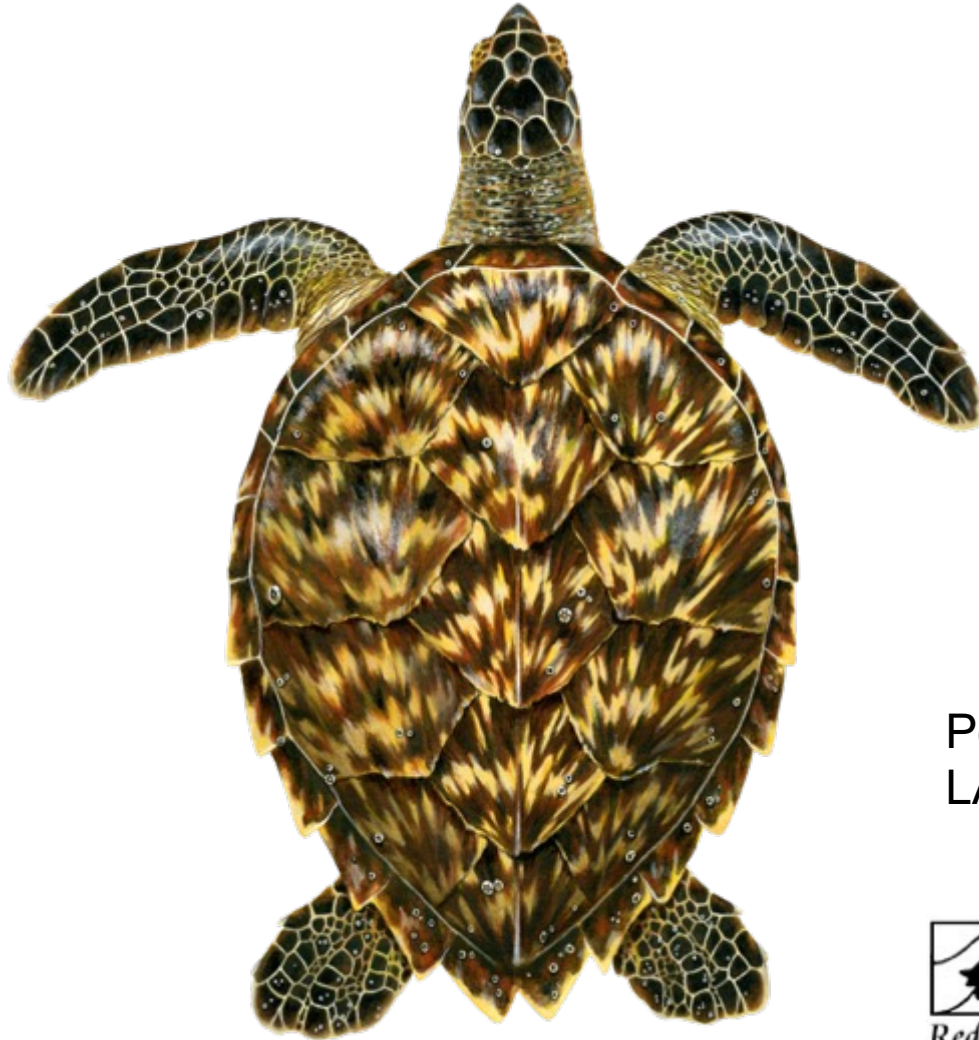


# Comercio de productos de tortuga marina: Cómo reconocer productos de carey

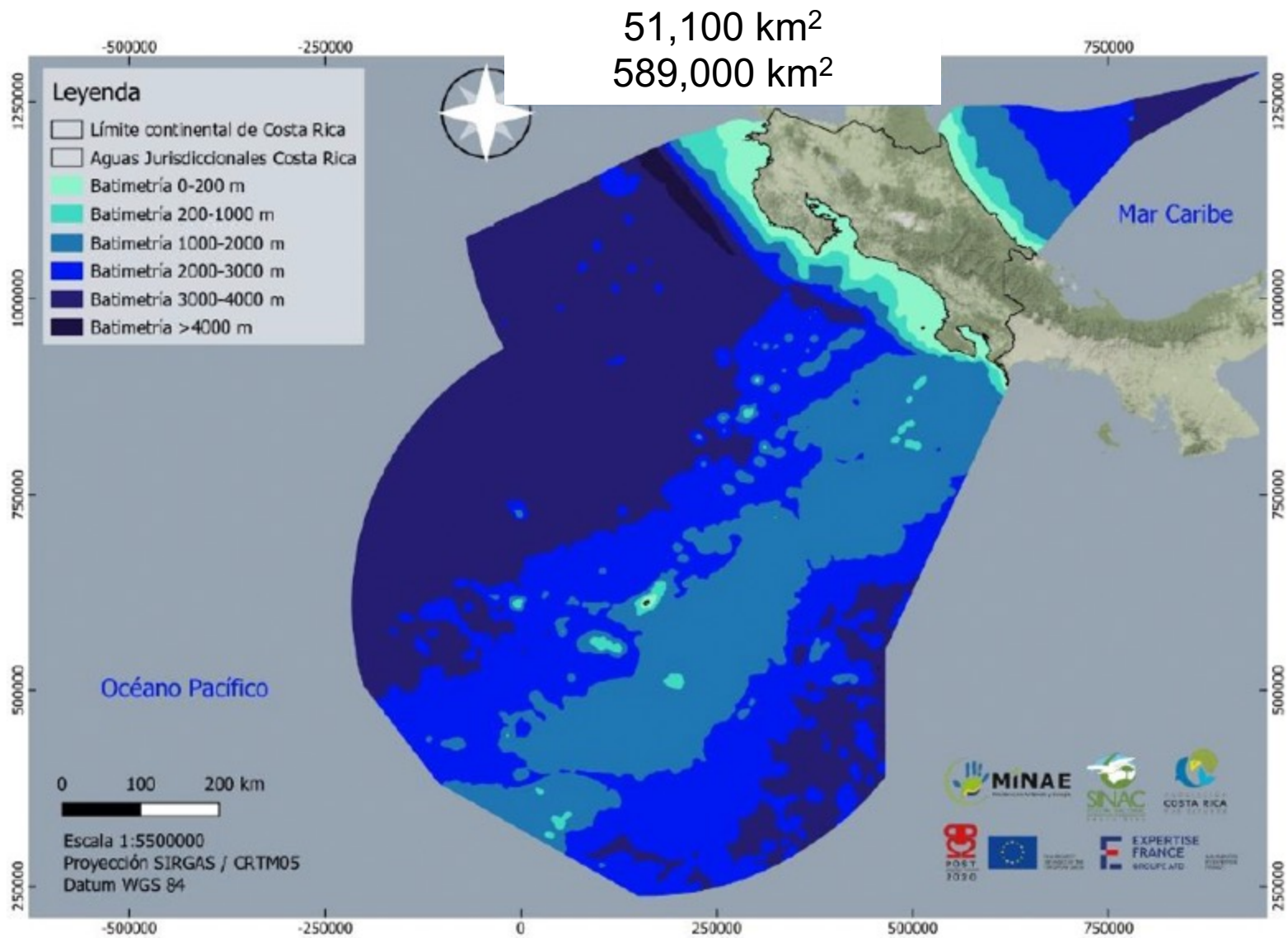


Por: Didiher Chacón  
LAST-WIDECAST



# Apoyo





MINAE. 2023. Actualización de Sitios Prioritarios para el Manejo y Conservación en Ambientes Marino-costeros de Costa Rica



Foto: Sergio Pucci

# Explotación y comercialización del carey

- Comercio a gran escala inició en los 50's
- Principales mercados eran EEUU, Japón y Europa
- Japón importó legalmente un total de 641.531 kg de caparazones de carey entre 1970 y 1986
- Sacados del Caribe y América Latina
- Panamá y Cuba principales exportadores
- Seguidos de Islas Caimán y Haití



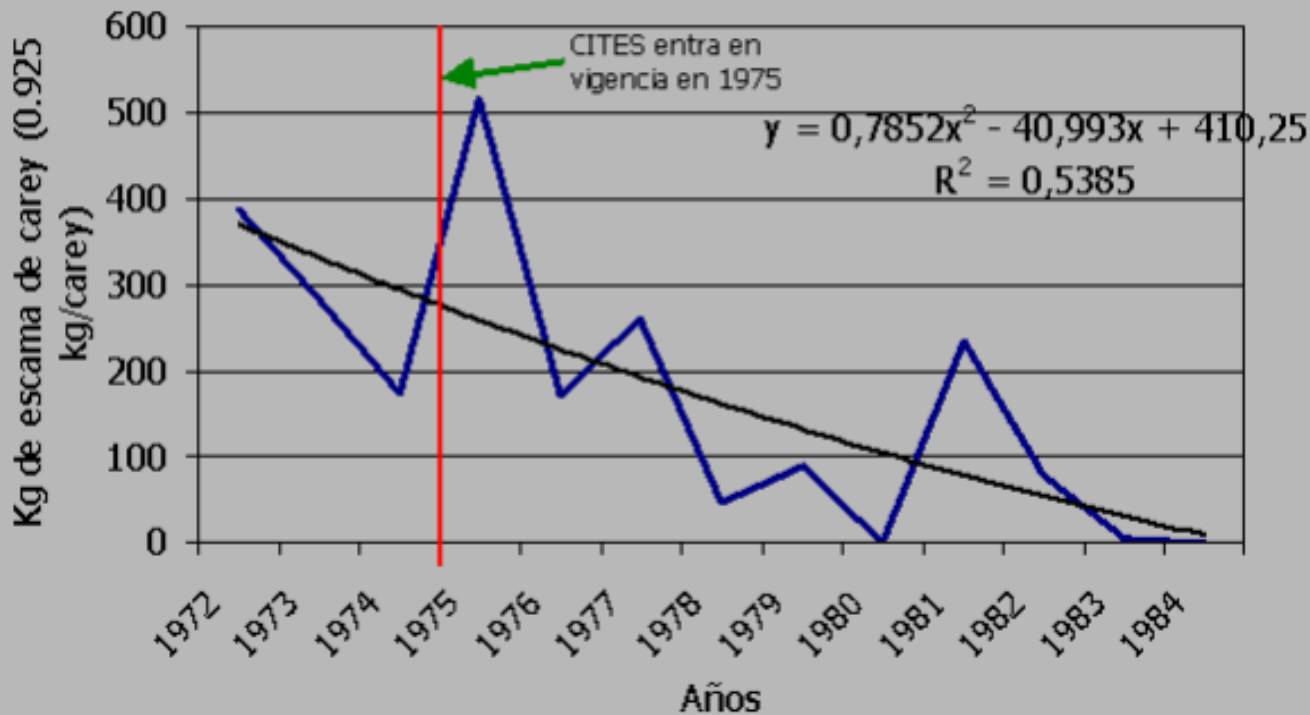
# Comercio de carey en Japón

- “**Bekko**” nombre que se le daba a cada escudo
- Inició hace más de mil años
- Fabricar peines y adornos para el cabello e instrumentos musicales
- El mercado cerró oficialmente en 1993
- La artesanía se basa en la fusión de los escudos



# Comercio de carey en Costa Rica

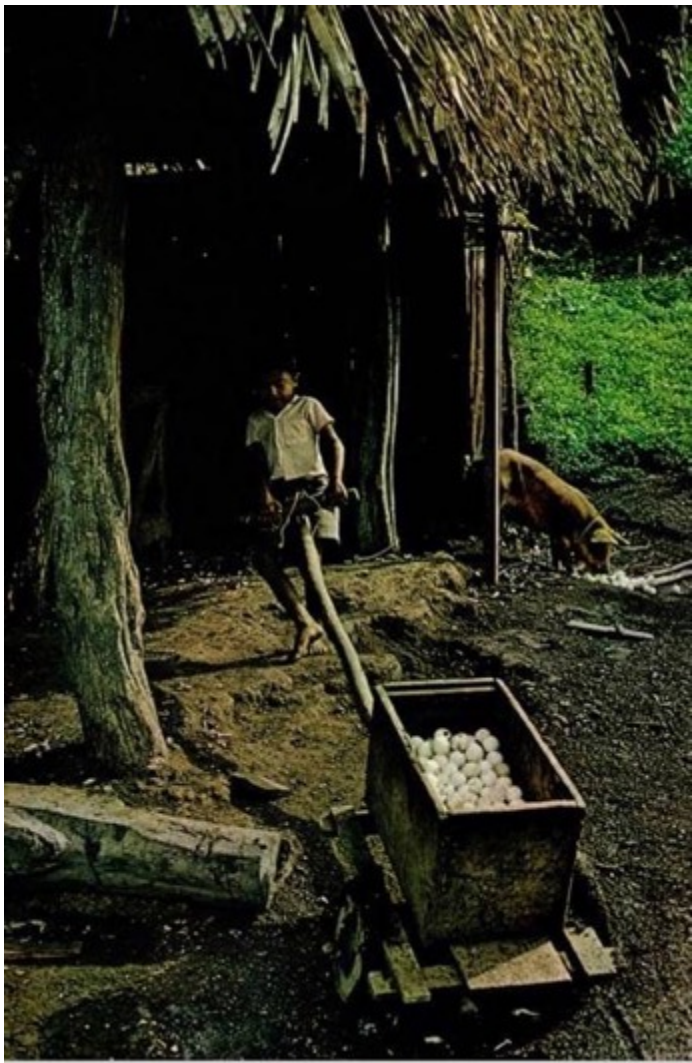
Exportaciones de carey desde Costa Rica a Japón



**2,483  
tortugas**







# Para 1999

- Se comerciaba carne de tortuga verde
- Se vendían cremas y lociones a base de grasa de tortuga
- Se vendían productos de carey por todo el país.
- Se usaban abiertamente las espuelas para peleas de gallos
- Se observaba con frecuencia taxidermias

Carne



Aceite



Otros

Huevos



Carey





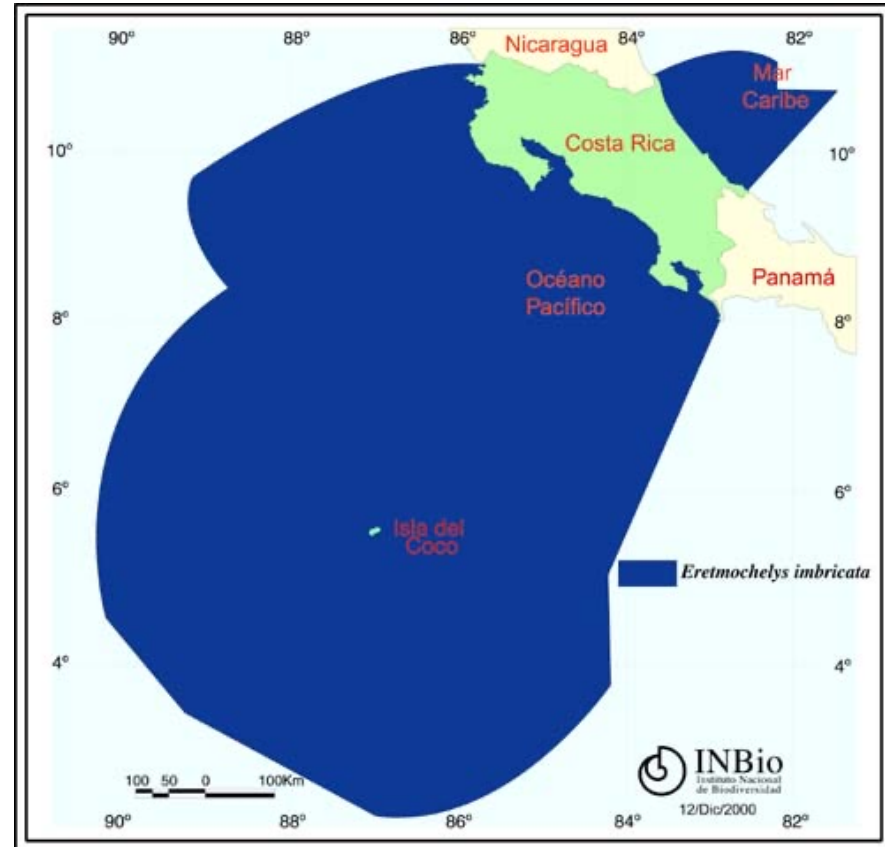
© Nicolas Piclher

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	<b>CRITICALLY ENDANGERED</b>	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX

RED LIST

**CRITICALLY ENDANGERED**

CR



## Marco legal:

Convenciones internacionales:

CITES, 1975

Convención Interamericana para la Protección y Conservación de las Tortugas Marinas, 1999.

## Normativa nacional:

- Ley de Vida Silvestre
- Ley 8325
- Ley de Pesca y Acuicultura





# Carey

Poco abundante el anidamiento  
Disperso  
Abundancia de juveniles en la costa  
Cazada en Caribe por caparazón















Anillos con oro o sin oro  
 limón centro pasaje Roma  
 83271761

# Anillos de Carey. Con oro y sin oro Limón centro

₡10.000

📩 Envía un mensaje al vendedor

Hola. ¿Sigue estando disponible?

Enviar



Alerta



Guardar



Compartir



Enviar oferta













Ministerio de Seguridad Pública

6 de feb. de 2017

Policía de Fronteras de Seguridad Pública detuvo en Guaycará de Golfito a dos hombres con millonario cargamento de espu... Ver más





### Granja Los Corrales

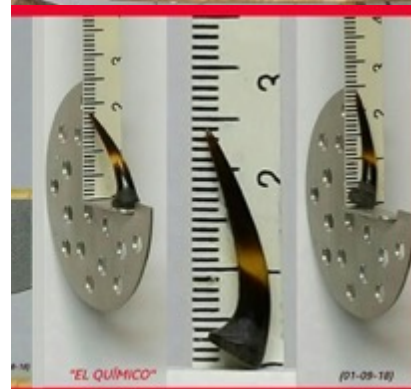
Me gusta esta página · 3 de febrero de 2015 ·

AMIGOS TENGO EN VENTA ESTUCHES DE  
ESPUELAS DE PURO CAREY DE 12 EN ADELANTE  
HECHAS EN PANAMÁ IMPORTADAS A SAN JOSE  
C.R Y ENVIOS POR ENCOMIENDAS PEDIDOS AL  
89 32 84 16 MATERIAL DE PRIMERA  
APROVECHEN!!!

13

18 comentarios

Me gusta Comentar Compartir



pelea gallos carey

Alvariito Villamil  
26 de abril a las 09:39

que numero de carey para el  
tullo :) ? 30,35, 40  
domingo pelea de gallos ;)  
gallera estevita (Y)



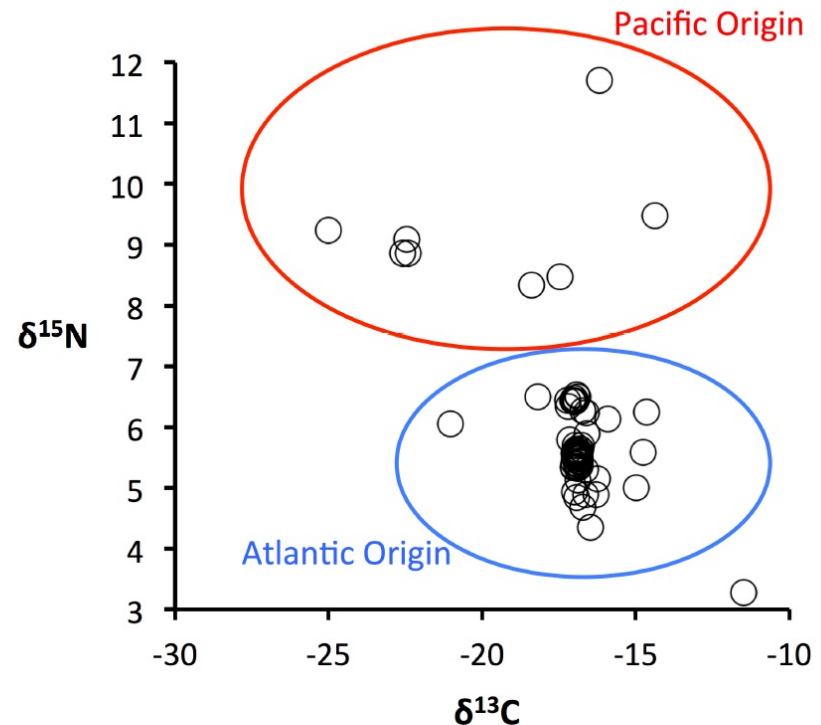
# Stable isotope values of hawksbill (*Eretmochelys imbricata*)

shell material recovered from confiscated rooster spurs:

a forensic approach to determining origin of turtles

Jeffrey A. Seminoff and Joel Schumacher

Stable Isotope Ecology Laboratory  
NOAA-Southwest Fisheries Science Center  
La Jolla, California USA



**Figure 1.** Scatterplot of  $\delta^{13}\text{C}$  vs.  $\delta^{15}\text{N}$  values for hawksbill shell tissue used in rooster spurs recovered from Panama. Data on baseline stable nitrogen values between Atlantic and Pacific ocean basins were used to determine putative origin of hawksbill shell tissue.

# Situación actual ante este comercio?



Cuerpos policiales sin capacitación o muy poca.



Ausente o poca coordinación ente entidades (e.g. MSP-MINAE)



Venta continua



Poca o ausente asesoría legal.



Nexos entre cacería de TM, Venta de subproductos y otras actividades ilegales.



Asociación LAST (Latin American Sea Turtles)  
CJ: 3-002-495589  
Phone: 00506-2236-0947, www.latinamericaseaturtles.com  
P.O. Box: 496-1100, Tibás, Costa Rica  
1/1

8 de Agosto del 2022

Sres.  
Delegación de Talamanca  
Fuerza Pública  
Gobierno de Costa Rica

Estimados señores:

En mi calidad de biólogo marino, experto en tortugas marinas, autoridad nacional representante de Costa Rica ante la Convención Interamericana para la Conservación de las Tortugas Marinas, y basado en los siguientes análisis periciales:

1. Forma de la pulsera
2. Grosor de la "lámina"
3. Características de simetría
4. Coloración
5. Prueba de combustión
6. Distribución helicoidal de la queratina.

*Los representantes de la fuerza pública suministran material fotográfico del artículo decomisado que consiste en una pulsera de unos 15-17 cm de diámetro, recortada en su parte inferior para que pueda ser usada en la muñeca, posee un agregado de aparente oro con una inscripción que dice: **Hudson**. La pulsera muestra un grosor de la lámina irregular que coincide con la genuinidad de las escamas de la tortuga carey (*Eretmochelys imbricata*), además la parte inferior en ambos extremos muestra asimetría lo que denota un trabajo artesanal, la misma parte interior de la pulsera refleja la deposición en forma de beta queratina lo que es otro indicador de genuinidad al igual que la coloración. La prueba de combustión realizada por el oficial Gian Carlos Tobal González cédula 702730164 verifica la emanación de olor a pelo quemado que es la verificación de la combustión de la queratina, mismo componente químico presente en pelo y uñas de los mamíferos.*

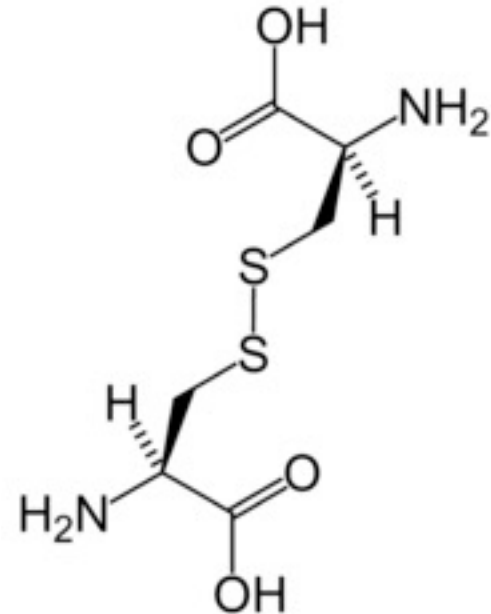
*Es válido agregar que los estudios del comercio de productos de vida silvestre en este caso tortugas marinas concluyen que solo a las piezas genuinas se les hacen agregados de metales preciosos y que culturalmente se portan artículos genuinos y no replicas plásticas.*

Los indicadores antes descritos me permiten emitir mi criterio pericial como experto en la materia y concluir que el material decomisado es una pulsera elaborada por una escama del caparazón de la tortuga carey, especie protegida por la normativa nacional (Ley de Vida Silvestre y la Ley para la Protección de las Tortugas Marinas 8325), así como varios acuerdos internacionales. Razón por la cual su tenencia, elaboración, comercio, trasiego están prohibidos.

Qué es el carey?

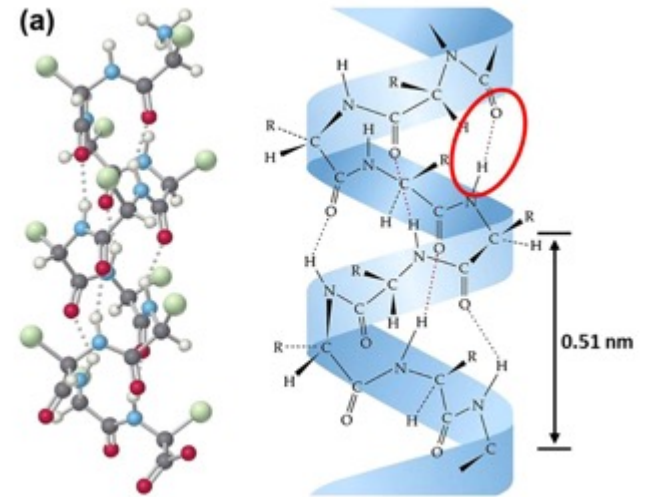
Se le llama carey a las escamas del caparazón de la tortuga carey, constituidas de keratina.

La keratina es una proteína fibrosa de la cual se conocen dos clases a alfa y la beta Keratina. La alfa keratina se hace presente en mamíferos (uñas, cuernos, pezuñas, pelo), mientras que la beta keratina es más común en los reptiles, tales como las Tortugas marinas. Las especies de la familia Chelonidae todas poseen escudos formados de keratina pero los de la carey acumulan más grosor por lo que son muy utilizados para la elaboración de artefactos.

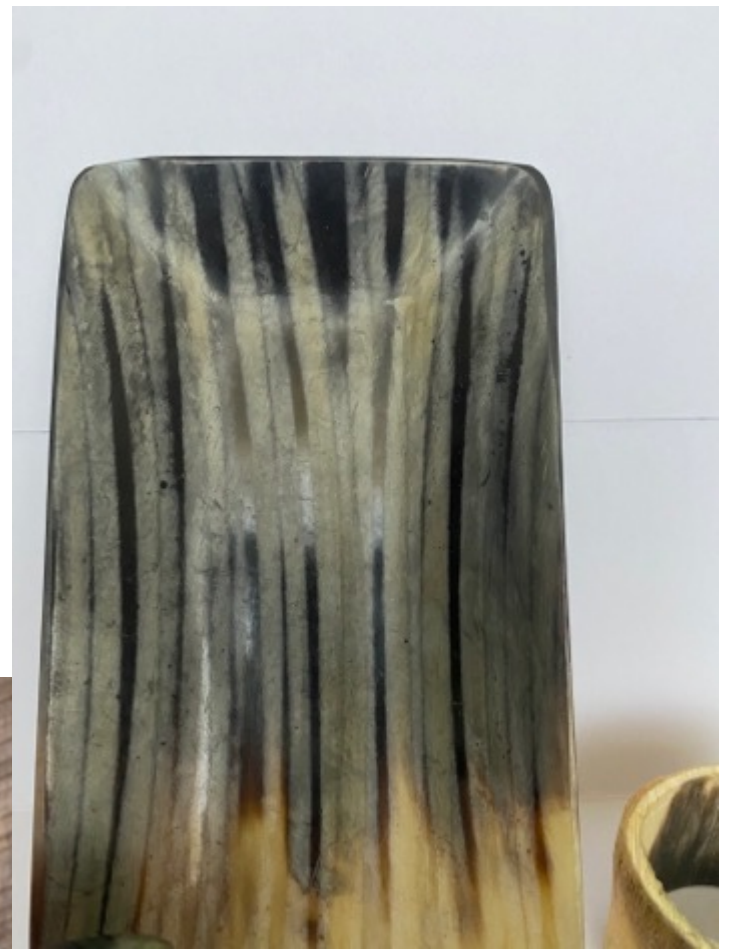


La forma de keratinización es diferente alfa longitudinal, beta elíptica.

Beta keratina, constituida por aminoácidos: cysteine (**17.5%**), serine (11.7%), glutamic acid (11.1%), threonine (6.9%), glycine (6.5%), leucine (6.1%), valine (5.9%), arginine (5.6%), aspartic acid (5.0%), alanine (4.8%), proline (3.6%), isoleucine (2.7%), tyrosine (1.9%), phenylalanine (1.4%), histidine (0.8%) and methionine (0.5%).



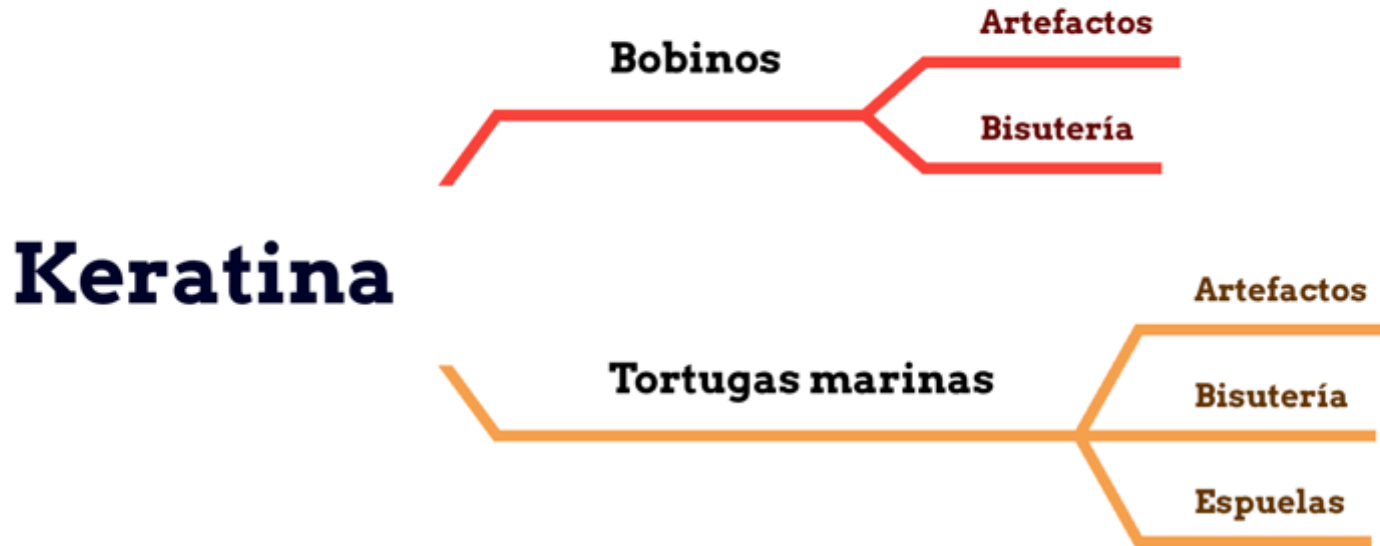


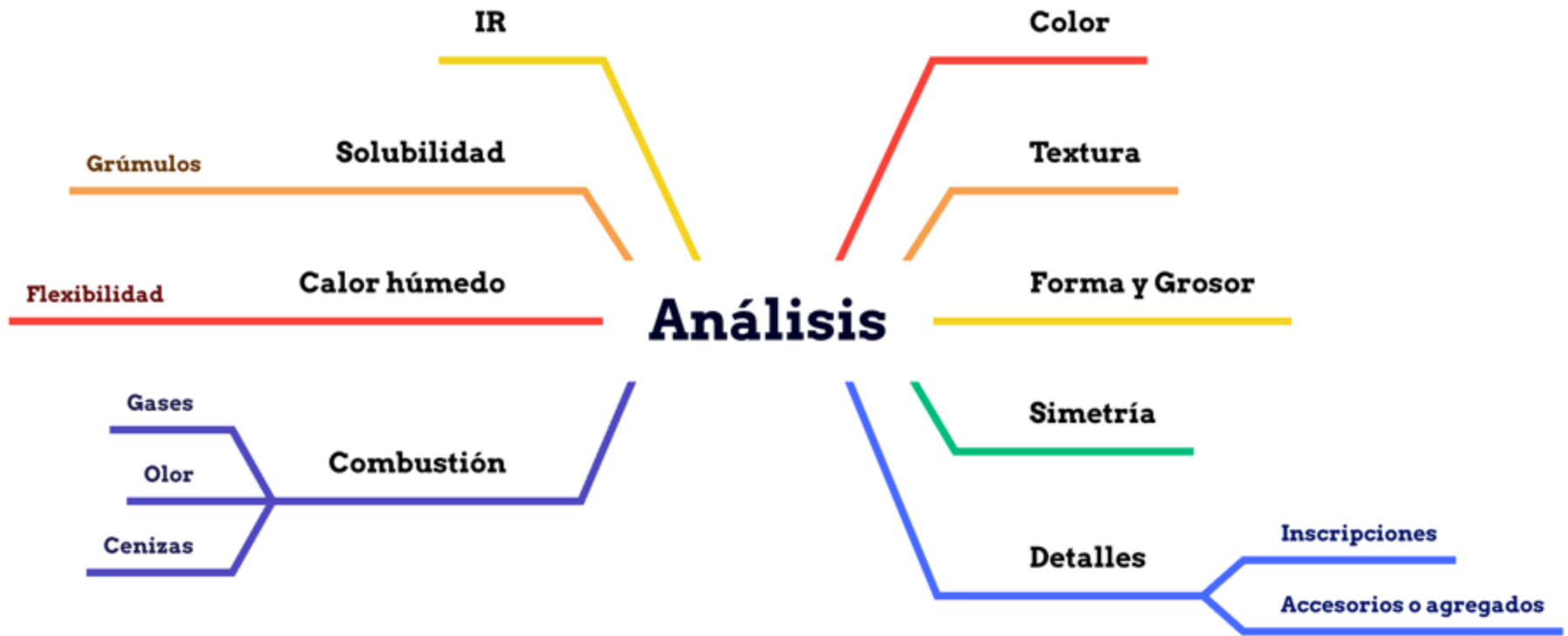






# Análisis de artículos





Lets go to the table.....!!!!

# Involucramiento



# Involucramiento



# Involucramiento







**Control del Comercio ilegal de productos**

# Involucramiento



ESTIMADO CIUDADANO (A) ESTA  
**TOTALMENTE PROHIBIDO**

MATAR, CAZAR, CAPTURAR, DESTAZAR,  
TRASEGAR, COMERCIAR (VENDER, COMPRAR Y  
TRAFICAR), TORTUGAS MARINAS

Y CUALQUIER ARTÍCULO DERIVADO DE TORTUGAS MARINAS INCLUYENDO CREMAS,  
JABONES, CAPARAZONES, ARTESANÍAS Y ARETES, PULSERAS, ANILLOS, DIJES O  
CUALQUIER OTRO ARTEFACTO DE CAREY (CONCHA DE TORTUGA), ENLATADOS DE  
CARNE DE TORTUGA, ACEITES Y CUALQUIER OTRO PRODUCTO DE OBTENIDO DE LAS .

LE ROGAMOS ABSTENERSE DE TRAER CON USTED E IMPORTAR ESTE TIPO DE  
PRODUCTOS PUES DE LO CONTRARIO SE EXPONE A

**PENAS DE CÁRCEL DE 1 A 3 AÑOS\***

\*DE CONCORDANCIA CON LA LEY DE VIDA SILVESTRE N° 7317 Y LA LEY PARA LA PROTECCIÓN DE LA TORTUGA  
MARINA N° 8323

CUALQUIER  
INFORMACIÓN FAVOR  
LLAMAR A SISTEMA  
NACIONAL DE ÁREAS DE  
CONSERVACIÓN,  
OFICINA DE AUTORIDAD  
ADMINISTRATIVA DE LA  
CONVENCIÓN PARA EL  
COMERCIO DE ESPECIES DE  
FLORA Y FAUNA EN PELIGRO  
DE EXTINCIÓN (CITES): 506-  
283-8004. PUEDE TAMBIÉN  
PRESENTAR DENUNCIAS AL 506-  
192.

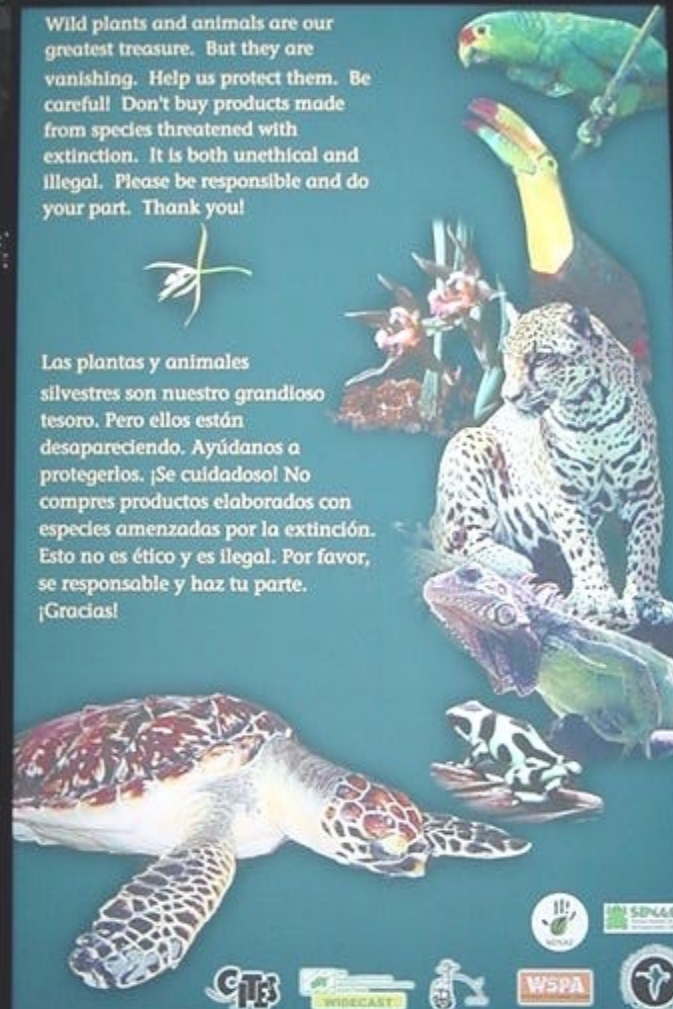
LE AGRADECEMOS SU COOPERACIÓN, QUE  
DISFRUTE SU VISTA!



Wild plants and animals are our  
greatest treasure. But they are  
vanishing. Help us protect them. Be  
careful! Don't buy products made  
from species threatened with  
extinction. It is both unethical and  
illegal. Please be responsible and do  
your part. Thank you!



Las plantas y animales  
silvestres son nuestro grandioso  
tesoro. Pero ellos están  
desapareciendo. Ayúdanos a  
protegerlos. ¡Se cuidados! No  
compres productos elaborados con  
especies amenazadas por la extinción.  
Esto no es ético y es ilegal. Por favor,  
se responsable y haz tu parte.  
¡Gracias!



# Ciencia



## Green and Hawksbill sea turtle population at tropical fjord Dulce Gulf in Costa Rica

Didiher Chacón\*, Beth Pynnönen, David Rojas and Nicki Wheeler  
 (\*) LAST (Latin American Sea Turtles Association) in Costa Rica, dchacon@widecast.org

**Introduction:**  
 The Hawksbill Sea Turtle (*Eretmochelys imbricata*) and Green Sea Turtle (*Chelonia mydas*) have been classified as critically endangered and endangered, respectively by the International Union for Conservation of Nature (IUCN, 2014). E. imbricata populations have been reduced by more than 90% around the world (Gaines et al., 2012). This reduction of the population is closely linked to the difficulty of survival of these turtles, which will be impossible to secure without the aid of conservation and monitoring activities (Gaines et al., 2012). Both species of turtles have been, and continue to be, threatened by several factors such as the collection of their eggs since they have been deposited in the nests (Gaines & Orta 1982, Alvarado-Chaz et al. 2001, Seminoff et al. 2002), incidental fishing (Alvarado-Chaz & Figueroa 1990, MAFS 1998), and coastal development, which leads to large loss of habitats (Llanos et al. 2007, RJCN, 2014). On the other hand, the green turtle is also threatened by hunting, particularly of the females that leave the sea for nesting beaches, and the consequent collection and sale of its meat. Hawksbill turtles are also hunted when they arrive on the beach to lay eggs, although their shells are what hunters are looking for (Gaines et al., 2012).

The green turtle inhabits the marine waters of tropical and subtropical regions of the world. They use sites with abundant seagrasses during mating and pre-larval years (Musick and Limping 1997). The Hawksbill turtles, however, live in the marine waters of tropical regions only (IUCN, 2014), and use rocky coastal areas and coral reefs (Lyon et al., 2002 and Moran et al., 1988) also Mangrove forests (Gaines et al., 2012).

Dulce Gulf is a unique environment throughout the American continent (Fig. 1), and was described by Hobbie et al. (1996) as a tropical fjord. It is characterized by a great, deep center of more than 200m, which is protected by the coral waters of the Pacific (Hobbie et al., 1996 and Curtis and Mobergson 2008). Dulce Gulf is 50 km long and 15 km wide (Society for Marine Mammalogy 1995).

**1** Map of Dulce Gulf location.

**2** Aerial view of the Dulce Gulf coastline.

**3** A person on a boat handling a turtle.

**4** A boat on the water.

**5** A turtle being handled on a beach.

**6** A turtle being handled on a beach.

**7** A turtle being handled on a beach.

**Results:**  
 The population of Hawksbill turtles in Dulce Gulf was estimated to be 120 individuals. The population of Green turtles was estimated to be 150 individuals. The population of Hawksbill turtles was estimated to be 120 individuals. The population of Green turtles was estimated to be 150 individuals.

**Conclusions:**  
 Dulce Gulf is a unique environment throughout the American continent. It is characterized by a great, deep center of more than 200m, which is protected by the coral waters of the Pacific.

**References:**  
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WFFN WHITLEY FUND FOR NATURE

LAST Latin American Sea Turtles

globalgiving

# Gulf to Gulf: The study case of a hawksbill male tagged in Golfo Dulce, Costa Rica.

Didiher Chacón <sup>1,2</sup>, Magali Marion <sup>1</sup>, <sup>1</sup> Latin American Sea Turtles, LAST, Costa Rica. dchacon@widecast.org  
<sup>2</sup> Wider Caribbean Sea Turtle Network, WIDECAST



## Introduction

The recent discovery of important foraging and nesting rookeries of hawksbill turtles (*Eretmochelys imbricata*) in the Eastern Pacific Ocean accords for the paucity of data regarding migration patterns and comprehension of habitat connectivity. This is especially true for the males.

Golfo Dulce (GD) in Costa Rica (Figure 1), a lagoon that presents the unique characteristics of a tropical fordlake gulf with both mangrove and coral reef ecosystems, is a foraging ground for both juvenile and mature adult hawksbill turtles.

An tagging mark and recapture program started in 2010 and none of the tags applied have ever been reported in another foraging site or nesting beach. The project has tagged 236 hawksbill turtles, both adult and juveniles and the overall recapture rate is 54%.

Previous satellite trackers were installed but none of the turtles migrated outside GD during their emitting period (Figure 1).

## Objectives:

- 1) Identifying the potential threats to which the turtles will be exposed during migration.
- 2) Discovering unknown foraging and nesting grounds.
- 3) Understanding migration patterns and habitat connectivity to develop sound conservation strategies on a national and international level.

## Methods:

**Study area:** The study was conducted in the coastal waters of Puntarenas, in the west sector of the Golfo Dulce, which is located in the Osa Chiriquí of the Puntarenas, Costa Rica (8° 38'11" N, 81° 25'54" W) (Figure 1). The study period covered from May 2018 to February 2020, where through gillnets (1000m, mesh size 1/90 cm) were implemented to capture the turtles. The nets were placed only during the day during periods of 7 hours, trying to start monitoring at 8:00 each sampling day. The distance between the net and the coast varied between 100 and 500m in length, and between 3 and 10m in depth, depending on the movements of tide and precipitation. After placing the net, the boat was mobilized at a distance of no more than 200m, to have visibility of the floating house of the net. The house allowed to detect when a turtle is captured, since the house have to go down and it is not possible to observe from. After catching a turtle, it is released from the net, uploaded to a boat and taken to the beach. After performing the measurements, the turtle was tagged with fororal metal markings (1/16 in. 641, Ritonband & Top Company, Tempeport, AZ), specifically on the second posterior hole of each front flipper. Also, a PIT (Passive Integrated Transponder) was placed on the right front flip. Prior to the application of the



Figure 1. Map of Costa Rica and Golfo Dulce.

metallic marks, these were disinfected with Vanodine (Pflzer Inc.) to avoid infections in the skin of the turtle and increase coagulation of blood and healing speed. Field staff always used latex gloves during turtle handling, due to biosecurity concerns. For this study, three specimens were chosen (two males and one female) to install a satellite transmitter from the company Wildlife Computers and the SPOT6 type. This installation was carried out in May 2018 and following the standard procedures for this purpose (Figure 2).



Figure 2. Installation of satellite receiver on the hawksbill sea turtle.

**Carapace biometrics:** The Carapace Curve Length (CCL) was measured using a flexible measuring tape (2.5cm). Each measurement was performed in triplicate to verify each of the measurements.

Turtles with an LCC 95% or as adults were considered, while individuals with a smaller measurement were classified as juveniles. This is because MCM of LCC to sex an adult measure reported for a female nesting at El Salvador and Nicaragua (Mazzoni, 2010; Mazzoni & Torres, 2011; Liles et al., 2011; Giani et al., 2012; Torres & Mazzoni, 2012).

## Results:

<p>♂ Jun: 75.1 cm CCL, 38kg                  Emission length: 111 days                  Distance traveled: NA                  Captured 2 times since 2012                  in GD prior to satellite fitting.</p>	<p>♂ Napoleon: 55.7 cm CCL, 13 kg                  Emission length: 296 days                  Distance traveled: 302 km over 24 days.                  Never captured before. Anom.                  Spent 4 months in rescue center prior satellite fitting.</p>
<p>♀ Sena: 61.1 cm CCL, 54kg                  Emission length: 69w                  Distance traveled: NA                  Captured 3 times since 2013                  in GD prior to satellite fitting.</p>	



Figure 3. Pathway of Napoleon.

## Discussion:

Although both satellite telemetry and mark and recapture studies undertaken since 2010 have shown a high site fidelity as GD, the migration of Napoleon (Figure 3) indicates the first recorded migration of a hawksbill turtle habitat connectivity between the two gulfs and the second out of GD (Oliver was the first tagged in 2014, 70 km LCC, 281 km distance traveled) (Figure 4).



Figure 4. Pathway of Oliver the first male tagged in Golfo Dulce in 2014.

## Conclusion:

Golfo Dulce is a critical habitat for a resident population of hawksbill sea turtles as well as a potential stop over place for migrating individuals.

The existence of habitat connectivity between Estero San Pedro Ramos and Noya is also extended to the Golfo Dulce.

Mangrove dweller hawksbill seems to resist threats to both ecosystem. Coastal expansion suggests high vulnerability to commercial and recreational fisheries, pollution and other ecosystem loss, also the need to identify potential threats inherent to the Golfo de Noya.

Finally, marine planning strategy and development of key coastal areas are critical to Golfo Dulce - surrounding MPAs and other ecological attributes.

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## Acknowledgements:




We thank MINAE/SINAC for granting us research permits and ICAPO for their collaboration as well as the research assistants, international volunteers and organizations supporting the project over the years. Thanks to Luis Fonseca (LAST) for the production of the maps.

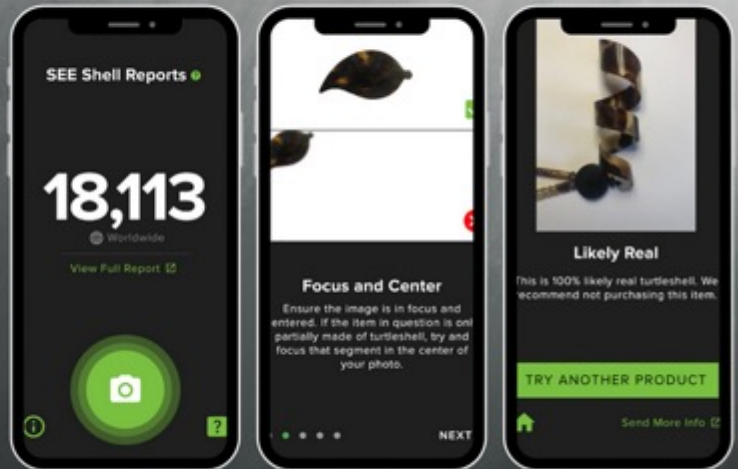


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