



# ACTION PLAN FOR THE CONSERVATION OF THE HAWKSBILL TURTLE IN COLOMBIA

## WOMEN FOR BIODIVERSITY ORG 2020-2030



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## **RESUMEN**

During the last few years, various efforts have been developed for the conservation of hawksbill turtles in different geographical areas and ranges.

The management of this Plan was the responsibility of the competent regional and local environmental institutions, being the result of extensive consultation with experts, community-based organizations and NGOs.

However, the implementation and execution involve all actors and society in general. With its execution, it is expected to contribute to the conservation of hawksbill turtles and their critical habitats; in turn, identify different socioeconomic alternatives for local

communities that allow them to improve food security and their quality of life.

This process responds to needs identified during the participatory processes that are addressed in the diagnosis of the status of Hawksbill turtles on the Caribbean coast of Colombia.

Its general objective is to establish strategic educational, conservation, sustainability, communication and monitoring actions, in order to conserve the populations and habitats of hawksbill tortoises in the country, carrying out



institutional and community strengthening activities, developing awareness programs towards the species, and promoting research and sustainable development.

The plan identifies the objectives and strategies, including the specific actions to be carried out and their metrics such as progress indicators, responsible parties, and the necessary budget for their implementation.

## **1. OBJECTIVES**

### **1.1. GENERAL**

Establish strategic actions to conserve Hawksbil turtle populations.

### **1.2. SPECIFIC**

#### **OBJECTIVES 1**

Strengthen the regulatory, financial and technical capacity of public institutions related to the protection, conservation, and research of Hawksbil tortoises with the participation of civil society.

#### **OBJECTIVES 2**

Develop educational and awareness programs for the general population on the protection, conservation and importance of Hawksbil tortoises and their habitats.



#### **OBJECTIVES 3**

Promote and facilitate processes for the development of knowledge, research and monitoring of Hawksbil tortoises and their habitats.

#### **OBJECTIVES 4**

Contribute to the conservation and management of Hawksbil tortoise populations and their habitats.

By 2030, the conservation of Hawksbil turtle species and key habitats in Colombia will have been increased with the participation of key stakeholders.

## **1.3. MISSION**

We prioritize scientific and technical conservation actions on Hawksbil turtle species and their key habitats, monitoring activities, regional information exchange and sustainable management, as well as the generation of socio-economic income alternatives in coastal and island communities without undermining Hawksbil tortoise populations.

## **1.4. BIOECOLOGICAL INFORMATION**

**(i) Scientific name:** *Eretmochelys imbricata* (Linnaeus, 1766).

**(ii) Taxonomy:**

**Order** Testudines

**Family** Cheloniidae

**(iii) Threat category**

National: Critically Endangered CR D.

Global: Critically Endangered CR A2bd

(Mortimer and Donnelly 2008).

**(iv) Other common names**

## ACTION PLAN FOR THE CONSERVATION OF THE HAWKSBILL TURTLE IN COLOMBIA

Hawksbill turtle, shell hawksbill, tortoise fine, parape turtle, hawksbill.

### (v) Description

Large turtle, between 60 and 95.5 cm straight carapace length (LRC) (Chacón C. Ramírez-Gallego 2009). Narrow head, with a straight and pointed beak on its upper jaw, its width up to 12 cm, with two pairs of pre-frontal scales. Oval-shaped carapace, longer than wide, with four lateral overlapping scutes on each side, the first of these separated from the nuchal scute (Pritchard and Mortimer 2000).



Front fins with two visible nails. Since they are juveniles, the carapace has a strong pigmentation with streaks ranging from dark brown to amber and darker in the Pacific Ocean. Plastron with pale yellow hues to white, four poreless inframarginal scutes on each side.

Neonate coloration dark brown, very similar to the *Caretta caretta* hatchlings, differentiated exclusively by the presence of five pairs of lateral scutes in the latter and four in the hawksbill (Witzell and Banner 1980).

### (vi) Geographical distribution

Countries: circumglobal distribution, in tropical waters and to a lesser extent in subtropical waters of the Atlantic, Indian and Pacific Oceans. Their nesting occurs in at least 60

countries (Groombridge and Luxmoore 1989). Departments: Antioquia, Archipelago of San Andrés, Providencia and Santa Catalina, Atlántico, Bolívar, Cauca, Chocó, Córdoba, La Guajira, Magdalena, Nariño, Sucre and Valle del Cauca.

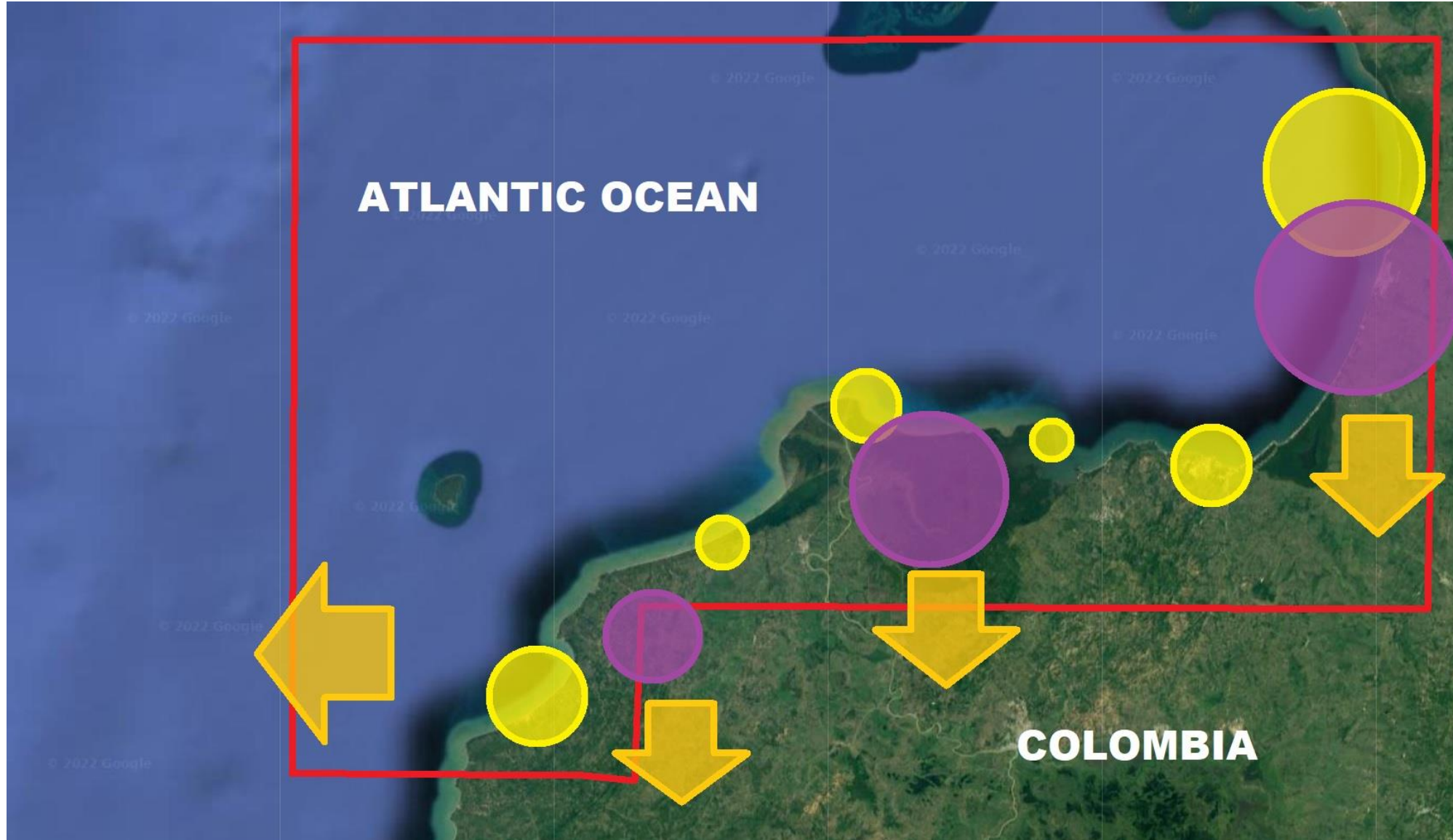
**Hydrographic zones:** Caribbean and Pacific. Altitudinal distribution: sea level.

### (vii) Bioecological aspects

The hatchlings migrate to pelagic areas, where they remain in the floating masses of algae (*Sargassum* spp), feeding on the fauna that lives there. This includes copepods, gelatinous animals, sea slugs, and hydroids. The diet of juveniles, sub-adults and adults is specialist, spongivorous, feeding almost exclusively on a few species of sponges and opportunistically on small invertebrates, anemones and algae. Courtship and mating generally takes place near spawning beaches. The size range of nesting females is 60-95.5 cm LRC (Chacón 2009) and reach sexual maturity between 20 and 40 years (Chaloupka and Musick 1997). Are reproduced every two to four years (Witzell 1983, Mortimer and Bresson 1999).







**ACTION PLAN FOR THE CONSERVATION OF THE HAWKSBILL TURTLE IN COLOMBIA**



**ACTION PLAN FOR THE CONSERVATION OF THE HAWKSBILL TURTLE IN COLOMBIA**

**CONVENTIONS**

	Project area
	Nesting and foraging areas
	Zenú indigenous communities
	Illegal trafficking routes of turtles

**SCALE**



1 cm = 10Km

**SOURCES:**

- IMAP, conservation biodiversity monitoring
- WOMEN FOR BIODIVERSITY, 2020.



It nests in PNN Los Flamencos (La Guajira); Buritaca-Don Diego, Playa Brava, Cinto and the Tayrona and Isla Salamanca (Magdalena) PNNs (Nicéforo 1953, Kaufmann 1973, Pinzón and Saldaña 1999, Gutiérrez and Merizalde 2001, Sánchez 2002, Pabón-Aldana et al. 2012); Rosario islands and the Isla de Barú (Bolívar) (Ogren 1983, Duque y Martínez pers. comm.); the Francés and Punta Seca beaches, in the Gulf of Morrosquillo and on the Palma and Salamanquilla islands (Sucre); Wind Beach (Córdoba) (Rueda 1987); DRMI Ensenada de Rionegro (Antioquia) (Gaviria 2014); Acandí, Playa Chilingos and La Playona (Chocó) (Medem 1962, Fundación Mamá Basilia pers. Comm.), Keys Serranilla, Serrana, Albuquerque, Roncador, Bolívar Courtown (Archipelago of San Andrés, Providencia and Santa Catalina) (McCormick 1997, 1998 ).

The positions vary from 120 to 180 eggs (average of 140 eggs). The average diameter of the eggs varies between 32-36 mm and the LRC of hatchlings between 39-46 mm (Pritchard and Mortimer 2000). It presents temperature-dependent sex determination with an Ia (MH) pattern, but the mean pivotal temperature for the Colombian colonies has not been evaluated. In other parts of the Caribbean, the average pivotal temperature varies from 29.2 to 29.6 °C.

At the end of the reproductive season, the females migrate to nearby foraging areas, being considered the most “resident” species of Hawksbill turtle s.

Pabón-Aldana et al. (2012) by means of satellite monitoring of a juvenile hawksbill in the Tayrona NPN, they observed that the turtle remained in the park's waters for the first 21 days and then moved away from the coast, with movements associated with surface currents, finally reaching Bocas del Toro (Colombia), a place identified as a favorable feeding area for the species (Meylan et al. 2006).

#### **(viii) Population information**

The publications on studies related to populations of this species in Colombia correspond mainly to reports of sightings in open water or nesting sites (McCormick 1997, 1998, Rincón et al. 2001, Arcos et al. 2002, Ceballos-Fonseca 2004, Rincón-Díaz and Rodríguez-Zárate 2004, Gaos et al. 2010). The hawksbill turtle is the species with the greatest distribution in the Colombian Caribbean, the least studied and with the lowest abundance of nests along it. Reports of the species, both in nesting areas and in pelagic environments, correspond mainly to the Caribbean coast.

In the Pacific there have been very few sightings, being the Gorgona NPN the site with the highest number of individuals in feeding areas with 25 individuals registered from 1982 to 2009 (Gaos et al. 2010) and 16 individuals in 2010 (Tobón-López and Amorocho 2014). It is followed by the PNN Utría, where juvenile hawksbills have been observed around of the coral patches of Punta Diego and the Aguada reef (Ramírez-Gallego pers. obs.).



Recent studies with follow-up satellite showed daily movements between Punta Diego (foraging) and Aguada (rest) (Amorocho pers. comm.). Trujillo et al. (2014) carried out a phylogeographic study of some feeding and nesting colonies in the Pacific (PNN Gorgona) and the Caribbean (PNN Corales del Rosario and San Bernardo and Cabo de la Vela). The

## ACTION PLAN FOR THE CONSERVATION OF THE HAWKSBILL TURTLE IN COLOMBIA

analyses showed a great genetic division between both regions, possibly influenced by the uplift of the Isthmus of Colombia. Recently, Tobón-López and Amorocho (2014) carried out a study in the southern Pacific of Colombia, where they captured 16 individuals in the Gorgona NPN and 11 in the Cauca littoral zone, showing that the park animals were taller than those present on the continent and in both cases without obvious health problems.

In addition, having a 46% recapture on the island, it is evident that they are resident animals in coral reefs.

### Use

The eggs, juveniles and adults are used for consumption. In addition, they are intentionally captured to extract the shields from their shell in order to make handicrafts and kitchen utensils with the hawksbill (Ramírez-Gallego and Barrientos- Muñoz 2012).

### Threats

Constant poaching of nests, capture of nesting juveniles, males and females. Together with *C. mydas*, they are the most commercialized species (meat and shell) in Riohacha and Maicao (Rueda et al. 1992). Worldwide, it is the species with the greatest anthropogenic pressure due to the illegal trafficking of its shell, this being the main cause of its decline in the Caribbean. Along with Cuba and the Dominican Republic, Colombia is one of the places where there is the largest trade in hawksbill handicrafts without the control of the competent entities.

Feeding areas are located within or near marine protected areas, but at the same time they are part of buffer zones where coastal communities make use of the resource and commercial exploitation.

This includes fishing aimed at juveniles and adults due to the beauty of its colorful shell, which is sold for later use in making handicrafts

and other decorative products. Furthermore, the alteration of spawning beaches by coastal erosion is another strong threat to the species. In the Gulf of Urabá in Antioquia, it is the most frequent threat (Gaviria 2014). In their marine habitat, plastic ingestion and deterioration of coral reefs due to high rates of sedimentation, eutrophication, and poor practices in water sports such as snorkeling and recreational diving, are other high-impact threats. As for all turtle species, global warming is a threat, not only due to the loss of beaches for nesting, the increase in embryonic death caused by alterations in hydrological regimes, but also due to the increase in incubation temperatures. , on which the sexual proportions depend primary (Ihlow et al. 2012).



### Existing conservation measures

Since 1964, hunting, egg collection and capture of hatchlings has been prohibited (Resolution No. 0219 of 1964, Ministry of Agriculture) and is protected by other measures at the national level (eg Decree No. 1681 of 1978 of the Inderena, Article 32 of the Penal Code ). However, none of the established protection measures have efficient implementation strategies. Particularly in the case of hawksbill, their crafts are sold throughout the country without any regulation or application of the law. At the international level, it is found in Appendix I of CITES, in Appendix I and II of

## ACTION PLAN FOR THE CONSERVATION OF THE HAWKSBILL TURTLE IN COLOMBIA

the Bonn Convention and in Annex II of the SPAW Protocol.

### Conservation opportunities

The hawksbill was the first species of Hawksbill turtle banned in Colombia in 1977. It has the National Program for the conservation of marine and continental turtles in Colombia (MMA 2002) and the National Plan for migratory species (MAVDT 2009).



The following conservation actions have been carried out: i) a program for their conservation (PNN Corales del Rosario y de San Bernardo and CEINER), based on environmental education and release of individuals captured by fishermen in the park (Martínez and Duque com. pers.);

ii) conservation actions carried out by Coralina-Corporation for the Sustainable Development of San Andrés, Old Providence and Santa Catalina and the National Navy;

iii) patrols to stop illegal trafficking of the species in La Guajira and awareness campaigns to stop the consumption of meat and eggs (Corpoguajira and Policia Nacional) (Amorocho 2014);

iv) protection of their broods in La Playona, Playón and Acandí (Fundación Mamá Basilia pers. comm.);

v) annual monitoring of Hawksbill turtles at the DMRI Ensenada de Rionegro (Corpouraba and local community); vi) projects on breeding beaches, foraging areas, genetic characterization and environmental education promoted by CIMAD-Research Center,

environmental management and development, on the beaches of the Cauca coast and in the Gorgona NPN in the Colombian Pacific (Amorocho 2014); vii) awareness campaigns for tourists to reduce the purchase of hawksbill crafts in Cartagena (Fundación Tortugas del Mar and WWF); viii) capacity building in government agencies to control and reduce the illegal commercialization of hawksbill turtles and their products (Fundación Tortugas del Mar, WWF and PNN Corales del Rosario and San Bernardo). It has extensive biological information worldwide, including fundamental aspects about its life history and habitat use.

### Proposed Research and Conservation Measures

Compliance with environmental legislation that protects the species must be promoted, management plans in accordance with its biology proposed, and environmental education and awareness-raising efforts continue with local communities at various points of its distribution. We must urgently develop activities aimed at the protection of juveniles, sub-adults and adults and permanently implement protection measures for the few nesting females and their positions in the Colombian Caribbean and Pacific.

In particular, it is necessary to avoid or at least significantly reduce the extraction of clutches, capture of juveniles, males and adult females for the consumption of their meat and use of the shell shields for handicrafts and kitchen utensils. Similarly, the alteration of the nesting and foraging areas that are used by the species should be prohibited. It is also necessary to generate a coastal restoration plan with the planting of native vegetation, in order to provide more suitable areas for the nesting of the species and as a means of mitigating coastal erosion and warming. global, problems that occur in most



## **ACTION PLAN FOR THE CONSERVATION OF THE HAWKSBILL TURTLE IN COLOMBIA**

places where the hawksbill is present. Carry out population studies, migrations, hatching success, survival rates, genetic structure, behavior, number of clutches per season, sexual proportions, both in hatchlings and juveniles, differential use of habitat between size classes or sexes, nesting frequency.

The country has laws for the protection of Hawksbill turtle s. The creation of Marine Protected Areas (MPAs) has contributed greatly to the conservation and / or protection of these species and their habitats. With the creation of MPAs, it has been possible to reduce the hunting and collection of Hawksbill turtle eggs in their jurisdictions, however, more resources are still needed to reduce the threats. Currently the use, consumption or sale of meat, eggs or other by-products of Hawksbill turtle s is illegal in Colombia, except in the RVS Isla de Cañas, since it is the only place in the country where the collection of eggs for subsistence is allowed, thanks to the exception granted by resolution "CIT-COP6-2013-R1 on exceptions under article IV (3A and B) for the subsistence harvest of *Lepidochelys olivacea* eggs".

### **SOME OF THE MEASURES MANAGED AND IMPLEMENTED BY THE STATE FOR THE CONSERVATION AND PROTECTION OF HAWKSBILL TURTLE S IN GENERAL LINES ARE:**

Management of conservation projects on the main nesting beaches, which include the establishment of nurseries, research and monitoring through patrols and surveillance with the support of government institutions, international agents such as the United States Peace Corps. - two and research institutes.

- Establishment of protected areas and special zones for integrated coastal marine management together with their management plans.
- Preparation, updating and application of regulations, accompanied by national campaigns for their dissemination and knowledge of the procedure for reporting the sale, purchase or consumption of egg products or by-products of Hawksbill turtle s in Colombia.
- Training for institutional staff, community groups, experts in the field and other key actors for the implementation of regulations and conservation of Hawksbill turtle s and their habitats.
- Fulfillment of the commitments acquired in the multilateral cooperation agreements.

For just over a decade, activities to promote turtle watching tourism in Colombia began. At present, it is a conservation strategy that has gained great strength in the region as an important alternative in the protection and conservation of these animals. This activity is taking place on both coasts of the country, inside and outside the protected areas. In most of the Hawksbill turtle observation activities, local communities are being involved, in order to provide an economic income to the communities that inhabit the nesting beaches and neighboring areas.

#### **Justification**

This species is Critically Endangered in Colombia because its population is less than 50 mature individuals and its threats have not ceased (extraction and habitat degradation).

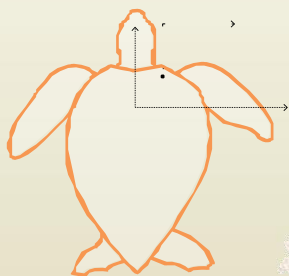
# THE HAWKSBILL TURTLE

*Eretmochelys imbricata* (Linnaeus, 1766)

The hawksbill turtle is considered a medium-sized species compared to the other species.



**ITS SHELL IS THE ONLY ONE THAT IT PRESENTS FLAKES OR OVERLAYING PLATES WITH SAWN EDGES (CHACÓN, 2004B).**



Measurements of nesting females indicate that the curved carapace length (CCL) varies between 77 and 99 cm (Silman et al., 2002).

On the head it has two pairs of prefrontal scales and its jaw is shaped like a pointed beak that allows it to get food in the crevices of the reefs (Silman et al., 2002).

**WEIGHT UP TO 127 kg**

**ITS SHELL HAS A RANGE OF BLACK AND BROWN SPOTS ON AMBER BACKGROUND THAT GIVE IT A BEAUTIFUL APPEARANCE**

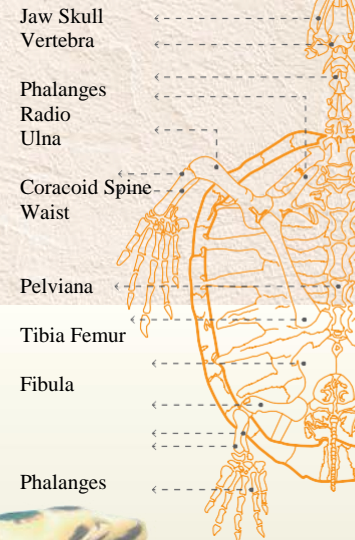
THE AGE AT WHICH THE SPECIES REACHES SEXUAL MATURITY VARIES BY REGION AND THE STUDIES ARE DIFFERENT, BUT IN SUMMARY THE AVERAGE CALCULATED AGE IS BETWEEN 20 AND 40 YEARS OLD (CHACÓN, 2004B).

Studies show that females nest at intervals of 2 to 5 years, laying an average of 155 eggs 5 times per season between June and October in both the Pacific and the Caribbean (Meylan and Donnelly, 1999; Gaos et al., 2006; Amorcho, 1999).



Unlike the Atlantic populations that are associated with coral reefs, some of those present in the Eastern Pacific, especially in Central America, are associated with mangrove and estuarine areas, where they feed and nest (Gaos et al., 2010, 2012a , b; Liles et al., 2015; Gaos et al., 2015).

## SKELETON OF A TURTLE



## SCIENTIFIC CLASSIFICATION

- Animalia Kingdom
- FILO: Chordata
- CLASS: Sauropsida
- ORDER: Testudines
- SUBORDER: Cryptodira
- FAMILY: Cheloniidae
- GENDER: *Eretmochelys*, Fitzinger, 1843
- SPECIES: *E. imbricata* (Linnaeus, 1766)

## IT IS AN OMNIVOROUS SPECIES

Therefore, the coral reefs associated with nesting beaches are their foraging sites, feeding mainly on sponges, as well as corals, urchins, gastropods, crustaceans, algae and fish (Meylan, 1988; Van Dam and Diez, 1996; Stampar et al., 2007).

**HIS LONG AND SHARP HEAD:** It ends in a beak-like mouth that, in its case, is more pronounced and sharper than that of other Hawksbill turtle s.

**LIKE OTHER SPECIES:** During its neonate stage it has a pelagic life in the open ocean, to return to the coral reef areas when it reaches a size of 20 to 25 cm.

PHOTO: B. C. | INFOGRAPHIC: NELSON FERNÁNDEZ

# **Action plan for the conservation of Hawksbill turtles**

## **MEASURES FOR THE CONSERVATION AND / OR PROTECTION OF HAWKSBILL TURTLES IN COLOMBIA**

This plan has a time horizon of five years and is budgeted at a proximate cost. It is the product of consultation exercises with various actors such as: community groups, competent institutions, personnel from national universities, research centers, and personnel from non-governmental organizations dedicated to conservation. The action plan has been designed around four objectives identified by the participants of the activities carried out.

With the execution of the Action Plan, it is expected to contribute to the conservation of Hawksbill turtles. Likewise, it is expected to identify and develop other forms of income for local communities that allow them to improve their quality of life. The preparation and implementation of the Action Plan is the responsibility of the Ministry of the Environment, therefore, it is important that

within the Annual Operational Plans (POA) of the protected areas and areas of incidence of Hawksbill turtles in the respective regional Action plan.

However, its implementation will only be possible to the extent that the actors protect and conserve the populations of Hawksbill turtles. A summary of the identified objectives is detailed below.

In Table 1, the reader will be able to see the complete content of the objectives: Actions, Activities, Budget and Schedule to follow during the implementation of the Plan. Goals :

**OBJECTIVE 1: STRENGTHEN THE REGULATORY, FINANCIAL AND TECHNICAL CAPACITY OF PUBLIC INSTITUTIONS LINKED TO THE PROTECTION, CONSERVATION, AND RESEARCH OF MARINE**

## **TURTLES WITH THE PARTICIPATION OF CIVIL SOCIETY.**

### **Guidelines:**

Review and update the regulations for the protection, conservation and sustainable management of Hawksbill turtle s in Colombia.

Disseminate, promote and train officials and the general public on regulations related to the protection and conservation of Hawksbill turtle s.

Carry out an analysis of sources of financing and international and national cooperation for the development of actions conservation, protection and research of Hawksbill turtle s.

Influence the strengthening of the technical capacities and equipment of the authorities, as well as of the organizations and community groups linked to the protection, conservation, development of research actions and monitoring of Hawksbill turtle s.

## **OBJECTIVE 2. DEVELOP EDUCATIONAL AND AWARENESS PROGRAMS FOR THE GENERAL POPULATION ON THE PROTECTION, CONSERVATION AND IMPORTANCE OF HAWKSBILL TURTLE S AND THEIR HABITAT.**

### **Guidelines:**

Design and implement environmental education programs to contribute to the awareness of the general population about the importance of the protection and conservation of Hawksbill turtle s and their habitats.

Disseminate scientific and technical information on Hawksbill turtle s generated through conservation and research projects, in order to prioritize their conservation within the State's strategies.

## **OBJECTIVE 3. PROMOTE AND FACILITATE PROCESSES FOR THE DEVELOPMENT OF KNOWLEDGE, RESEARCH AND MONITORING OF HAWKSBILL TURTLE S AND THEIR HABITATS.**

### **Guidelines:**

Promote scientific research and monitoring of Hawksbill turtle s to generate scientific data that help the proper management of the species and their critical habitats.

## **OBJECTIVE 4. CONTRIBUTE TO THE CONSERVATION AND MANAGEMENT OF HAWKSBILL TURTLE POPULATIONS AND THEIR HABITATS.**

### **Guidelines:**

Protect key habitats for the protection and conservation of Hawksbill turtle s against anthropogenic alterations and the climate.

Develop projects that generate new mechanisms for economic diversification based on the sustainable and non-consumptive use of Hawksbill turtle s in coastal communities.

Develop projects for the conservation and management of Hawksbill turtle s in communities and prioritized beaches / spawning areas.

**ACTION PLAN FOR THE CONSERVATION OF THE  
HAWKSBILL TURTLE IN COLOMBIA**

**TABLE 1. TABLE OF CONTENTS OF OBJECTIVES, GUIDELINES, ACTIONS AND SCHEDULED ACTIVITIES**

<b>OBJECTIVE 1:</b> Strengthen the regulatory, financial and technical capacity of public institutions linked to the protection, conservation, and research of Hawksbill turtle s with the participation of civil society.		
<b>Guideline 1.1</b> Review and update the regulations for the protection, conservation and sustainable management of Hawksbill turtle s in Colombia.		
<b>Activities</b>	<b>Tasks</b>	<b>Indicators</b>
<b>1.1.1</b> Review and analyze the normative legal framework for the protection and conservation of Hawksbill turtle s that includes legal loopholes.	Compilation of existing regulations. Consultations with experts, institutions and civil society. Generate a document that compiles the analysis of the existing regulations including legal gaps. Public consultation workshops.	Revised legal framework. Document that analyzes the regulations related to the conservation of Hawksbill turtle s.
<b>1.1.2</b> Update and unify the regulations according to the results of the review of the legal framework and identified legal gaps.	Preparation of the various regulations for the conservation and protection of Hawksbill turtle s, with their proper publication in the Official Gazette.	Number of Standards updated and promulgated.
<b>1.1.3</b> To elaborate norms for the regulation of the activities developed (tourism, urban planning, among others) in the areas of essential habitats of Hawksbill turtle s.	Consultation workshops for experts (institutions, universities, NGOs) and different local and national actors.	Standard for the regulation of tourism activities. Standard for the regulation of constructions and lighting in beach areas. Number of standards promulgated.
<b>1.1.4</b> Review and strengthen read the regulations and mechanism for regulation of fishing activities that affect the Hawksbill turtle s, with the in order to use better fishing practices, following the studies god they are owed perform.	Elaboration of the norms for their publication in the Official Gazette. Consultation workshops with the entire fishing sector, including artisanal, industrial and sports fishing and tourism.	Ministry of Environment / Academia and research institutes, NGOs, Community Organizations, related government institutions, local authorities, private company, fishing sector.
<b>Guideline 1.2</b> Disseminate, promote and train officials and the general public about the regulations related to the protection and conservation of Hawksbill turtle s.		
<b>Activities</b>	<b>Tasks</b>	<b>Indicators</b>
<b>1.2.1</b> Promote knowledge of the rules and regulations for the protection and	Conduct outreach seminars.	Number of annual outreach activities

**ACTION PLAN FOR THE CONSERVATION OF THE  
HAWKSBILL TURTLE IN COLOMBIA**

<p>conservation of Hawksbill turtle s in the inhabitants of the communities that interact with the species, through social communication mechanisms such as talks, pamphlets, campaigns advertising and the press among others.</p>	<p>Preparation of informative material.</p>	<p>Number of people participating in outreach activities.</p>
<p><b>1.2.2</b> Carry out training days by province for officials of local authorities, State institutions, prosecutors, police, Judicial Branch, among others, on the existing regulations.</p>	<p>Training sessions nationwide. Preparation of informative material. Review administrative cases in the institutions.</p>	<p>Number of annual training days.</p>
<p><b>1.2.3</b> Design a database that includes administrative and criminal cases related to Hawksbill turtle s, their follow-up and failure, in order to know the status of cases or crimes related to the species.</p>	<p>Request the Public Ministry and the Judicial Branch criminal cases where crimes related to Hawksbill turtle s and their habitats are reviewed.</p> <p>Request from ARAP and MiAmbiente data related to administrative cases related to Hawksbill turtle s and their habitats, for their due analysis.</p> <p>Select the person responsible for the coordination and support of the database.</p>	<p>Number of people participating in training activities. Database developed.</p>
<p><b>1.2.4</b> Establish a protocol for action, which includes the steps to follow when a possible crime against Hawksbill turtle s and their habitats is detected or witnessed.</p>	<p>Working meetings between the competent Institutions and the Public Ministry to prepare the protocol.</p> <p>Submit the protocol to the citizen participation process.</p>	<p>Protocol developed and implemented.</p>
<p><b>1.2.5</b> Develop informative activities on the regulations of Hawksbill turtle s for the general population.</p>	<p>Sessions to identify and analyze good practices and challenges in the fishing sector. Sessions to identify and analyze good practices and challenges related to coastal development. Sessions to identify and analyze sectorial competencies related to the protection and conservation of Hawksbill turtle s. Workshop to carry out the crossing of information from the sessions of identification and analysis of good practices and challenges in the face of national and international regulations. Workshop to develop a guide to good practices and regulatory compliance related to the protection and conservation of Hawksbill turtle s according to the target audience and</p>	<p>Number of activities to disseminate the related regulations to the conservation and protection of Hawksbill turtle s. Number of events informative on the regulations of Hawksbill turtle s. Number of participants to the events.</p>

**ACTION PLAN FOR THE CONSERVATION OF THE  
HAWKSBILL TURTLE IN COLOMBIA**

	other related activities such as research, tourism, among others. Preparation and dissemination of the material with a focus on the regulations for the protection of Hawksbill turtle s	
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**Guideline 1.3** Carry out an analysis of sources of financing and international and national cooperation for the development of actions for the conservation, protection and research of Hawksbill turtle s.

<b>Activities</b>	<b>Tasks</b>	<b>Indicators</b>
<b>1.3.1</b> Identify and manage sources of financing for the implementation of the Action Plan and other actions for the conservation and protection of Hawksbill turtle s. Conduct a donor analysis.	Prepare projects according to the activities of the Action Plan. Sources of financing identified.	Number of projects managed to fulfill the plan.
<b>1.3.2</b> Establish and implement cooperation agreements with national and international organizations, private companies, universities, among others. Carry out negotiations with various organizations to identify the framework for cooperation between the parties.	Preparation and presentation of the agreements.	Number of cooperation agreements signed.

**Guideline 1.4** Influence the strengthening of the technical capacities and equipment of the authorities, as well as of the organizations and community groups linked to the protection, conservation, development of research actions and monitoring of Hawksbill turtle s.

<b>Activities</b>	<b>Tasks</b>	<b>Indicators</b>
<b>1.4.1</b> Identify institutional capacities, organizations and community-based groups linked to the protection and conservation of Hawksbill turtle s.	Prepare an analysis of the strengths and opportunities of the groups and institutions linked to the protection and conservation of turtles.	Report on the capacities of each of the actors.
<b>1.4.2</b> Strengthen the Interinstitutional Panaturtle Network, formed in 2016.	Include the Panaturtle Network in actions for the conservation and protection of Hawksbill turtle s	Memories of the coordination meetings held.

**OBJECTIVE 2: DEVELOP EDUCATIONAL AND AWARENESS PROGRAMS TO THE POPULATION IN GENERAL ABOUT THE PROTECTION, CONSERVATION AND IMPORTANCE OF HAWKSBILL TURTLE S AND THEIR HABITATS.**

**Guideline 2.1** Design and implement environmental education programs to contribute to the awareness of the general population about the importance of the protection and conservation of Hawksbill turtle s and their habitats.

<b>Activities</b>	<b>Tasks</b>	<b>Indicators</b>
<b>2.1.1</b> Design and implement environmental education programs for the conservation of Hawksbill turtle s	Workshops with key stakeholders. Prepare a participatory Environmental Education Plan. Preparation of informative material.	Number of participants in the environmental education program.

**ACTION PLAN FOR THE CONSERVATION OF THE  
HAWKSBILL TURTLE IN COLOMBIA**

and their habitats, according to identified target groups.	Distribution of processed material. Program developed and implemented.	
<b>2.1.2</b> Design and distribute educational modules to train fishermen, representatives of community organizations and NGOs on conservation, rescue and rehabilitation of Hawksbill turtle s.	Workshop for the development of rescue modules and Hawksbill turtle rehabilitation	Number of male and female fishermen trained.

**Guideline 2.2** Disseminate scientific and technical information on Hawksbill turtle s generated through conservation and research projects, in order to prioritize their conservation within the state's strategies.

<b>Activities</b>	<b>Tasks</b>	<b>Indicators</b>
<b>2.2.1</b> Design and reproduction of informative bulletins on scientific and technical information on Hawksbill turtle s. Design and distribute brochures by sector for the Caribbean and the Pacific.	Translation of the informative material according to the needs of the indigenous groups.	Number of newsletters designed and brochures distributed in digital and printed version
<b>2.2.2</b> Communication campaign in television, radio and written media about Hawksbill turtle s, their habitats, pressures and importance. Production of annual television programs.	National radio campaign production	Production of reports written in the national press. One campaign per year
<b>2.2.3</b> Participation in activities to disseminate scientific and technical information on Hawksbill turtle s and their habitats on dates alluding to the ambient.	Organization or participation in forums, conferences and / or other environmental awareness activities.	At least two (2) activities per year during dates alluding to the environment.
<b>2.2.4</b> Design and preparation of information billboards on nesting beaches.	Distribution and placement of fences on nesting beaches.	Number of information billboards located on nesting beaches.
<b>2.2.5</b> Design and preparation of videos on different aspects of Hawksbill turtle s and their habitats.	Collect new and / or existing material. Edition of the material available. Disclosure of the material.	Videos of elaborated turtles.

**OBJECTIVE 3: PROMOTE AND FACILITATE PROCESSES FOR THE DEVELOPMENT OF KNOWLEDGE, RESEARCH AND MONITORING OF HAWKSBILL TURTLE S AND THEIR HABITATS.**

**Guideline 3.1** Promote scientific research and monitoring of Hawksbill turtle s to generate scientific data that help the proper management of the species and its critical habitats.

<b>Activities</b>	<b>Tasks</b>	<b>Indicators</b>
<b>3.1.1</b> Manage the scientific and technical information gaps identified for the management of Hawksbill turtle s and their habitats. Carry out workshops in the	Consult with experts. Cartographic information of the new conservation areas.	Technical reports on void management crafted with experts and communities.



**ACTION PLAN FOR THE CONSERVATION OF THE  
HAWKSBILL TURTLE IN COLOMBIA**

communities that include exchanges of knowledge and experiences.		
<b>3.1.2</b> Application of the standard methodology and manual on the format, for the compilation of data regarding the species of Hawksbill turtle s, nests and nesting areas, among others.	<p>Workshop for the elaboration of updating and standardization of data collection formats.</p> <p>Preparation of a manual for the correct monitoring of Hawksbill turtle s on beaches and open waters.</p> <p>Disclosure of the standard methodology and filling out forms.</p>	<p>Methodology and standardized formats developed and updated.</p> <p>Formats and manuals distributed in the communities.</p>
<b>3.1.3</b> Carry out monitoring of Hawksbill turtle populations according to the standardized methodology in prioritized areas (consider monitoring in marine habitats to include males and juveniles).	<p>Organize groups of volunteers to share and prepare an information sheet on monitoring activities and tours.</p> <p>Carry out continuous training courses for volunteers.</p> <p>Take tours in conjunction with volunteers to prioritized nesting beaches.</p> <p>Establish the National and International Volunteer Program to support the projects led by MiAmbiente.</p>	<p>Number of turtle population monitoring projects implemented.</p> <p>Number of volunteers participating in the projects.</p> <p>Number of volunteers supporting the projects led by MiAmbiente.</p>
<b>3.1.4</b> Characterize the prioritized nesting beaches, according to established criteria for future investments.	Workshops to validate the characterization of the area and actions to be taken.	Number of nesting beaches characterized
<b>3.1.5</b> Establish nurseries in critical or priority areas and equip them with the minimum implements for custody and monitoring and strengthen those already created for the sustainable management of the species.	<p>Select critical areas for the establishment of nurseries.</p> <p>Register them in the Miambiente.</p> <p>Prepare and deliver seasonal reports.</p> <p>Train the staff who will work on them.</p>	<p>Number of established nurseries.</p> <p>Number of nurseries strengthened.</p> <p>Number of eggs laid.</p> <p>Number of hatchlings by season and species.</p>
<b>3.1.6</b> Carry out a study of bycatch in fishing gear.	<p>Collect information on mortality and data analysis.</p> <p>Carry out sampling and laboratory analysis of the autopsies performed.</p>	Elaborate study.
<b>3.1.7</b> Develop studies on the effective use of the Hawksbill turtle Excluder Device in Colombia	Consulting to carry out the study.	Elaborate study.
<b>3.1.8</b> Establish a permanent training program for inspectors and personnel involved in control and surveillance on the correct use of the Hawksbill turtle Excluder Device in trawling vessels and / or correct release of individuals from	Carry out training workshops for inspectors and observers on board. Training program being implemented.	Number of inspectors trained per year.

**ACTION PLAN FOR THE CONSERVATION OF THE  
HAWKSBILL TURTLE IN COLOMBIA**

other fishing gear . Prepare training modules corresponding to the topic.		
<b>3.1.9</b> Design and establishment of a Center for Research, Rescue, Timely Assistance and Rehabilitation of turtles and others aquatic species associated with the environment.	Preparation of the terms of reference for: Design of the Center, Construction of the Center and Equipment of the Center.	Research center in operation.

**OBJECTIVE 4: CONTRIBUTE TO THE CONSERVATION AND MANAGEMENT OF HAWKSBILL TURTLE POPULATIONS AND THEIR HABITATS.**

**Guideline 4.1** Protect key habitats for the protection and conservation of Hawksbill turtles against anthropogenic disturbances and climate.

<b>Activities</b>	<b>Tasks</b>	<b>Indicators</b>
<b>4.1.1</b> Prepare a diagnosis on the status of nesting beaches (prioritized) and important marine habitats that includes the necessary measures to prevent and mitigate their degradation and strategies for their recovery.	Evaluations through workshops and Meetings.	Elaborate diagnosis.
<b>4.1.2</b> Carry out adaptive management activities for Hawksbill turtle nesting areas.	Carry out a reconnaissance tour to assess the condition and prioritize them.	Number of adaptive management measures implemented.
<b>4.1.3</b> Carry out a comparative analysis of the effectiveness of marine turtle conservation measures in SINAP versus coastal marine areas outside SINAP.	Coordination of field trips and evaluation of management measures.	Report on the status of conservation effectiveness inside and outside SINAP.
<b>4.1.4</b> Prepare an annual report on the results of the conservation measures implemented.	Report prepared by the Hawksbill turtle Management Committee according to the established regulations.	Number of conservation areas. Habitats recovered. Hatching success, Reduction in seizures, number of communities that benefit from alternative projects.

**Guideline 4.2** Develop projects that generate new mechanisms of economic diversification based on the sustainable and non-subjective use of Hawksbill turtles in coastal communities.

<b>Activities</b>	<b>Tasks</b>	<b>Indicators</b>
<b>4.2.1</b> Identify social and economic needs of communities and impacts on resources.	Prioritize communities and hold meetings, workshops and encounters.	Socioeconomic and Cultural Diagnosis.
<b>4.2.2</b> Identify economic alternatives to conserve and avoid the extractive use of Hawksbill turtles, their products or by-products.	Carrying out business plans based on non-profit sea turtle consumptive as a viable alternative for community business development.	Number of projects prepared.

**ACTION PLAN FOR THE CONSERVATION OF THE  
HAWKSBILL TURTLE IN COLOMBIA**

	Prepare project proposals that include a risk analysis. Number of business plans prepared.	
<b>4.2.3</b> Implement the projects developed (environmental investments) that help to improve the economic income and quality of life of its inhabitants and reduce and / or eliminate the pressures on Hawksbill turtle s, Provide communities with the support of experts in business Administration.	Establish a follow-up, support and evaluation mechanism for the projects that are executed.	Number of projects executed. Number of beneficiaries.
<b>Guideline 4.3</b> Develop projects for the conservation and management of Hawksbill turtle s in prioritized communities and beaches / spawning areas.		
<b>Activities</b>	<b>Tasks</b>	<b>Indicators</b>
<b>4.3.1</b> Implement community pilot projects for the sustainable management of nesting beaches and critical habitats for Hawksbill turtle s.	Identify the areas that apply for the implementation of pilot projects.	Number of demonstration projects implemented.

**BIBLIOGRAPHY**

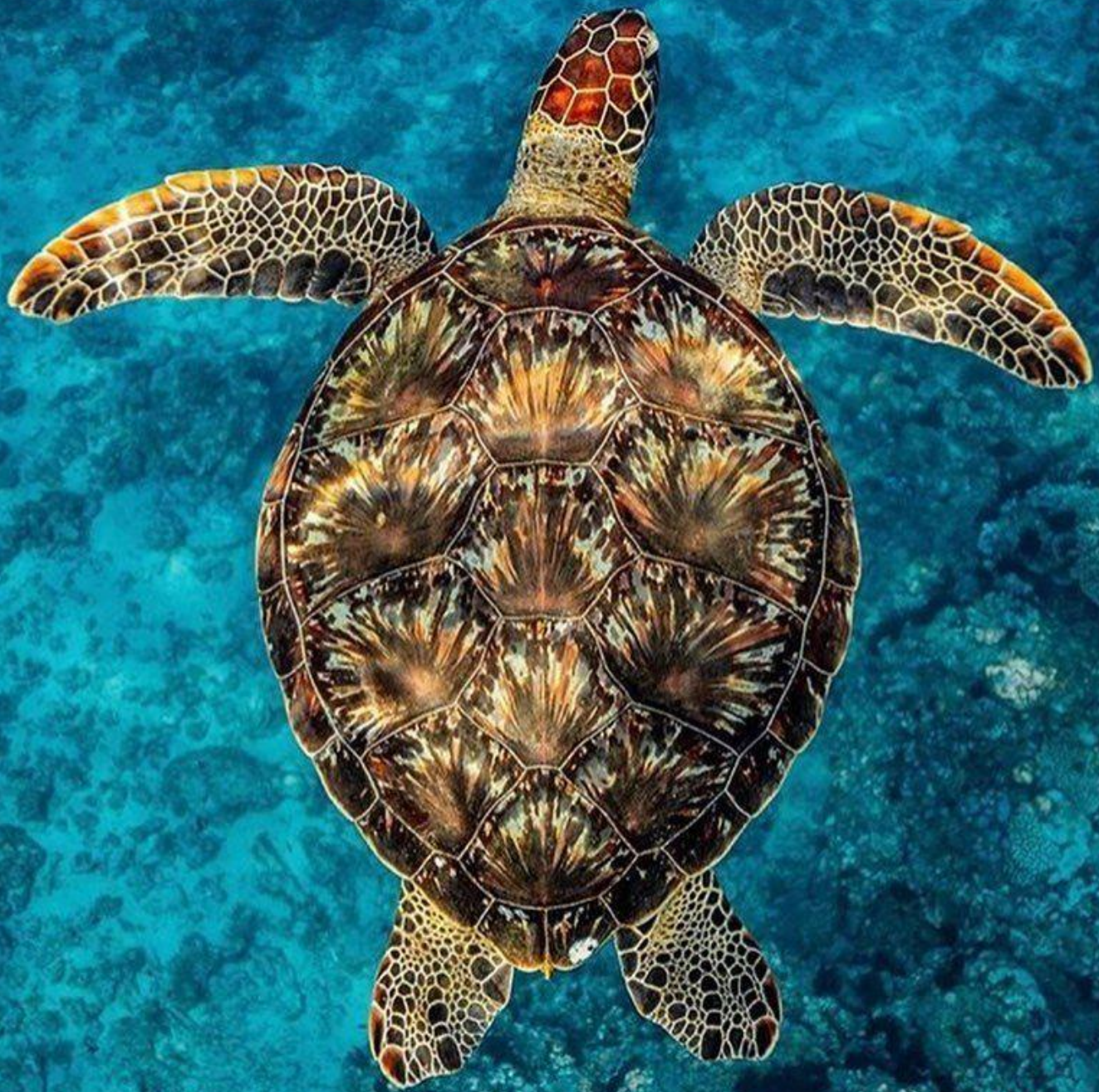
- Amorocho, D. 1999. Status and Distribution of the Hawksbill Turtle, *Eretmochelys imbricata*, in the Wider Caribbean Region. In: Marine Turtle Conservation in the Wider Caribbean Region - A Dialogue for Effective Regional Management ". Santo Domingo Dominican Republic. 5 pp.
- Casas-Andreu, G. 1978. Analysis of the Nesting of Hawksbill turtle s of the Genus *Lepidochelys* in Mexico. *Cent. of Cienc. del Mar and Limn.* 5: 141-158.
- Chacón, D. 2004a. Synopsis of the Leatherback Hawksbill turtle (*Dermochelys coriacea*). 27 pp.
- Chacón, D. 2004b. The Caribbean hawksbill turtle - Introduction to its biology and conservation status. WWF - Regional Program for Latin America and the Caribbean. San Jose Costa Rica. 51 pp.
- Chacón, D. and Araúz, R. 2001. Regional Diagnosis and strategic planning for the conservation of Hawksbill turtle s in Central America. Regional Network for the Conservation
- Avens, L., Taylor J.C., Goshe, L.R., Jones, T.T. and Hastings, M. 2009. Use of skeletochronological analysis to estimate the age of leatherback Hawksbill turtle s *Dermochelys coriacea* in the western North Atlantic. *Endang. Spec. Res.* 8: 165–177.
- Casale, P., Freggi, D., Cioni, C. and Argano, R. 2011. Age and growth determination by skeletochronology in loggerhead Hawksbill turtle s (*Caretta caretta*) from the Mediterranean Sea. *Sci. Mar.* 75: 197-203.

## ACTION PLAN FOR THE CONSERVATION OF THE HAWKSBILL TURTLE IN COLOMBIA

- of Hawksbill turtles in Central America. 107 pp.
- Chacón, D. and Eckert, K. 2007. Leatherback Hawksbill turtle nesting at Gandoca Beach in the Caribbean coast of Costa Rica: Management recommendations from fifteen years of conservation. *Chelonian Conservation and Biology*. 6 (1): 101-110
  - De Haro, A. and Tröeng, S. 2006. Report on the 2005 green turtle program at Tortuguero, Costa Rica. Gainesville, Florida. 49 pp.
  - Eckert, K.L. and Abreu-Grobois, A.F. 2001. Conservation of Hawksbill turtles in the Wider Caribbean Region - A Dialogue for Effective Regional Management. Spanish translation by Raquel Briseño Dueñas and F. Alberto Abre Grobois. WIDECAS, IUCN / CSE Specialist Group on Hawksbill turtles (MTSG), WWF and the UNEP Caribbean Environment Program. 170 pp.
  - Eckert, K.L., Wallace, B.P., Frazier, J.G., Eckert, S.A and Pritchard, P.C.G. 2012. Synopsis of the Biological Data on the Leatherback Hawksbill turtle (*Dermodochelys coriacea*). Biological Technical Publication, U.S. Fish and Wildlife Service. 172 pp.
  - Frazer, N.B. and Ehrhart, L.M. 1985. Preliminary Growth Models for Green, *Chelonia mydas* and Loggerhead, *Caretta caretta*, Turtles in the Wild, *Copeia*. 73-79.
  - Gaos, A.R., R. Araúz and I.L. Yañez. 2006. Hawksbill Turtles on the Pacific Coast of Costa Rica. *Mar. Turt. Newslett.* 112: 14.
  - Gaos, AR, FAAbreu-Grobois, J. Alfaro-Shigueto, D. Amorocho, R. Arauz, A. Baquero, R. Briseño, D.Chacón, C. Dueñas, C. Hasbún, M.Liles, G. Mariona, C. Muccio, JPMuñoz, WJ Nichols, M. Peña, J.A. SEMINOFF, M. Vásquez, J. Urteaga, B. Wallace, I.L. Yañez and P. Zárate. 2010. Signs of hope in the EP: international collaboration reveals encouraging status for a severely depleted populations of hawksbill turtles *Eretmochelys imbricata*. *Oryx* 44: 595-601.
  - Gaos, A.R., R.L. Lewison, I.L. Yañez, B.P. Wallace, M.J. Liles, W.J. Nichols, A. Baquero, C.R. Hasbún, M. Vasquez, J. Urteaga and J.A. Seminoff. 2012a. Shifting the life-history paradigm: discovery of novel habitat use by hawksbill turtles. *Biol. Lett.* 8: 54-56.
  - Baquero, C.R. Hasbún, M. Vasquez, J. Urteaga and J.A. Seminoff. 2012b. Spatial ecology of critically endangered hawksbill turtles *Eretmochelys imbricata*: implications for management and conservation. *Mar. Ecol. Prog. Ser.* 450: 181-194.
  - Goas, A.R., R.L. Lewison, M.J. Liles, V. Gadea, E. Altamirano, A.V. Henriquez, P. Torres, J. Urteaga, F. Vallajo, A. Baquero, C. LeMarie, J.P. Muñoz, J.A. Chavez, C.E. Hart, A. Peña de Niz, D. Chacon, L. Fonseca, S. Otterstrom, I.L. Yañez, E.L. LaCasella, A. Frey, M.P. Jensen and P.H. Dutton. 2015. Hawksbill turtle terra incognita:

## ACTION PLAN FOR THE CONSERVATION OF THE HAWKSBILL TURTLE IN COLOMBIA

- conservation genetics of eastern Pacific rookeries. *Ecol Evol.* 6 (4): 1251-1264.
- Lagueux, C. 2001. Status and Distribution of the Green Turtle, *Chelonia mydas*, in the Wider Caribbean Region. Hawksbill turtle Conservation in the Greater Caribbean Region: A Dialogue for Effective Management. Santo Domingo Dominican Republic. 4 pp.
  - Liles, M.J., M.J. Peterson, J.A. Seminoff, E. Altamirano, A.V. Henríquez, A.R. Gaos, V. Gadea, J. Urteaga, P. Torres, B.P. Wallace and T.R. Peterson. 2015. One size does not fit all: importance of adjusting conservation practices for endangered hawksbill turtles to address local nesting habitat needs in the EP Ocean. *Biol. Conserv.*
  - Marcovaldi, M.Â. 1999. Status and Distribution of the Olive Ridley Turtle, *Lepidochelys olivacea*, in the Western Atlantic Ocean, Santo Domingo, Dominican Republic. 5 pp.
  - Meylan, A. 1988. Spongivory in hawksbill turtles: A diet of glass. *Sci.* 239: 393-395.
  - Meylan, A. B., and Donnelly. M. 1999. Status justification for listing the hawksbill turtle (*Eretmochelys imbricata*) as Critically Endangered on the 1996 IUCN Red List of Threatened Animals. *Che. Cons. and Bio.* 3 (2): 200-224.
  - Meylan, A.B., Meylan, P.A. and Gray, J.A. 2011. The Ecology and Migrations of Hawksbill turtle s. Test of the developmental habitat hypothesis. New York, New York, USA. 70 pp.
  - Reina, R.D., Mayor, P.A., Spotila, J.R., Piedra, R. and Paladino, F. 2002. Nestingecology of the leather back turtle, *Dermochelys coriacea*, at PN Marino Las Baulas, Costa Rica: 1988 to 1999-2000. *Copeia*, 3: 653-664.
  - Seminoff, J., and Wallace, B. (eds). 2012. Hawksbill turtle s of the Eastern Pacific Advances in Research and Conservation. 369 pp.
  - Van Dam, R.P. and Diez, C.E. 1996. Diving behavior of immature hawksbill turtles (*Eretmochelys imbricata*) in a Caribbean reef habitat. *Coral Reefs* 16: 133-138.
  - Vega, A.J. and Robles, Y. 2005. Description of the nesting process and biometry of females, eggs and nests in olive ridley Hawksbill turtle *Lepidochelys olivacea* (Eschscholtz 1829) in Isla Cañas, Colombianian Pacific. *Technoc.* 7 (2): 43-55.
  - Witherington, B.E., Herren, R. and Bresette, M. 2006. *Caretta caretta* - Loggerhead Hawksbill turtle . In: Meylan, P.A (Ed), *Biology and Conservation of Florida Turtle*. Chelonian Research Monographs 3: 74-89.
  - Zug, G.R. and Parham J.F. 1996. Age and growth in leatherback turtles (*Dermochelys coriacea*): a skeletochronological analysis. *Chel. Cons. Bio.* 2: 244-249.



**ACTION PLAN FOR THE CONSERVATION OF  
THE HAWKSBILL TURTLE IN COLOMBIA**

**2020-2030**