

BONAIRE

TURTLES: SURVIVORS AGAINST ALL ODDS

STCB YEAR REPORT 2021



SEA TURTLE
CONSERVATION
BONAIRE

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BONAIRE TURTLES STCB YEAR REPORT 2021



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CALL OUR DEDICATED
HOTLINE: +599 780-0433
SAVE A SEA TURTLE!

PLEASE REPORT TURTLES IN TROUBLE TO OUR HOTLINE.



Editorial design: **bonsai**

Text: Kaj Schut

Cover: Illustration by Juan Riveros

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WE'RE ON A MISSION!

Sea Turtle Conservation Bonaire's mission is to ensure that Bonaire's sea turtles have a secure future, and to connect people to sea turtle conservation in ways that inspire caring for nature.

An important part of our work is education & outreach. To raise awareness, STCB teamed up with Wanika Games to develop a board game called 'STCB Guardians'. This game, which can be played in both Papiamentu and English, inspires youngsters to care for sea turtles and the marine environment by allowing players to join STCB's team of scientists and to show them the threats that sea turtles face in our waters and the work that STCB does to protect the species. 'STCB Guardians' can be played by children of 5+ and is available at STCB's office.



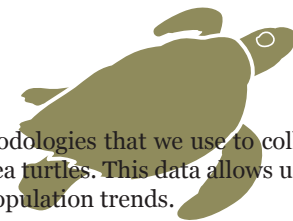
VOLUNTEERS

Without the support of our **volunteers**, we could not do the work that we do. Our team of volunteers support us with all our activities, including nest monitoring patrols, snorkel surveys, clean-ups and presentations. We are very grateful to work with such an amazing group of people, our turtle family! For more information on volunteering opportunities, please visit our website, www.bonaireturtles.org.

In 2021, a total of 44 volunteers supported us with our in-water surveys, 32 Beachkeepers patrolled Bonaire's nesting sites during the nesting season, 27 divers participated in our Fishing Line Clean-Ups and two volunteers helped us deliver presentations. Thank you!



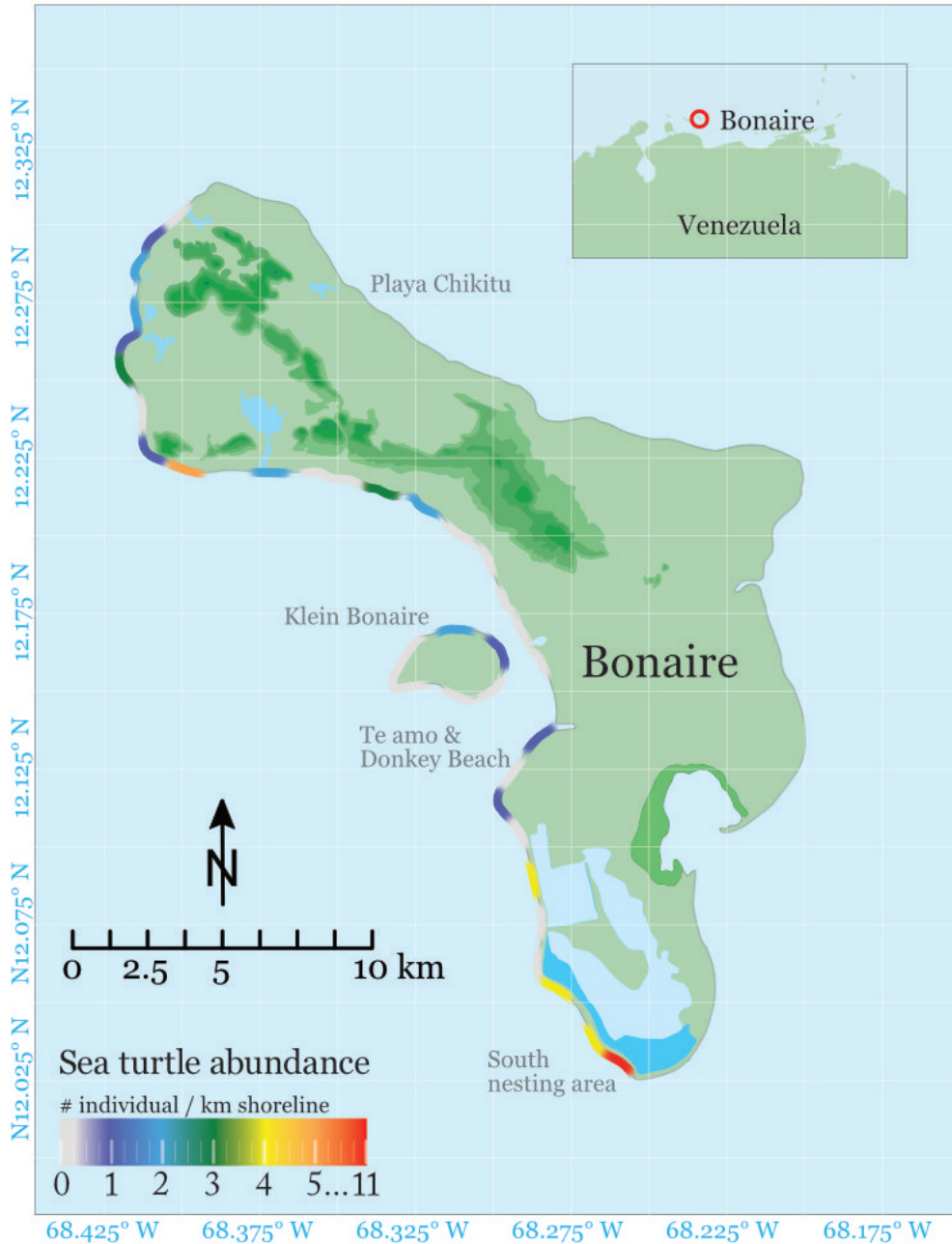
THE JOB



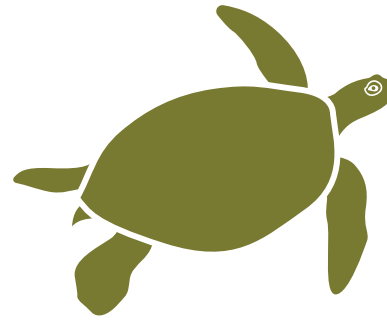
Transect-count surveys are one of the scientific methodologies that we use to collect data on resident populations of green and hawksbill sea turtles. This data allows us to estimate yearly sea turtle abundance and long-term population trends.

In 2021, 36 surveys were conducted on the west coast of Bonaire and around Klein Bonaire by STCB staff and volunteers. For each sea turtle detected, observers recorded species, size, time, location and behavior. Sampling around Klein Bonaire and along the west coast was completed between January and July. Due to COVID-19 restrictions, STCB conducted 36 instead of 108 surveys. The total number of turtles observed was therefore low, with 46 green and 4 hawksbill turtles.

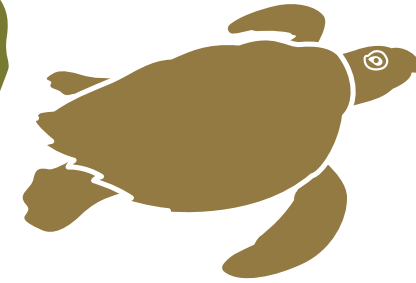




HOW MANY TURTLES?



555
GREEN TURTLES



70
HAWKSBILL TURTLES

@ WEST BONAIRE
& KLEIN BONAIRE

When snorkeling or diving in Bonaire's waters, you are more likely to spot green than hawksbill turtles. Based on 16 years of in-water research, STCB estimates sea turtle abundance to be 555 green and 70 hawksbill turtles along the west coast of Bonaire and around Klein Bonaire. There is no trend for green and hawksbill turtles in western Bonaire.

BIODIVERSITY AND COMMUNITY

To address other biodiversity and social issues, STCB also collects data on species that are important for our local fishing community and the coral reefs, the base of our economy. For instance, in 2021 we collected population data on barracudas, rainbow and midnight parrotfish, sharks and rays. Data shows that areas in the north and south of Bonaire are higher in both species richness and diversity than the areas around Playa, most likely because these areas are less subjected to human disturbances.

22
Rainbow Parrotfish



6
Tarpon



164
Barracuda

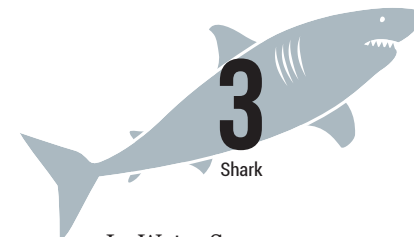


7
Eagle Ray



Number of individuals
observed in one survey round (36 transects)
@ West coast of Bonaire & Klein Bonaire.

3
Shark



73

SURVEYS CONDUCTED IN 2021

251

SEA TURTLES CAPTURED

> 3,800

TAGGED TURTLES AS OF 2021

CAPTURE-TAG-RECAPTURE

Recapture(s) of individually marked sea turtles provide us with valuable information for their conservation. This includes growth rate, approximate age, presence/absence of disease, human and/or natural induced injuries and overall health of the resident population. Additionally, by taking DNA samples of captured turtles, we get a better insight in the distribution and composition of Caribbean Sea turtle populations. Statistical modeling, based on 16 years of net-capture surveys in Lac Bay (2003-2018), shows that green turtle numbers are slightly increasing in this area.

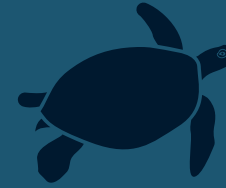
NETTING IN 2021

During 2021, staff and trained volunteers conducted 73 netting sessions at Lac Bay over six one-week periods between June and December. A total of 247 juvenile and sub-adult green and four hawksbill turtles were captured, weighed, measured and tagged. This included 51 recaptures, turtles that had already been captured during previous capture-tag-recapture efforts.



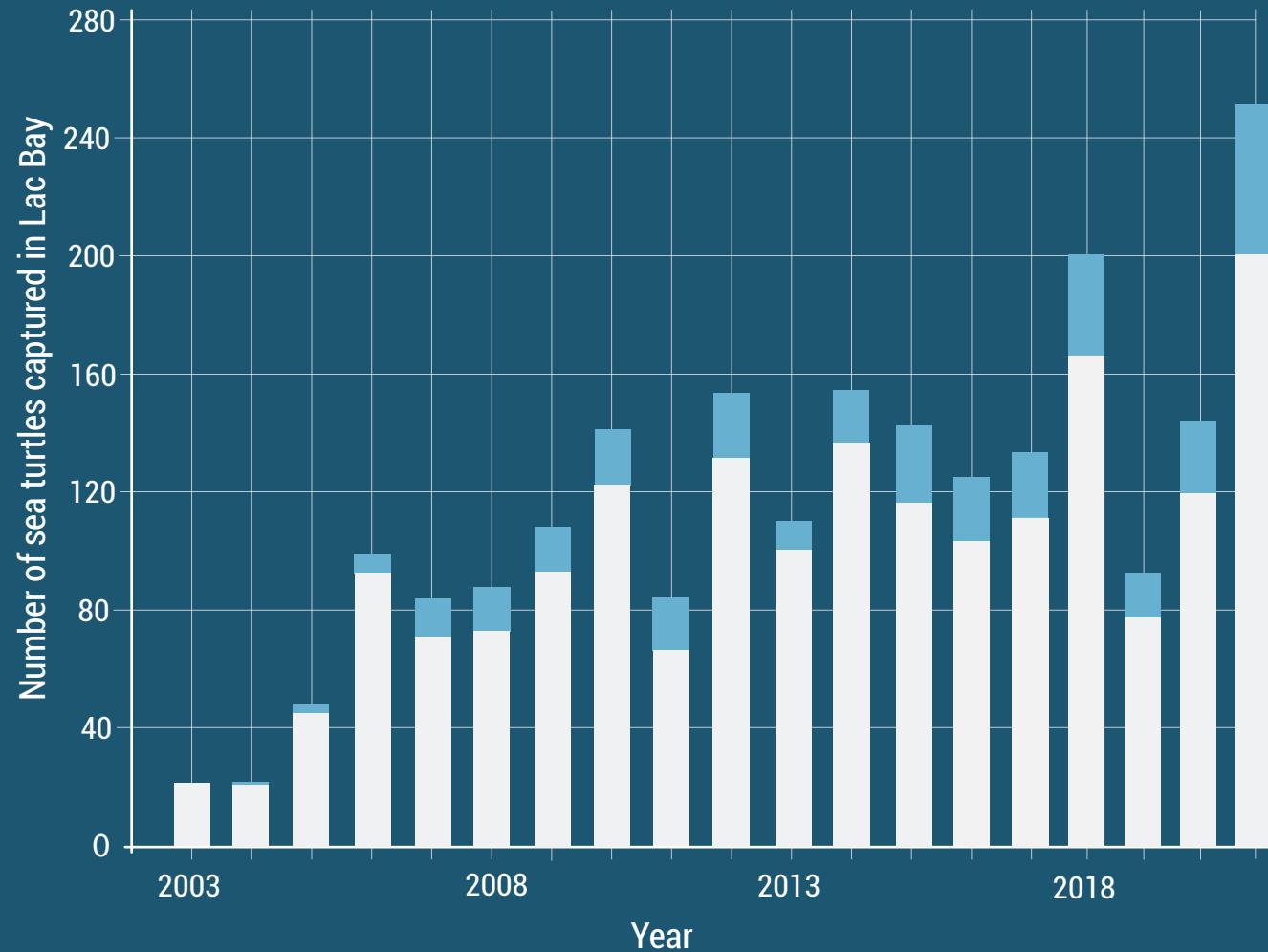
SEA TURTLE HEALTH: RECAPTURES

Every year, STCB captures between 200 and 300 turtles in Lac Bay. When a turtle is captured, staff and volunteers first check whether the turtle is 'new' or a 'recapture'. When a turtle has a metal or a PIT tag, it has been captured before and we can collect important information on its health. On average, 14.3 per cent of the captured turtles per year are recaptures. These turtles show an average growth rate of 4.9cm (green)/ 2.7cm (hawksbill).



Number of sea turtles (green & hawksbill) captured in Lac Bay during net-capture sessions conducted between 2003 and 2021, with the number of recaptures in blue.

The average recapture rate in Lac Bay is 14.3 per cent.

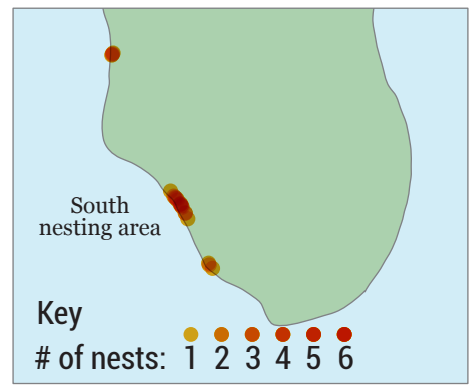
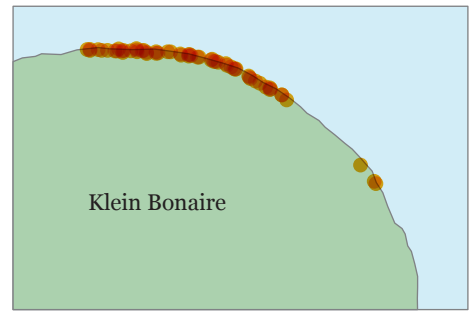
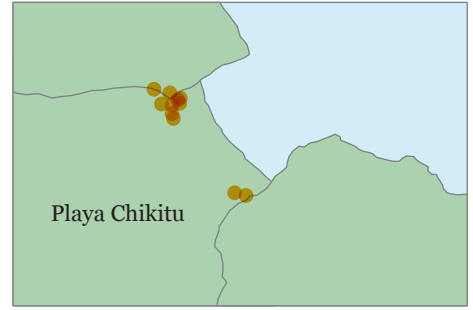
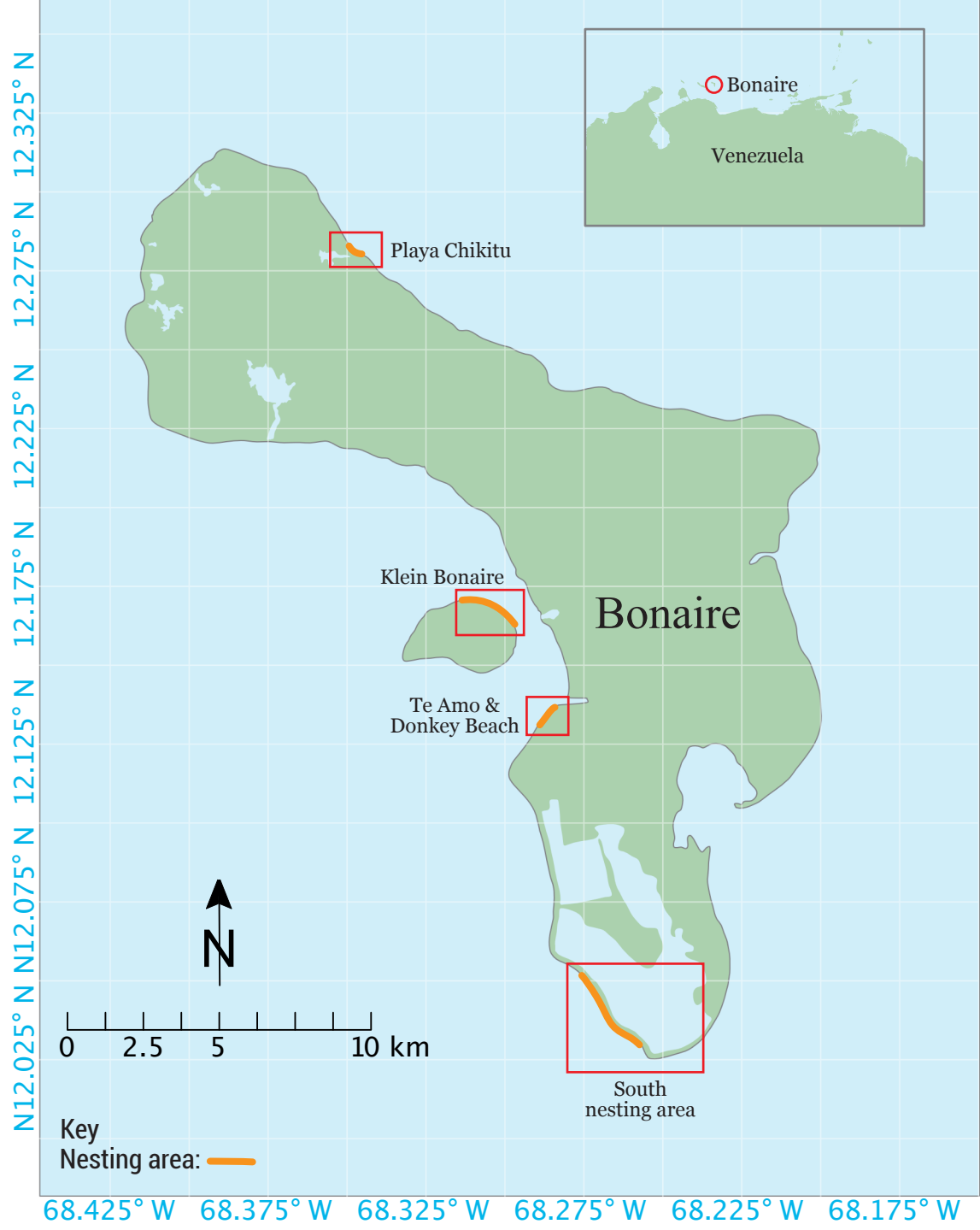


THE JOB

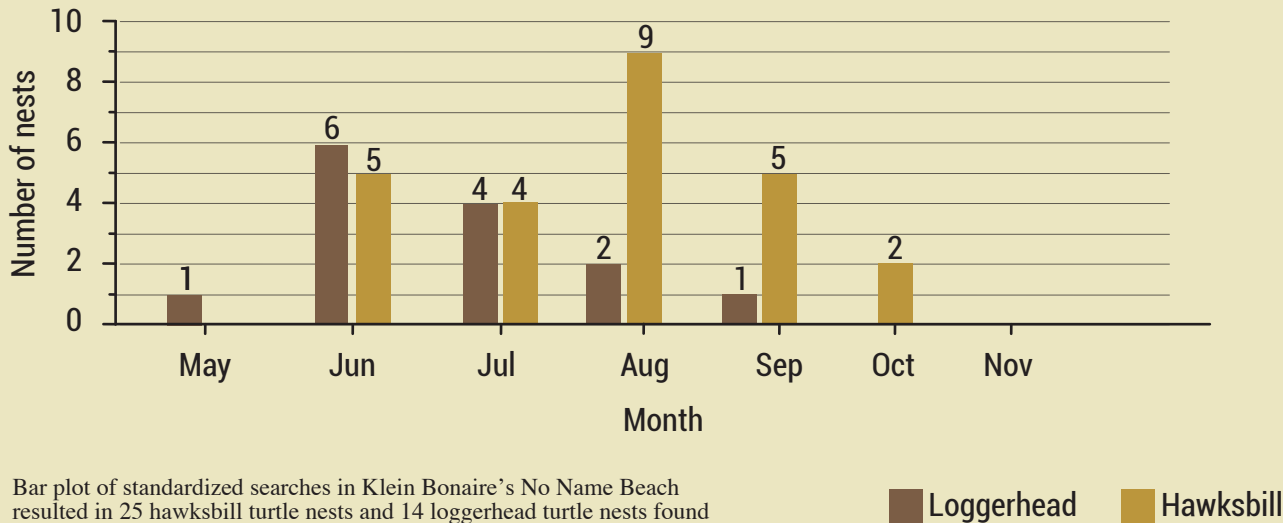
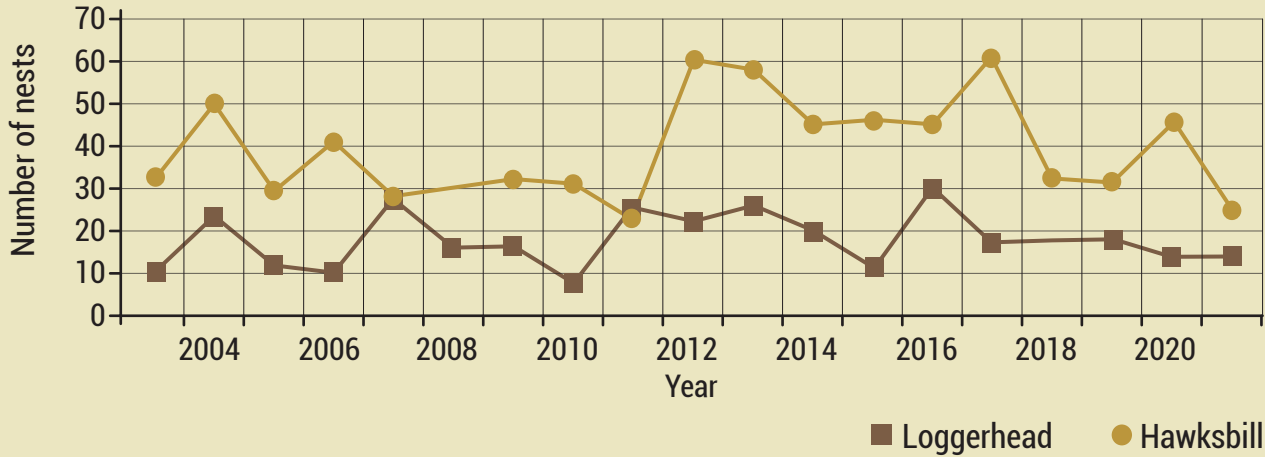
Between May and December, every morning staff and volunteers patrol the beaches most used by nesting turtles to record activities, including false crawls (unsuccessful nesting attempt, no eggs laid), confirmed nests (eggs were located) and suspected nests (eggs could not be observed, but site disturbance suggests that a nest was laid). Finally, after each hatching event, the nest is excavated and an inventory of the contents is made to calculate hatching success.



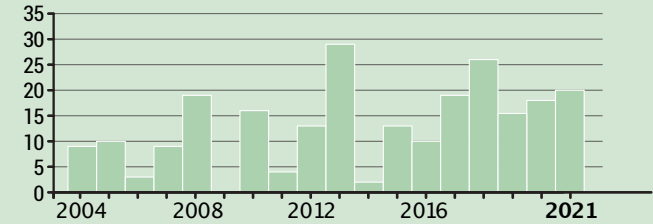
6 Nesting



TRENDS The long-term trend in nesting for both hawksbills and loggerheads remain stable and continue to suggest that the populations are fluctuating around an average of 18 nests for loggerheads and 40 nests for hawksbills on our index beach.



Bar plot of standardized searches in Klein Bonaire's No Name Beach resulted in 25 hawksbill turtle nests and 14 loggerhead turtle nests found between May and October 2021.



Number of green turtle nests recorded on Bonaire & Klein Bonaire, 2004-2021



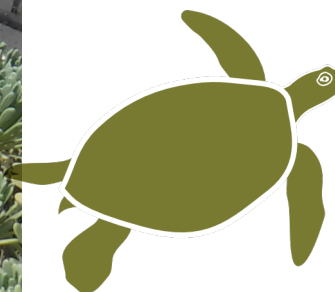


'HOT CHICKS, COOL DUDES'

Hawksbill, loggerhead and green sea turtles are (critically) endangered species. There is particular concern around the effects of climate change, because temperature plays a vital role in the determination of sex in sea turtle hatchlings. Higher temperatures in the nest, during the 50-60 day incubation period, lead to female-skewed sex ratios of the hatchlings. Cooler temperatures lead to more male hatchlings. Climate change and increasing temperatures may therefore cause a misbalance in the male-female ratio of sea turtles.

TEMPERATURE LOGGERS

In 2021, with funding from WWF-NL and support from the Inter-American Sea Turtle Convention, STCB deployed 95 temperature data loggers on Bonaire's most important nesting beaches to learn more about the potential threat of increasing temperatures on Bonaire. The loggers, which will remain in the sand for at least 12 months, collect temperature data throughout the day and help us determine the average temperature of the sand in the sun and shade at various nesting beaches. This research is an important first step in learning more about the effects of climate change on sea turtle hatchlings born on Bonaire.



MALE OR FEMALE?

The easiest way to determine gender in sea turtles is to look at their tail. Adult male turtles develop a long, thick tail, whereas females have a shorter, skinnier tail. In addition, males grow claws on their flippers, which they use to hook up to a female turtle. It's not possible to visually determine gender in juvenile sea turtles.



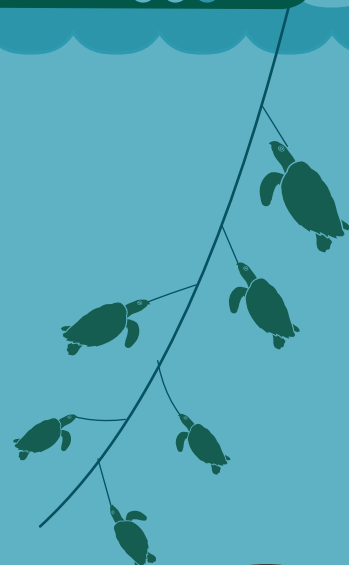
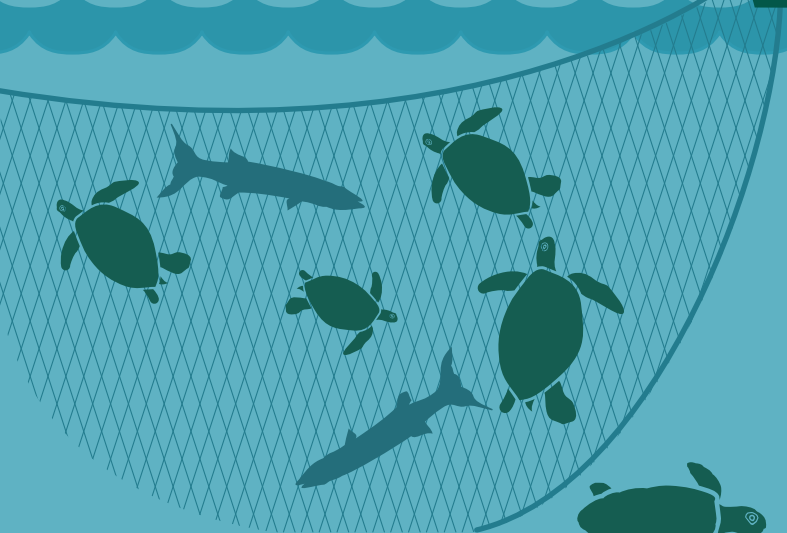
GLOBAL THREATS



The International Union for the Conservation of Nature (IUCN) has identified five major hazards to sea turtles: fisheries bycatch, direct take, coastal development, pollution in the form of plastics /discarded fishing gear and, of course, climate change.

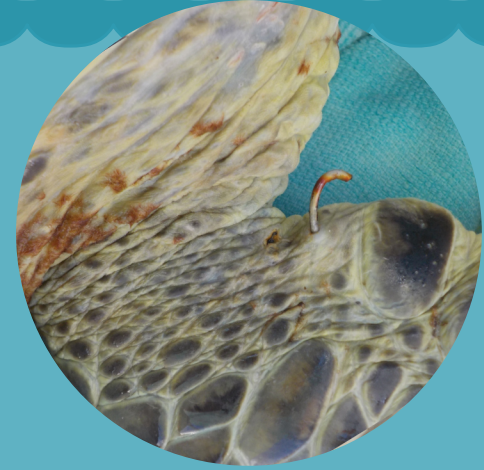
LOCAL THREATS

The most serious challenges facing Bonaire's sea turtles are not direct threats like fisheries. Instead, they are indirect and mostly related to a rapidly increasing human population and, consequently development. These indirect threats to sea turtles are also the major hazards to Bonaire's rich ecosystems, biodiversity, and our quality of life.



TURTLE RESCUES IN 2021

In 2021, STCB staff and volunteers rescued seven Turtles in Trouble. This included six 'washback' hatchlings, baby turtles that washed back from the open ocean, and a juvenile green turtle with a fishing hook in its front flipper. All turtles were checked to see if they were healthy and then released again.



7

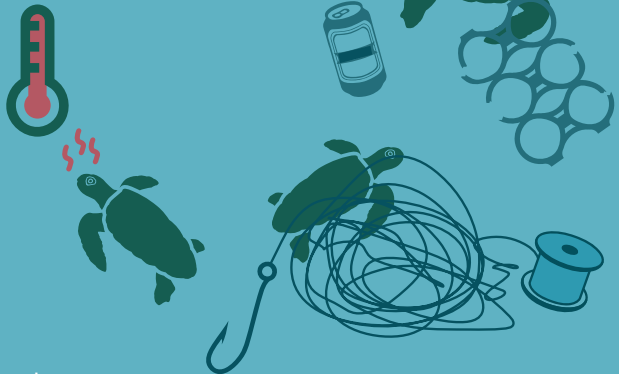
RESCUED

5

DEATHS

TOO MANY "NOT-SO-LUCKY" TURTLES

Five turtles weren't so lucky... Two turtles - both stranded - were found by local fishermen. This included a juvenile green and an adult leatherback turtle. Since Bonaire does not have a resident leatherback population, this turtle was most likely passing by either on its way to its foraging or nesting home. We also recorded a decapitated green turtle, a hatchling caught in a net and a decomposed turtle at Playa Frans.



INTERNATIONAL PARTNERS

Wider Caribbean Sea Turtle
Conservation Network (WIDECASST)
World Wildlife Fund Netherlands (WWF-NL)

REGIONAL/RESEARCH PARTNERS

CARMABI (Curaçao)
Dutch Caribbean Nature Alliance (DCNA)
Groningen University
Loggerhead Marinelife Center
Nature Foundation St. Maarten
Parke Nacional Arikok (Aruba)
Saba Conservation Foundation
Sea Turtle Conservation Curacao
St. Eustatius National Parks Foundation
Turtugaruba
Wageningen University

LOCAL PARTNERS

Bonaire Department of Environment
and Natural Resources (DRO)
Echo Bonaire
Ministry of Agriculture, Nature & Food Quality
Jong Bonaire
NGO Platform
Openbaar Lichaam Bonaire (OLB)
STINAPA Bonaire
WILDCONSCIENCE B.V.

LOCAL BUSINESS PARTNERS AND SUPPORTERS

These businesses provide ongoing support to STCB
programs and activities through the donation
of in-kind materials and/or services:

Administratiekantoor Brandaris
Adventure Makers Bonaire
Apoyo Communications & Education
Beyond the Corals
Boat Yard Bonaire
Bonaire Marine Center B.V.
Bonaire East Coast Diving
Carib Inn
Cargill Salt Bonaire
Dive Friends Bonaire
Div'Ocean
Elements
Harbour Village Beach Resort
Harbour Village Marina
Nos Consuelo
Plaza Marina Bonaire
SELIBON
VIP Diving

2021 VOLUNTEERS

*Volunteers are at the heart of our organization.
Without their support, we could not do the work that
we do. A very big thank you goes to all of you - masha
danki!!*

BEACHKEEPER PROGRAM VOLUNTEERS

Aja Radl & Scott Gilchrist, Andrea Merino & family,
Angela Diters, Anneke van den Breemer, Bill & Bunny
Horton, Brigitte Boekhoudt, Bruce and Karen Zavon,
Christel Damen, Don Wedman, Duncan & Gwen
Versteegh, Evelien Janssen, Guy & Naomi, Hannah
Taylor, Irene & Michael, Jolanda vd Toorn, Loek & Vera
Maartens, Loes Hak, Marianne Scholtz, Miranda
Roberts, Sue O'Brien, Theo & Titia Jongepier.

IN-WATER SURVEY/NETTING VOLUNTEERS

Aja Radl, Amy Weir, Annie & James, Bill & Bunny
Horton, Brechtje Buijter, Daniela Simal, Dennis, Duncan
& Gwen Versteegh, Emma Buchmuller, Emma Pratt,
Evelien Janssen, Floor van Schalkwijk, Frederick Tanis,
Geert Nielen, Ger Bakker, Gulsah Dogruer, Guy Kalron,
Hannah Taylor, Hettie Holian, Hilde Bakker, Jan vd
Ploeg, Jeannine & Douwe, Jolanda vd Toorn, Julián
Baker Echavarría, Knut, Laura & Vince, Kathrin
Plankensteiner, Maarten, Mavelly Velandia, Miranda
Roberts, Monique & Merrick, Rob Hulsbergen, Scott
Gilchrist, Sean Hoetjes, Shurendy, Sue O'Brien, Titia &
Theo Jongepier.

PRESENTATION VOLUNTEERS

Gwen Versteegh, Loek Maartens





STCB is a non-profit, non-governmental organization. We raise funds through conservation and research grants and contracts, merchandise sales and from individual and business donors.

FLAGSHIP FUNDER 2008 – 2021

Since 2008, **WWF - Netherlands** has been the flagship funder for STCB's sea turtle conservation work on Bonaire.



MAJOR FUNDERS

Major funders include the Dutch Ministry of Agriculture, Nature & Food Quality, Stichting DierenLot and Blue Jay bv.



Ministry of Agriculture,
Nature and Food Quality



Blue Jay bv

PLATINUM FUNDERS/DONORS [\$1000+]

Barbara Chu
Cargill Salt Bonaire
Casa Presioso
Dive Friends Bonaire
Dr. Robert Andrew Rutherford Trust
Gaia Concepts
Gijs, Mieke, Daan, Sam & Florine Botman
John Easterwood
Plaza Marina
Rob Hulsbergen
The Laughing Seahorse

GOLD FUNDERS/DONORS [\$500 - \$999]

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Alain de Brouwer & Dinska Dohmen
Alex Bakhuizen
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Best Cellars Bonaire
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Bruce Brabec & Marlene Robinson
Bruce Novis
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Dana Bragonier
Denise Zmolek
Family Schep
Julius Heerema
Marek Langhans
Simone Penders

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Danielle de Kool
Laura Moyer
Lindsey Johnson
Marit Dhondt
Paul vd Wal
Steve Porter
Scott O'Brien
Tim Proffitt
Anonymous donors

THANK YOU!



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STCB SHOP

Available only on Bonaire, STCB clothing is made from soft, earth-friendly, 100% recycled materials. STCB pendant necklaces are made from bone, beach seed & horn. They are the product of artisans in Costa Rica & Bonaire.



TEES - HATS - NECKLACES

You can buy original STCB T-shirts, research hats and jewelry at VIP Diving, Dive Friends Bonaire, Harbour Village Beach Club, Divi Flamingo, Bonaire Landsailing and at our office. Because these businesses donate their retail services, 100% of the profits from every STCB item you buy go directly to sea turtle conservation.

Our office is open on weekdays between 9:00 a.m. and 5:00 p.m.
We are located at Kaya Korona 53, Kralendijk, Bonaire,
Caribbean Netherlands.

You can help protect Bonaire's sea turtles by donating to STCB. We welcome – and depend on – the financial support of people like you.

YOU CAN MAKE A DIFFERENCE!

Whether it's \$5, \$100, or \$5,000, whatever you give makes an important difference. 100% of funds received online will go directly to the protection of Bonaire's endangered sea turtles.

Your donation will help fund the following programs: nest monitoring, in-water surveys, clean-up events, turtle rescues, education and awareness programs, training, advocacy and satellite tracking.

DUTCH CHARITABLE STATUS

As of January 1st 2015, the Dutch Tax Service (Belastingdienst) has granted to Sea Turtle Conservation Bonaire ANBI status. ANBI status also favors STCB's Donors in countries that grant tax concessions to foreign registered charities, as well as those based in the Netherlands. Donors who have made a donation to STCB may be able to deduct the amount from taxable income.

[More information regarding STCB's ANBI status here.](#)

WAYS TO DONATE

DONATE ONLINE THROUGH PAYPAL

Please be advised that donations to STCB are processed via PayPal by Dutch Caribbean Nature Alliance (DCNA) of which STCB is a member.

DONATE BY BANK TRANSFER

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Maduro & Curiel's Bank Bonaire
Account name: Sea Turtle
Conservation Bonaire
Account number: 101169209

BANK TRANSFER IN USD OUTSIDE BONAIRE

Beneficiary: Sea Turtle
Conservation Bonaire
Account number: 101169209
Beneficiary Bank: Maduro &
Curiel's Bank Bonaire
Swift code: MCBKBQBN
Correspondent Bank: Standard
Chartered Bank
Aba # 026002561
Swift Code: SCBLUS33

BANK TRANSFER IN EUR FROM THE NETHERLANDS

Beneficiary: Sea Turtle
Conservation Bonaire
Account number: NL71 RABO
0313 2425 26
Beneficiary Bank: Rabobank

BANK TRANSFER FROM EUROPE

Beneficiary: Sea Turtle
Conservation Bonaire
Account number: 101.169.209
Beneficiary Bank: Maduro &
Curiel's Bank (Bonaire) N.V.
Address: Kaya L.D. Gerharts #81
City: Kralendijk
Country: Bonaire, Caribbean
Netherlands
Telephone number: +599-715-
5520
Fax number: +599-717-7249
Swift code: MCBKBQBN
Correspondent Bank for Euro:
Ing Belgium SA NV
City: 24 Avenue Marnix, B-1000,
Brussels
Country: Belgium
Swift Code: BBRUBEBB

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BE THE CAPTAIN OF A BOAT FULL OF SCIENTISTS AND VOLUNTEERS PROTECTING AND RESEARCHING TURTLES ON BONAIRE

This game, which can be played in both Papiamentu and English, inspires youngsters to care for sea turtles and the marine environment by allowing players to join STCB's team of scientists and to show them the threats that sea turtles face in our waters and the work that STCB does to protect the species. 'STCB Guardians' can be played by children of 5+ and is available at STCB's office.



Eco-friendly materials.
Handcrafted with love on Bonaire.

DEVELOPED BY STCB AND WANIKA GAMES



www.wanikagames.com
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Board games - Puzzles - Coloring pages
Game based team building - Gamification projects