Regional Cooperation for Leatherback Sea Turtle Conservation and Recovery in the Northwest Atlantic

Northwest Atlantic Leatherback Sea Turtles

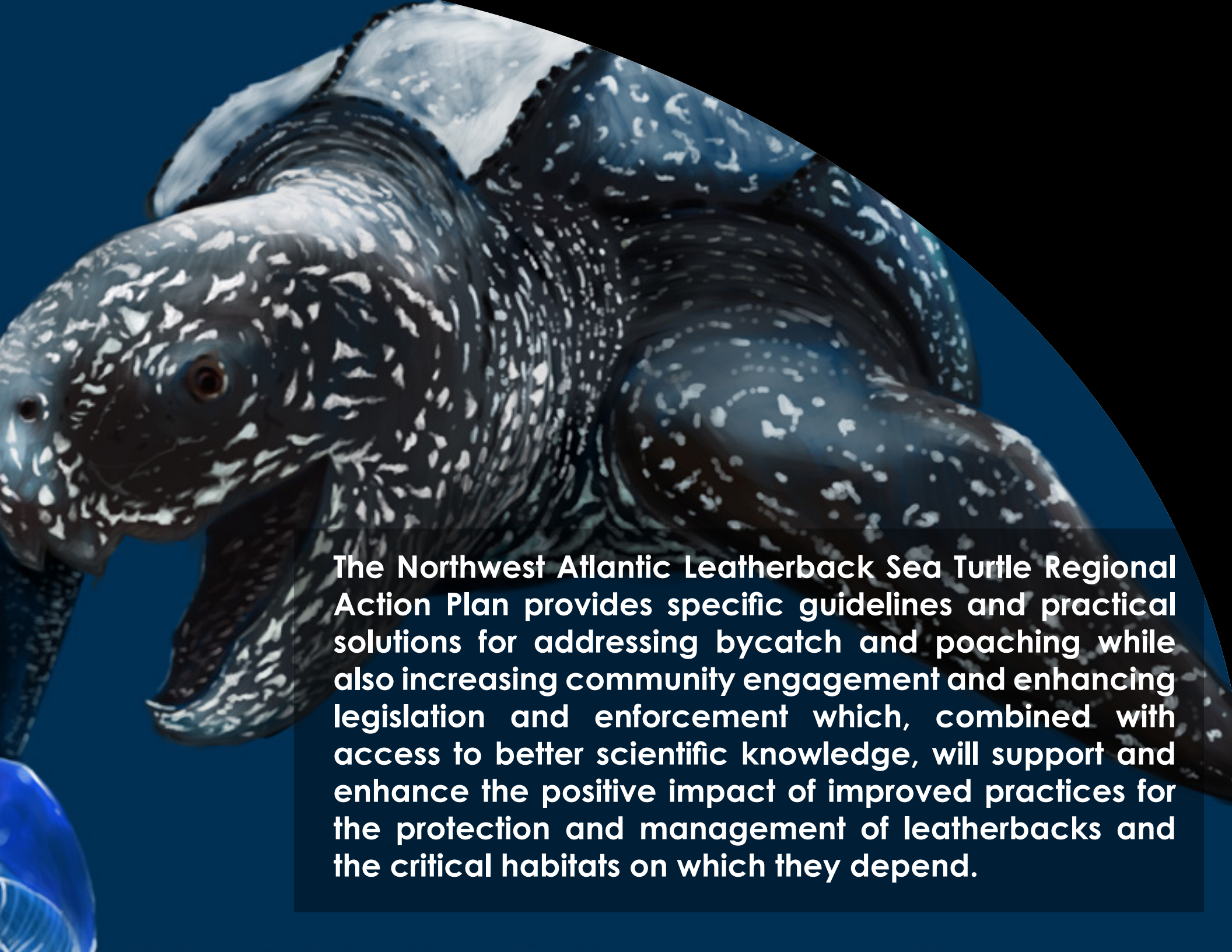
Leatherback sea turtle populations

Leatherback sea turtles are one of the world's most iconic species. The world's largest reptile, it can reach over two meters in length and weigh more than 900 kilograms. Despite their enormous size, underwater they are incredibly graceful and powerful. Not only can they dive to depths of over one kilometre, this species also undertakes the longest migrations between breeding and foraging areas of any sea turtle, averaging almost 6000 kilometres each way, traversing the tropical and temperate waters of the Atlantic, Pacific and Indian Oceans as well as the Mediterranean Sea. Females come to shore to nest on tropical and subtropical beaches, laying around 80 eggs in nests over a metre deep in the sand.

Leatherback sea turtles have been split into seven distinct sub-populations based on their migratory routes, genetics and nesting areas.

The future of this incredible species is at risk, their global numbers have declined by almost 40% in just the last 30 years. A similar troubling decline in the Northwest Atlantic leatherback sea turtle population within the Wider Caribbean Region has been recorded: recent studies show a 40% loss of rookeries that once supported more than 1000 crawls annually. Particularly worrisome are nesting population declines in the Guianas and Trinidad and Tobago which once boasted some of the largest leatherback nesting colonies in the world. French Guiana, until recently the largest leatherback nesting assemblage in the Western Hemisphere, has also documented declines of more than 95% during these past two decades.

Without increased and sustained conservation effort, the Northwest Atlantic leatherback subpopulation risks collapse.



The Northwest Atlantic Leatherback Sea Turtle Regional Action Plan provides specific guidelines and practical solutions for addressing bycatch and poaching while also increasing community engagement and enhancing legislation and enforcement which, combined with access to better scientific knowledge, will support and enhance the positive impact of improved practices for the protection and management of leatherbacks and the critical habitats on which they depend.

From a national to sub-regional approach to leatherback sea turtle conservation and recovery

Leatherback sea turtles are fully protected within the sub-region of Guyana, French Guiana, Suriname and Trinidad and Tobago and country-specific conservation actions date back to the 1980s and 1990s. These actions are guided by management plans in Guyana and Sea Turtle Recovery Action Plans in French Guiana, Suriname and Trinidad and Tobago that identify major causes of mortality, evaluate the effectiveness of leatherback sea turtle conservation laws, and prioritize conservation interventions for the recovery of leatherback sea turtles within each country's boundaries – on land and in the water.

Despite these national efforts, the Northwest Atlantic leatherback sub-population continues to decline. Noting the downward trends and recognising valuable opportunities for partnerships and resource- and knowledge-sharing, stakeholders from across the sub-region advocated for more collaborative, complementary and coordinated approaches to leatherback conservation. In 2022, a Regional Action Plan (RAP) was developed with clear transboundary actions and targets to support population recovery and protection within the Guianas (Guyana, French Guiana, Suriname) and neighbouring Trinidad and Tobago.

Northwest Atlantic Leatherback Regional Action Plan

The Regional Action Plan (RAP) for Guyana, French Guiana, Suriname and Trinidad and Tobago seeks to protect and manage leatherback sea turtle nesting populations as well as their national and transboundary foraging areas and migration routes. This RAP does not replace or supersede national leatherback Sea Turtle Recovery Action Plans or management plans, but rather complements and strengthen actions arising from these plans and places them within a regional context.

The sub-regionally-developed framework seeks to address the national and international drivers of population decline, including fisheries interactions (bycatch in artisanal and commercial fishing gear, illegal, unreported and unregulated (IUU) fisheries), pollution (plastic, discarded gear, chemical) and nesting habitat loss and conversion. The RAP also provides specific guidelines towards increasing community engagement and improved legislation at the natioanal and sub-regional levels which, when combined with access to better scientific knowledge, will support and enhance the protection and management of critical habitats.

Direct mortality: fishing

Legal and illegal fisheries bycatch in longlines, gillnets, trawls, and traps involves primarily adult leatherbacks, and mainly egg-bearing females in waters off nesting beaches, removing individuals with the highest reproductive value and the most difficult life stages for a population to replace. IUU fishing is more difficult to quantify as it occurs outside of the law, but over half of fisheries resources of some countries in the sub-region are exploited by illegal fisheries. Without bycatch reduction efforts in both legal and illegal fisheries, leatherback populations will continue to be put at serious risk.

Pollution

Leatherbacks almost exclusively feed on jellyfish. But studies indicate that up to 50% of these sea turtles have consumed plastic debris, confusing the plastic for their jellyfish prey. Leatherbacks are also directly threatened by entaglement in fishing lines, fishing nets, cargo netting and other fishing gear. Impacts of pollution from hydrocarbon extraction and spills and marine debris have not been quantified but need urgent attention.

Beach dynamics: erosion & accretion

Cyclical beach erosion throughout the sub-region significantly diminishes available leatherback nesting habitat. While nesting is often associated with high-energy coastlines where there is dynamic sand erosion and accretion, net loss of nesting habitat is likely contributing to observed and troubling population declines.

Sand mining

Sand mining permanently removes a non-renewable resource from already sensitive and vulnerable habitats, only further exacerbating natural processes of sand loss as well as from climate change and associated sea level rise. Maintaining intact beach and dune systems is critical for leatherback sea turtle survival.

Direct mortality: poaching

Historically, leatherback sea turtles were harvested for their meat and eggs. The species is currently protected in Suriname, Guyana, French Guiana and Trinidad and Tobago but eggs continue to be collected illegally across the sub-region. With declining reproductive success rates and fewer female leatherbacks coming to shore to nest, protecting eggs becomes even more important in order to secure this species' future.

Climate change & coastal development

Climate change is creating a crisis in sex ratios, with higher temperatures leading to more female turtles being born. It is also leading to both a loss of existing, critical nesting habitats for leatherbacks as well as the creation of new beaches in new areas. These sites may become vulnerable to added pressure from new development. Sea turtles have never faced this level of threat from coastal development and climate change. Small developing states may not be able to do much to decrease the rate of climate change, but development management strategies can minimize impacts of human activities on these endangered species.

Threats: Ocean-Based and Land-Based

Northwest Atlantic Leatherback Sea Turtles: At A Glance

Published in 2007, a spatial atlas of sea turtle nesting beaches in the Wider Caribbean documented ten nesting beaches receiving more than 1,000 leatherback nesting crawls per year. WIDECAST's updated (2019) spatial analysis of sea turtle nesting activity shows only six leatherback colonies, located in French Guiana, Panama, and Trinidad and Tobago, with more than 1,000 crawls per year. Over the last two decades, declines in the nesting populations have been staggering, including in the Guianas where numbers have plummted by more than 95%.

Figure 1. A map of the sub-region, Suriname, Guyana, French Guiana and Trinidad and Tobago.

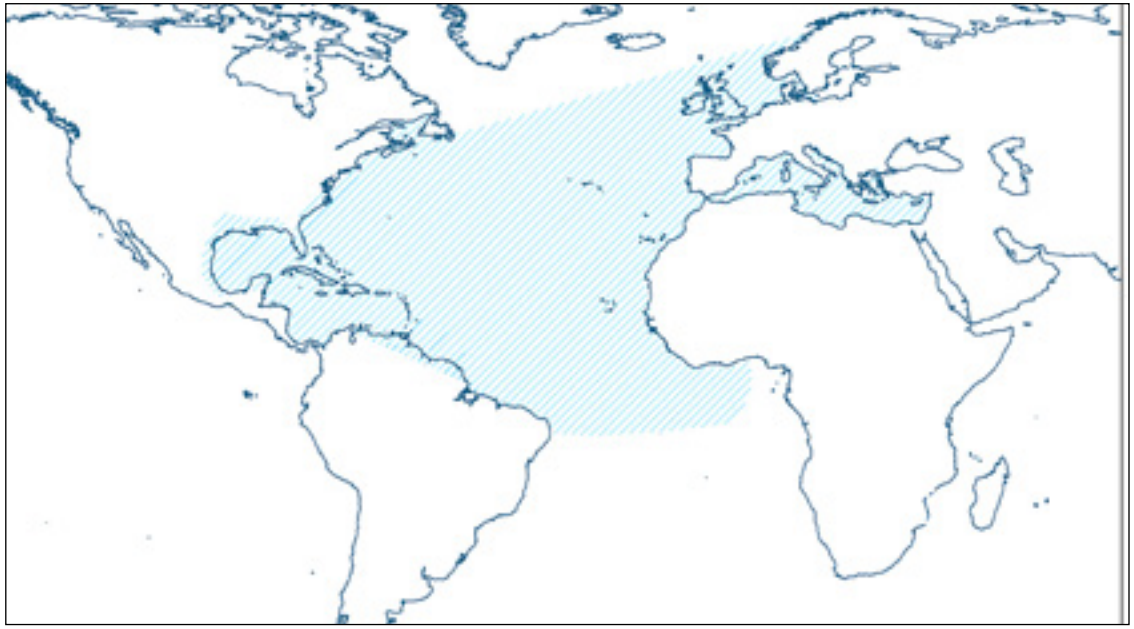


Figure 2. Distribution of the Northwest Atlantic Ocean leatherback sea turtle population. (Wallace et al. 2010)

Sources:
Wallace BP, DiMatteo AD, Hurley BJ, et al. 2010. Regional Management Units for marine turtles: A novel framework for prioritizing conservation and research across multiple scales. PLoS ONE 5(12): e15465. doi:10.1371/journal.pone.0015465.
Dow W, Eckert KE, Palmer M, Kramer P. 2007. An Atlas of Sea Turtle Nesting Habitat for the Wider Caribbean Region. The Wider Caribbean Sea Turtle Conservation Network and The Nature Conservancy. WIDECAST Technical Report No. 6. Beaufort, North Carolina. 267 pages, plus electronic Appendices.

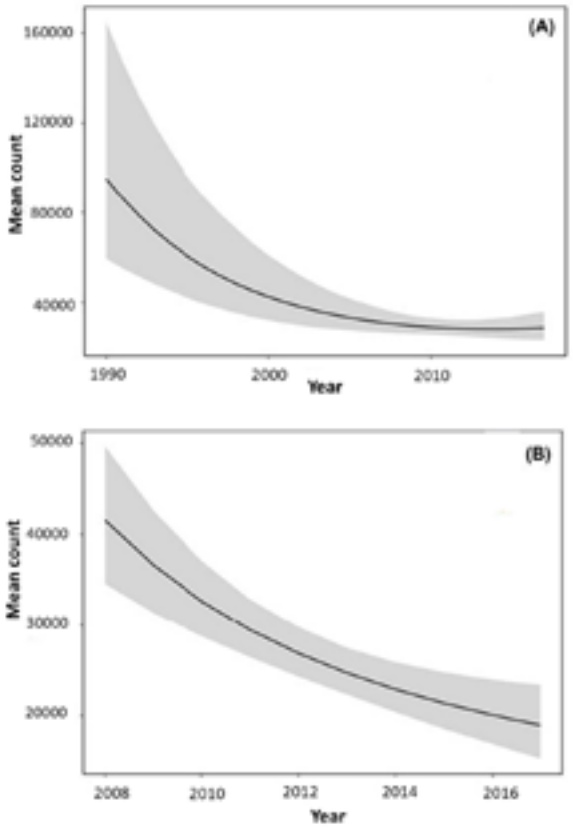


Figure 3. Regional-level trends in nesting populations (A) 1990-2017 and (B) 2008-2017, showing signficant and consistent declines. (Northwest Atlantic Leatherback Working Group, 2018)

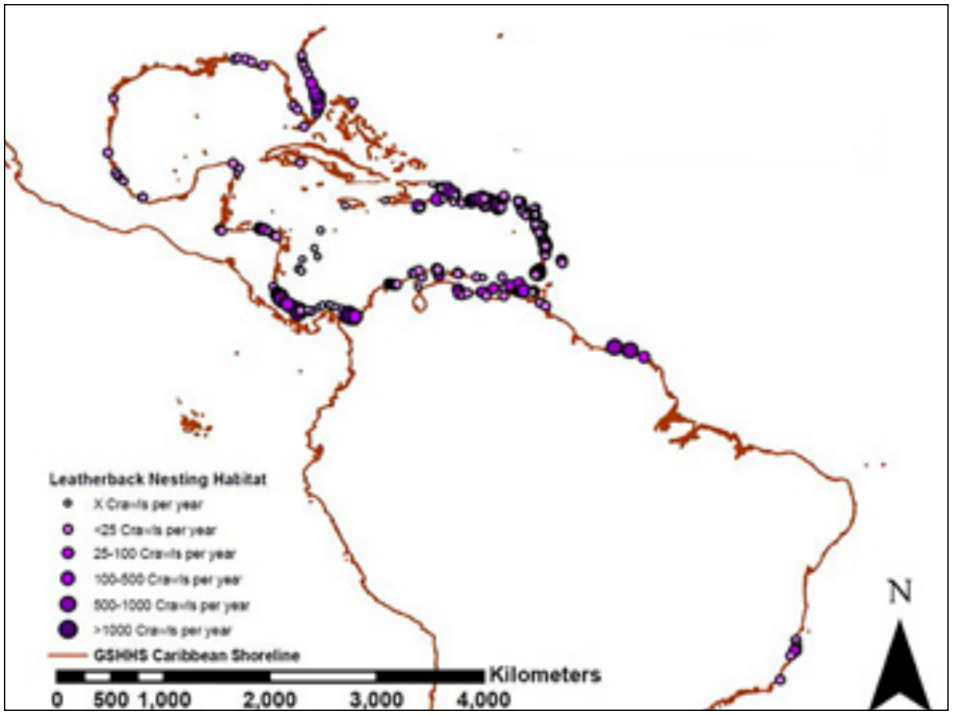


Figure 4. Distribution of Wider Caribbean nesting sites for Northwest Atlantic leatherback turtles. (Eckert and Eckert, 2019)

Sources:
Northwest Atlantic Leatherback Working Group. 2018. Northwest Atlantic Leatherback Turtle (*Dermochelys coriacea*) Status Assessment (Wallace B, Eckert K, Compilers and Editors). Conservation Science Partners and the Wider Caribbean Sea Turtle Conservation Network. WIDECAST Technical Report No. 16. Godfrey, IL. 36 pp.
Eckert KL, Eckert AE. 2019. An Atlas of Sea Turtle Nesting Habitat for the Wider Caribbean Region. Revised Edition. WIDECAST Technical Report No. 19. Godfrey, Illinois. 232 pages, plus electronic Appendices.

Supporting Recovery

1. Creating sub-regional legal and structural frameworks to support transboundary leatherback sea turtle conservation and recovery

DESIRED IMPACT

Suriname, Guyana, French Guiana and Trinidad and Tobago have a coherent and aligned legal framework, with regulations directed to the conservation and sustained recovery of the Northwest Atlantic leatherback subpopulation.

OUTPUTS

1. Structural/legal framework for long-term protection of leatherback sea turtles and their habitats with the sub-region.

2. Comprehensive environmental legislative framework, including implementation of adopted multilateral environmental agreements.

3. Enhanced national and regional capability to implement and enforce national and cross-border structural/legal frameworks and tools.

4. Fewer leatherback sea turtles caught as by-catch in legal and illegal fishery operations.

WHY IT MATTERS

Among the causes contributing to the decline of the Northwest Atlantic leatherback subpopulation is the weak application of existing policies, laws and regulations that are meant to protect and conserve leatherback sea turtles and the habitats on which they depend. Compounding national legislative limitations is a lack of coordination within the sub-region and governance for enforcement.

This project therefore focuses on creating the necessary structural framework, including identifying existing multilateral environmental agreements (MEAs) and enhancing national legislation to support MEA adoption and implementation while filling existing gaps in national legislation. This project also focuses on creating a RAP governance structure, including a transboundary conservation and fishery enforcement unit, creating a system of accountability and transparency and avenues for dialogue and partnerships, sharing of lessons learned and a coordinated approach to RAP implementation, monitoring and evaluation.

Supporting Recovery

2. Implementing and adopting a coordinated and collaborative approach to leatherback sea turtle and habitat conservation

DESIRED IMPACT

Adaptive, evidence-based conservation and protection of sea turtles and the habitats on which they depend is rooted in best practice and active stakeholder engagement and collaboration within the offshore and nearshore coastal ecosystems of Suriname, Guyana, French Guiana and Trinidad and Tobago.

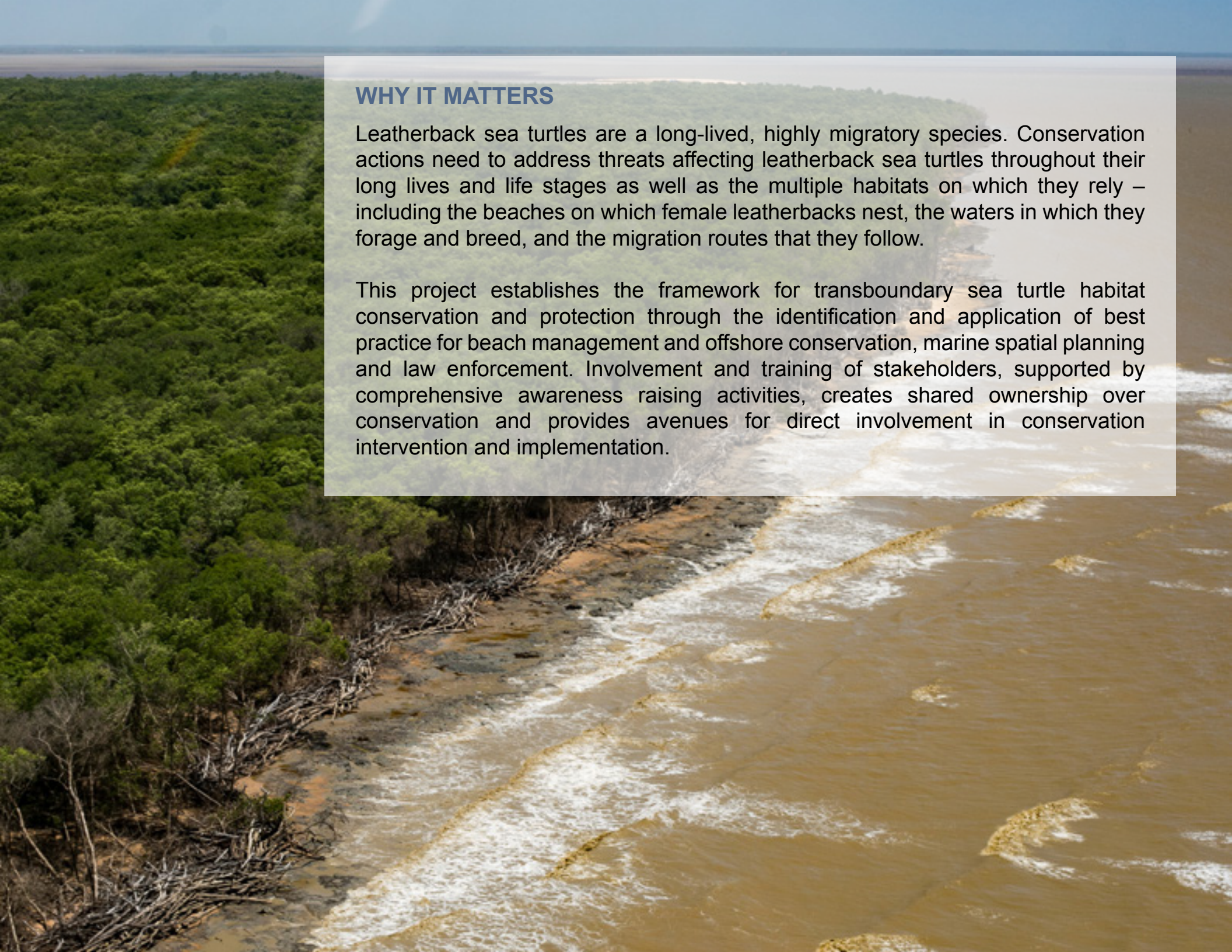
OUTPUTS

1. Evidence-based sustainable management frameworks that consider and integrate marine and coastal values for leatherback sea turtles and the habitats on which they rely throughout the sub-region.

2. Effective and sustainable co-management structures for conflict-free (and ideally community-based) management of sea turtles and their habitats.

3. Fewer leatherback sea turtles caught as by-catch in national and international oceanic waters.

4. Enhanced capacity amongst all sea turtle conservation stakeholders to plan, manage and monitor sea turtles and protected areas.



WHY IT MATTERS

Leatherback sea turtles are a long-lived, highly migratory species. Conservation actions need to address threats affecting leatherback sea turtles throughout their long lives and life stages as well as the multiple habitats on which they rely – including the beaches on which female leatherbacks nest, the waters in which they forage and breed, and the migration routes that they follow.

This project establishes the framework for transboundary sea turtle habitat conservation and protection through the identification and application of best practice for beach management and offshore conservation, marine spatial planning and law enforcement. Involvement and training of stakeholders, supported by comprehensive awareness raising activities, creates shared ownership over conservation and provides avenues for direct involvement in conservation intervention and implementation.

Supporting Recovery

3. Supporting leatherback sea turtle conservation and recovery through community engagement and awareness

DESIRED IMPACT

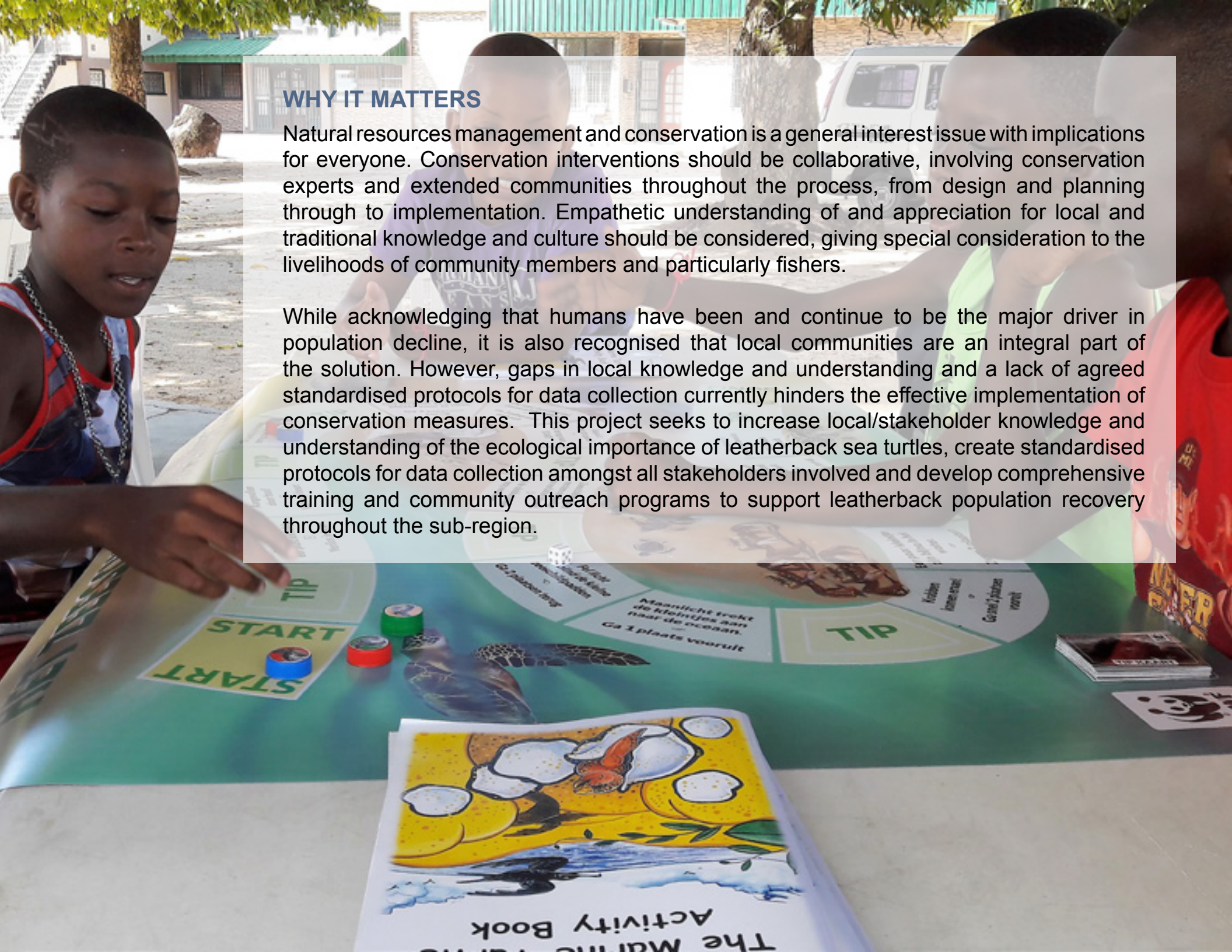
Leatherback sea turtle conservation and protection is supported by strong data collection, enhanced management competencies and a more supportive civil society.

OUTPUTS

1. Sustainable financing mechanism to support leatherback sea turtle conservation efforts throughout the sub-region.

2. Enhanced national capability to plan, manage, implement and monitor leatherback sea turtle conservation actions.

3. Increased civil society support for leatherback sea turtle monitoring and management programmes.



WHY IT MATTERS

Natural resources management and conservation is a general interest issue with implications for everyone. Conservation interventions should be collaborative, involving conservation experts and extended communities throughout the process, from design and planning through to implementation. Empathetic understanding of and appreciation for local and traditional knowledge and culture should be considered, giving special consideration to the livelihoods of community members and particularly fishers.

While acknowledging that humans have been and continue to be the major driver in population decline, it is also recognised that local communities are an integral part of the solution. However, gaps in local knowledge and understanding and a lack of agreed standardised protocols for data collection currently hinders the effective implementation of conservation measures. This project seeks to increase local/stakeholder knowledge and understanding of the ecological importance of leatherback sea turtles, create standardised protocols for data collection amongst all stakeholders involved and develop comprehensive training and community outreach programs to support leatherback population recovery throughout the sub-region.

Supporting Recovery

4. Addressing scientific data needs to inform leatherback sea turtle population recovery

DESIRED IMPACT

National and regional population declines of leatherback sea turtles are reversed following the implementation of effective management and conservation measures informed by scientifically robust data collection, collation and analysis.

OUTPUTS

1. Scientifically-informed data collection, collation, analysis and management protocols.

2. Regional data hub to guide data collection and collation and to provide a central point where data can be stored and accessed.

3. Clearly articulated measures to define, implement and assess bycatch and IUU fishing mitigation strategies.

4. Enhanced local capacity to conduct on-the-ground, standardised biological data collection.

5. Evidence-based national Sea Turtle Recovery Action Plans for Guyana, French Guiana, Suriname and Trinidad and Tobago.

6. Evidence-based minimum end recovery goals or the Northwest Atlantic leatherback subpopulation.

WHY IT MATTERS

When devising the Regional Action Plan, sub-regional stakeholders identified the need for readily accessible, timely and accurate information related to sea turtle biology, life history, and conservation and the need to fill gaps in data and knowledge to support effective conservation and threat management interventions. This is true for this highly migratory species at both the national and regional levels. To effectively manage and support the recovery of leatherback populations, this project will establish standard protocols for data collection, storage and analysis, support increased monitoring effort of threats and provide essential training initiatives to increase conservation capacity within local communities.

Looking Ahead: Hope for the Future

This 5-year project ultimately aims to protect leatherback sea turtle populations, at all life stages, across the Wider Caribbean Region, especially within Suriname, Guyana, French Guiana and Trinidad and Tobago, supported by long-term, comprehensive and collaborative conservation management strategies.

Through the structures established through this project, including sustainable financing mechanisms, enhanced networks to share data and information, increased opportunities for sub-regional collaboration and enhanced capacity through training, education and outreach, we are creating the framework and nurturing the relationships we need to ensure that our sea turtle conservation efforts will be able to continue into the future.

Implementation of the RAP has been fully costed, and while some of the costs can be covered by our local agencies, it will be impossible to achieve the objectives of this Regional Action Plan without external funding. You are part of this effort and the solution. We welcome and appreciate your support.

To learn more about how you can help, please contact:

Ms Soraya Wijntuin
Oceans Coordinator
WWF-Guianas
Henck Arronstraat 63
Paramaribo, Suriname

Tel.: (597) 422357 ext. 121
Mobile: (597) 8779471
Email address: swijntuin@wwf.sr
Visit our website: www.wwfguianas.org

Partners

The Environmental Management Agency is committed to sustainably manage the natural resources and environment by providing a transparent framework to facilitate policy and decision making in development. This will be undertaken within an approved regulatory system, utilizing intensive public education and a collaborative cross-sectoral approach.

The French Biodiversity Agency (OFB) is a public institution dedicated to the protection and restoration of biodiversity in France (metropolitan and overseas territories), under the authority of the ministries of Ecology and Agriculture & Food. In French Guiana, it coordinates the “Réseau tortues marines Guyane” (French Guiana’s sea turtle network).

Réseau Tortues Marine Guyane is a collaborative body that brings together all stakeholders involved in the implementation of French Guiana’s National Action Plan for the conservation of sea turtles.

A volunteer coalition of experts resident in more than 40 nations and territories, WIDECAST has been active in the Wider Caribbean region since 1989. The Network focuses on bringing best available science to legislation and policy, education, training, outreach, advocacy, research, conservation and monitoring.

Established in 1961, WWF works to help local communities conserve the natural resources they depend upon; transform markets and policies toward sustainability; and protect and restore species and their habitats. Our efforts ensure that the value of nature is reflected in decision-making from a local to a global scale.

If you have questions or suggestions, please reach out to one of our Country Representatives:

Suriname and Project Lead: Soraya Wijntuin, WWF-Guianas – swijntuin@wwf.sr
French Guiana: Mathilde Lasfargue, OFB – mathilde.lasfargue@ofb.gouv.fr
Guyana: Diana Fernandes, WWF-Guianas – dfernandes@wwf.gy
Trinidad & Tobago: Danielle Lewis-Clarke, EMA – DLewis-Clarke@ema.co.tt
Canada: Thiviya Kanagasabesan, WWF-Canada – Tkana@wwfcanada.org

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