the Protocol. France (French Guiana), Guyana and TT are contracting parties.
Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC)	The IAC provides a framework for countries in the Americas to take actions in benefit of these species. The IAC entered into force in 2001 and currently has 16 Contracting Parties. In the WCR, only The Netherlands (including Dutch Caribbean islands), USA, and Venezuela are Parties. Of particular relevance is the IAC Resolution adopted in 2019 – *Resolution CIT-COP9-2019-R2 "Conservation of the Northwest Atlantic Leatherback Turtle (Dermochelys coriacea)"*[3]. This resolution is very detailed in what actions are required of IAC Parties and range States, including reducing incidental catch, protecting nesting beaches, and identifying critical habitat.
International Commission for the Conservation of Atlantic Tuna (ICCAT)	ICCAT is a regional fisheries management organization operating in international waters where NWA leatherbacks occur. There are 53 contracting Parties to ICCAT, including TT and French Guiana. Suriname and Guyana are cooperating, non-contracting Parties.
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	CMS provides a global platform for the conservation and sustainable use of migratory species and their habitats, it brings together States through which migratory species pass, lays the legal foundation for inter-nationally coordinated conservation measures, and complements and cooperates with several other international organizations and agree-ments. France (French Guiana) and TT are Parties.
Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES)	CITES is an international agreement aimed at ensuring that inter-national trade in specimens of wild animals and plants does not threaten the survival of traded species. All sea turtle species are listed in Appendix I, which gives them full protection from international trade of turtles, parts, or products. France (French Guiana), Guyana, Suriname, and TT are Parties.

[3] More detail at http://www.iacseaturtle.org/eng-docs/resolucionesCOP9CIT/CIT-COP9-2019-R2_%20NWALeatherback_ENG_Adopted.pdf

Threats Overview

To complement NWALWG's (2018) preliminary analysis of possible drivers of decline for the NWA leatherback population, Eckert and Hart (2021) collected knowledge from stakeholders throughout the broader Caribbean region on the frequency, magnitude, and relative magnitude of threats known to reduce leatherback survival, as well as possible solutions. The surveys, distributed to experts in 33[4] Wider Caribbean countries where NWA leatherbacks nest, focused on nests (eggs, hatchlings) and adults both on the nesting beach and in nearshore inter-nesting habitats, offshore waters, and the high seas (**Appendix I**).

The following tables summarize the most important current knowledge for each threat category, as described by NWALWG (2018), the Meeting Report of the Regional Leatherback Bycatch Prioritization Workshop (WWF, 2019) and the WCR Threat Assessment (Eckert and Hart, 2021) prepared in advance of this Regional Action Plan.

Ocean-based threats

The regional threats survey (Eckert and Hart, 2021) identified Net Fisheries, Pollution, and Entanglement as the dominant threats to leatherbacks at sea, both in frequency and magnitude, with some countries characterizing them as threatening the survival of more than 20% (or even 50%) of the nation's adult population of leatherback turtles. This threat is particularly pronounced in Trinidad and in the Guianas, where three of these four countries (75% vs 15% of countries region-wide) cited Net Fisheries as a "frequent" threat.

Fisheries Interactions (including Illegal, Unreported and Unregulated (IUU) fisheries)

Fisheries bycatch is a well-documented threat to leatherbacks throughout the NWA, including by longlines, gillnets, trawls, and traps (e.g., Bjorkland, 2011; summarized in Eckert and Hart, 2021). However, as noted by NWALWG (2018) and the Bycatch Prioritization Workshop (WWF, 2019), monitoring and reporting of bycatch and enforcement of existing regulations are largely lacking at both national and regional scales.

Leatherback bycatch, whether in (legal or illegal) artisanal or commercial gear, is of special conservation concern because interactions involve mainly adults, and mainly gravid (egg-bearing) females in waters off nesting beaches. The associated mortality disproportionately removes animals with the highest reproductive value, and these are the most difficult life stages for a population to replace.

Quantitative research in TT and the Guianas suggests that coastal artisanal drift gillnets may affect >20% of the adult female population in Trinidad's nearshore water per annum, with nearly one-third reported dead (summarized in Eckert, 2013). In Suriname, Madarie (2006) reported that in 2006, 1435 vessels using gillnets captured 584 leatherbacks (March-August) with a mortality of 14%. In French Guiana, Fossette et al. (2008) summarized BPUE in coastal gillnets as ranging from one turtle per day per fisher to 10% of the population, and that leatherback turtles constituted 75% of the sea turtle bycatch (Delamare, 2005). Updating these studies is a conservation imperative.

IUU fishing is a uniquely serious threat as, by definition, it is difficult to quantify and operates outside of the lawful framework. According to the latest scientific study on the subject, 60% of French Guiana's fisheries resources are exploited by illegal fisheries (Levrel, 2012). Temporal and spatial overlap of turtles and fisheries, whether legal or illegal, will, in the absence of bycatch reduction methods and devices, increase the probability of interactions and thus mortality of turtles (WWF, 2019).

[4] The NWA leatherback subpopulation relies on 34 countries and territories in the Wider Caribbean Region for nesting. Data were unavailable from Honduras.

Pollution (plastic, discarded gear, chemical)

A previous WIDECAST threats assessment found that pollution in the marine environment was the most prevalent oceanic threat to sea turtles in the region (Dow et al., 2007). In particular, plastics are frequently ingested by leatherbacks due to confusion with their jellyfish prey, but the magnitude of this threat in a population context is unknown. Reviewing data available at the time, Mrosovsky (1981) concluded that "…44% of adult non-breeding leatherbacks have plastic in their stomachs." Mrosovsky et al. (2009) later analyzed autopsy records of 408 leatherback turtles, spanning 123 years (1885-2007), and found that plastic (such as "blockage of the gut by plastic") was reported in 34% of these cases. In French Guiana, 51 of 101 leatherbacks necropsied had "floating debris" (mainly plastic bags) in their stomachs (Kelle and Feuillet, 2008).

Drowning or debilitation resulting from entanglement in persistent marine debris (e.g., fishing line, fishing nets, cargo netting) poses an additional threat (summarized by Eckert and Hart, 2012). Finally, the effects of other threats such as pollution from hydrocarbon extraction and spills and marine debris have not been quantified for leatherbacks (e.g., DWH NRDA Trustees, 2016), but national recovery planning documents highlight these as deserving priority attention in countries of significance to this Recovery Action Plan (e.g., see Reichart and Fretey, 2003; Forestry Division et al., 2010).

Land-based threats

On the nesting beach, the regional threats survey (Eckert and Hart, 2021) revealed that Abiotic Factors (including flooding, beach erosion/accretion, and climate-related risks), Pollution, Egg Collection by Humans, and Habitat Loss are both the most prevalent and the most impactful, rising – in as many as one-in-four countries – to the level of threatening the survival of 20% or more of nests laid per year. Regarding nesting females, Habitat Loss, the Sargassum Influx, and Harassment rank as the most prevalent and impactful threats, in some cases cited as affecting more than 20% of the annual nesting cohort. Smaller numbers of countries reported Artificial Lighting, Beach Obstacles, Beach Sand Mining, Killed by Humans, and Beach Armoring as "frequent" threats.

Nesting Habitat Loss

One prevalent observation by stakeholders throughout the Guianas was that cyclical beach erosion significantly diminishes available leatherback nesting habitat. For example, Awala-Yalimapo, an area of western French Guiana that has been monitored consistently since the 1990s (and inconsistently since the 1960s), undergoes dramatic fluctuations in beach length, width, and location within and across seasons—specifically, the beach has decreased from 2.8 km of beach used by leatherback for nesting in 2010 to 1.8 km in 2018 (D. Chevallier, CNRS-IPHC, 2019, pers. comm.). Together, beach erosion and accretion were responsible of the loss of 40% of sea turtle nests each year at Awala-Yalimapo between 2012 to 2017 (D. Chevallier, CNRS-IPHC, 2019, pers. comm.). Leatherback nesting has declined ~99% at Awala-Yalimapo since the 1990s (NWALWG, 2019) and while nesting is often associated with high-energy coastlines where sand erosion-transport-deposition processes are very dynamic (Darsan et al., 2016), loss of nesting habitat—apparently without concomitant increases elsewhere—may be contributing to observed population declines.

Leatherback nesting has also declined >90% in Suriname since the 1990s (NWALWG, 2019) and the country's beaches have also eroded over the past decade—in this case partly because of coastal sand mining for construction projects. Mining can exacerbate natural processes of sand loss (Anthony, 2016). Geomorphology and hydrology in leatherback nesting areas require further study (Darsan et al., 2016). Ideally, habitat availability should be included as a covariate in trend modelling in order to better quantify variation in site-level trends that may be driven, at least in part, to habitat loss.

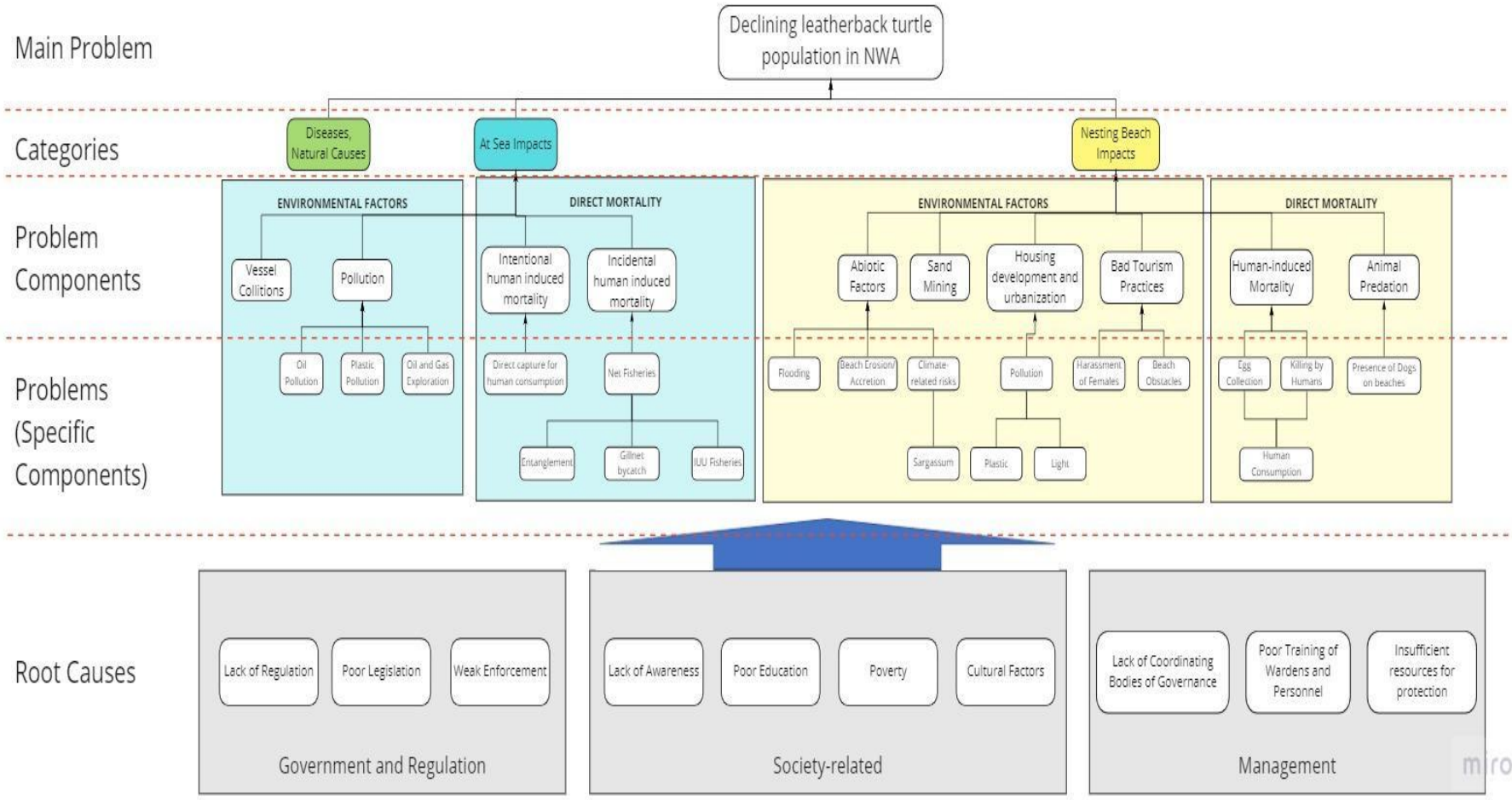


Figure 2. Problem Tree that summarizes the main threats (and their root causes) to the NWA leatherback sea turtle subpopulation as defined by stakeholders during a Regional Workshop in November 2021 (Barragan et al., 2021).

Regional Action Plan for Northwest Atlantic Leatherback Sea Turtles

As noted in the opening sections of this document, NWA leatherbacks are declining in annual abundance, their nesting, migratory, and feeding areas are interconnected across the region, and a suite of natural and anthropogenic factors are affecting the population at multiple scales. These factors warrant a regionally cohesive strategic conservation plan that has the participation of multiple stakeholders.

As part of the process of generating this Regional Action Plan (RAP), a workshop was conducted with stakeholders from different countries who contributed their experience, ideas and relevant information for the construction of this Plan. Their contributions helped organize activities, define common goals, analyze collective (regional) priorities, and jointly define which priorities were most relevant to achieving the primary objective of the RAP, which is to reverse the declining trend in NWA leatherbacks. Details of the methodology can be found in **Appendix II**. Participating stakeholders can be found in **Appendix III**.

As part of the development process, stakeholders defined four **Strategic Lines** as priority items necessary to address population declines:

1. Legislation and enforcement
2. Protection and management of critical habitats
3. Community engagement
4. Scientific data needs

These Strategic Lines contain Solution Components, each with a specific goal and objectives, and various sets of Actions and Specific Activities to be performed over a period of five years (2023 to 2027). The next section describes in detail the contents of each Strategic Line, and a summary table of actions and activities can be found in **Appendix IV**.

Key Performance Indicators (KPIs) were developed to aid in implementation of the RAP, each of which is linked to the logical processes that will ultimately lead to a reversal of observed declines detailed in NWALWG (2018). The follow-up to these KPIs should be done by a **governing body** (whose formal name will be agreed by stakeholders) responsible for the implementation of the RAP. The proposed guidelines under which this governing body should operate are described in the Governance Framework section of this document.

The RAP works in synergy with the current STRAPs and National Action Plans for the focus countries in the region (**Appendix V**), complementing them for a regional perspective. Also, it takes into consideration priorities set by relevant international agreements and conventions in the region.

Strategic Line 1. Legislation and Enforcement

Among the main causes defined by stakeholders as contributing to the decline of the NWA leatherback subpopulation is a weak application of the laws or norms established for the care of sea turtles when under the jurisdiction of a range State, along with lack of consideration (in the legislation) of the species' life cycle, and lack of coordinating bodies and governance for enforcement.

An *ideal state* for the region's legislation and enforcement should include the following aspects:

- **All countries have a National Plan of Action** to guide agencies and organizations in making decisions aligned with the common objectives of the region.
- **Tools provided by current legislation are fully utilized** to enforce national mandates and regionally harmonized guidelines.
- **Redundant activities (national, regional) are avoided**; where agencies have overlapping mandates, mechanisms are in place to generate synergy between actors and obtain results with greater impact and at a lower cost.
- **Interagency collaboration is optimized through structured collaboration** (including open communication channels) between entities and organizations tasked with the conservation and recovery of the NWA leatherback subpopulation.

Review of current legislation is critical to detect (and fill) gaps and to make maximum use of legal tools already available to support and enhance enforcement. It is important to understand the international consistency (or lack thereof) of regulations. Only with this understanding can we hope to avoid a "patchwork" of mandates that protect NWA leatherbacks in one jurisdiction and sanction harm in another. The involvement of local governments is essential to secure this goal, and law enforcement agencies should have the necessary tools to effectively deter and address violations, particularly fines and prosecution.

Solution Components, Actions, Activities, and Deliverables

L1. Review the legal framework in each country and, if needed, update it to include recommendations from this Regional Action Plan.

Goal: All countries participating in the Regional Action Plan have a coherent and aligned legal framework, with regulations directed to the conservation and sustained recovery of the NWA leatherback subpopulation.

Objectives:

- Review the relevance and compliance of fishing regulations (i.e., are the number of licenses in conformity with fisheries management plans).
- Facilitate cross-border collaboration and coordinated law enforcement, including training.
- Conduct and complete a gap analysis of legal tools in each country by the end of 2022.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
L1.1. Conduct a gap analysis between existing legal tools and the implementation of mitigation measures identified in the Regional Action Plan (RAP).	L1.1.1. Survey existing laws to identify legal tools currently available in each country as they relate to leatherbacks (e.g., fisheries/ biodiversity regulations, coastal zone management, environmental impact assessment).	National reports identifying existing legislation, regulations, legal tools/ mechanisms and projects.	X	X				Consistent monitoring and evaluation before and after implementation to inform next steps.

	L1.1.2. Identify missing legal tools and develop a plan to fill the gaps.	Report identifying gaps and recommendations.	X					Include input from diverse stakeholders, not only agencies and legislative bodies.
L1.2. Develop legal mechanisms that facilitate cross-border collaboration	L1.2.1. Design a workplan to facilitate cross-border collaboration, with tasks and responsibilities assigned to agencies and other authorities.	Workplan that gives clarity on tasks for all agencies involved, including cross-border entities.	X	X				Ensure that each agency involved is clear on responsibilities, to avoid overlap and confusion.
	L.1.2.2. Establish a Memorandum of Understanding (MOU) or other mechanism to guide and enable cross-border collaboration.	Coherent and uniform processes where multiple agencies and/or countries are involved in an activity or event.		X				Involve Foreign Affairs offices from the focus countries early in the process. Start country to country negotiations in 2024 and adapt the calendar as progress is made.
	L1.2.3. Convene regional meetings with government agencies to discuss progress on the MOUs, with updates on collaboration(s) in the previous year.	Minutes of regional meetings that describe progress on the MOUs, advances in collaboration, and any problem(s) that arise.			X	X	X	This activity provides input for action L2.1.

L2. Increase enforcement of policies and regulations for effective management and conservation activities at national and regional scales.

Goal: All countries participating in the Regional Action Plan have established procedures for increased enforcement of conservation regulations, and implemented policies for effective protection of the NWA leatherback subpopulation and the habitats upon which these animals rely.

Objectives:

- Promote interagency / regional cooperation from interdiction to prosecution.
- Contact and involve Attorneys General regarding the importance of prosecuting wildlife crime by 2023.
- Promote a culture across enforcement and prosecutorial agencies that values biodiversity and recognizes the importance of sea turtle protection and recovery.
- Upgrade enforcement capability to stay current with trends in fisheries (including sea turtle) crimes.
- Discourage, report and prosecute IUU fishing, thereby reducing fishing effort.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
L2.1. Set appropriate regulations and fines according to the true cost of non-compliance.	L.2.1.1. Convene a regional Legislation Working Group with expertise and capability for analyzing the region's legal framework and proposing appropriate changes.	A proposal for adjustments to national law and regulations to be presented to the appropriate agencies and authorities.	X	X				In considering proper mechanisms to achieve compliance, regulators should be allowed a range of sanctions and not be limited to criminal intervention (through prosecution).

	L.2.1.2. Conduct a risk-based assessment to identify activities/ geographic areas that need to be the focus of enforcement, with an aim to increase leatherback survival.	Map of "hot-spots" describing the greatest need for more consistent and effective law enforcement.		X				
	L.2.1.3. Make the use of Vessel Monitoring Systems (VMS) mandatory for fishing boats suspected of IUU fishing.	A mechanism for sharing of VMS information among countries and stakeholders.				X	X	This activity depends on the establishment of cross-border, collaborative MOUs, review of nation-scale legal systems, and sharing of national VMS systems among WCR countries.
L2.2. Set the appropriate conditions for an increased enforcement of policies and regulations pertinent to the conservation of the NWA leatherback subpopulation.	L2.2.1. Complete an assessment of the available capacities, expertise and funding for implementation and enforcement of actions described in the RAP.	Capacity map for the implementation of the RAP strategic lines.	X	X				
	L.2.2.2. Strengthen the capacity, expertise and funding for enforcement in Suriname, French Guiana, Guyana, and TT.	Increased capacity for enforcement of policies and regulations in the focus countries.	X	X	X			
L2.3. Encourage a culture of prosecution designed to ensure that those benefiting the most from rule-breaking are punished.	L.2.3.1. Review successful prosecutions to identify best practices.	List of best practices for possible incorporation in a revised and strengthened legal framework.	X					
	L.2.3.2. Promote exchange of experiences across borders to learn from each other's approaches to prosecution.	Encourage a culture of information-sharing to support increased collaboration among agencies in the region.	X	X				Share experiences on a local/national level.
	L.2.3.3. Conduct a workshop with judges on the impacts of violations on the recovery of marine turtles and importance of sufficient deterrence.	Establish (and build capacity among existing) dedicated Fisheries Inspectorates to deal effectively with fisheries-related offences.		X				
	L.2.3.4. Conduct cross sectoral training of law enforcement officers and responsible agencies to ensure mutual understanding and appreciation.	Increased enforcement and prosecution at national, bilateral, and regional scales.			X	X	X	

IUU Recommendation:

Appoint a task force to develop specific actions to address the impacts of IUU fisheries' bycatch. It should prioritize information-sharing among stakeholders and regional enforcement agencies, as well as enforcement actions on gear and fishing practices.

L3. Promote actions to encourage governments to join relevant international conventions, such as the SPAW Protocol and the IAC.

Goal: All countries participating in the Regional Action Plan are Parties to at least one international convention relevant to the conservation and recovery of the NWA leatherback subpopulation.

Objectives:

- Emphasize to non-Parties the advantages of joining SPAW and the IAC.
- Invite non-Parties to participate in SPAW and IAC as Observers by 2023.
- Non-Parties have joined (acceded to) SPAW and the IAC by 2026.
- Fully utilize the SPAW Protocol and IAC as platform for coordinated action on leatherback recovery.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
L3.1. Work with the IAC Secretariat to facilitate outreach to non-Parties.	L.3.1.1. Support the IAC Secretariat in appropriate channels of outreach.	Strengthening of the IAC as a regional conservation framework.	X	X				
	L.3.1.2. Work with relevant government bodies (non-Parties) on accession to the convention.	Leatherback range States join the IAC in order to promote coordinated science and policy action region-wide.	X	X	X			
L3.2. Promote the organization of a sub-group within the SPAW Species Working Group specifically to advance RAP recommendations.	L.3.2.1. Coordinate with SPAW Focal Points (Guyana, French Guiana, TT) to promote within the SPAW Secretariat the formation of a leatherback sub-Working Group.	SPAW Parties (Guyana, French Guiana, TT) promote the support for leatherback conservation activities within the Protocol's framework.		X	X			

L4. Enhance enforcement of existing regulations to mitigate leatherback bycatch in IUU fishing gear deployed offshore at key nesting grounds (especially the Guianas and Trinidad).

Goal: All countries participating in the Regional Action Plan strengthen protections to the NWA leatherback subpopulation against the negative impacts of fishing activities in offshore habitats.

Objectives:

- Enforce and monitor conservation measures, such as gear modifications, in combination with spatial-temporal areas determined to be of highest importance for reducing leatherback bycatch.
- Develop regional approaches to monitor and control IUU fisheries in key offshore habitats.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
L4.1. Increase patrols in closed areas, develop and implement other protected areas, especially at key nesting grounds.	L4.1.1. Promote information sharing among government agencies, NGOs and community groups to incorporate local knowledge into centralized information systems between countries.	Efficient information sharing system for regional enforcement.	X					Complements the actions in component D1.
	L4.1.2. Formalize information sharing systems through cross-border MOUs related to IUU fishing.	An operational regional IUU enforcement unit is created with sufficient resources to be successful.		X	X			Include the participation of local communities to ensure vertical and horizontal information flow.
	L4.1.3. Promote the use of technology (drones, AI, citizen science apps) to support agencies in monitoring/ patrolling protected areas.	Increased enforcement in areas where agencies have limited resources and staff.		X	X	X	X	Linked to activity H2.2.1.
	L4.1.4. Establish Joint Patrols among countries of interest for monitoring and control of IUU fishing.	Reduction of IUU fishing activity in key areas, especially in "hot spots" where enforcement has previously been weak.			X	X	X	Complements the actions in component H3.
L4.2. Leverage resolutions and reporting requirements regarding leatherback bycatch and IUU through the IAC.	L4.2.1. Promote active participation of IAC Parties in developing resolutions and reporting requirements designed to reduce leatherback mortality.	Updated IAC resolutions and reporting requirements related to leatherback turtles.	X					
L4.3. Secure protection of turtles in the nesting season in waters offshore nesting sites.	L4.3.1. Share among stakeholders examples of restricted/ closed marine areas near nesting sites.	Lessons learned from successful examples can be used in other areas.	X					
	L4.3.2. Implement measures to restrict/close areas at nesting sites and nearshore areas with known or potentially high turtle-fishing interactions.	Measures established and implemented to restrict/ close areas at nesting sites and nearshore areas.			X	X		Organize meetings with fishers/ frequent users and other stakeholders for inputs. This activity requires input from actions H3.1 and D3.1.
L4.4. Develop a strategy to characterize and address bycatch related to IUU fishing.	L4.4.1. Identify criteria for regional collaboration, then develop national work plans (with regional perspective). Include consultations and exchanges with the communities concerned, to contribute to the chosen regional approaches to IUU, identify stakeholders, describe the implementation and reporting.	Regional anti-IUU Plan of Action.		X	X			In order not to conflict with component C2, the regulatory aspect should come after consultations and exchanges with the communities concerned, sometimes voluntary for the actions but reluctant for the regulatory aspect.

	L4.4.2. Develop a Regional Anti-IUU Plan of Action, focused on Suriname, Guyana, French Guiana, and TT.			X	X			Engage with the regional fisheries bodies; e.g., WECAFC recently adopted a plan of action on IUU.
	L4.4.3. Coordinate the rollout of the IUU Regional Action Plan with the participation of relevant agencies from focus countries.	Number of leatherbacks affected by IUU reduced compared to a baseline determined by action D3.1.		X	X	X		WWF-Guianas is leading a regional IUU project and has already reached out to the RFMO's. Only TT is not involved; suggest they join as observers.

Strategic Line 2. Protection and Management of Critical Habitats

The leatherback turtle is a long-lived, highly migratory species, which poses complexities with respect to habitat use and challenges for the implementation of conservation actions. Adherence to best practices for beach management and offshore conservation, marine spatial planning, and law enforcement should become the norm, including the extensive involvement of stakeholders to create ownership of these practices and involve them directly in execution. It is critical to create awareness by fishers, in particular, and to actively involve them in conservation practices.

An *ideal state* for the protection and management of habitats vital to the life cycle of the NWA leatherback subpopulation should include the following aspects:

- **Turtle conservation is self-sustaining**, with dedicated financial mechanisms in place to ensure the continuity of conservation actions in the long term, as required by the species' life history characteristics.

- **No-fish zones are established offshore nesting beaches**, such that pre-nesting, inter-nesting and nesting habitats are protected when turtles are present, interactions with fishing gear are avoided preemptively, and a series of nearshore protected areas are established according to data-driven processes.

- **Communities throughout the NWA take ownership of sea turtle conservation**, stakeholder engagement is organized at national and regional scales, and conservation action is supported by data, education and awareness activities, an effective legal and regulatory framework, and sufficient funding.

- **Marine spatial planning is pursued collaboratively with primary users** and is seen as essential for maintaining the integrity of critical marine habitats without negative impacts to the livelihood of communities (meaning that no-fish zones, for example, are coupled with sustainable development programs for local fishing economies).

- **Nesting beach management is designed to keep these habitats intact and suitable for a successful reproductive effort**, including an active advocacy for controlled coastal development, since tourism, urbanization and other activities can reduce the quality of beaches as nesting habitat.

- **Cultural change is realized through** formal (school-based) and informal educational programs that teach students and civil society about sea turtles, their importance, threats to their survival, and what we can do to ensure their sustained recovery.

Solution Components, Actions, Activities, and Deliverables

Nesting Beaches

H1. Draft a beach management plan through a stakeholder consultative process designed to minimize resource use conflicts.

Goal: All countries participating in the Regional Action Plan develop and implement general beach management plans in consultation with key stakeholders, so as to promote community ownership of the conservation activities.

Objectives:

- Local communities, especially in the four focus countries, take ownership of sea turtle conservation.
- An adaptative management plan is developed to be flexible and responsive to our changing world.
- Each priority nesting beach has its own management plan (following international best practice) and a recurrent budget.
- Nesting habitat viability is protected from major anthropogenic threats.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
H1.1 Build regional guidelines for the development of leatherback beach management plans with conflict-free management actions.	H1.1.1. Organize a minimum of three cross-border stakeholder consultations.	A regional beach management plan with guidelines that can be adapted to each site's particularities.	X					Include beaches not currently hosting large nesting colonies, but that should be included in management activities (and protected from adverse impacts) as they may become important as sea level rises, etc.
H1.2 Engage resource managers to account for turtle nesting habitat viability when approving proposals to mine sand, fortify coastlines, and other coastal development activities potentially adverse to leatherback survival.	H1.2.1 Organize a workshop for resource managers to become familiar with beach management plan(s).	Improved capacities of resource managers to regulate coastal development for nesting habitat viability.		X				Engage national agencies regarding the option of beach zoning.
	H1.2.2 Organize meetings with agencies responsible for issuing permits to consider the implementation of beach management plan(s).	The regional beach management plan is considered by permit-issuing agencies.		X				Include cross-border learning exchanges related to mitigating sand mining and other CZM activities.
	H1.2.3. Organize national consultations regarding monitoring and enforcement activities for major nesting beaches.	Increased participation and awareness by resource managers of the importance of turtle nesting habitat viability.	X					Important to link with action C2.1.

H1.3 Develop a capital and recurrent budget for each management site.	H1.3.1. Build a financial plan for each major nesting site intended for long-term sustainability.	Financial plans for each management site.	X					Link to funding strategy.
H1.4 Advocate for retaining/ enhancing resilience in coastal ecosystems, particularly as it relates to residential and tourism infrastructure development in an era of climate change and sea level rise.	H1.4.1 Engage in sensitization activities (workshops, meetings) with coastal development stakeholders regarding the impact of unsuitable infrastructure in nesting beach ecosystems.	Reduction of the impact of coastal development in nesting habitat.	X	X	X			Needs input from action D5.2.
	H1.4.2. Advocate for all proposed developments on nesting beaches be obligated to have independent Environmental Impact Assessments with prescribed Terms of References, including periods of public review and comment.	Environmental Impact Assessments available for infrastructure development projects.		X	X	X	X	Review any major development projects that didn't retain/enhance coastal resilience, and assess how methods should be changed, or developers should engage. Needs to link with action L2.1.

Nearshore Habitats

H2. Conduct marine spatial planning, working closely with regional stakeholders and experts and including adequate data in decision-making.

Goal: All countries participating in the Region Action Plan develop a marine spatial framework that identifies sea turtle corridors and provides a plan for the conservation and management of these key areas.

Objectives:

- Support management decision-making with the best available scientific information regarding Marine Protected Areas in the region.
- Promote collaboration among local and regional agencies for coordinated and informed protection actions.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
H2.1 Establish a series of nearshore protected areas based on data on habitat used by leatherbacks during mating and nesting seasons.	H2.1.1 Conduct a review of existing local databases, identifying those associated with existing MPAs.	List of relevant databases is produced and shared among stakeholders and decision-makers.	X					For countries without MPAs, consider the review of Multiple Use Management Areas, nature reserves and no-fishing zones. Consider information in this global database: https://www.protectedplanet.net/en

	H2.1.2 Map relevant marine areas, where needed, using available GIS platforms (e.g., satellite telemetry).	-Marine Protected Areas (MPA) mapped. -Marine Spatial Areas designated and protected by national legislation mapped. -Regional MPA database is designed to be user-friendly/ accessible online. (Existing platforms, such as OBIS-SEAMAP are evaluated as hosts.)	X					Refers to marine areas relevant as leatherback high-use habitat.
	H2.1.3 Conduct a gap analysis to identify gaps in data availability for relevant areas.			X				National data gaps for Suriname, Guyana and TT are already identified.
	H2.1.4 Based on data gaps, conduct studies to identify marine areas relevant to movements of leatherback turtles within and between reproductive seasons.				X	X	X	Important to link with actions from component D5.
	H2.1.5 Conduct resource use mapping.			X				
	H2.1.6 Conduct stakeholder consultations to identify livelihood needs and priorities.	List of potential sustainable production options for fisher communities adjacent to (or using) MPAs.		X	X			
H2.2 Develop a methodology for demarcating and protecting marine boundaries of turtle habitats.	H2.2.1. Use low-cost options available for marine surveys, such as Unmanned Aerial Vehicle (UAV), buoys, posting of GPS coordinates, etc.	Options for novel technology for surveying and protecting MPAs.		X	X	X		
	H2.2.2. Once the boundaries are set, develop the corresponding regulations and management activities within these protected areas.	Management plans for new or updated protected areas are developed following best practice and peer-review.			X	X	X	Linked to specific activities of action L4.3.
H2.3 Promote the participation of agencies with surveillance capabilities, such as the coast guard or research institutes.	H2.3.1. Sign MoUs with relevant government agencies.	Increased protection for MPAs		X	X	X		Related to action L1.2.
	H2.3.2. Create incentives for agencies that increase their participation in surveillance activities at sites relevant for leatherback conservation.			X	X	X	X	Incentives could be in the form of equipment or awards.

H3. Enhance efforts to mitigate leatherback bycatch in IUU and legal fishing gear in continental shelf habitats, especially in foraging areas, migratory pathways, and offshore nesting beaches.

Goal: All countries participating in this Regional Action Plan effectively reduce the negative impact on the NWA leatherback subpopulation of interactions with fishing gear in nearshore waters.

Objectives:

- Establish a strategic framework for leatherback bycatch reduction in the WCR, focusing on areas close to nesting sites in the Guianas and TT, as well as migratory routes and foraging sites in the USA and Canada.
- Implement a strategy for gear modification (focusing on gillnets), in active consultation with fishers and appropriate authorities.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
H3.1 Characterize distribution and density of fixed gear (IUU and legal) and turtles in shelf waters using aerial surveys and other methods.	H3.1.1. Conduct an evaluation of the fishing effort (including IUU) in WCR countries.	Documents characterizing the fishing effort by country (number of vessels, gears used, etc.)		X	X			The action provides input for action D3.1.
	H3.1.2. Map potential legal and IUU bycatch "hot spots" in areas with high densities of fixed fishing gear that overlap with high use by leatherbacks.	Map of bycatch "hot spots" at a regional scale.		X				
	H3.1.3. Share the results of bycatch "hot spot" mapping and start engagement with national government agencies and fishing companies.	Increased awareness of the importance of "hot spots" within government agencies and fishing companies.			X			Complements activity L4.1.1.
H3.2 Ensure continued work to monitor leatherback populations and fisheries interactions in identified inter-nesting areas, foraging areas, and migratory pathways.	H3.2.1. Promote the participation of research institutes and fisher organizations in a multi-stakeholder regional monitoring initiative.	Agreements for a multi-stakeholder regional monitoring initiative.		X	X	X		Focus on New England and Nova Scotia, but consider other foraging areas, e.g., Gulf of Mexico, Mid-Atlantic Bight (SE USA), NE Atlantic (Western Europe).
	H3.2.2. Explore opportunities to leverage efforts to reduce interactions between right whales and vertical lines that could also benefit leatherbacks in northern foraging areas.	Increased collaboration between right whale researchers and leatherback researchers to find common solutions to reduce interactions with vertical lines.		X	X			
H3.3 Develop a structured program for testing, adaptation, and adoption of modified gear in gillnet fisheries to avoid leatherback bycatch in priority areas throughout the region.	H3.3.1. Research projects on gear modification alternatives best suited for the region.	List of alternate fishing gear that reduce sea turtle bycatch.		X	X	X	X	Work together with ICCAT and IAC to consider other gear types (e.g., longlines) in this action.
	H3.3.2. Establish and enforce (with enough personnel and funding) time/area restrictions for gillnet fisheries in detected bycatch "hot spots".	Reduction of leatherback bycatch due to gillnets in "hot spots".			X	X		Pilot in Guianas and/or TT actions designed to reduce fisheries bycatch, based on finalized regional surveys and this RAP.

Regional/Oceanic Habitats

H4. Implement a strategy to reduce the risk of bycatch in IUU or legal fishing gear for leatherbacks in the oceanic habitat.

Goal: All countries participating in this Recovery Action Plan effectively reduce the negative impact on the NWA leatherback subpopulation of interactions with IUU (and legal) fishing gear in high-sea habitats.

Objectives:

- Establish a strategic framework for reducing leatherback bycatch along high-seas migratory routes and foraging sites within and outside the WCR.
- Gain a better understanding of high-seas areas where bycatch of leatherback turtles occurs.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
H4.1 Identify leatherback legal and IUU bycatch "hot spots" in the oceanic habitat (high seas).	H4.1.1. Work with ICCAT and IAC to coordinate a regional conservation strategy for bycatch mitigation and monitoring in oceanic habitat.	Maps of reported bycatch of leatherbacks and high-risk regions along migratory corridors on high seas.		X	X			Any identification of important high-seas areas for leatherbacks would be important for ICCAT. Also, under the IAC Resolution on NWA leatherbacks, the IAC has been working on identification of important areas regionally that this group might benefit from and contribute to.
	H4.1.2. Overlay known/ expected migratory corridors and identify high risk regions.				X	X		
	H4.1.3. Develop a plan of action to reduce risk in identified priority areas along migratory corridors.	Document a plan of action to reduce bycatch risk to leatherbacks in the oceanic habitat.			X	X		
H4.2. Take advantage of international conservation events (e.g., One Ocean Summit), to raise awareness on the protection of ecosystems and more precisely leatherback turtles.	H4.2.1. Contact organizations that work on the high seas (without necessarily working on sea turtles) to discuss threats in the oceanic habitat and collect any available data/information.	Increased multidisciplinary collaborations to address threats to leatherback turtles on the high seas (i.e., in areas beyond national jurisdiction).		X	X	X	X	Take an overview of the knowledge acquired and actions implemented. Even if there are few, data gaps, needs, and proposal lists are a step forward.
H4.3. Strengthen the conservation actions along identified migratory routes and foraging areas at the Eastern part of the NWA leatherback distribution range.	H.4.3.1. Increase collaboration with organizations working on the Eastern part of the NWA leatherback distribution range, particularly Western Africa (Gabon).			X	X			The NWA RMU includes West Africa and some turtles that nest in Trinidad (for example) are known to forage off the coast of Africa.

Regional Coordination

H5. Establish and implement best practice management protocols, developed in consultation with stakeholders, for leatherback high-use areas.

Goal: All countries participating in this Recovery Action Plan establish best-practice management of the proportion of NWA nesting stocks necessary to achieve a biologically sustained regional leatherback population.

Objectives:

- Identify high-use areas for nesting, as well as near-shore and oceanic habitat use in the NWA.
- Involve fishers and other local stakeholders at all levels of decision-making processes.
- Build and strengthen the capacities of local stakeholders for implementing best conservation practices.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
H5.1 Promote long-term engagement with key personnel (e.g., rangers) responsible for implement-ing management plans	H5.1.1. Establish an engagement strategy for key stakeholders that will be implementing the management protocols.	Strategy in consultation with key stakeholders.	X					
H5.2 Enhance collaboration between stakeholders and fisherfolk to promote sustainability.	H5.2.1. Develop "turtle safe" fishing methods that minimize turtle bycatch, while not jeopardizing fisher livelihoods.	List of viable options of gear modifications that will minimize turtle bycatch in the region and are suitable for fishermen.		X	X	X		
	H5.2.2. Involve fishermen on the research projects on gear modifications that reduce turtle bycatch, while not jeopardizing fisher livelihoods.	Annual meetings with fisheries stakeholders to discuss sustainability.	X	X	X	X	X	Linked to actions C2.2. and D2.2.

H6. Develop and implement capacity building/strengthening programs for enforcement agencies.

Goal: All countries participating in this Recovery Action Plan successfully increase and strengthen the capacities of national law enforcement agencies to secure the protection of the NWA leatherback subpopulation and the habitats upon which it relies.

Objectives:

- Create a capacity building framework with programs suited to further enhance the enforcement effort.
- Provide best practice guidance for enforcement agencies in protecting leatherbacks in nearshore zones.
- Enhance capability of enforcement agencies to successfully enact the recommended best practices.
- Improve communication/collaboration between enforcement agencies (national, regional).

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
H6.1 Determine best practices for enforcement agencies in protecting leatherbacks in nearshore environments.	H6.1.1. Establish a multiagency international Leatherback Management Team responsible for coordinating leatherback management activities across their range.	Implementation of Leatherback Management Team.	X					
H6.2 Design and implement a Capacity Building Strategy to strengthen the capability of enforcement agencies to protect the leatherback and its critical habitats.	H6.2.1. Develop a capacity building gap analysis to focus on priority areas for program strengthening.	List of priority countries and areas for application of recommendations for program strengthening.		X				Linked to action L2.2.
	H6.2.2. Conduct an exchange program for government agencies in the region.	Better understanding of the regional perspective of leatherback conservation.		X	X	X		Linked to action L2.2.
H6.3 Develop an operational management plan; may vary based on location/beach (specific to an area's needs).	H6.3.1. Leatherback Management Team (comprised of representatives from law enforcement, education, forestry, fisheries, tourism, private sector, and research organizations) constructs a consensus-driven management plan.	Implementation of management plan.		X				

Strategic Line 3. Community Engagement

Conservation is a general interest issue. Therefore, activities intended to develop community engagement should be carefully crafted to include collaboration between conservation experts and the extended communities most closely in contact with the species.

Empathetic understanding of traditional knowledge and culture should be kept in mind when developing conservation initiatives, giving special consideration to the livelihoods of community members (particularly fishers). Knowledge should be used to create media in multiple languages and intended for different age and activity groups to make sure that an accurate message is being delivered.

The *ideal state* for community engagement to conservation efforts in the WCR should include the following aspects:

- **Continuous effort is put forward to build and sustain trust among communities (including fishers) with agencies and other stakeholders,** to the end that RAP objectives are achieved with all participants being certain that defined activities will be fulfilled in a timely manner.
- **A long-term commitment to an alliance with fishers** includes open channels of communication to explain the benefits of the RAP – to turtles, to marine habitats, and to fishers – and to ensure that their views and concerns are addressed.
- **Regular exchange of knowledge between scientists and communities, including traditional knowledge**, is a priority that leads to plans that are understood, valued and implemented by all stakeholders.

- **Community members are part of the solution** and have ample opportunity to actively participate both in the definition of activities and in their execution, so they feel more committed to the application of proposed solutions.

Solution Components, Actions, Activities, and Deliverables

C1. Secure the participation of human resources with requisite expertise and experience to engage in community consultations; ensure that these consultations are maintained over time.

Goal: All countries participating in this Recovery Action Plan guarantee that activities in which members of the community participate are planned and executed in an efficient way, and that all interested parties have an opportunity to be heard (meaning that organizers of these activities have experience in managing groups and working with communities).

Objectives:

- Ensure the availability of human resources who are familiar with the local context, language, laws, etc.
- Learn from past successful and unsuccessful activities to guide the way forward.
- Secure sufficient and capable staff and/or experienced volunteers.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
C1.1 Establish a Regional Fund to facilitate and finance community engagement and awareness.	C1.1.1. Explore the possible mechanisms for an effective Regional Fund for community engagement and awareness.	Draft structure of a Regional Fund for community engagement and awareness.	X	X	X			Important to identify a Lead Organization, whether a government agency, NGO, or coalition to coordinate these activities.
	C1.1.2. Reach out to potential funding organizations to propose a long-term community engagement and awareness program in the region.	Bases for a Regional Fund proposal targeted to the relevant organizations.	X	X	X			Identify priority engage-ment communities. Throughout the NWA there are many types of communities adjacent to beaches (hotels, villages, urban centers), and a variety of fisheries (nearshore, offshore, long line, gillnet, etc.)
C1.2 Build capacity within communities to provide trained human resources to monitor compliance of conservation regulations.	C1.2.1. Develop and implement a training program for eligible members of key communities adjacent to priority habitats for the NWA leatherback. Include data collection, nest monitoring, Ranger training, E&A materials, deeper under-standing of marine turtle conservation, easy access to marine turtle information.	Trained personnel from local communities are able to monitor compliance and participate in conservation activities.	X	X	X	X		The first year for developing the program, and the rest for the implementation.
	C1.2.2. Promote the value of information and scientific knowledge and its role in marine turtle conservation	Program to promote information throughout the WCR range, particularly in key nesting countries.	X	X	X	X		Review successful programs developed in other countries; share these successes widely.

C2. Maintain community engagement at all levels (planning, executing, evaluation, monitoring, enforcement, reporting) in support of RAP implementation.

Goal: All countries participating in this Recovery Action Plan guarantee that stakeholders were consulted on the actions defined in the plan and there is a commitment to implementation, ensuring that conservation actions are not perceived as being imposed by groups outside of the community.

Objectives:

- Value fisherfolk for their potential and real contributions to sea turtle science.
- Host structured community engagement meetings at regular intervals (e.g., annually).
- Ensure equitable and sufficient representation of the communities' populations (e.g., age, gender).
- Consultations and outputs are available in local languages.
- Fishers and other local residents become actively involved in sea turtle conservation initiatives.
- Ensure Free, Prior and Informed Consent (FPIC) for consultations.[5]

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
C2.1. Promote partnerships with community leaders for successful programming.	C.2.1.1. Create focus groups for consultation processes in key communities.	-Increased awareness of vulnerability of leatherback population. -Community stakeholders directly contributing to approaches which are adopted to reduce to leatherback threats and increase conservation targets.	X					
	C2.1.2. Define, in agreement with all stakeholders, the timing, frequency and purpose of community consultations.		X					It is recommended to work with the CBD Action Plan regarding livelihoods.
	C2.1.3. Design community engagement sessions; i.e., what outcomes to be achieved, providing follow up and feedback, collectively devising solutions to tackle issues.			X				
	C2.1.4. Promote/ mentor local ambassadors and advocates that can speak for the turtles in their respective communities.		X	X	X	X	X	
C2.2. Involve fishers directly in data collection, surveys, data interpretation, research design.	C2.2.1. Ask fishers what questions interest them about leatherbacks and then try and incorporate them into research.	-Reduced poaching and legal and IUU bycatch. -More community buy-in and support. -Reduced threat due to gear entanglement.	X					In every activity the stakeholders should be involved.
	C2.2.2. Create a newsletter specifically for fishers that reports to them on how their contributions are helping sea turtles.			X				Fishers are important because bycatch remains the causal agent for decline, but could this also reference stakeholders more broadly? Involve educators or clergy in outreach, for example.

[5] Free, Prior and Informed Consent (FPIC) is a specific right that pertains to indigenous peoples and is recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). It allows them to give or withhold consent to a project that may affect them or their territories

	C2.2.3. Replicate Trinidad's experience in involving fishers directly in field trials to evaluate various alternative gear options to reduce turtle bycatch (e.g., see Eckert & Eckert 2005).			X				
C2.3. Provide forums for fishers to express doubts about conservation actions in a safe environment where they are heard in a genuine way.	C2.3.1. Promote an annual "gathering" of fisher communities where they can exchange experiences and express their views in a safe, non-judgmental setting.	Opportunities for fishers to express and discuss the issues: "The leatherback population is declining, why should I care? What role do/ should I play?"		X	X	X	X	Give the fishers the opportunity to express their views, including doubts. Some fishers will have positive attitudes and it's important to hear these, as well.

C3. Quantify outreach success as a measure of progress.

Goal: All countries participating in this Recovery Action Plan develop an adequate method for measuring progress and indicators to allow monitoring of program implementation, in addition to alerting governance committees of shortcomings in progress, participation, outcomes or timing.

Objectives:

- Identify knowledge gaps, cultural beliefs, and behavioral patterns that may help to define needs, problems, and barriers relevant to activity planning and implementation.
- Quantify outreach in terms of its impact on target audiences.
- Share knowledge gained from quantified assessments with donor agencies and the broader sea turtle community.
- Document the amount and frequency of direct community participation and number of community members participating in turtle conservation, as a potential measure of outreach success.
- Develop a database of survey tools widely accessible to ensure the use of best practices in data-gathering and reporting.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
C3.1 Establish baseline or reference values for use in future assessments designed to measure the effectiveness of education activities and their ability to change conservation-related behaviors.	C3.1.1. Implement Knowledge Attitude and Practices (KAP) surveys in local communities.	Baseline values for effectiveness of outreach and education activities are developed and made available through the Leatherback Management Team.		X				Need to define which communities are the most relevant to incorporate in these activities; also, where baseline data are or might be available.
C3.2 Develop a regional outreach strategy based on the characteristics of Caribbean communities, with specific indicators and methods for measuring progress.	C3.2.1. From the KAP surveys, suggest an intervention strategy that reflects specific local circumstances and the cultural factors that influence them.	Strategy for improving the impact of outreach and education activities.		X	X			
	C3.2.2. Develop indicators for measuring outreach success (see Stewart et al., 2018).	Group of indicators designed for measuring outreach success.		X	X			Explore if WWF's outreach toolbox is suitable for this activity.

C4. Develop a strategy for a long-term commitment to community outreach throughout the region.

Goal: All countries participating in this Recovery Action Plan commit to ongoing education and outreach activities in the short- and long-terms in order to promote an enduring understanding of the plight of leatherback turtles in the Caribbean area and the imperative of their sustained recovery.

Objectives:

- Design a long-term outreach strategy that embraces all priority threats: hazards to the nesting beach, legal and IUU bycatch, pollution.
- Ensure that funding and other resources are available for the duration of the outreach activities, with priority support to community-driven capacity building.
- Long-term strategies are holistic, and recognize interconnections that can help to reduce programmatic redundancy.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
C4.1 Establish activities beyond the nesting season.	C4.1.1. Promote year-round visits to nesting beaches focused on teaching students and other visitors about coastal ecology, biodiversity, and the importance of safeguarding the beach ecosystem year-round.	Improved protection of beaches beyond the nesting season.	X	X	X	X	X	Stakeholder meetings are necessary to the success of this action.
C4.2 Develop successful experiential actions to engage diverse stakeholders, including youth.	C4.2.1. Build alliances with educators to create safe (and ongoing) "field trips" to beaches, fishing depots, and other educational venues.	Sustainable partnerships with both formal (classroom teachers) and informal (science camp, agricultural/ fisheries outreach officers) educators.	X	X				
	C4.2.2. Host summer day camps for children-parents benefit			X	X	X	X	
C4.3 Promote programs with schools to engage students.	C4.3.1. Develop a "Young Conservationists Program" in which young students can participate in field activities and exchange experiences along the region.	Educational programs for young students.	X	X	X	X		Include all school levels. See Harold and Eckert, 2005; Marin, 2010).

C5. Create targeted awareness programs with materials designed for specific audiences.

Goal: All countries participating in this Recovery Action Plan achieve better communication with the various audiences within the community, helping to guarantee that the message and the execution of programming is accurate and achieves its objective(s).

Objectives:

- All audiences are aware of the programs and actions undertaken for leatherback conservation.
- Language and cultural nuances are considered when designing outreach materials.
- Diverse communities have specific events in which they can be involved during the year to be fully integrated into the conservation program.
- Messages shared are understood by everyone in the different countries, including in local languages.

- Scientific knowledge (practical and theoretical) is spread among communities, which can raise questions, solve problems, and promote access to the data and its conclusions.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
C5.1 Design & implement a strategy for Social Media messages and activities crafted to reach different audiences (languages, ages, professions).	C5.1.1. Contract a Social Media specialist to design a regional base strategy that can be adapted to different target groups & cultural approaches.	A regional Social Media strategy.	X					Facebook, Twitter, Instagram, TikTok
	C5.1.2. Create accounts on different social media platforms, publish informative content regularly about the leatherback turtle and include interactive content online.	Statistics about online engagement on social media platforms.	X	X	X	X	X	Sharing successful strategies to the broader WCR is part of the intent. (Could this be linked to existing social media platforms, such as WWF, WIDECAST, or SPAW?)
C5.2 Design outreach materials that can be available in indigenous (and other inclusive) languages.	C5.2.1. Design posters to popularize scientific knowledge in the context of local communities.	Poster(s) designed and available in different languages.	X					Use respect and careful attention to detail when translating science into indigenous languages.
	C5.2.2. Incorporate more local knowledge into outreach contents (digital or printed).		X	X				Digital channels, such as radio or internet.
C5.3 Prepare activities for annual events on special days.	C5.3.1. Design community events, games, trivia nights in local bars with prizes, specific social media content, etc.	Increased engagement of children and adults in conservation issues.		X	X	X		Banners, posters, short films, social media, etc. on World Ocean Day, World Sea Turtle Day, etc.
								Storytelling festival about sea turtle conservation among students creating original stories; annual competition with prizes for the best story.
C5.4 Promote international cultural and experiential exchanges among stakeholders in the region.	C5.4.1. Organize a first exchange workshop with stakeholders from key areas for leatherback conservation.	A "pilot" workshop that provides feedback useful for other successful exchange workshops.	X					
	C5.4.2. Seek to replicate the experience of Nature Seekers (Trinidad) members traveling to Nova Scotia as a cultural exchange with Canadian fishers.	Extended international exchange experiences with relatable communities (e.g., between fishers).		X				
	C5.4.3 Organize exchanges among sea turtle conservation organizations in the region on the benefits of engaging local populations in sea turtle conservation practices: what can be replicated elsewhere?		X	X				WIDECAST, with country coordinators in 45 States and territories would be useful in identifying/ hosting exchanges.
	C5.4.4 Organize workshops, media outreach platforms to increase the awareness of health-related risks in consuming sea turtle products (meat, eggs, blood).	Reduction in consumption of turtle meat or eggs.	X	X	X	X		Assemble the science in this regard to ensure accuracy in the message.

Strategic Line 4. Scientific Data Needs

One challenge facing decision-making organizations is that timely and accurate information related to sea turtle biology, life history, and conservation – including knowledge gaps – is not always readily accessible. This is true both at a national level and at a regional level, and stakeholders participating in the development of this Recovery Action Plan agreed that it is important to develop standardization in terms of data collection, archival, and sharing – and that it's equally important to collaborate and communicate with local communities and agencies responsible for safeguarding the annual reproductive effort.

An *ideal state* for the regional research, data collection and sharing of valuable information for conservation decision-making considers the following aspects:

- **An online library and data hub** facilitates access to information and streamlines opportunities to share science resources with organizations and agencies across the region.
- **A process to obtain (and protect) annual monitoring data** is in place to provide support to research and planning activities.
- **A standardized process for sharing data** ensures that all stakeholders, institutions, and agencies with an interest in this information understand the process to obtain and use the data.
- **A regional mechanism to coordinate research efforts** invites the participation of all interested entities, providing clarity in the methodologies employed and the objectives to be achieved.
- **A regional standardized method exists to collect tagging and nest count data** to be certain that procedures are carried out in a similar way throughout the region.
- **Data collection capacity is achieved at national levels by liaising with communities** or local entities designated as responsible for nesting sites, allowing for more direct participation of stakeholders.

Solution Components, Actions, Activities, and Deliverables

D1. Develop a regional Information and Communication Technology (ICT) panel for initial discussions on best approaches to develop an accessible regional database/repository.

Goal: All countries participating in this Recovery Action Plan promote the participation of experts from across the region in defining the optimal way to collect data and to generate information necessary to inform the regional database.

Objectives:

- Create a network of ICT specialists to support regional conservation actions.
- Identify / develop sustainable funding mechanisms.
- Support the integration of ICT into Data Management protocols to support effective conservation of the NWA Leatherback subpopulation.
- Operationalize a shared regional database with common fields, secure access, and clear terms of reference
- Develop a functional, easy access, digital Library/Data hub.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
D1.1 Create a network of ICT specialists across the region to work with scientists and support data management in the region.	D1.1.1. Ensure there is funding to hire ICT specialists.	A regional team that supports the development of tools to store, access and analyze shared data.	X	X				
	D1.1.2. Initiate a regional ICT arm to support data gathering and management tools.			X				
	D1.1.3. Host quarterly meetings to provide updates (what works, what doesn't work, what could be better).	Periodical updates to provide guidance on ICT issues.		X	X	X		Ensuring regular data updates (populating) and ensuring data checks occur will require a dedicated contractor.
	D1.1.4. Assign daily operations to an assembled group or company.			X	X	X		Persons should be trained in respective local countries to aid in monitoring.
	D1.1.5. Include ICT specialists in conservation conversations to allow for more inclusivity.			X	X	X		
D1.2. Form a regional scientific data group responsible for management and verification of information in support of this RAP.	D1.2.1. Select candidates and agree on conditions of information sharing and management, and especially on the specifics of data-sharing and publication rights.	Regional scientific data group in place.	X					A coordinator position is recommended for this group. Review best practice for data-sharing.
D1.3 Develop software/ platform to enable easy access for storage and recalling of data based on data gaps.	D1.3.1. Select a cloud or server to store all the data.	Online shared regional database with common fields along with data use/sharing agreement.	X					Review of other similar models for implementation is recommended.
	D1.3.2. Collate research documents to be uploaded.		X					Train persons in local countries to use software.

D2. Develop a regional Data Hub, with consensus on the types of data needed for regional assessment of the NWA population, guidelines for collection, and terms of reference for use of the information.

Goal: All countries participating in this Recovery Action Plan have access to a regional data repository that meets international standards for the safeguarding and administration of information, containing what is necessary to continue the needed research and conservation work. Consensus-driven processes determine which country or regional organization is in the best position to develop, staff, and sustain the Hub.

Objectives:

- Develop a regional mechanism for research collaboration and data sharing for region-wide analyses that support management decision-making (perhaps something akin to ResearchGate).
- Reach consensus on what country/organization will host the repository.
- Agree on the desired nature of products to be derived from data collected, in order to determine data collection needs.
- Identify/agree on specific data needs and standards for collection (regional consensus).

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
D2.1 Secure funding for the construction and management of the hub and for the creation of a portal.	D2.1.1. Identify the hosting structure (WIDECAST / MTSG / SWOT)	Data Hub with a stable, long-term hosting structure.	X					This will require funding looking far out to the future.
	D2.1.2. Create regional working groups for each data collection need (e.g., regional bycatch working group), coordinated by the Scientific Data Group.	There is a consensual mechanism for collecting the information needed for conservation decision making.		X				Linked to action H3.2.
	D2.1.3. Partner with international initiatives related to turtle legal and IUU bycatch reduction strategies in order to share information.	Enrich the availability of legal and IUU bycatch information.		X				Linked to activities H4.1.1, H4.2.1 and H4.3.1.
D2.2 Develop consensual guidelines specific for the collection and management of legal and IUU bycatch data throughout the region.	D2.2.1. Identify methods for collection of bycatch data that are objective (not subjective).	Manual with guidelines for objective bycatch data collection.		X				Guidance developed needs to consider the capacity of the country or provide funding to develop capacity to follow any guidance document developed. Linked to action H5.2.
	D2.2.2. Identify/ agree on specific data needs/ standards for collection.	Regional consensus on specific data needs.		X				Develop regional laboratory linkages and exchanges.
D2.3 Develop consensual guidelines for collection and approach of other threats data.	D2.3.1. Design a mechanism that collects, organizes, stores and secures a range of data products: from scientifically published data and reports to education and awareness products to the general public and communities.	Information readily available to interested stakeholders in the region.		X				
	D2.3.2. Develop guidelines for a semi open-source medium for raw data, which recognizes ownership, accessible to recognized researchers in the marine turtle network and managed by the regional scientific data group.	A functional semi-open source online medium for data.		X				
D2.4 Disseminate existing standardization tools known to follow international best practice.	D2.4.1. Organize workshops for groups monitoring nesting beaches, on the Minimum Data Standards for Nesting Beach Monitoring published by SWOT and relevant software. See Eckert & Eckert, 2012.	Improved sharing of data and knowledge between researchers, fishers, and other stakeholders.	X					Linked to action H1.1.
	D2.4.2. Strengthen the capacities of fishers for reporting incidents to local organizations, so they can upload the information.	Increased availability of bycatch information.		X				This may have to be accomplished via dockside interviews/ port data technicians conducting semi-structured interviews and uploading results. Linked to action H5.2.

D2.5 Define recommendations and standardize protocols to collect tagging data.	D2.5.1. Organize a working group aiming to standardize the tagging protocols across the region.	Consistent collection and sharing of tagging data.		X	X			Will require inventorying existing tags, equipment, and protocols; in some cases focusing on use of common technologies (e.g., PIT tags, readers).
	D2.5.2. Promote broader sharing of tag return data and enhanced tagging across nesting sites.			X	X	X	X	WIDECAST's Regional Marine Turtle Tagging Centre (UWI Barbados) would be a partner here.
D2.6 Define recommendations and standardize protocols to collect data on turtles' health condition.	D2.6.1. Organize a working group to define standard and routine health data collection, monitoring and reporting.	Protocols for standardized collection on turtles' health condition.		X	X			This includes animal health parameters, environmental health indicators, and any related human health considerations.
	D2.6.2. Identify regional network laboratories with the capability to analyze for agreed-upon baseline health parameters.	Directory of laboratories for analyses of health parameters.			X			Regionally accessible funding allocation needed for specimen shipping and laboratory testing.

D3. Form a Regional Turtle Legal and IUU Bycatch Working Group focused on coordinating the collection of information needed to define, implement, and assess bycatch mitigation strategies, combat IUU fishing, and advise conservation decision-making agencies.

Goal: All countries participating in this Recovery Action Plan have a scientific body charged with developing methods for monitoring and evaluation of priority projects, such as bycatch surveys, fishing gear modifications or alternatives (to gillnets), advising on adaptive management strategies, and sharing results and lessons learned through the Data Hub.

Objectives:

- Provide timely, relevant information for regional bycatch mitigation measures and enforcement.
- Develop/foster collaboration through national and regional alliances between networks of researchers, research institutes, and relevant stakeholders to collectively address pressing data needs.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
D3.1 Implement a comprehensive regional turtle legal and IUU bycatch characterization program to identify bycatch "hot spots" and priority opportunities for mitigation actions.	D3.1.1. Advocate for deployment of trained onboard observers when and where such programs could contribute valuable data on the number, distribution, and seasonality related to fishery interactions with leatherbacks.	Increased reliability of information on number, distribution, and seasonality of fishery interactions with leatherbacks.		X	X	X		Regional exchange programmes where researchers and specialists can visit other NWA countries to learn about their programmes, build capacity, and foster regional integration.
	D3.1.2. Promote the use of devices such as on-board cameras with GSM directly sending pictures to biologists on-land for fisheries evaluation.			X	X	X		Requires training for fishers using technology devices and close communication with communities to avoid suspicion related to camera use.

	D3.1.3. Compile and compare bycatch data across gear types, regionally, to identify highest priority opportunities for bycatch reduction from a population impact perspective.		X	X	X	X		Linked to action H3.1.
	D3.1.4. Analyze regional bycatch data, combine with turtle occurrence data; synthesize into a regional leatherback-fisheries interactions map.	Map of probability gradients for leatherback-fisheries interactions.		X	X			May include inter-nesting behavioral data, where available. Include IUU fisheries when possible.
	D3.1.5. Identify the extent of legal and IUU bycatch threats from local and international fishers.			X				Linked to action H3.1.
	D3.1.6. Structure a bycatch data collection approach in gillnet fisheries across the region, in collaboration with fishers, also covering socio-economic aspects of the fishers.				X	X		Provides input for action H3.3.
	D3.1.7. Perform a full characterization of fishing communities (especially fisheries socioeconomics) and associated fisheries affecting and affected by turtle bycatch.				X	X		Important to link with actions C2.1 and C2.3.
	D 3.1.8 Explore potential ways to implement standard fishery observer projects to collect baseline data on fishery interactions across jurisdictions.	Map of probability gradients for leatherback-fisheries interactions.	X	X				Link to actions H3.2 and L4.4.
D3.2 Conduct studies on fisheries selectivity and experimental gear modification as bycatch mitigation measures.	D3.2.1 Strengthen local fishery agencies so they can contribute information on fish catch, gear, bycatch, etc. to national data sets as an ongoing activity	Increase data directly from fishery agencies.		X	X	X	X	Timeline: Realistically speaking, this action could take 5-10 years.
	D3.2.2. Hire bycatch officers to work on fisheries selectivity and onboard data collection when experimenting with modified gear.				X	X		Link to actions L4.4 and H3.3.
D3.3 Assess potential impacts of long line fisheries on leatherbacks.	D3.3.1. Seek access to long line bycatch data from ICCAT.			X				Linked to action H4.1.

D4. From regional recommendations to local implementation: incorporate regional recommendations (nest counts, female counts, threat data) in every Sea Turtle Recovery Action Plan (STRAP)

Goal: All countries participating in this Recovery Action Plan adopt national action plans that incorporate recommendations based on best practice, including harmonized guidelines generated at the regional level, and then provide for results to be shared with regional stakeholders and other partners.

Objectives:

- By 2030, all regional recommendations for research and monitoring programs are designed to meet international best practices, are locally implemented, are effectively evaluated, and are successfully guiding leatherback management actions.
- Member states are well equipped to gather, archive, and report reliable, standardized datasets.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
D4.1 Develop a system to regionally collate all publications for sharing with agencies responsible for implementation of Sea Turtle Recovery Action Plans.	D4.1.1. Disseminate the use of the Data Hub for sharing relevant information.	All relevant agencies have the information they need for STRAP implementation.		X				
D4.2 Organize a Data Science seminar series as an ongoing activity.	D4.2.1. Identify relevant research topics to be discussed and experts to give lectures.	Seminars are held regularly, widely advertised, and attended.	X	X	X	X	X	
D4.3 Ensure that all STRAPs are implemented following the regional recommendations for data collection and field activities.	D4.3.1. Start training workshops on standardized methods for data collection, archival, and assessment.	Standardized data collection methods.	X	X				Receives input from actions H1.1 and H6.2.

D5. Conduct gap analyses at regional and local levels for priority threats and other data needs.

Goal: All countries participating in this Recovery Action Plan have clearly identified the most relevant threats, including whether these produce short- and/or long-term consequences to the NWA leatherback subpopulation.

Objectives:

- Identify factors (land- and sea-based) posing a threat to the NWA leatherback subpopulation at national and/or regional scales, including how these threats are being addressed and the impacts of interventions made.
- Identify possible new areas of research relative to mitigating novel or ongoing threats to the NWA leatherback subpopulation.

Actions	Activities	Deliverables/ Results	2023	2024	2025	2026	2027	Notes
D5.1 Prioritize collaborative data collection and analysis of existing data.	D5.1.1. Design and execute analyses of existing satellite tracking data to identify spatial and/or temporal shifts in post-nesting or foraging destination behavior.	Have a reliable database with relevant information on migration routes, nesting places and drivers of hatchling in the region.		X	X	X		Ensure access to data is protected. Information essential for component H2.
	D5.1.2. Design and execute analyses of capture-recapture data to determine regional patterns in remigration intervals, clutch frequency, and survivorship			X	X	X		Ecolibrium and WIDECAST have nearly completed this activity with regard to survivorship.

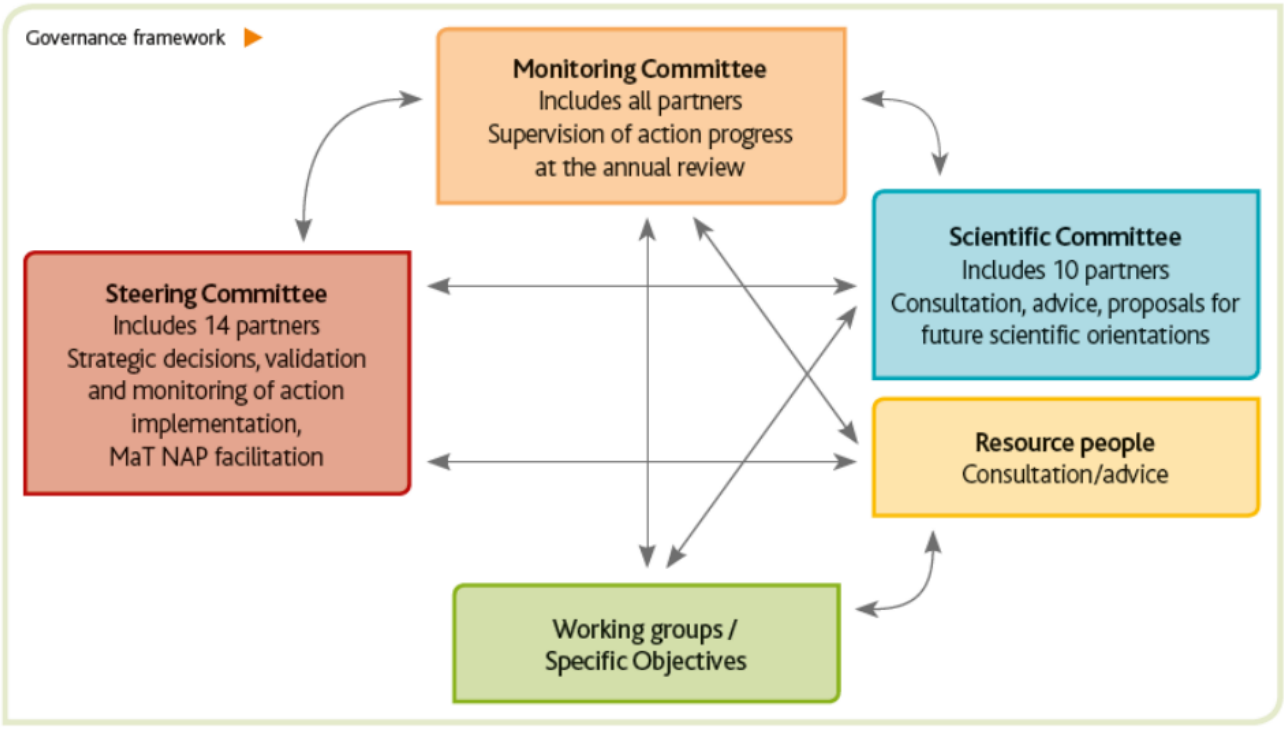
	D5.1.3. Design and execute analyses to determine patterns and drivers of hatchling production across the region.			X	X	X		Provides information for action H1.1.
	D5.1.4 Develop training towards in-water assessments to ensure male/female data collection.	Ensure reliable data throughout the region.	X	X				
D5.2 Improve knowledge of beach dynamics and its impact on leatherback nesting patterns.	D5.2.1. Define patterns of beach loss/accretion to determine their effect on leatherback nest site selection and their relation to declining trends.	Map with the beach dynamics.		X	X	X		Provides information for action H1.4.
D5.3 Identify the population indicators for the minimum end recovery goals for the NWA leatherback.	D5.3.1. Determine the minimum proportion of colonies that must have best practices implemented in order to reverse current declining trends.	Results of a workshop with experts.		X				This should be coordinated by the Scientific Committee.
D5.4 Investigate impact of life history traits on conservation needs.	D5.4.1 Design a study to analyze hatchling success and genetic resilience.	Complete a study of natural events and pollutants in hatchlings and nesting areas.	X	X	X			
	D5.4.2 Assess the relationship of water temperature and hurricanes to leatherback nesting within the region.			X	X			
	D5.4.3 Assess diseases and pollutants (e.g., heavy metals, plastic) in relation to leatherback health.		X	X	X	X		Assemble current literature in this regard.

Governance and Strategic Framework for the Regional Action Plan

In order to achieve effective and efficient implementation of this RAP, it is essential to have governance guidelines. The International Union for the Conservation of Nature's (IUCN) Natural Resource Governance Framework (IUCN-GF) (Springer et al., 2021) offers valuable insight. The IUCN-GF provides a robust, inclusive and credible approach to creating governance for entities managing natural resources at multiple levels and in diverse contexts. The framework consists of values, principles and criteria that guide the application of best governance practices.

There are different forms of governance: in the case of multinational and diverse stakeholders voluntarily seeking common goals (which is the case for this RAP), governance should be conducted by a "*governing body*" responsible for keeping stakeholders' actions within commonly agreed guiding principles and rules of implementation.

Efforts to create governing bodies for the conservation of the NWA leatherback subpopulation are not new; for example, the Marine Turtle National Action Plan (MTNAP) for French Guiana is coordinated by a governance framework to support execution of activities intended to fulfill national goals. The NWA Leatherback RAP could learn from this framework's best practices and success stories, which consist of dedicated committees, working groups and other actors including consultants and professionals as expressed in the following diagram.



French Guiana's MTNAP governance framework[6]

Building from the most relevant concerns expressed during the RAP workshops and the IUCN-GF framework, we envision the RAP governing body to embody a set of rules and principles and be appointed by common agreement of stakeholders. Core principles include the following:

- **Recognize and respect cultural, knowledge and interest differences of RAP stakeholders.** Given the diverse background of stakeholders, different views must be aligned, legitimate concerns addressed, and potential conflicts resolved when implementing a science-forward conservation plan.
- **Foster inclusive decision making.** All views, either convergent or conflicting, must be considered when making decisions pertinent to the RAP. Appointed members should be guardians to nurture this inclusion spirit for regulating the implementation of plan.
- **Achieve inter-agency coordination for implementation of RAP initiatives.** Since the scope of the RAP is multinational and the local regulations might provide different structures, it is essential that the governing body fully understands these differences and is able to promote coordination.

Following the lessons from the MTNAP for French Guiana, the RAP governing body should include monitoring, steering and scientific committees, complemented by a funding committee. It would be in the best interest of the success of the RAP that these committees adhere to multicultural respect and inclusive decision-making in their ongoing work.

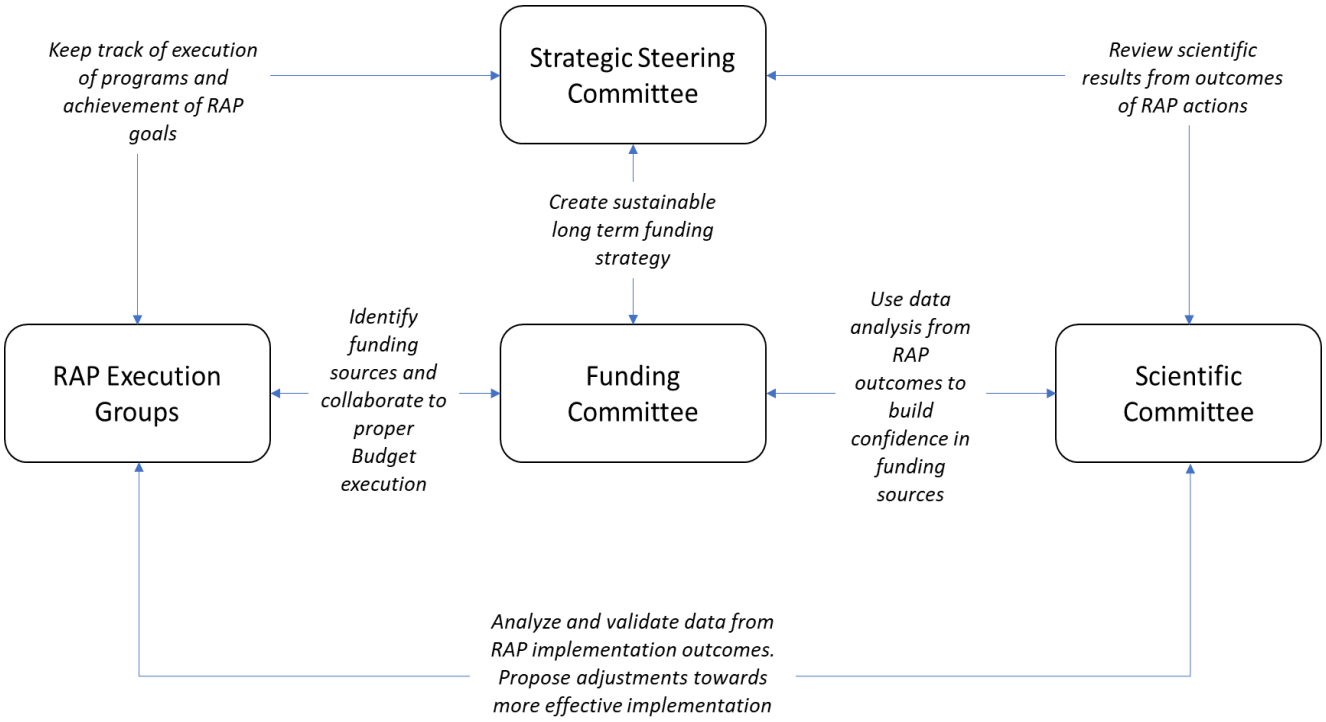
[6] "Presentation of the Marine Turtle National Action Plan in French Guiana and on-going projects"; Northwest Atlantic Leatherback Regional Action Plan Stakeholders Meetings in French Guiana - 2021.

Proposed roles for these committees should include:

- **Strategic Steering Committee:** Maintains strategic supervision of the overall development and implementation of the RAP, tracks implementation progress with close attention to the evolution of strategic indicators proposed by the RAP, and is responsible for advising on adjustment of specific actions towards the achievement of desired goals. This committee should include national representatives in executive positions in local governments in order to keep RAP progress aligned to national priorities. Fostering interagency and multinational coordination is expected.
- **Scientific Committee:** Monitors and analyzes data from specific outcomes of RAP actions and initiatives, advises on the achievement of goals based on factual records and analytical models, and validates outcomes.
- **Funding Committee:** Holds primary responsibility for identifying possible funding sources, advises entities responsible for RAP implementation on the best way to approach these sources, and administers (or oversees) funds granted to ensure their proper destination and application.

All actions evolving from the RAP should be executed by a team, whose leader should hold responsibility for reporting to the governing committees in addition to her/his project-related duties. It is important to develop guidelines for communication and reporting of progress regarding RAP implementation, which should include ongoing and planned scheduled work, corresponding KPIs, and budget application.

Committees and working groups should collaborate to achieve the ultimate goal of the RAP, which is to reverse the declining trend in the NWA leatherback subpopulation. Interrelations and coordinated support among different committees and working groups will be articulated as illustrated in the following diagram:



This framework should enable the governing body (referred to as a Strategic Steering Committee in the diagram on the previous page) to undertake the following:

- *Strategic surveillance*. Observe the progress of accepted KPIs during RAP implementation in order to regulate actions intended to ensure the fulfillment of RAP goals and objectives.
- *RAP implementation monitoring*. Track the advance of RAP execution according to schedule, to provide the governing body with information sufficient to anticipate actions and adjustments.
- *RAP outcomes record keeping*. Adopt a commonly accepted procedure for registration and processing of information related to RAP program (and action) outcomes.
- *Scientific validation of RAP outcomes*. Ensure proper methods for data analysis and processing, with an aim to create and document valid records to be used in RAP execution.
- *Funding strategy*. Define and manage a portfolio of funding sources, create and manage long-term relationships, and report on outcomes obtained from funding.
- *Communication to stakeholders*. Share relevant information regarding RAP progress, including KPI evolution, funding, lessons learned, and knowledge creation.
- *Budget execution and reporting*. Track the use of funds in RAP execution and report to corresponding entities, both internal and external.
- *Dissemination of scientific knowledge and RAP outcomes*. Promote scientific publication of knowledge resulting from RAP execution, disseminate documents and updates related to the RAP's outcomes.

Actions recommended towards implementation of a governing framework include:

- **Define a regional governing body to oversee and evaluate RAP implementation.**

  Objective: Appointed members serve as guardians of RAP accomplishment, while complying with guiding principles.

  Suggested actions

1.1 Define scope of governance.

  Goals:

  - Set boundaries, outline the role of the governing body as it relates to RAP implementation.
  - Define stakeholders to abide by the boundaries and framework of RAP governance.
  - Assess the viability of the IUCN-GF (Springer et al., 2021) for building RAP governance.

1.2 Consult stakeholders on the appointment and terms of reference for governing body members.

  Goals:

  - Develop criteria to identify members of the governing body.
  - Identify potential candidates to comprise the governing body.
  - Ensure an inclusive roster of potential governing body candidates.

1.3 Appoint members to the governing body.

Goals:

- Once suitable candidates have been identified, obtain approval from stakeholders
- Invite / appoint candidates to serve on the governing body.

- **Set governing rules to be followed for RAP implementation.**

  Objective: Define the guiding principles, values, criteria and governance guidelines.

  Suggested actions

2.1. Define rules of procedure to guide the governing body in overseeing RAP implementation.
2.2. Define guidelines for conflict resolution.
2.3. Distribute governance guidelines among stakeholders.

Goals:

- Ensure that stakeholders are consulted concerning (and ultimately approve) the governing body's rules of procedure.
- Ensure that the governing body operates according to the guiding principles and rules of operation established for its use.

Indicators for RAP Implementation

Most projects requiring the implementation of strategies need a supervisory instrument to assess the degree of accomplishment for specific goals through measurement of relevant indicators. These indicators are often referred to as **key performance indicators**, or KPIs.

Not all indicators are "key"; however appropriate for monitoring everyday operation, some performance indicators will not provide relevant information regarding strategy implementation, but rather will provide reference values for short- and long-term results.

Key performance indicators should reflect strategic goals, not only as stand-alone measures but also for systemic strategy implementation, especially when a causal relationship can be established.

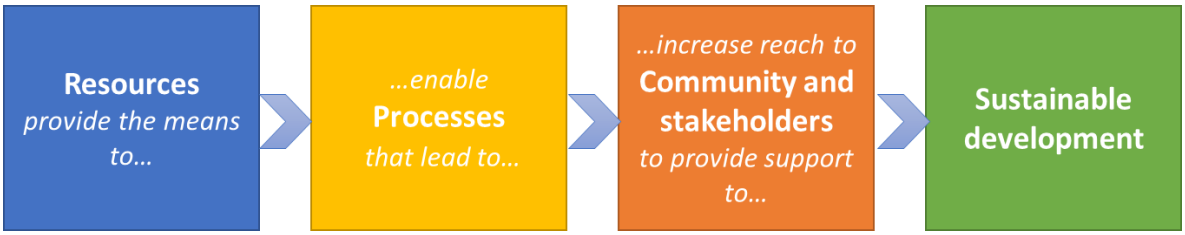
In order to provide the governing body with a convenient tool for monitoring RAP implementation, a set of structured strategic indicators has been developed to support the RAP's overarching objective of sustained recovery of the NWA leatherback turtle subpopulation. This tool is referred to as a strategy map or "solution tree" (Figure 3), which complements the "problem tree" labeled as Figure 2.

Strategy map structure

Following the logic of the Balanced Scorecard methodology (Kaplan and Norton, 1996), which suggests identifying causal relationships among strategic goals (located on different but interrelated strategic fields) that in the end define a "strategy map", we developed this map for the conservation initiative in order to provide a sound systemic approach to promote overall RAP success.

The relevant perspectives identified for the RAP include:

- Resources required to enable and evaluate processes.
- Processes (both primary and supporting) that will both lead to and leverage community and stakeholder engagement.
- Community and stakeholder engagement requisite to support sustainable development.
- Sustainable development as an ultimate goal of the RAP.



The strategy map requires that strategic goals are identified and articulated in a cause-effect structure that provides systemic understanding of the whole strategy. The proposed strategy map (Figure 3) reflects the essence of the "solution tree" devised by stakeholders on the initial workshop for the development of this RAP (Barragan et al., 2021), and has the following structure:

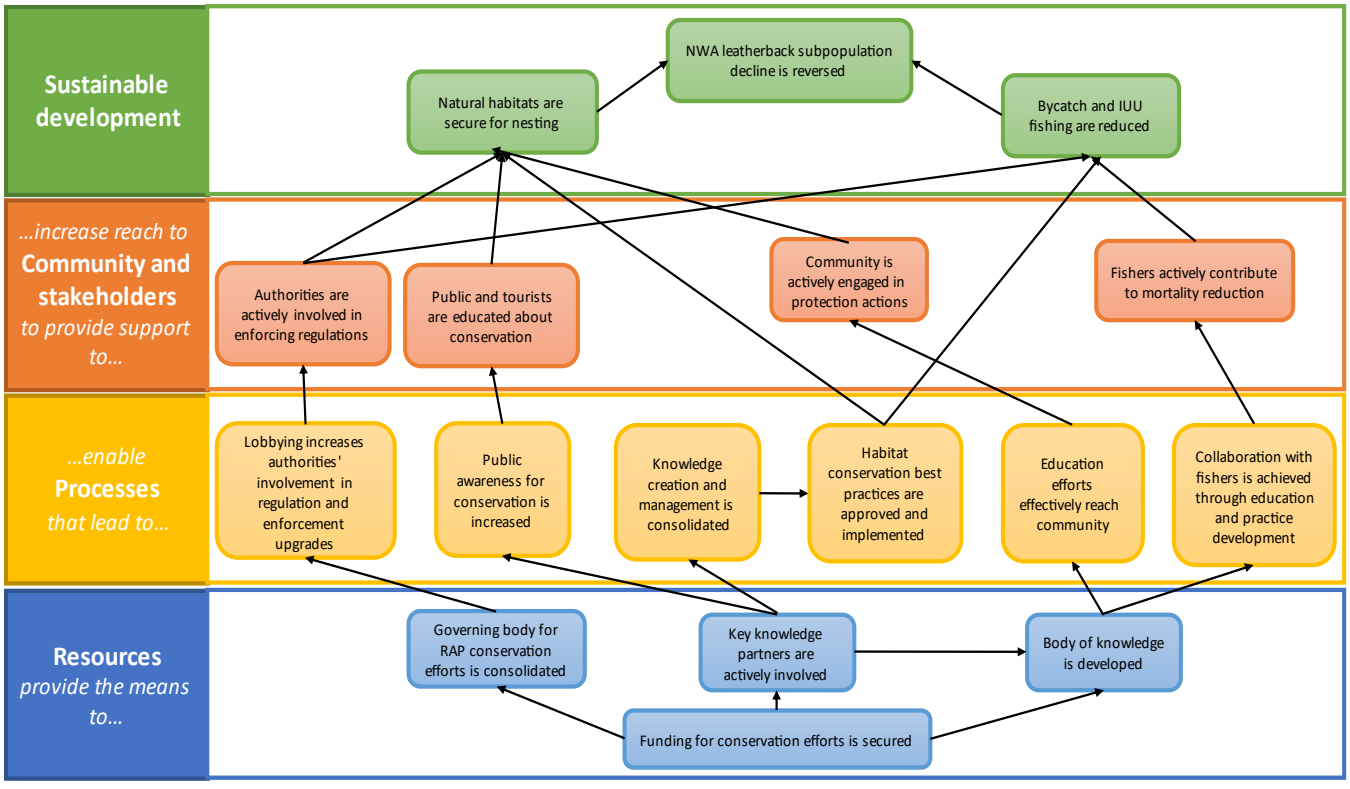


Figure 3. Strategy map for NWA leatherback turtle (*Dermochelys coriacea*) conservation and recovery.

Key performance indicators

Once goals have been articulated, they are operationalized through the definition of performance indicators (at least one for each strategic goal), as seen in boldface in Figure 4 and further defined in the table that follows:

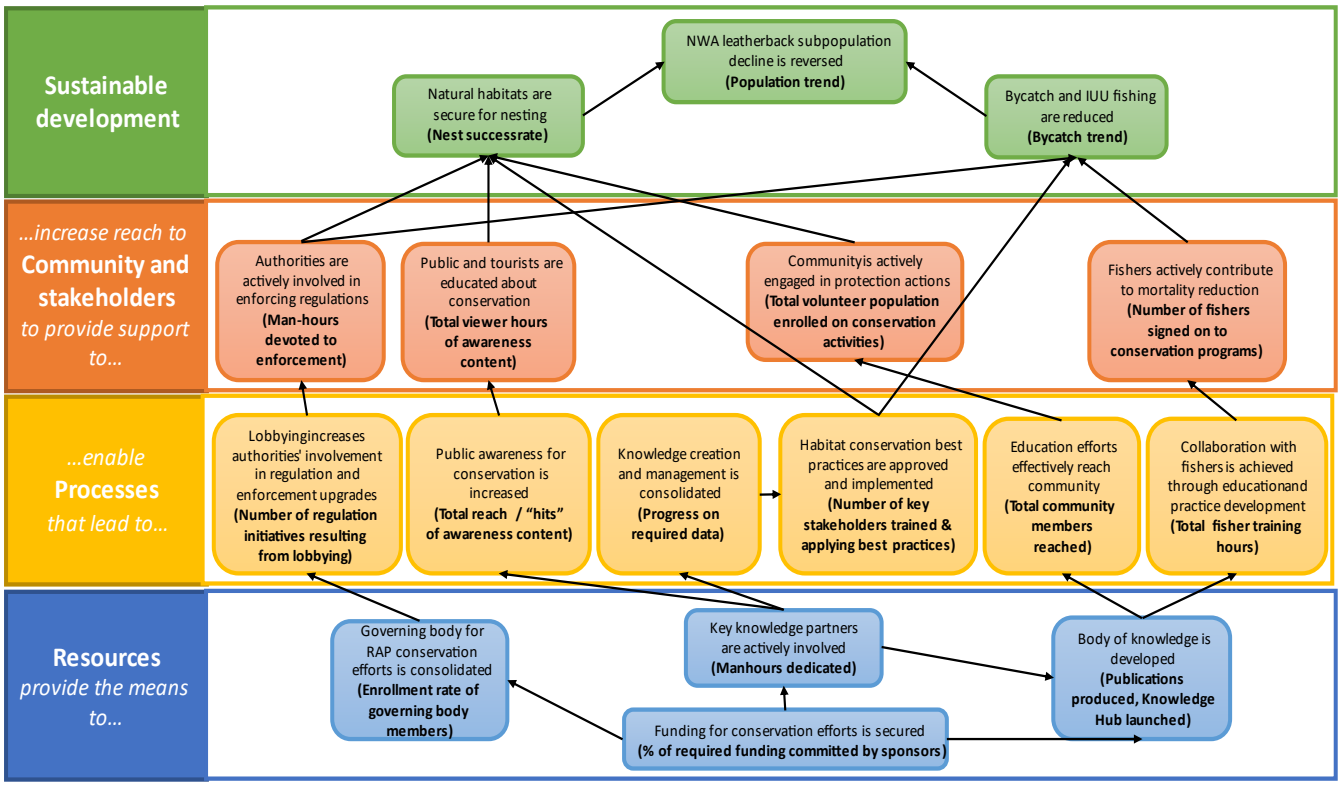


Figure 4. Strategy map with performance indicators for NWA leatherback turtle (*Dermochelys coriacea*) conservation and recovery.

KPI class	KPI	Definition	Formula	Unit of measure	Frequency of measurement	Source of information
Sustainable Development	Leatherback population trend	Leatherback population data recorded over time and reported by national authorities and agencies	$\left(\frac{Population(year\ n)}{Population(year\ n-1)} - 1\right) \times 100$	Percentage (by location)	Yearly	Scientific Committee; WIDECAST network
	Leatherback successful nesting rate	Fraction of successful nests (i.e., that produce hatchlings) to total nests, documented at individual nesting beaches	$\left(\frac{Succesful\ nests}{Total\ reported\ nests}\right) \times 100$	Percentage (by location)	Yearly	Local conservation authorities and organizations
	Leatherback bycatch trend	Year to year reported leatherback bycatch trend, reported by location, gear type, and legal vs IUU fishery	$\left(\frac{Reported\ by\ catch\ (year\ n)}{Reported\ by\ catch(year\ n-1)} - 1\right) \times 100$	Percentage	Yearly	Scientific Committee; other record-keeping entities
Community & Stakeholders	Labor-hours devoted to enforcement	Labor hours dedicated to enforcement (should be recorded continuously to illustrate trends)	N/A	Labor-hours	Quarterly	Local/national agencies and authorities

KPI class	KPI	Definition	Formula	Unit of measure	Frequency of measurement	Source of information
	Total viewer hours of awareness content	Estimated public outreach (broadcast, social media, infographics) created by RAP endorsing entities	$\sum_{For\ every\ media} [Estimated\ hours\ per\ hit \times Number\ hits\ ]$ Hits = broadcasted content, social media views, webpage visits, number of followers, etc.	Hours x viewers	Quarterly	Outreach organizations; social media statistics
	Total volunteer population enrolled in conservation activities	Documented number of volunteers participating in conservation programs and RAP-related activities	N/A	Persons	Quarterly	Local conservation organizations, agencies
	Number of fishers enrolled in conservation activities	Number of fishers officially signed-in (with letter of enrollment) on RAP conservation activities and programs	N/A	Fishers	Quarterly	Local authorities and organizations
Processes	Number of regulation initiatives resulting from lobbying	RAP related conservation initiatives submitted to (and/or approved by) local or national legislative entities	N/A	Initiatives (separate "submitted" from "approved")	Yearly	Lobbyists appointed by RAP endorsing entities
	Total reach of awareness content	Total population reached by conservation content developed in support of RAP objectives & actions	N/A	Hits (separate "in person" activities from "online viewing")	Yearly	Host conservation organization and agencies
	Best-practice guidelines developed	Documents containing best practice guidelines (whether new or updated) approved by the Scientific Committee for implementation by relevant stakeholders in habitat (beach, at-sea) conservation	$\frac{Completed\ guidelines}{Defined\ guideline\ index} X\ 100$	Documents	Yearly	Scientific Committee
	Number of key stakeholders trained on and applying best practices	Total number of stake-holders (fishers, tourism operators, coastal/marine developers, enforcement officers, etc.) involved in actions that may impact leatherbacks, who have been formally trained on best practices and submit evidence of application and follow-through	N/A	Persons	Yearly	Conservation organizations and agencies
	Total community members reached	Number of registered persons participating in dissemination of knowledge content created by RAP related programs	N/A	Persons	Yearly	Conservation organizations and agencies

KPI class	KPI	Definition	Formula	Unit of measure	Frequency of measurement	Source of information
	Total training hours for fishers	Registered total hours of fisher training provided by RAP endorsing entities	N/A	Attendance-hours	Yearly	Conservation organizations and agencies
Resources	Appointment of governing body members	Incorporation of governing body members, including Committee members	$\frac{Covered\ positions}{Required\ positions} \times 100$	Percentage (by Committee)	Yearly	Strategic Steering Committee
	Knowledge partner roster	Approved roster of scientific partners to comply with technical capability requirements	$\frac{Covered\ positions}{Required\ positions} \times 100$	Percentage	Quarterly	Scientific Committee
	Progress in creating & sharing the knowledge base	Trend in the number of scientific knowledge products (technical notes, guidelines, papers, data bases, etc.) developed under supervision of the Scientific Committee	$\left(\frac{Total\ products\ (year\ n)}{Total\ products\ (year\ n-1)} - 1\right) \times 100$	Percentage	Yearly	Scientific Committee
	Funding committed by donors & sponsors	Total funds applied for, committed, and available to RAP activities, compared to funding required to successfully execute RAP activities	$\frac{Total\ available\ funding}{Total\ required\ funding} \times 100$	Percentage	Quarterly	Funding Committee

Budgeting and Financing the Regional Action Plan

The NWA Leatherback RAP can be thought of as a project portfolio aiming to achieve high impact. Following best practices from the Project Management Institute included in the Project Management Body of Knowledge (PMBOK) (PMI, 2017, 2021), it is essential to define the budget and secure funding (either from existing allocated funds or new sources) for project implementation.

The process of budgeting and funding for the RAP should be envisioned to:

- **Secure funding**. Every action implemented in support of the RAP should have the funding and other resources required for successful implementation, either from already available resources provided by national/international organizations and agencies or the government sector by means of allocated budgets or grants.
- **Comply with best accounting practices**. Application and disposition of funds should be conducted by stakeholders following best practices for budgeting, as well as best practices for fund management and compliance, including timely reporting.

Budgeting, fundraising, and fund disbursements must be undertaken as a process to support all RAP related actions and initiatives.

Actions recommended:

- **Define budgets and fund management systems to support RAP implementation.**

  Objective: Define required total funds, itemized by project or initiative.

  Suggested actions

F1.1 Assess required funding for individual action plan initiatives.
F1.2 Consolidate required funding for the whole of the RAP.
F1.3 Develop a time frame schedule for required funding.
F1.4 Define operations rules for allocation, compliance and reporting related to fund management.

  Goals:

  - Identify total required budget for RAP.
  - Identify yearly requirements by action/project.
  - Develop / implement an internal compliance framework for fund management that follows recognized best practices.

- **Find funding sources.**

F2.1 Identify possible funding sources.
F2.2 Develop a fund-raising strategy (including the appointment of experienced fundraisers, as needed).
F2.3 Track and nurture relationships with donors and potential donors.

  Goals:

  - Identify funding sources, including exploring new alliances and opportunities.
  - Define a lobbying strategy for fundraising.
  - Task the Funding Committee with partnering with or appointing experienced persons and/or organizations to approach different funding sources.

Potential funding sources identified during stakeholder meetings

- Corporate entities (telecoms - for SL4)
- EU Biodiversity Information for Development Programme-GBIF
- Private donors/ Crowd funding
- Fines from enforcement activities
- GEF Projects
- Government sources
- International NGOs
- IUCN/ Marine Turtle Specialist Group
- Money from auctions to sell forfeited goods
- National Fish and Wildlife Foundation (USA)
- Philanthropic foundations
- Public grants for environmental education
- User tax on revenues generated by fishing or tourism (e.g., SCUBA diving)
- UNEP/CEP SPAW RAC
- UNESCO
- University/science-oriented grants
- US Fish and Wildlife Service

Recommended best practices

1) *Donor relationship management*
   a) Track relationship histories with donor organizations/individuals to archive valuable information related to contacts, funder's policy updates, grants obtained, key success conditions for grant allocation, etc.
   b) Maintain an updated calendar of deadlines for every potential funding source, which will allow both for efficient planning and the timely preparation of required documentation.
   c) Build trust histories by keeping donors informed of grant destination(s) and implementation, including challenges and successes, thereby maintaining a constant flow of information regarding the use of funds and the outcomes achieved by them.
   d) Understand donor-specific financial reporting requirements, tracking adaptations and updates that may be necessary for compliance.

2) *Records and information*
   a) Maintain a library of records and documentation suitable for incorporating into grant requests; keeping an updated repository of common documentation will save time on grant request processes and enable working groups to easily access this information.
   b) Supervise fund management (and associated data) by requiring that grant recipients submit regular reports tracking progress and compliance with schedules, including rationale for any delays.
   c) Provide the necessary and expected reports on fund allocation to comply with donor requirements, including deadlines and accounting procedures.

3) *Grant seeking*
   a) Recognize that grant seeking is an unrelenting mandate, requiring constantly searching for funding options among foundations, international collaboration agencies, corporations, philanthropic societies, individuals, etc.
   b) Develop models for evaluating viable funding sources based on common goals, criteria, range of financial gifts available, etc. to identify the most suitable sources and direct grant seeking efforts.

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Appendix I. Summary of WCR Threats Survey

As part of the strategy for the development of the RAP, a stakeholder survey (Eckert and Hart, 2021) was designed to inform our understanding of the frequency (None, Rare, Occasional, Frequent, Unknown) and magnitude of threats to the NWA leatherback subpopulation, and to describe solutions which stakeholders have employed with success. The collection of knowledge focused on nests (eggs, hatchlings) and adults and differentiated between habitat under national jurisdiction (nesting beaches, inter-nesting habitats, Exclusive Economic Zone) and areas beyond national jurisdiction (ABNJ, generally referred to as the high seas).

The table presents a summary of the frequency, magnitude, and relative magnitude of threats to leatherbacks in 33[7] WCR countries that participated in the survey. Shown is the percentage (with absolute number in parentheses) of countries that identified a particular factor as a "frequent" threat to leatherback survival, and the percentage (and number) of countries reporting the magnitude of the threat as affecting more than 20% (or more than 50%) of nests or turtles per year. For comparison, responses from the focus countries of Trinidad & Tobago and the Guianas (Suriname, Guyana, French Guiana) (n=4) are shown in red.

Threat (Life Stage, Habitat)	"Frequent"	Affects >20%	Affects >50%
Nests			
Abiotic Factors	27(9) 50(2)	24(8) 25(1)	6(2)
Pollution	27(9)	6(2)	
Egg Collection	24(8) 50(2)	6(2)	6(2)
Habitat Loss/Conversion	21(7) 25(1)	3(1) 25(1)	
Sargassum Influx	21(7)	3(1)	3(1)
Predators	18(3) 75(3)	9(3) 50(2)	6(2)
Artificial Lighting	15(5) 25(1)	6(2)	6(2)
Beach Obstacles	6(2)	6(2)	3(1)
Mechanized Beach Clean	6(2)		3(1)
Beach Driving	6(2)	3(1)	
Livestock on the Beach	6(2)		
Disease/Parasites	3(1)	6(2)	
Beach Sand Mining	3(1)		
Beach Nourishment			
Beach Armoring			
Adults: Nesting			
Habitat Loss/Conversion	21(7) 25(1)	6(2)	
Sargassum Influx	18(6)	3(1)	3(1)
Harassment	15(5)	9(3)	3(1)
Beach Obstacles	9(3)	3(1)	6(2)
Beach Sand Mining	9(3)	3(1)	
Artificial Lighting	9(3)	3(1)	
Killed by Humans	6(2)	3(1)	3(1)
Beach Armoring	3(1)		
Killed by Predators			

[7] The NWA leatherback subpopulation relies on 34 countries and territories in the Wider Caribbean Region for nesting. Data were unavailable from Honduras.

Threat (Life Stage, Habitat)	"Frequent"	Affects >20%	Affects >50%
Adults: Nearshore			
Net Fisheries	15(5) 75(3)	25(1)	
Marine Pollution	15(5)		
Entanglement	12(4)		
Killed by Humans	3(1)	3(1)	
Nearshore Development	3(1)		
Killed by Predators			
Disease/Parasites			
Trawl Fisheries			
Line Fisheries			
Misc Fisheries (pots, blasting)			
Harassment			
Adults: EEZ			
Offshore Development	t 3(1) 25(1)		
Net Fisheries	3(1) 25(1)		
Entanglement	6(2)		
Marine Pollution	6(2)		
Killed by Humans	3(1)		
Killed by Predators			
Disease/Parasites			
Trawl Fisheries			
Line Fisheries			
Adults: ABNJ			
Entanglement	6(2)		
Marine Pollution	6(2)		
Vessel Collision	6(2)		
Killed by Humans			
Killed by Predators			
Disease/Parasites			
Trawl Fisheries			
Net Fisheries			
Line Fisheries			
Climate Change			

Appendix II. Development of the Regional Action Plan

The NWA Leatherback RAP builds on the results and recommendations of the most recent regional population assessment (NWALWG, 2018) and the subsequent Red List reclassification (NWALWG, 2019). The development of the RAP is embedded in the WWF project "*Regional Action Plan for the Northwest Atlantic (NWA) Leatherback (Dermochelys coriacea) Sea Turtles*" led by WWF-Guianas. Through this project WWF-Guianas, WWF-Netherlands and WWF-Canada committed to efforts to recover the NWA leatherback subpopulation (with a specific focus on nesting assemblages declining in the Guianas and Trinidad & Tobago), and to working with networks of sea turtle experts, NGOs, and government representatives across the Wider Caribbean Region and Canada to pool data, identify local threats and conservation solutions, and design priority actions.

The process of development started with the compilation of information and recommendations from related sources, including the Regional Leatherback Bycatch Prioritization Workshop (WWF, 2019), the various national Sea Turtle Recovery Action Plans from the focus countries, and other relevant meetings in the region. As part of the follow-up to this previous work, a stakeholder workshop was held in November 2021 (Barragan et al., 2021) with the participation of different organizations from countries with an interest in developing the regional plan.

The 2021 workshop was designed with methodologies to promote stakeholder participation in a virtual format, and to assemble the needed knowledge from the group of experts in a standardized way, identifying which were the contributions and ideas that the group determined to be most relevant. The format is referred to as an o*nline collective intelligence session*. Collective intelligence implements various strategies to take advantage of the information that different individuals have about a common topic, favoring the exchange of knowledge and maximizing resources in their interaction. The 2021 workshop was comprised of three 3-hour sessions (November 2, 3 and 5), which in general had the structure shown in Figure 5.

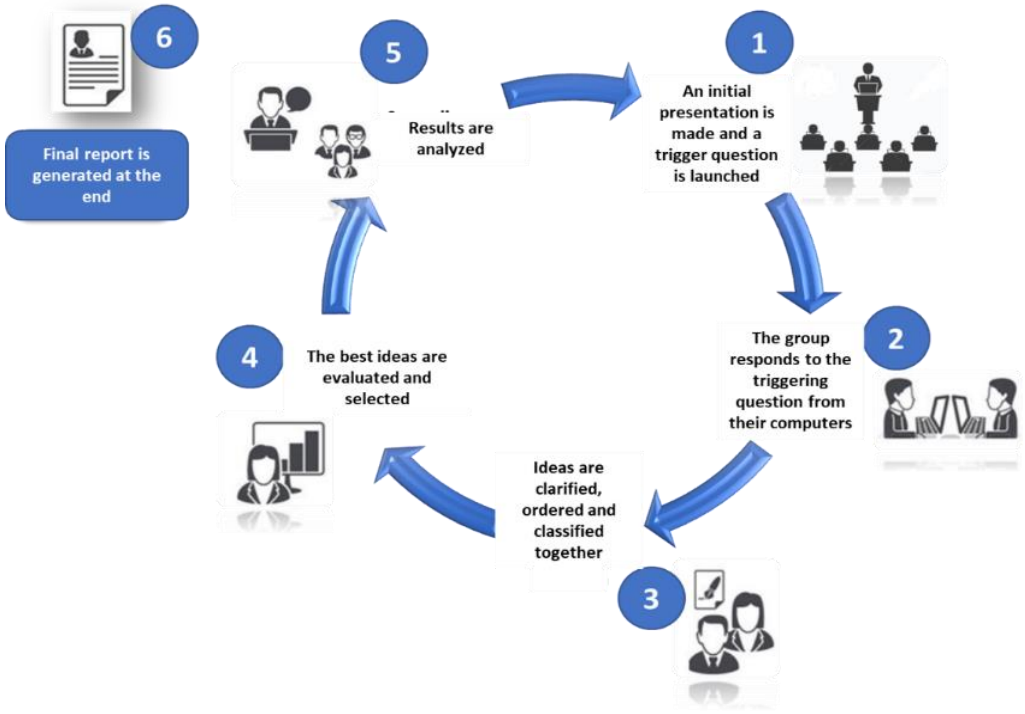


Figure 5. General structure of the online exercises during the November 2021 NWA Leatherback Stakeholder Workshop.

Sessions consisted of plenary discussions and work accomplished in four thematic break-out groups:

5. Legislation and enforcement
6. Protection/ management of critical habitats
7. Community engagement
8. Scientific data needs

The topics were previously validated by the RAP Working Group and discussed with the help of the virtual XLeap® platform, as shown in Figure 6.

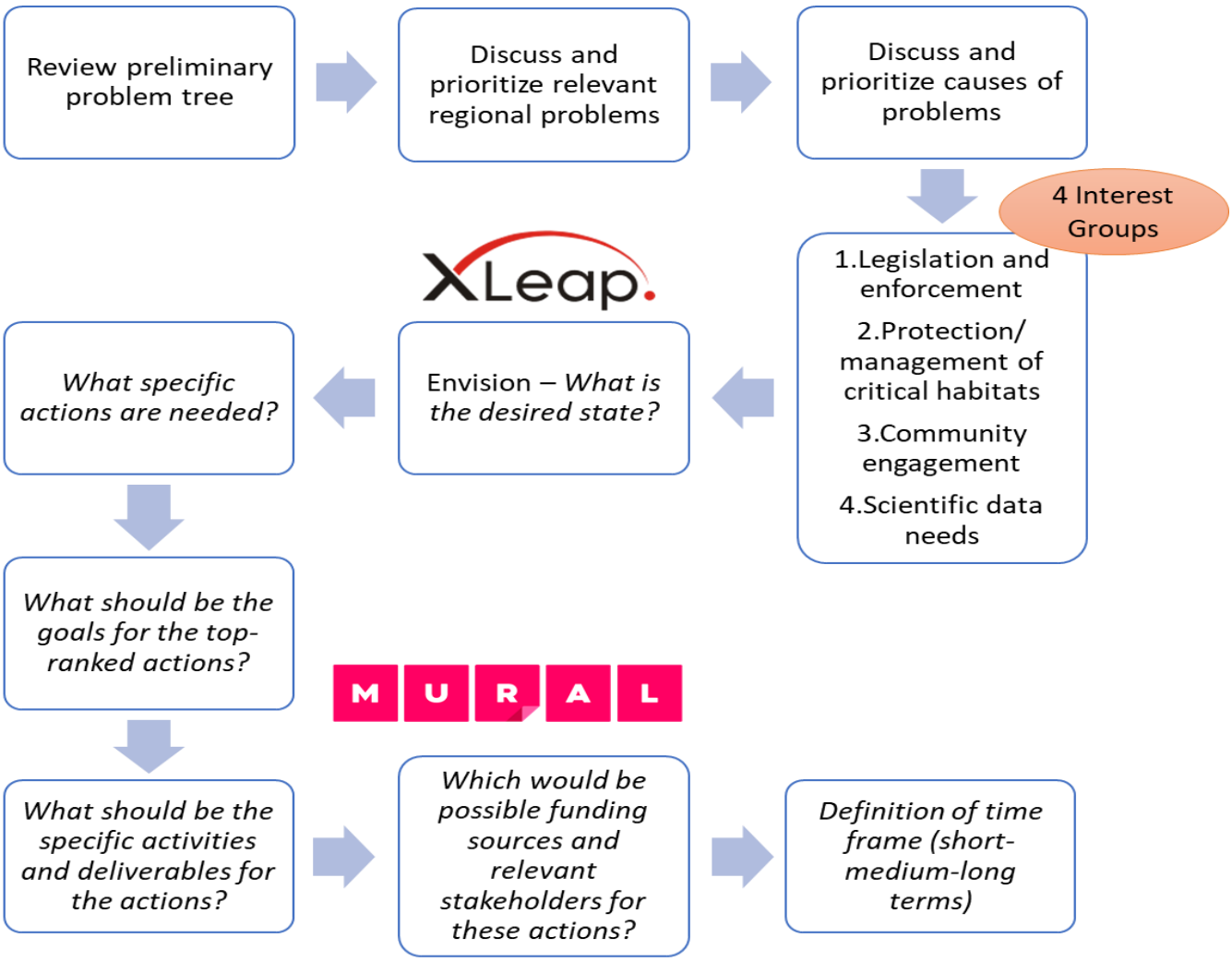


Figure 6. Working agenda for the November 2021 NWA Leatherback Stakeholder Workshop.

During the workshop sessions, digital tools were used that allowed the remote participation of all stakeholders, enabling the capture of all of their opinions, comments, and ideas. These tools also allowed a more detailed analysis of the information, enabling the creation and application of a rating process to achieve a consensus on which were the most relevant ideas for each subject analyzed.

- **XLeap® by Meetingsphere®** - XLeap is a system used for managing collective intelligence sessions, in which people located in different places can participate at the same time, to carry out collaborative work in an orderly manner. It provides configurable workspaces for brainstorming or rating ideas; contributions are immediately visible to all, triggering new ideas. Contributions can be commented upon, organized in folders, marked with "sticky dots" or exported to Word or Excel. https://www.xleap.net/
- **Mural®** - Mural is a digital canvas which allows visual collaboration and facilitation features, in which several participants at the same time can make contributions which are visible to all members of the online group. https://www.mural.co/

The results obtained during this workshop served as the basis for the preparation of the First Draft of the Regional Action Plan, which was reviewed by workshop participants, including members of the NWALWG.

Subsequent interest groups meetings with specific experts provided feedback and fine-tuning of each Strategic Line, as well as the RAP Governance Framework. All the information was compiled and organized into a Second Draft of the RAP, which was distributed to a broader and more diverse group of WCR stakeholders for review.

A **validation workshop** was held on May 10 and 11, 2022, in which stakeholders from Barbados, Canada, France, French Guiana (FR), Grenada, Guyana, Suriname, The Netherlands (representing the Dutch Caribbean, as well), Trinidad and Tobago, and the United States of America reviewed the strategic lines and actions developed for this NWA Leatherback Regional Action Plan, provided feedback, and discussed and agreed on priority activities to implement the plan in each focus country, including possible dates for a joint start of implementation (Rozendaal, 2022; see also **Appendix III**).

Appendix III. Key Countries and Stakeholders

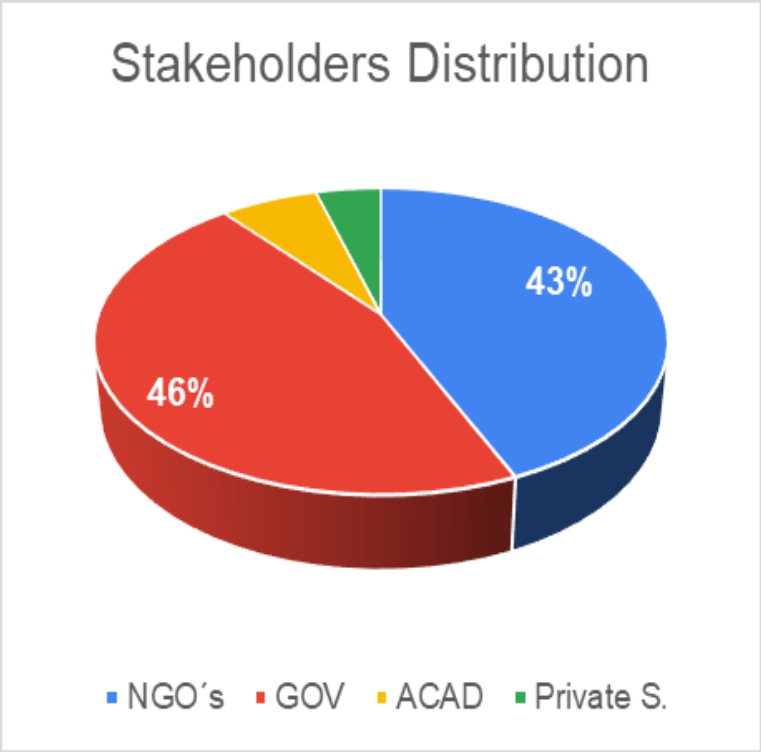
The countries participating in the development of the Regional Plan were:

Barbados
Canada
France/ French Guiana
Grenada
Guyana
Suriname
The Netherlands
Trinidad & Tobago
United States of America

The organizations that participated in the development of the Regional Action Plan during the Construction Workshop in November 2021 are listed below.

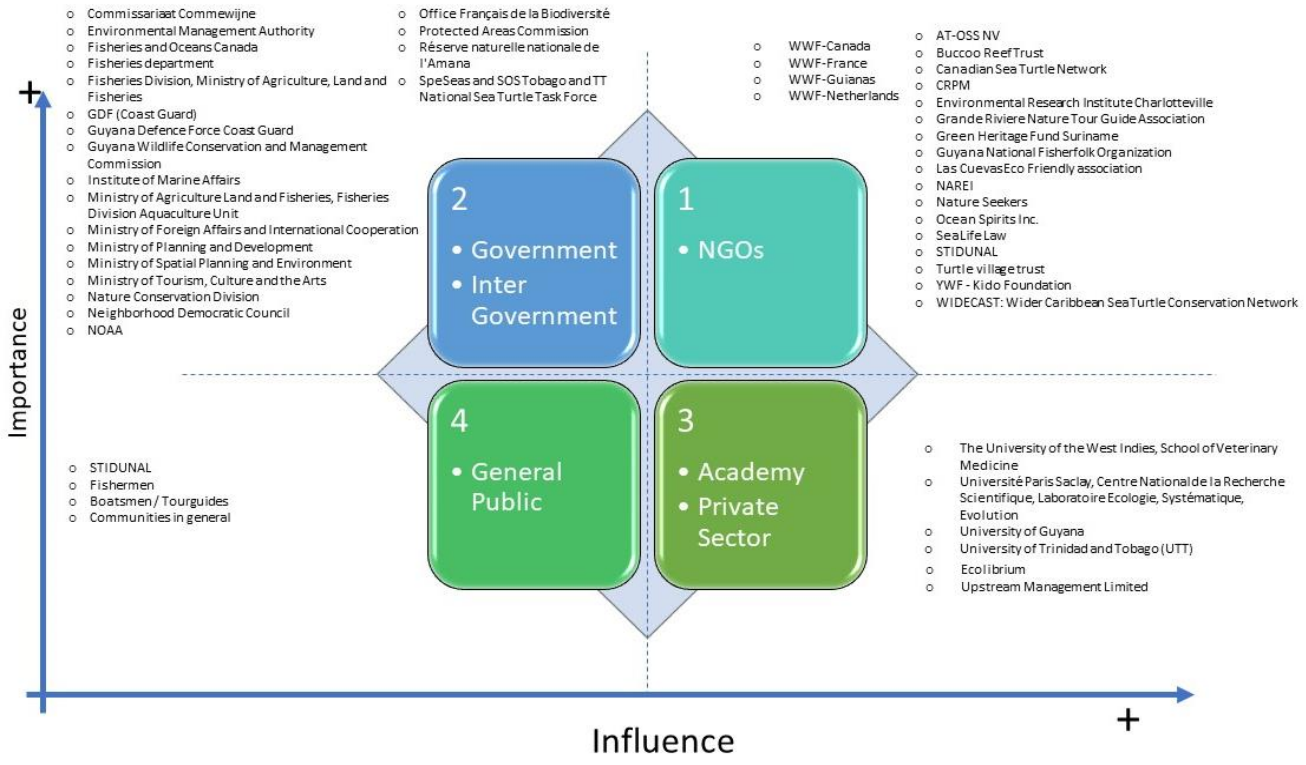
Country	Stakeholder	Type
Barbados	University of the West Indies	Academia
	Barbados Sea Turtle Project	NGO
Canada	Canadian Sea Turtle Network	NGO
	Fisheries and Oceans Canada	GOV
	Sea Life Law	NGO
	WWF-Canada	NGO
France/ French Guiana	Office Français de la Biodiversité (OFB)	GOV
	Réserve naturelle nationale de l'Amana	GOV
	Université Paris Saclay, Centre National de la Recherche Scientifique, Laboratoire Ecologie, Systématique, Evolution	Academia
	Comité Régional des Pêches Maritimes et des Elevages Marins (CRPMEM) de Guyane	Private Sector
	WWF- France – French Guiana Office	NGO
	ONF International (French West Indies)	GOV
	Direction Générale des Territoires et de la Mer (DGTM)	GOV
Grenada	YWF - Kido Foundation	NGO
	Ocean Spirits Inc.	NGO
Guyana	GDF (Coast Guard)	GOV
	Guyana Defense Force Coast Guard	GOV
	Guyana National Fisherfolk Organization	NGO
	Guyana Wildlife Conservation and Management Commission	GOV
	Ministry of Foreign Affairs and International Cooperation	GOV
	NAREI: National Agricultural Research and Extension Institute	NGO
	Neighborhood Democratic Council	GOV
	Protected Areas Commission	GOV
	University of Guyana	Academia
	WWF-Guianas	NGO
Suriname	Ministry of Spatial Planning and Environment	GOV
	AT-OSS NV	NGO
	Commissariaat Commewijne	GOV

	Fisheries Department	GOV
	Green Heritage Fund Suriname	NGO
	Nature Conservation Division	GOV
	STIDUNAL	NGO
	WWF-Guianas	NGO
	VIDS: Association of Indigenous Village Leaders in Suriname	NGO
The Netherlands	WWF-Netherlands	NGO
Trinidad & Tobago	Buccoo Reef Trust	NGO
	Environmental Management Authority	GOV
	Environmental Research Institute Charlotteville	NGO
	Fisheries Division, Ministry of Agriculture, Land and Fisheries	GOV
	Grande Riviere Nature Tour Guide Association	NGO
	Institute of Marine Affairs	GOV
	Ministry of Planning and Development	GOV
	SpeSeas and SOS Tobago and TT National Sea Turtle Task Force	GOV
	University of the West Indies, School of Veterinary Medicine	Academia
	TVT: Turtle Village Trust	NGO
	Upstream Management Limited	Private Sector
	Las Cuevas Eco Friendly Association	NGO
	Ministry of Agriculture Land and Fisheries, Fisheries Division Aquaculture Unit	GOV
	Ministry of Tourism, Culture and the Arts	GOV
	Nature Seekers	NGO
USA	WIDECAST: Wider Caribbean Sea Turtle Conservation Network	NGO (regional)
	Ecolibrium	Private Sector
	National Oceanic and Atmospheric Administration (NOAA)	GOV



Stakeholder Analysis

Determining whether stakeholders in a position of strong influence hold negative interests is critical to any stakeholder-driven process, including this RAP. This level of understanding can best be reached by conducting a formal assessment of each stakeholder's level of importance, as defined by their potential influence on RAP projects and other activities.



"Influence" indicates a stakeholder's relative power over and within a project. A stakeholder with high influence would control key decisions within the project and have a strong ability to facilitate implementation of project tasks, including causing others to take action. Usually, such influence is derived from the individual's hierarchical, economic, social, or political position, although often someone with personal connections to other persons of influence also qualifies (PMI, 2021).

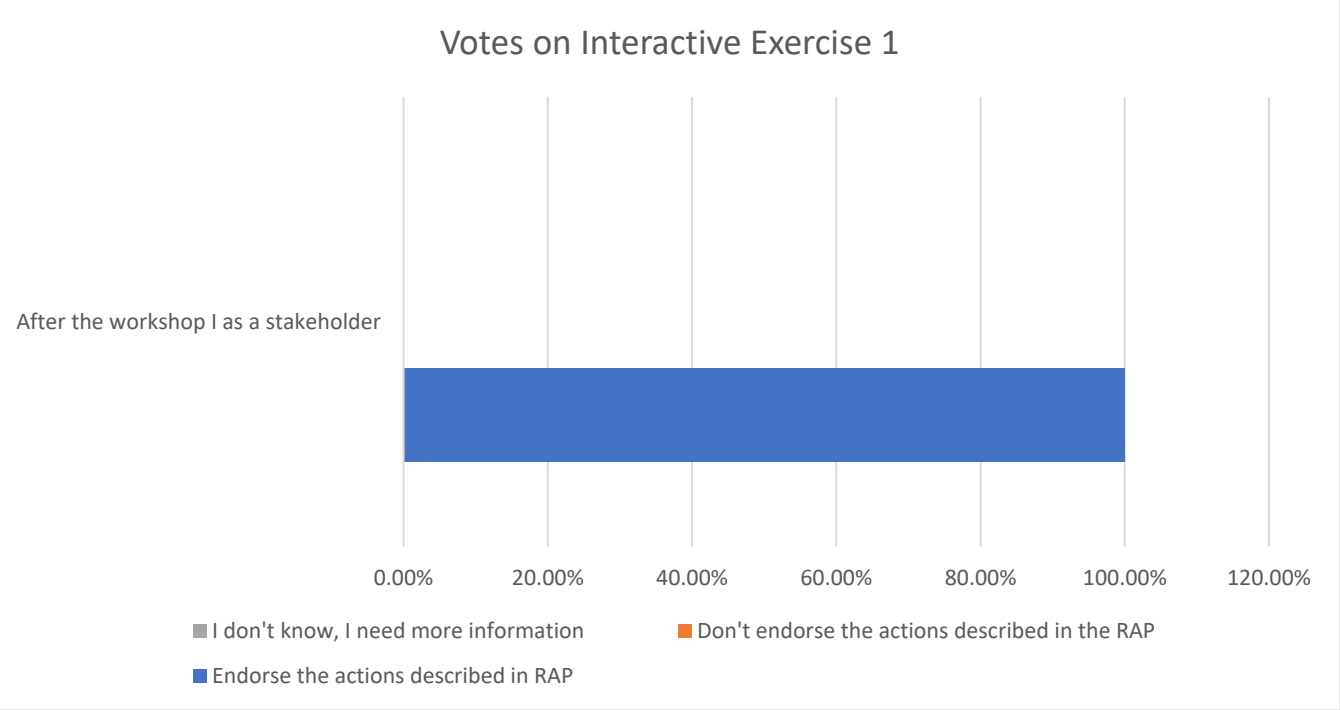
"Importance" indicates the degree to which the project cannot be considered successful if stakeholder needs, expectations, and issues are not addressed. This measure is often derived based on the relation of the stakeholder's needs to the project's goals and purposes.

In the case of the RAP, the NGOs will undoubtedly have a greater influence since, in many cases, they will be leading (and potentially financing) the implementation of activities that derive from this work plan. In contrast, public entities, such as ministries and other government agencies, will not have such a high level of influence as to fully lead the actions derived from the plan. However, their level of importance is very high, since they are positioned to postpone or obstruct certain activities (such as the revision of legislation), meaning that priority initiatives cannot be carried out in a timely manner. They should be involved from the beginning so as to cultivate their support, participation, and capacity for leadership going forward.

Universities, academic entities, and the private sector can have a meaningful influence on project development due to their economic capacity and the interest they have in addressing the RAP's primary goal of reversing the declining trend in the NWA leatherback subpopulation. However, they will not have a high level of decision-making power; therefore, their role is more often to promote and actively participate in activities, and they can endorse strengthening legislation, encourage capacity-building, and lobby for the signing of formal agreements designed to encourage collaboration with entities that might otherwise have little incentive to support RAP activities.

Validation of the RAP

A virtual two-day RAP Validation Workshop was held on 10-11 May 2022. Stakeholders from Barbados, Canada, France, French Guiana (FR), Grenada, Guyana, Suriname, The Netherlands (representing the Dutch Caribbean, as well), Trinidad and Tobago, and the United States of America participated in this event, which was attended by 50 participants on Day 1 and 43 participants on Day 2. On the second day, the RAP was unanimously endorsed by those present.



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Appendix IV. Summary of RAP Recommendations for Actions and Activities

Strategic Line 1. Legislation and Enforcement
L1. Review the legal framework in each country and if needed, update it to include the recommendations from the Regional Action Plan.
L1.1. Conduct a gap analysis between existing legal tools and the implementation of mitigation measures identified in the Regional Action Plan.
L1.1.1. Survey existing laws to identify legal tools that are currently available in each country, broadly related to leatherbacks (fisheries regulations, wildlife, environmental impact assessment).
L1.1.2. Identify missing legal tools and develop a plan to fill gaps.
L1.2 Develop legal mechanisms that facilitate cross-border collaboration.
L1.2.1. Design workplan to facilitate cross-border collaboration, with tasks and responsibilities per agency.
L1.2.2. Establish a Memorandum of Understanding (MOU) or other mechanism to allow cross-border collaboration.
L1.2.3. Have regional meetings with government agencies to discuss MOU(s) status and updates on collaboration(s) over the previous year.
L2. Increase enforcement of policies and regulations for effective management and conservation activities throughout the region.
L2.1. Set appropriate regulations and fines according to the true cost of non-compliance.
L2.1.1. Convene a regional legislation working group with expertise/ capability for analyzing the region's legal framework and proposing changes.
L2.1.2. Conduct a risk-based assessment to identify activities/geographic areas that need to be the focus of enforcement.
L2.1.3. Make the use of Vessel Monitoring Systems (VMS) mandatory for fishing boats suspected of IUU fishing in other countries.
L2.2. Set the appropriate conditions for increased enforcement of policies and regulations pertinent to the conservation of the NWA leatherback turtle.
L2.2.1. Make an assessment of available capacities, expertise and funding for implementation and enforcement of RAP actions.
L2.2.2. Strengthen the capacity, expertise and funding for enforcement in Suriname, French Guiana, Guyana and TT.
L2.3. Encourage a culture of prosecution up the chain, ensuring that those benefiting the most from rule breaking are punished.
L2.3.1. Review successful prosecutions to identify best practices
L2.3.2. Promote exchange of experiences across borders to learn from each other's approaches to prosecution
L2.3.3. Conduct a workshop with judges on the impacts of violations on the recovery of marine turtles and importance of sufficient deterrence
L2.3.4. Conduct cross sectoral training of law enforcement officers and responsible agencies to ensure mutual understanding and appreciation
L3. Promote actions to encourage governments to join relevant international conventions, such as the SPAW Protocol and the IAC.
L3.1. Work with the IAC Secretariat to facilitate the outreach to the non-party countries.
L3.1.1. Support IAC Secretariat in their outreach to the countries.
L3.1.2. Work with relevant government bodies on the accession to the convention
L3.2. Promote the organization of a sub-Working Group within SPAW to advance leatherback activities.
L3.2.1. Coordinate with representatives from SPAW Parties (Guyana, French Guiana, TT) to promote a SPAW Leatherback sub-Working Group.
L4. Enhance enforcement of existing regulations to mitigate leatherback legal and IUU bycatch in fishing gear deployed offshore, at key nesting grounds (e.g., Guianas, Trinidad).
L4.1. Increase patrols in closed areas, develop and implement other protected areas, especially at key nesting grounds (Guianas, Trinidad).
L4.1.1. Promote information sharing among government agencies; NGOs and community groups to share/combine local knowledge to inform centralized information systems among countries.
L4.1.2. Formalize information sharing system through MOU between countries.
L4.1.3. Promote the use of technology (drones, AI, citizen science apps) to support agencies for effectively monitor or patrol protected areas.
L4.1.4. Leverage resolutions and reporting requirements regarding leatherback legal and IUU bycatch through the IAC.
L4.2 Leverage resolutions and reporting requirements regarding leatherback legal and IUU bycatch through the IAC.
L4.2.1. Promote active participation of Party representatives to the IAC from the region in developing resolutions and reporting requirements in relation to the leatherback turtle.
L4.3. Secure protection of turtles in the nesting season in the waters off nesting sites.

L4.3.1. Share between stakeholders examples regarding restricted/ closed areas at WCR nesting sites.
L4.3.2. Implement measures to restrict/close areas at nesting sites and nearshore areas with known or potentially high turtle-fishing interactions.
L4.4. Develop a strategy to characterize and address bycatch related to IUU fishing.
L4.4.1. Develop national work plans (with regional perspective), including consultations and exchanges with the communities concerned, to contribute to the chosen regional approaches to IUU, identify stakeholders, describe the implementation and reporting.
L4.4.2. Develop a Regional Anti-IUU Plan of Action, focused on Suriname, Guyana, French Guiana and TT.
L4.4.3. Coordinate the rollout of the IUU Regional Action Plan with the participation of relevant agencies from focus countries.
Strategic Line 2. Protection and Management of Critical Habitats
Nesting Beaches
H1. Draft a beach management plan through a consultative process with all stakeholder groups to minimize resource use conflicts.
H1.1. Build regional guidelines for the development of leatherback beach management plans with conflict-free management actions
H1.1.1. Organize a minimum of 3 stakeholder consultations
H1.2. Engage resource managers to account for turtle nesting habitat viability when approving efforts to mine sand, fortify coastlines (e.g., beach armoring), and other coastal development activities.
H1.2.1. Organize a workshop for resource managers to get familiar with the regional beach management plan.
H12.2. Organize meetings with agencies responsible of issuing permits to consider the implementation of the beach management plan
H12.3. Organize national consultations regarding monitoring and enforcement activities for the major nesting beaches.
H1.3. Develop a capital and recurrent budget for each management site.
H1.3.1. Build a financial plan for each major nesting site intended for long-term sustainability.
H1.4. Advocate for retaining/enhancing resilience in coastal ecosystems, particularly as it relates to residential and tourism infrastructure development in an era of climate change and sea level rise.
H1.4.1. Engage in sensitization activities (workshops, meetings) with coastal development stakeholders regarding the impact of unsuitable infrastructure in nesting beach ecosystems
H1.4.2. Advocate for all proposed developments on nesting beaches be obligated to have Environmental Impact Assessments with prescribed Terms of References.
Nearshore (Internesting) Habitats
H2. Conduct marine spatial planning, working closely with regional stakeholders and experts to include adequate data in decision-making.
H2.1. Establish a series of nearshore protected areas based on data on habitat used by leatherbacks during mating and nesting season.
H2.1.1. Conduct a review of existing local databases, identifying those associated with existing MPAs.
H2.1.2. Map relevant marine areas, where needed, using available GIS platforms.
H2.1.3. Conduct a gap analysis study to identify the gap in data availability for relevant areas.
H2.1.4. Based on data gaps, conduct studies to identify marine areas relevant to leatherback movements within and between breeding periods.
H2.1.5. Conduct resource use mapping.
H2.1.6. Conduct stakeholder consultations to identify livelihood needs and priorities
H2.2. Develop a methodology for demarcating and protecting marine boundaries of turtle habitats.
H2.2.1. Use low-cost options available for marine surveys, such as Unmanned Aerial Vehicles (UAV), buoys, posting of GPS coordinates, etc.
H2.2.2. Once the boundaries are set, develop the corresponding regulations and management activities within these protected areas.
H2.3. Promote the participation of agencies with surveillance capabilities such as the coast guard or research institutes
H2.3.1. Sign MOUs with relevant government agencies.
H2.3.2. Create incentives for agencies that increase their participation in surveillance activities at sites relevant for leatherback conservation.
H3. Enhance efforts to mitigate leatherback bycatch in IUU and legal fishing gear in continental shelf habitats, especially in foraging areas, migratory pathways, and in waters adjacent to nesting beaches.
H3.1. Characterize distribution and density of fixed gear (IUU and legal) and turtles in shelf waters using aerial surveys and other methods.
H3.1.1. Conduct an evaluation of the fishing effort (including IUU) in countries in the region.
H3.1.2. Map potential legal and IUU bycatch “hot spots” in areas with high densities of fixed fishing gear that overlap with high use by leatherbacks
H3.1.3. Share the results of bycatch hot spot mapping and start engagement with the national government agencies and fishing companies.

H3.2. Ensure continued work to monitor leatherback populations and fisheries interactions in identified foraging areas and migratory pathways.
H3.2.1. Promote the participation of research institutes and fisher organizations in a multi-stakeholder regional monitoring initiative.
H3.2.2. Explore opportunities to leverage efforts to reduce interactions between right whales and vertical lines that could also benefit leatherbacks in northern foraging areas.
H3.3. Develop a structured program for testing, adaptation, and adoption of modified gear in gillnet fisheries to avoid leatherback bycatch in priority areas throughout the region.
H3.3.1. Impulse research projects on gear modification alternatives best suited for the region
H3.3.2. Establish and enforce (with personnel and funding) time/area restrictions for gillnet fisheries in detected legal and IUU bycatch hot spots.
Offshore and Oceanic Habitats
H4. Implement a strategy to reduce the risk of bycatch in IUU or legal fishing gear for leatherbacks in the oceanic habitat.
H4.1. Identify leatherback legal and IUU bycatch hotspots in the oceanic habitat.
H4.1.1. Work with ICCAT and IAC to coordinate a regional conservation strategy for bycatch mitigation and monitoring in oceanic habitat.
H4.1.2. Overlay known/expected migratory corridors and identify high risk regions.
H4.1.3. Develop a plan of action to reduce risk in identified priority areas along migratory corridors.
H4.2. Take advantage of international conservation events (e.g., One Ocean Summit), to raise awareness on the protection of ecosystems and turtles.
H4.2.1. Contact organizations that work on the high seas, without necessarily working on marine turtles, to discuss threats in the oceanic habitat and collect any data and information available
H4.3. Strengthen conservation actions along migratory routes and foraging areas at the Eastern part of the NWA leatherback distribution range.
H.4.3.1. Increase collaboration with organizations working on the Eastern part of the NWA leatherback range, particularly Western Africa (Gabon).
Regional Coordination
H5. Establish and implement best practices management protocols, developed in consultation with stakeholders, for leatherback high-use areas designed to enhance the recovery of the NWA population.
H5.1. Promote long-term engagement with key personnel responsible for implementation of management plans and their operation (e.g. rangers).
H5.1.1. Establish engagement strategy for main key stakeholders that will be implementing the management protocols
H5.2. Enhance collaboration between stakeholders and fisherfolk to promote sustainability.
H5.2.1. Develop turtle safe fishing methods that minimize turtle bycatch, while not jeopardizing fisher livelihoods
H5.2.2. Involve fishermen in gear modification research in order to minimize turtle bycatch, while not jeopardizing fisher livelihoods.
H6. Develop and implement capacity building/strengthening programs for enforcement agencies.
H6.1. Determine best practices for enforcement agencies in protecting leatherbacks in nearshore environments
H6.1.1. Establish a multiagency international leatherback management team responsible for coordinating range-wide management activities.
H6.2. Design / implement a Capacity Building Strategy to strengthen enforcement agencies' capacity for protection of the leatherback and its habitats.
H6.2.1. Develop a capacity building gap analysis to focus on priority areas for strengthening program.
H6.2.2. Conduct exchange program for government agencies in the region.
H6.3. Develop an operational management plan; may vary based on location/beach (specific to an area's needs).
H6.3.1. Develop a management committee, comprised of representatives from law enforcement, education, forestry, fisheries, tourism, private sector, and research organizations, to construct a consensual management plan.

Strategic Line 3. Community Engagement
C1. Secure the participation of human resources with requisite expertise and experience to engage in community consultations and ensure this is maintained over the long term with the close collaboration of communities.
C1.1. Establish a fund to facilitate and finance community engagement and awareness.
C1.1.1. Explore the possible mechanisms for setting up an effective regional fund for community engagement and awareness.
C1.1.2. Reach out to potential funding organizations to propose a long-term community engagement and awareness program in the region.
C1.2. Build the capacity within the communities to provide trained human resources to monitor compliance of conservation regulations.
C1.2.1. Develop and implement a training program for eligible members of key communities adjacent to priority habitats for the leatherback in the NWA (focus: data collection, nest monitoring, Ranger trainings, development of E&A materials, increased understanding of sea turtle life history and conservation, easy access to sea turtle information).
C1.2.2. Promote the value of information and scientific knowledge and its role in marine turtle conservation.
C2. Achieve community engagement on all levels (executing, planning, evaluation, monitoring, enforcement, etc.) or RAP implementation.
C2.1. Promote partnerships with community leaders for successful programs.
C2.1.1. Create focus groups for consultation processes in key communities.
C2.1.2. Define, in agreement with all stakeholders, the timings, frequency and purpose of community consultations.
C2.1.3. Design community engagement sessions (outcomes to be achieved; providing follow up and feedback; collectively devising solutions).
C2.1.4. Promote the fostering of local ambassadors and advocates that can speak for the turtles in their respective communities.
C2.2. Involve fishers directly in data collection, surveys, data interpretation, research design.
C2.2.1. Ask fishers what questions interest them about leatherbacks and then try and incorporate them into research.
C2.2.2. Create a newsletter specifically for fishers that reports to them on how their contributions are helping sea turtles.
C2.2.3. Replicate Trinidad's experience in involving fishers directly in field trials to evaluate alternative gear options to reduce turtle bycatch.
C2.3. Provide forums for fishers to express doubts about conservation actions in a safe environment.
C2.3.1. Promote an annual "gathering" of fisher communities to exchange experiences and express their views in a safe, non-judgmental setting.
C3. Quantify outreach success for a measure of progress.
C3.1. Establish the baseline or reference values for use in future assessments and help measure the effectiveness of education activities and their ability to change conservation-related behaviors.
C3.1.1. Implement Knowledge Attitude and Practices (KAP) Surveys in local communities.
C3.2. Develop a regional outreach strategy based on characteristics of Caribbean communities, with specific indicators/methods to measure progress.
C3.2.1. Use KAP surveys to suggest an intervention strategy that reflects specific local circumstances and the cultural factors that influence them.
C3.2.2. Develop indicators for measuring outreach success.
C4. Develop a strategy for a long-term commitment to community outreach throughout the region.
C4.1. Establish activities beyond the nesting season.
C4.1.1. Promote year-round visits to nesting beaches focused on teaching students and other visitors about coastal ecology and the importance of protecting the beach beyond the nesting season.
C4.2. Develop successful experiential actions to engage diverse stakeholders (including children)
C4.2.1. Build alliances with educators in order to create safe (and ongoing) "field trips" to beaches, fishing depots, and other educational venues.
C4.2.2. Host summer day camps for children-parents benefit
C4.3. Promote programs with schools to engage students.
C4.3.1. Develop a "Young Conservationists Program" where youth can participate in field activities and exchange experiences across the region.
C5. Create targeted awareness programs with materials designed for specific audiences.
C5.1. Design & implement a strategy for Social Media messages and activities crafted to reach different audiences (languages, ages, profession).
C5.1.1. Contract a Social Media specialist to design a regional base strategy that can adapt to different target groups and cultural approaches.
C5.1.2. Create accounts on social media platforms, publish informative content regularly about NWA leatherbacks; include interactive content.
C5.2. Design outreach materials that can be available in indigenous (and other inclusive) languages.
C5.2.1. Design posters to popularize scientific knowledge into the context of local communities.
C5.2.2. Incorporate more local knowledge into outreach contents (digital or printed)
C5.3. Prepare activities for annual events on special days.
C5.3.1. Design community events, games, trivia nights in local bars with prizes, specific social media content, etc.
C5.4. Promote international cultural and experience exchanges among stakeholders in the region
C5.4.1. Organize a first exchange workshop with stakeholders from key areas for the conservation of the leatherback.
C5.4.2. Seek to replicate the experience of Nature Seekers (Trinidad) traveling to Nova Scotia as a cultural exchange with Canadian fishers.
C5.4.3. Organize (post-Covid) exchanges among sea turtle conservation organizations in the region on the benefits for local population in engaging in sea turtle conservation practices: what works in one region/state as an example to follow for another region/state.
C5.4.4 Organize workshops, media outreach to increase awareness of health-related risks in consuming sea turtle products (meat, eggs, blood).
Strategic Line 4. Scientific Data Needs
D1. Develop a regional Information and Communication Technology (ICT) panel for initial discussions on best approaches to develop an accessible regional database/repository.
D1.1. Create a network of ICT specialists across the region to work with scientists and support data management in the region.
D1.1.1. Ensure sufficient funding to hire ICT specialists.
D1.1.2. Initiate a regional ICT arm to support data gathering and management tools.

D1.1.3. Host quarterly meetings to provide updates (what works, what doesn't work, what could be better).
D1.1.4. Assign daily operations to an assembled group/company.
D1.1.5. Include ICT specialists in conservation conversations to allow for more inclusivity.
D1.2. Form a Regional scientific data group which is responsible for management and verification of information.
D1.2.1. Select candidates and agree on conditions of information sharing and management.
D1.3. Develop software/ platform to enable easy access for storage and recalling of data based on data gaps.
D1.3.1. Select a cloud or server to store all the data.
D1.3.2. Collate research documents to be uploaded.
D2. Develop a regional Data Hub, with consensus on the types of data needed for regional assessment of the NWA population, guidelines for collection and use of the information.
D2.1. Secure funding for the construction and management of the hub and for the creation of a portal.
D2.1.1. Identify the hosting structure (WIDECAST / MTSG / SWOT).
D2.1.2. Create regional working groups for data collection needs (e.g., regional bycatch working group), coordinated by a Scientific Data Group.
D2.1.3. Partner with international initiatives related to turtle legal and IUU bycatch reduction strategies in order to share information.
D2.2. Develop consensual guidelines specific for the collection and management of legal and IUU bycatch data throughout the region.
D2.2.1. Identify methods for collection of bycatch data that are objective and not subjective.
D2.2.2. Identify/agree on specific data needs/ standards for collection.
D2.3. Develop consensual guidelines for the collection and approach of other threats data.
D2.3.1. Design a mechanism that collects, organizes, stores and secures a range of data products: from scientifically published data and reports to education and awareness products to the general public and communities.
D2.3.2. Develop guidelines for a semi open-source medium for raw data, which recognizes ownership, accessible to recognized researchers in the marine turtle network and managed by the regional scientific data group.
D2.4. Disseminate the existing standardization tools which have been globally approved to make sure they are used.
D2.4.1. Organize workshops for groups monitoring nesting beaches; use SWOT's Minimum Data Standards and relevant software.
D2.4.2. Strengthen the capacities of fishers for reporting incidents to local organizations, so they can upload the information.
D2.5. Define recommendations and standardize protocols to collect tagging data.
D2.5.1. Organize a working group aiming to standardize the tagging protocols across the region.
D2.5.2. Promote broader sharing of tag return data and enhanced tagging across nesting sites.
D2.6. Define recommendations and standardize protocols to collect data on turtles' health condition.
D2.6.1. Organize a working group to define standard and routine health data collection, monitoring and reporting.
D2.6.2. Identify regional network laboratories with the capability to analyze for agreed-upon baseline health parameters.
D3. Form a Regional Turtle Legal and IUU Bycatch Working Group focused on coordinating the collection of information needed for bycatch mitigation strategies and advising the different agencies for conservation decision making.
D3.1. Implement a comprehensive regional turtle legal and IUU bycatch characterization program to identify bycatch "hot spots" and priority opportunities for mitigation actions.
D3.1.1. Advocate for deployment of trained onboard observers when and where such programs could contribute valuable data on the number, distribution, and seasonality related to fishery interactions with leatherbacks.
D3.1.2. Promote the use of devices such as on-board cameras with GSM directly sending pictures to biologists on-land for fisheries evaluation.
D3.1.3. Compile and compare bycatch data across gear types, regionally, to identify highest priority opportunities for bycatch reduction from a population impact perspective.
D3.1.4. Analyze regional bycatch data and combine with turtle occurrence data to create a regional leatherback-fisheries interactions map.
D3.1.5. Identify the extent of legal and IUU bycatch threats from local and international fishers.
D3.1.6. Structured bycatch data collection in gillnet fisheries across the region, in collaboration with fishers and their socio-economic realities.
D3.1.7. Characterize fishing communities (especially fisheries socioeconomics) and associated fisheries that affect/are affected by turtle bycatch
D3.1.8. Explore ways to implement standard fishery observer projects to collect baseline data on fishery interactions across all jurisdictions.
D3.2. Conduct studies on fisheries selectivity and experimental gear modification as bycatch mitigation measures.
D3.2.1. Strengthen local fishery agencies so they can contribute information on fish catch, gear, bycatch, etc. to national data repositories.
D3.2.2. Hire bycatch officers to work on fisheries selectivity and onboard data collection when experimenting with modified gears.
D3.3. Assess potential impacts of long line fisheries on leatherbacks.
D3.3.1. Seek access to long line bycatch data from ICCAT.
D4. From regional recommendations to local implementation: disseminate regional recommendations (nest counts, female counts, threat data) in every Sea Turtle Recovery Action Plan (STRAP).
D4.1. Develop a system to regionally collate all publications for sharing with agencies responsible for the implementation of each STRAP.
D4.1.1. Disseminate the use of the Data Hub for sharing relevant information.
D4.2. Organize a Data Science seminar series as an ongoing activity.
D4.2.1. Identify relevant research topics to be discussed and experts to give lectures.
D4.3. Ensure that all STRAPs are implemented following the regional recommendations for data collection and field activities.
D4.3.1. Develop/host training workshops on the standardized methods for data collection.
D5. Conduct gap analyses at regional and local levels to identify priority threats and other data needs.
D5.1. Prioritize collaborative data collection and analysis of existing data.
D5.1.1. Design/execute analyses of satellite tracking data to identify spatial and/or temporal shifts in post-nesting or foraging destination behavior.
D5.1.2. Design/execute analyses of capture-recapture data to determine regional patterns in remigration intervals, clutch frequency, survivorship.
D5.1.3. Design/execute analyses to determine patterns and drivers of hatchling production across the region.
D5.1.4. Develop training towards in-water assessments to ensure male/female data collection.

D5.2. Improve knowledge of beach dynamics and its impact on leatherback nesting patterns.
D5.2.1. Define patterns of beach loss/accretion to determine their effect on leatherback nest site selection and their relation to declining trends.
D5.3. Identify the population indicators to define minimum population recovery goals for the NWA leatherback.
D5.3.1. Determine the minimum proportion of colonies that must have best practices implemented in order to reverse current declining trends.
D5.4. Investigate the impact of leatherback life history traits on conservation needs.
D5.4.1. Design a study to analyze hatchling success and genetic resilience.
D5.4.2. Assess the relationship of water temperature and hurricanes to leatherback nesting/hatch success across the region.
D5.4.3. Assess diseases and pollutants (e.g., heavy metals, plastic) and their relation to leatherback health and survivorship.

Appendix V. Examples of Alignment of RAP Action with National Action Plans

NWA Leatherback RAP Actions	French Guiana	Guyana	TT	Suriname
L1.1. Conduct a gap analysis between existing legal tools and the implementation of mitigation measures identified in the RAP.				Review existing local laws and regulations
L1.2 Develop legal mechanisms that facilitate cross-border collaboration.	(OS3-OP1) Improve cooperation through cross-cutting actions (OS3-OP6) Encourage communication between trans-boundary actors	7.3.b Development and empowerment of an agency specialized in sea turtle conservation and management 7.4.a Harmonized legislative framework		
L2.1. Set appropriate regulations and fines according to the true cost of noncompliance.			Ensure that fines and other penalties are adequate to serve as effective deterrents	Evaluate the effectiveness of law enforcement
L2.2 Encourage a culture of prosecution, ensuring that those benefitting most from rule breaking are punished.				Evaluate the effectiveness of law enforcement
L3.1 Work with the IAC Secretariat to facilitate outreach to non-Parties.				
L3.2 Work with relevant government bodies on accession to the IAC.			Designate a Lead Agency for the National Sea Turtle Conserva-tion Program, giving equal attention to sea turtles and their habitats in Tobago	
L3.3 Organize a sub-Working Group within SPAW to advance leatherback activities.			Assemble and empower a National Sea Turtle Task Force to oversee and coordinate sea turtle research and conservation activities, and to give strength and voice to advocacy.	
L4.1 Increase patrols in closed areas, develop/implement additional protected areas, especially at key nesting grounds (Guianas, TT).	(OS1-OP6) Reduce egg poaching		Establish a national system of marine protected areas	
L4.2 Leverage resolutions and reporting requirements regarding leatherback bycatch and IUU through the IAC.				
L4.3 Secure protection of turtles in the nesting season in the waters at nesting sites.				Develop area-specific management plans
L4.4 Develop a strategy to characterize and address bycatch related to IUU fishing.			Implement a moratorium on the take of sea turtles until such time as data are available to Define a sustainable fishery	

NWA Leatherback RAP Actions	French Guiana	Guyana	TT	Suriname
H1.1 Construct a regional beach management plan with conflict-free management actions.	(OS1-OP3) Reduce disturbance of hatchlings and adults in beaches	7.1.a.3 Identification of critical habitats and main treats		Develop area-specific management plans Involve CZM offices Develop regulatory guidelines Provide for enforcement of guidelines Develop educational materials Prevent or mitigate degradation of nesting beaches Sand mining; Lights Beach stabilization Beach cleaning Beach rebuilding
H1.2 Engage resource managers to account for turtle nesting habitat viability when approving efforts to mine sand, fortify coastlines (e.g., beach armoring), and other coastal development activities.	(OS1-OP7) Reduce man-related causes of nesting site degradation		Establish and enforce standard regulations for construction and development at nesting beaches	Develop area-specific management plans Develop educational materials Identify essential habitat Survey foraging areas Survey nesting habitat
H1.3 Develop a capital and recurrent budget for each management site.				Develop area-specific management plans
H1.4 Advocate for retaining/ enhancing resilience in coastal ecosystems, particularly as it relates to residential and tourism infrastructure development in an era of climate change and sea level rise.	(OS1-OP4) Reduce disorientation of hatchlings and adults			Develop area-specific management plans
H2.1 Establish a series of nearshore protected areas based on data on habitat use by leatherbacks during mating and nesting seasons.		7.2.a.2.a Protection of nesting females 7.2.a.2.b Protection of eggs 7.2.a.2.c Protection of hatchlings		Prevent or mitigate degradation of marine habitat Dynamiting reefs Industrial discharge At-sea dumping of waste Agricultural runoff and sewage
H2.2 Develop a methodology (e.g., buoys, posting of GPS coordinates, use of marine patrol) for demarcating and protecting marine boundaries of turtle habitats.				Identify essential habitat Survey foraging areas Survey nesting habitat Prevent or mitigate degradation of marine habitat
H2.3 Promote the participation of agencies with surveillance capabilities, such as the coast guard or research institutes.			Strengthen government ability to conserve the nation's sea turtles by nurturing additional co-management initiatives with rural communities	

NWA Leatherback RAP Actions	French Guiana	Guyana	TT	Suriname
H3.1 Characterize distribution and density of fixed gear (IUU and legal) and turtles in shelf waters using aerial surveys and other methods.				
H3.2 Ensure continued work to monitor leatherback foraging populations and fisheries interactions in New England (USA) and Nova Scotia (Canada).			Identify foraging grounds and determine the distribution, abundance and trend of turtles at sea over five consecutive years	
H3.3 Develop a structured program for testing, adaptation and adoption of modified gear in gillnet fisheries in the region to avoid leatherback bycatch in priority areas region-wide	(OS1-OP2) Reduce fishing by-catch in French Guiana			
H4.1 Promote long term engagement with key personnel.				
H4.2 Enhance collaboration between stakeholders and fishers to promote sustainability.		7.2.b.2 Develop/improve relationship between this fishery and other stakeholders	Engage stakeholders (fishermen, artisans, vendors) in discussions of viable alternatives to the sea turtle harvest	
H4.3 Implement awareness programs amongst fishers, residents, and beach users to ensure best practices.		7.2.a.2.d Management of visitors (Turtle Watchers)	Lend market visibility to restaurants and retail outlets that do not sell sea turtle products	
H4.4 Include community members and fishers in nesting beach patrol.				
H4.5 Determine the proportion of colonies that must have best practices implemented in order to reverse declining trends and move towards recovery.	(OS2-OP2) Document population trends for each sub-population and each species		Mandate control zones on high visitation beaches to exclude foot traffic	
H5.1 Determine best practices for enforcement agencies in protecting leatherbacks in nearshore waters.	(OS1-OP1) Reduce the potential impact of offshore mining activities			
H5.2 Design and implement a Capacity Building Strategy to strengthen enforcement agencies' capacities for protection of the leatherback and its habitats.				
H5.3 Develop an operational management plan; may vary based on location/beach (i.e., specific to an area's needs).			Increase the effectiveness of law enforcement by increasing the numbers of trained personnel, cultivating media attention, and promoting greater community involvement	
C1.1 Establish a fund to facilitate and finance community engagement and awareness.				

NWA Leatherback RAP Actions	French Guiana	Guyana	TT	Suriname
C1.2 Build community capacity to provide trained human resources to monitor compliance of conservation regulations.			Strengthen community co-managers' abilities to conduct scientifically sound field work. Encourage / facilitate the participation of employees / volunteers in local, national, and regional training programs and activities	Develop Public Education Residents Fishermen Tourists
C2.1. Promote partnerships with community leaders for successful programs.		7.3.b Reinforcement of collaboration and partnership among local communities, government agencies and NGOs 7.4.c.2 Local community support activities • Assist local communities in acquiring help in the development and implementation of environmentally sound economic initiatives, such as aquaculture • Assist local communities in the development of appropriate lodging facilities near primary nesting sites (e.g., Kamwatta Beach)	Train teachers in the use of sea turtle-focused classroom materials, and encourage and support the participation of educators in local research and conservation, as well as in international sea turtle conferences and workshops	
C2.2. Involve fishers directly in data collection, surveys, data interpretation, research design.				
C2.3. Provide forums for fishers to express doubts about conservation action(s) in a safe environment.				
C3.1 Establish baseline or reference values for use in future assessments of the effectiveness of education activities in achieving conservation-related behaviors.				
C3.2 Develop a regional outreach strategy based on characteristics of Caribbean communities, with specific indicators and methods for measuring progress.	(OS3-OP6) Encourage communication between transboundary actors			
C4.1 Establish activities beyond the nesting season.				
C4.2 Develop successful experiential actions to engage diverse stakeholders (including youth).	(OS-OP1) Promote environmentally-friendly behaviours via project-based learning	7.4.b Public awareness through education and information	Assist hotel staff with training and educational materials to encourage their own and visitor participation in sea turtle monitoring & conservation activity	Develop Public Education Residents Fishermen Tourists

NWA Leatherback RAP Actions	French Guiana	Guyana	TT	Suriname
C4.3 Promote programs with secondary schools to engage students.			Enhance public awareness of the need for sea turtle conservation by designing, distributing educational materials for adults and children	Develop Public Education Residents Fishermen Tourists
C5.1 Design a strategy for Social Media messages and activities crafted to reach different audiences (languages, ages, profession).				
C5.2 Design outreach materials that can be available in indigenous (and other inclusive) languages.	(OS4-OP1) Promote knowledge		Initiate a national public awareness campaign making use of posters, brochures, media events, school and library programming	
C5.3 Prepare activities for annual events on special days.	(OS5-OP1) Develop eco-tourism products around marine turtles in the short term (OS5-OP2) Create favourable conditions for reinforcing the development of eco-touristic activities focusing on marine turtles in the medium term		Organize workshops targeting fishers (including spear fishers), relevant communities, and coastal landowners, including hoteliers, to introduce the STRAP and inform them of the current state of knowledge of sea turtle biology and conservation	Develop Public Education Residents Fishermen Tourists
C5.4 Promote international cultural and experience exchanges among stakeholders in the region.			Design and distribute a Field Techniques Manual to complement the STRAP	
D1.1 Create a network of ICT specialists across the region to work along with scientists and support data management in the region.				
D1.2. Form a Regional scientific data group which is responsible for management and verification of information.				
D1.3 Develop software/platform to enable easy access for storage and recall of data based on data gaps.	(OS7-OP3) Ensure access to information			
D2.1 Secure funding for the construction and management of the hub and access portal.				
D2.2 Develop consensual guidelines specific for the collection and management of legal and IUU bycatch data throughout the region.			Endorse/ support the established National Sea Turtle Database, and Data Manager's efforts to oversee the development of standard, national data record sheets for beach and at-sea sightings	
D2.3 Develop consensual guidelines to collect non-fishery threat data.				

NWA Leatherback RAP Actions	French Guiana	Guyana	TT	Suriname
D2.4 Disseminate existing standardized tools based on international best practice to help ensure that they are followed.				
D2.5 Define recommendations and standardize protocols to collect, archive, and report tagging data.			Support ongoing tagging on Index Beaches to increase understanding of inter-nesting frequencies; archive data in National Sea Turtle Database	
D3.1 Implement a comprehensive regional turtle legal and IUU bycatch characterization program to identify bycatch "hot spots" and priority opportunities for mitigation actions.				Determine incidental catch and promote the use of TEDs
D3.2 Conduct studies on fishery selectivity and experimental gear modification as it relates to bycatch mitigation measures.				Determine incidental catch and promote the use of TEDs
D3.4 Characterize fishing communities (especially fisheries socioeconomics) and their associated fisheries affecting and affected by turtle bycatch.			Conduct an assess-ment of ecological and economic values of sea turtles to the country	
D3.5 Assess potential impacts of long line fisheries on leatherbacks.				
D4.1 Develop a system for regional publication archival, and for sharing these with agencies responsible for STRAP implementation.				Increase Information Exchange Newsletters Symposiums WIDECAST
D4.2 Organize a Data Science seminar series as an ongoing activity.				Increase Information Exchange Newsletters Symposiums WIDECAST
D4.3 Ensure that all STRAPs are implemented following the regional recommendations for data collection and field activities.				Increase Information Exchange Newsletters Symposiums WIDECAST
D5.1 Prioritize collaborative data collection & analysis of existing data				
D5.2 Define patterns of beach loss/ accretion to determine their effect on leatherback nest site selection and their relation to declining trends.			Use genetic research to determine stock origin for all major nesting & foraging assemblages in TT	
D5.3 Identify the population indicators to define minimum population recovery goals for the NWA leatherback.	(OS2-OP1) Define the breeding sub-populations and spatio-temporal trends of these populations	7.1.a.1 Assessment of population size and trend • Identify nesting sites • Quantify nesting activity & observed mortality	Implement a long-term population monitoring program on at least six Index Beaches	
D5.4 Investigate the impact of leatherback life history traits on conservation needs.				

WIDECAST

Wider Caribbean Sea Turtle Conservation Network

"Working together to build a future where all inhabitants of the Wider Caribbean Region, human and sea turtle alike, can live together in balance."

The Wider Caribbean Sea Turtle Conservation Network (WIDECAST) is an active coalition of experts serving as a Regional Activity Network to the U.N. Environment Programme's Caribbean Environment Programme. WIDECAST was founded in 1981 in response to a recommendation by the IUCN/CCA *Meeting of Non-Governmental Caribbean Organizations on Living Resources Conservation for Sustainable Development in the Wider Caribbean* (Santo Domingo, 26-29 August 1981) that a "Wider Caribbean Sea Turtle Recovery Action Plan should be prepared. consistent with the Action Plan for the Caribbean Environment Programme."

WIDECAST's vision for achieving sea turtle recovery on a regional scale has focused on bringing the best available science to bear on sea turtle management and conservation, empowering stakeholders to make effective use of that science in policy-making processes, and providing a mechanism and a framework for cooperation within and among nations. By involving stakeholders at all levels and encouraging policy-oriented research, WIDECAST puts science to practical use in conserving biodiversity and advocates for grassroots involvement in decision-making and project leadership.

Emphasizing initiatives that strengthen capacity within participating countries and institutions, the network develops and replicates pilot projects, provides technical assistance, enables coordination in the collection, sharing and use of information and data, and promotes strong linkages between science, policy, and public participation in the design and implementation of conservation actions. Working closely with local communities and resource managers, the network has also developed standard management guidelines and criteria that emphasize best practices, helping to ensure that current utilization practices, whether consumptive or non-consumptive, do not undermine sea turtle survival over the long term.

With Country Coordinators in more than 40 Caribbean nations and territories, WIDECAST is uniquely able to facilitate complementary conservation action across range States, including strengthening legislation, encouraging community involvement, and raising public awareness of the endangered status of the region's six species of migratory sea turtles. As a result, nearly all Caribbean nations have adopted a national sea turtle management plan, poaching and illegal product sales have been dramatically reduced or eliminated at key sites, major nesting beaches are protected, many of our largest breeding colonies are monitored on an annual basis, alternative livelihood models are increasingly available for rural areas, and citizens are mobilized in support of conservation action. You can join us! Visit https://www.widecast.org/ for details.

WWW.WIDECAST.ORG