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# VIRGIN ISLANDS NATIONAL PARK SEA TURTLE PROGRAM 2023 SEASON REPORT

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Willow Melamet, Adren Anderson, Katie Ayres

## VIRGIN ISLANDS NATIONAL PARK SEA TURTLE PROGRAM

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Since 2015 the Virgin Islands National Park Sea Turtle Program, supported by the Friends of Virgin Islands National Park (FVINP), has been coordinating sea turtle monitoring and protection efforts on the island of St. John, USVI. The main objectives are to document nesting activity, promote conservation through education outreach, and mitigate threats to sea turtles that utilize the beaches and waters of the Virgin Islands National Park and Virgin Islands Coral Reef National Monument.

Hawksbill (*Eretmochelys imbricata*), green (*Chelonia mydas*), and leatherback (*Dermochelys coriacea*) sea turtles have been recorded nesting on St. John, with the critically endangered hawksbill producing the majority of nests. Over the past eight years, the program has been built on the core foundation of volunteer-based monitoring, nest protection, research, and education outreach.



### 2023 NESTING SEASON (June 2023-March 2024)

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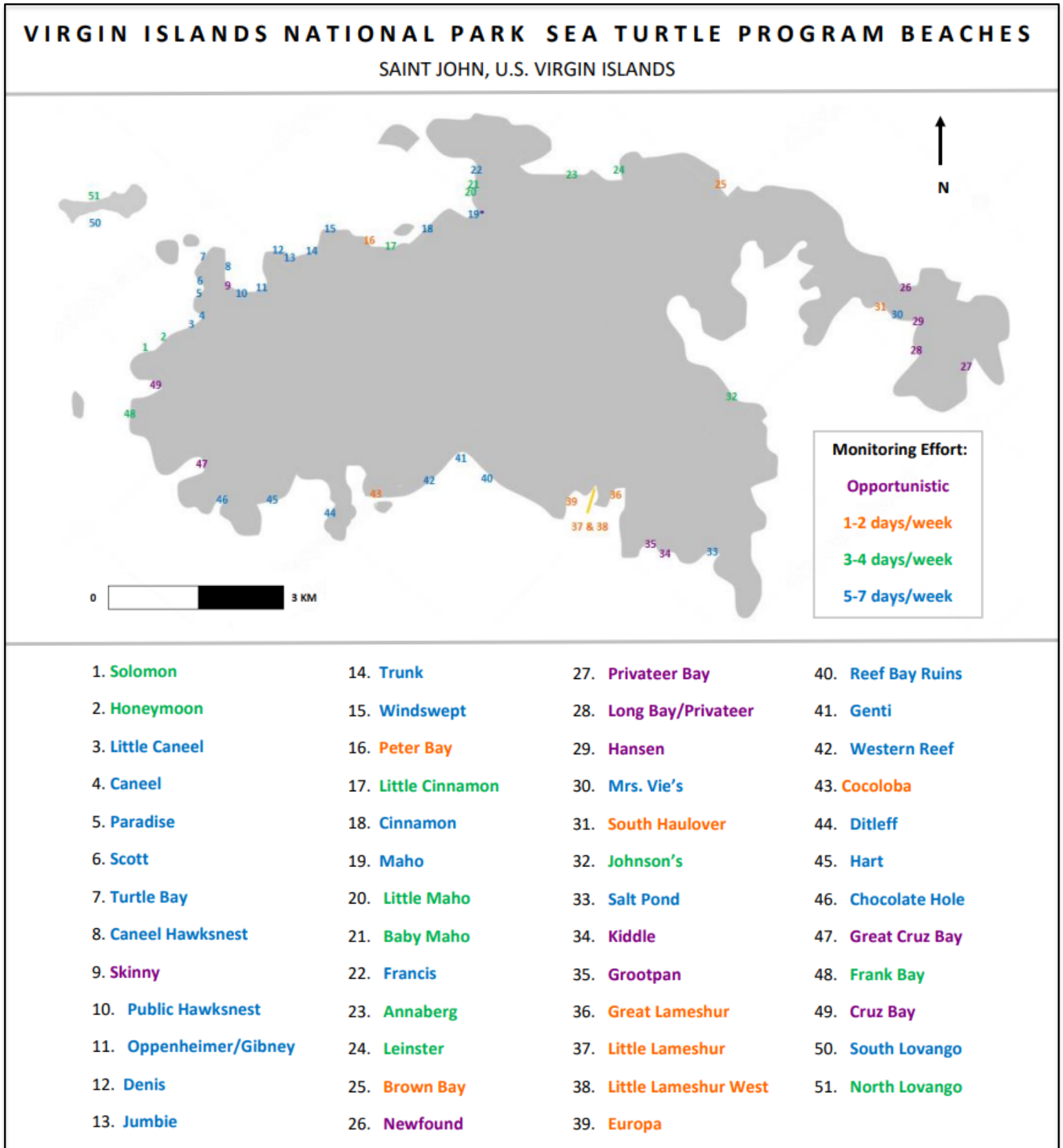
The 2023 nesting season began with the first documented nest on June 20th, 2023, and concluded with the final confirmed nest being excavated on March 10, 2024. This report gives a comprehensive representation of the program's initiatives since the last report published in March 2023 (April 2022-February 2023).



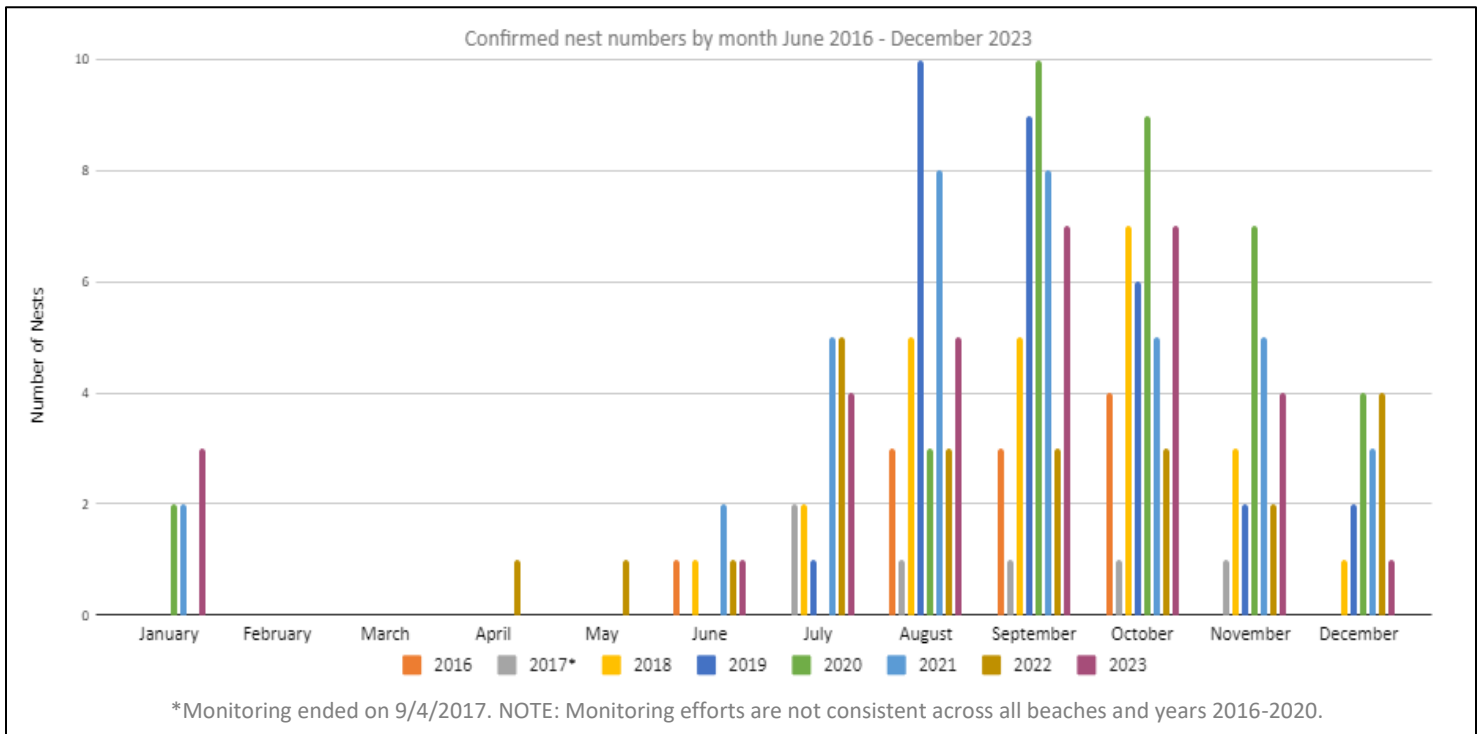
#### ***Beach Monitoring***

Beach monitoring, also known as turtle patrols, are conducted in the morning and consist of walking the length of an assigned beach looking for signs of sea turtle nesting activity, nest depredations, hatching activity, and stranded sea turtles. Regular volunteer-based beach monitoring was conducted from late June through November, which are the peak hawksbill nesting months and the official volunteer season. During this time 42 beaches were monitored between 1 and 7 days a week by 95 trained volunteers and the program coordinator. An additional 9 beaches were monitored opportunistically throughout the season (See Figure 1). During the low season (December-June), patrolling efforts are strategically focused on 20+ beaches, which include beaches with incubating nests and those with historic nesting activity (Figures 2 and 3).

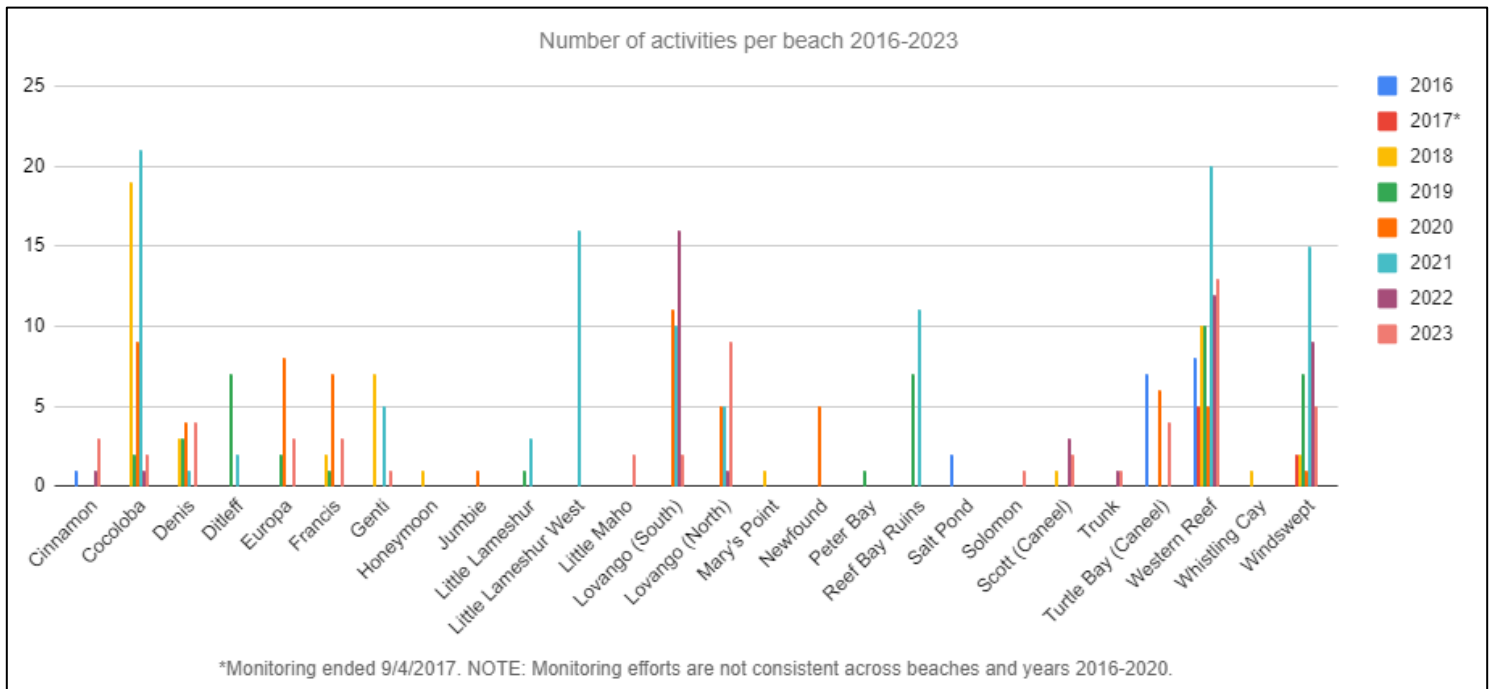
Figure 1. Beaches monitored by the program; color coded by monitoring effort.



**Figure 2.** Confirmed number of nests by month found on St. John from June 2016 to December 2023.



**Figure 3.** Number of nesting activities per beach for all species from 2016 to 2023.



## Nesting Activities

Fifty-five nesting activities were documented between June 20, 2023 and March 10, 2024 on fifteen nesting beaches, yielding **29 confirmed nests**, 19 dry runs and 7 unconfirmed nests (Table 1). *Confirmed nests* are nests that are either confirmed by locating the nest cavity or seeing signs of emergence. *Dry runs* are events where the turtle crawls on the beach but does not successfully deposit eggs. *Unconfirmed nests* are sites that were observed to show some signs of a nest but were not confirmed. Reasons for unconfirmed nests may be due to unknown lay dates, lack of depression upon possible emergence, inability to locate the egg chamber due to absence of signs, and/or nest site accessibility and substrate type. Three of the 29 confirmed nests were green (*Cm*), while the remainder belonged to hawksbills (*Ei*).

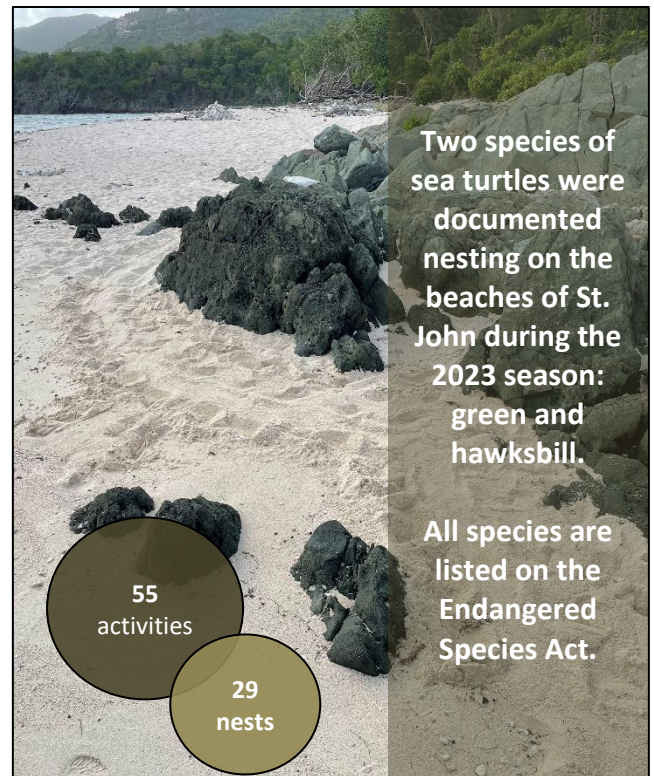


Table 1. Hawksbill (*Ei*) and green (*Cm*) nesting activities for the 2023 nesting season

Beach	Nests		Unconfirmed Nests	Dry Runs		Total Activities
	<i>Ei</i>	<i>Cm</i>	<i>Ei</i>	<i>Ei</i>	<i>Cm</i>	<i>all species</i>
Cinnamon	1			2		3
Cocoloba				2		2
Denis	3			1		4
Europa	2		1			3
Francis	3					3
Genti					1	1
Little Maho			1	1		2
Lovango (South)			2			2
Lovango (North)	3		2	4		9
Solomon				1		1
Scott	2					2
Trunk	1					1
Turtle Bay (Caneel)	3			1		4
Western Reef	5	3		1	4	13
Windswept	3		1	1		5
<b>TOTALS</b>	<b>26</b>	<b>3</b>	<b>7</b>	<b>14</b>	<b>5</b>	<b>55</b>



**Nest Protection**

**SCREENING AND MONGOOSE ERADICATION**

Plastic mesh screens measuring 4 x 4 feet were placed over the surface of each confirmed nest, deterring predators such as dogs and the invasive small Indian mongoose from entering the cavity, while allowing the hatchlings to crawl out of the small openings.

In coordination with the USDA, mongoose eradication efforts were continued on beaches with nesting activity. Eradication is an integral component of nest protection

measures, as it is the first line of defense against predators before the nest is confirmed and screened. These efforts in conjunction with screening and frequent monitoring have proven to be an effective method of increasing nest success rates. We are happy to report that zero nests were depredated this season.

**RELOCATION**

Historically, several nests have been lost to sea water inundation as well as beach erosion. Between 2015 and 2018, several nests were either lost entirely, or negatively impacted by inundation. Due to these losses, the program obtained a permit to relocate nests in 2019. Nest relocations follow a strict set of criteria to ensure the maximum safety of the nest. Relocations are only applicable in situations where the nest is in imminent danger of inundation or erosion and has been discovered within 12 hours of deposition. Operating only within this 12-hour window ensures that the eggs are not disturbed after the embryo has attached to the shell wall.

This season, the program was proud to successfully relocate six nests. All six nests were either in imminent danger of sea water inundation, too shallow, in erosional areas or a combination of several of these factors, thus warranting relocation. The eggs were carefully removed and placed in new cavities mimicking the inner dimensions of the in situ nests, with the exception of four nests that were originally laid too shallow due to a deformity of the nesting female's rear flipper. The orientation of each individual egg was maintained to the best ability during the transfer. The relocation sites were chosen based on the maximum safety from sea inundation and erosion, taking the original site selection into consideration.



## Nest Success

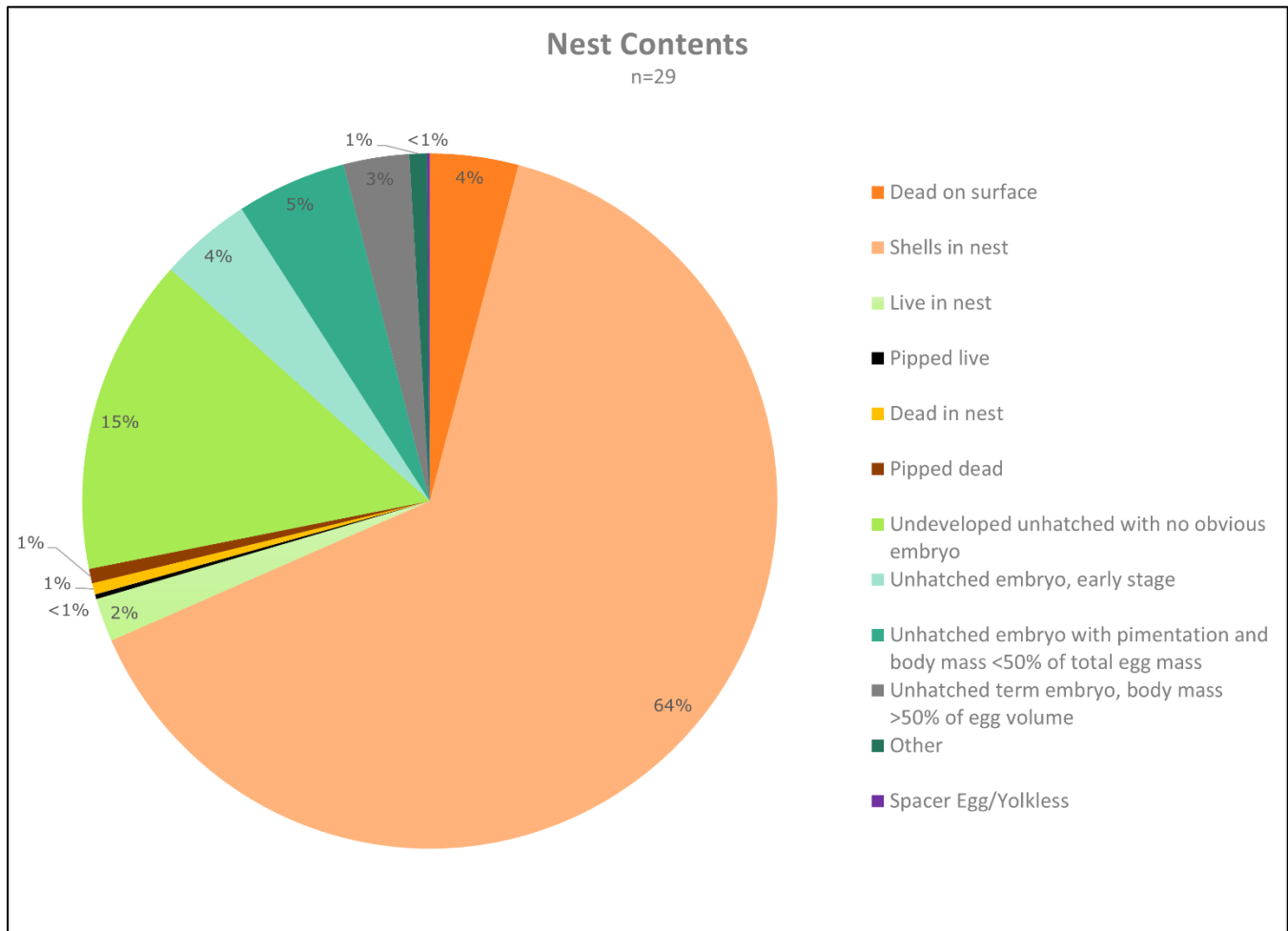
Following emergence, nests are excavated within five days to document the contents, determine hatch and emergence success, and collect genetic samples when applicable. *Hatch success* is the percentage of eggs that hatch; *emergence success* is the percentage hatchlings that make it out of the nest cavity. Unhatched eggs are



opened to assess and categorize the developmental stage (see Figure 4 below). Several environmental factors can influence the success of the nest such as location, temperature, substrate, water retention, root growth, gas exchange, bacterial and fungal growth, etc.

All 29 confirmed nests were excavated and inventoried. Figure 4 shows the contents of the excavated nests, while Table 2 shows the summarization of clutch data for the 2023 season.

Figure 4. Nest contents categorized upon excavations for 29 nests: 3 green and 26 hawksbill.



Hawksbill (*Ei*) nests revealed an average hatch and emergence success of 69.3 and 67.3 percent respectively. The lowest hatch and emergence successes for these nests were 0 percent from a nest that was inundated by sea water on multiple occasions and washed out by a heavy rain event. The highest success was 96.8 percent, with all hatchlings successfully emerging from the cavity. Average clutch size for the 26 hawksbill nests was 134.8, with a range of 51-186 eggs.

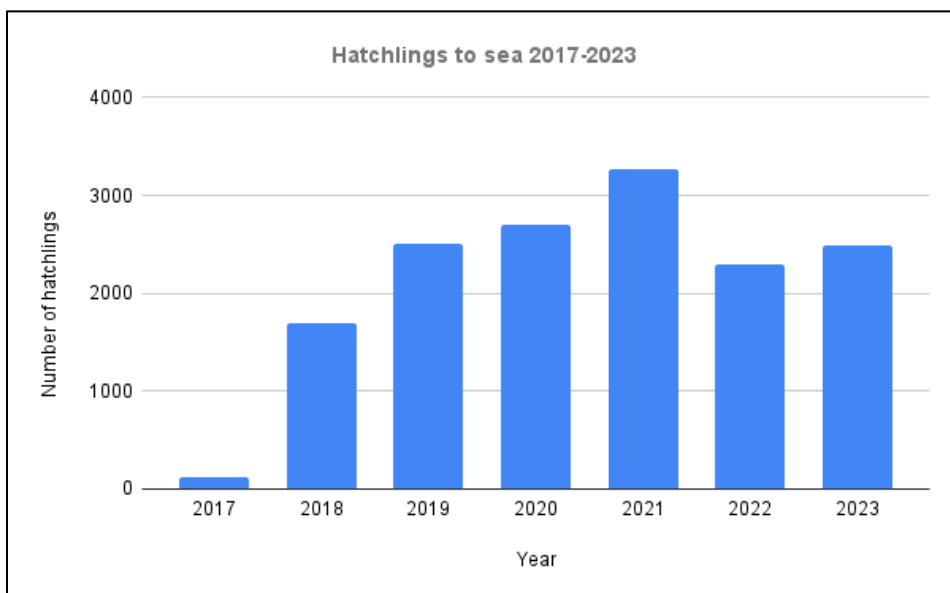
The three green turtle (*Cm*) nests had an average hatch and emergence success of 53.7 and 39.4 percent ranging from 32.4 to 91.4 percent hatch success and 13.1 to 77.4 percent emergence success. The average clutch size for green turtle nests was 124, with a range from 93 to 145 eggs.

**Table 2.** Summarization of clutch data for 26 hawksbill (*Ei*) and 3 green (*Cm*) nests for the 2023 season

	Average	Standard Deviation	Range min	Range max
<b>% Hatch Success (<i>Ei</i>)</b>	69.3	26.1	0.0	96.8
<b>% Emergence Success (<i>Ei</i>)</b>	67.3	26.2	0.0	96.8
<b>Clutch Size (<i>Ei</i>)</b>	134.8	33.3	51.0	186.0
<b>% Hatch Success (<i>Cm</i>)</b>	53.7	32.7	32.4	91.4
<b>% Emergence Success (<i>Cm</i>)</b>	39.4	33.7	13.1	77.4
<b>Clutch Size (<i>Cm</i>)</b>	124.0	27.4	93.0	145.0

Incubation time ranged from 51-84 days, with an average incubation time of 60.26 days for all species and 61.46 days for hawksbill nests only. The total egg count for these excavated nests was 3,877 eggs producing 2,491 hatchlings that made it to the sea (Figure 5). During excavations, 93 hatchlings were found alive in the cavities and released. The majority of these hatchlings were entangled in roots.

**Figure 5.** Number of documented hatchlings making it to the sea from 2017-2023





## Remigrants

A season highlight was the documentation of 4 nesting females that returned to St. John after a three-year nesting interval, with nests laid in 2020. The turtles were identified based on nest site location, chosen beach, time of year, and track characteristics. We hope to be able to confirm these females with the genetic samples collected in 2020 and 2023 and continue to track the intervals between nesting seasons.



**Coco:** Identified by her unique track resulting from a partially missing left rear flipper, she returns to Western Reef to lay her nests.

**Tippy:** Nesting at the same time and location as she presumably did in 2020, Tippy nests in the rocky substrates around Francis, Little Maho, and Cinnamon Bay.



**Erica:** Returning the same time of the year three years later, she lays her nests on the tiny beach of Europa Bay.

**Cassie:** Her unique tracks reveal her return to the Caneel Bay beaches.

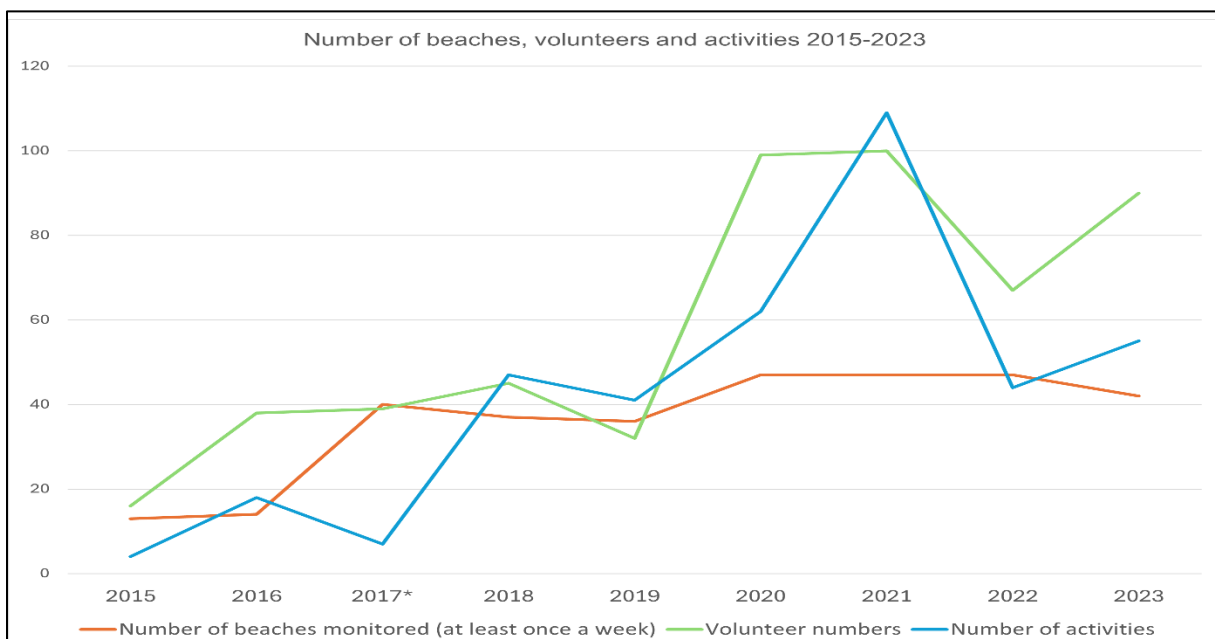


*Erica photo: Alasdair Dunlap-Smith*

## VOLUNTEERS

The sea turtle program is centered around and supported by volunteer-based beach monitoring efforts. Since the start of the program in 2015, a direct correlation has been observed with an increase in volunteer effort leading to an increase in the number of beaches monitored as well as the number of nesting activities documented (see Figure 6).

**Figure 6.** A comparison of the number of volunteers, beaches monitored, and nesting activities from 2015-2023.



Although beach monitoring is largely done on an individual level, additional opportunities were offered to encourage volunteer engagement. This included regular update emails, virtual presentations, a shared google folder with resource materials, individual training, opportunities to assist with nest screenings/excavations and team gatherings.

Volunteer training sessions were held in June to train new volunteers and serve as a refresher for previous volunteers. Ninety-five volunteers were assigned beaches and days to patrol to ensure coverage throughout the season.

Over 2081 beach surveys were conducted, contributing to over 1572 volunteer hours recorded for the calendar year of 2023. During these patrols, 1010 beach clean-up efforts were recorded, ranging from a few items to full garbage bags. Twenty-five volunteers continued to patrol after the end of the official volunteer commitment in November.

Volunteers continued to use the mobile app Epicollect5 to enter beach survey efforts, sargassum levels and trash cleanups. Volunteers also contributed photographs of the beaches throughout the season to document changes in beach profiles, sand accumulation and erosion, and sargassum abundance.



1572+  
volunteer  
hours; 2081+  
beach patrols



### ***MVP Award***

Beginning in 2020, the program began recognizing an ‘MVP’ each season to honor and celebrate the efforts of a single volunteer that stood out throughout the season. The heavily decorated MVP necklace has been passed along from Lani (2020), to Rafe (2021), to Kiko (2022), and now to Luke McCain. Luke went above and beyond this season patrolling the more challenging beaches of Lameshur, Europa, Brown Bay and Salt Pond, as well as routinely picking up additional patrols and hauling marine debris from remote beaches. In addition to the trophy necklace, a turtle from the Maho photographic identification project is named in honor of each season’s MVP.

## EDUCATION OUTREACH

Our education outreach initiatives continue to be an effective way to reach members of the island community, visitors, school children and people from afar. Several of the education outreach programs occur annually which has created a well-established and sustainable schedule. Through these efforts, we are able to promote conservation messaging and showcase the work of the sea turtle program to hundreds of people virtually, in-person, at events and through field trips.

### *School Kids in the Park (SKIP)*

One of the highlights of the sea turtle program is the ability to connect with the island's youth from both St. Thomas and St. John through the School Kids in the Park (SKIP) field trips and summer camps. The sea turtle field trip incorporates various topics on sea turtle ecology, life cycle, nesting and threats. The talks continue to evolve with new learning activities being added with grade appropriate learning objectives. We strive to foster a fun and interactive learning experience while being out on a national park beach. For the 2023 calendar year there were 14 trips reaching 171 students, grades pre-K to 12th grade, from 6 schools. Additionally, there were 5 summer camp turtle talks for 121 kids, and one given to the Youth Conservation Corps and Summer Trail Crew. Through these efforts, we were able to reach over 300 children and young adults!



### *Maho Turtle Table*

In response to increased pressures facing the foraging population of green turtles at Maho Bay, an informational sea turtle display was created in 2021 to advocate sea turtle friendly snorkeling and educate the public on a wide variety of sea turtle topics. Our continued aim is to reach as many beachgoers as possible using interpretive signs, games, posters, reading materials, and a lively sea turtle mascot. This booth is set up once a week on Tuesdays from 9-11am (November- June) with between 15 and 40 beachgoers stopping by to learn more and hundreds of people having exposure to the information.



## ***Cinnamon Bay Campground Chats***

Each Monday night beginning in November and continuing through June, an hour-long informative sea turtle talk is presented to interested campers, visitors, and island residents. For a second year running, these seminars have allowed us to reach between 10 to 50 people each week.

## ***Sea Turtle Boat and Snorkeling Trip***

For a second season the unique sea turtle boat trip aboard 'Reef Surfari' was offered once a month from January-June, and reached around 35 participants per trip. This boat trip had two marine experts on board to educate guests about sea turtles and the marine ecosystem. The addition of coral expert Jeff Miller, with his vast knowledge and guided snorkels, greatly enhanced the guest experience. Thank you to Ocean Surfari, as they generously donate the proceeds above cost to the Friends to fund programs like the Sea Turtle Program.

## ***Marine Stewardship***

For the second year, an informative presentation was given at the Virgin Islands Professional Charter Association (VIPCA) Yacht Show. Two hundred and fifty informational packets were distributed to attendees as well as a table set up during the event. We plan to continue to develop this partnership with VIPCA to grow our educational reach to mariners. New this year was the addition of informative snorkel cards that were distributed to prominent watersports companies to include with their rental snorkel gear. Card information includes sea turtle friendly snorkeling practices and snorkeling tips to protect the coral reef.



## **RESEARCH**

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### ***Genetic Sampling***

For the fourth year, we contributed genetic material from seventeen St. John nests to aid in further analyses.



In collaboration with the University of the Virgin Islands (UVI), the Ocean Foundation, and the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Southwest Fisheries Science Center, tissue samples were taken from deceased hatchlings or deceased full-term embryos upon excavation for each applicable nest. These samples will be sent to and processed by NOAA NMFS Southwest Fisheries Science Center. These genetic samples will provide insight into the population demographics and structure of nesting hawksbills in the Virgin Islands.

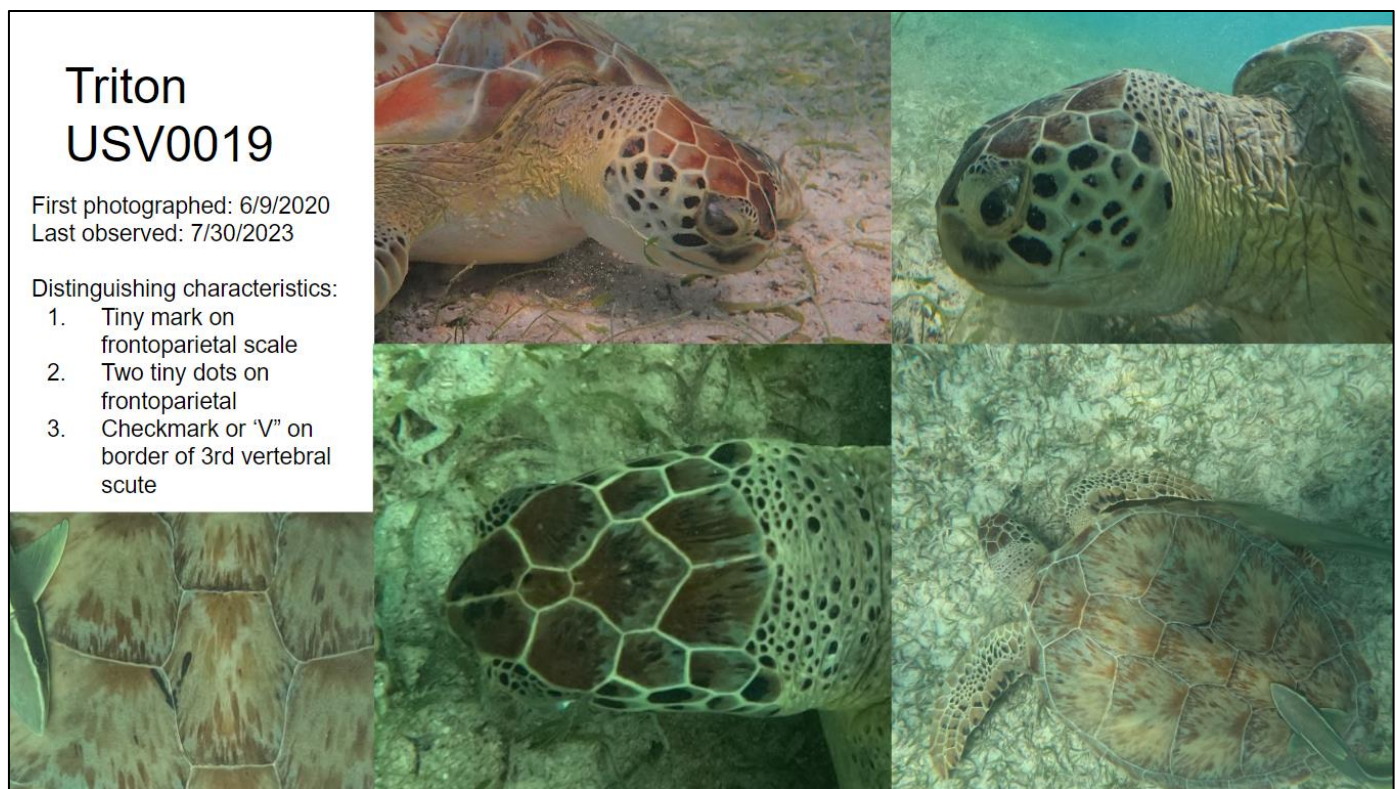
## ***In-water research at Maho Bay***

### **PHOTOGRAPHIC IDENTIFICATION**

Since 2016, the foraging population of green sea turtles in Maho Bay has been photographed to identify individuals for subsequent monitoring. Photographic ‘tagging’ of sea turtles is a non-invasive and sustainable alternative to traditional tagging techniques such as flipper tags. Each sea turtle has a unique facial scale pattern that can be used to distinguish individuals either manually, electronically, or a combination of both. Photographic ID has proven to be an effective means of ‘mark-recapture’ studies, in which ‘mark’ is the original identification of an individual and ‘recapture’ is the positive match of a turtle already existing in our database.

We have developed an ID database that highlights a minimum of four distinct photo angles: top of head, right side, left side, and full carapace view. In addition to these photos, detailed descriptions of physical anomalies are noted using keywords that aid in the identification process (Figure 7). When a turtle is photographed, it is compared manually to each turtle in our database until a positive match is found, or a new individual is created. Additional photographs, organized by the date of observation are cataloged into separate folders for each individual.

Figure 7. A turtle’s profile page for the Maho ID Database



In addition to maintaining our database, we have begun uploading our photographs to the Internet of Turtles (IOT), which is an online database using facial recognition software to identify sea turtles around the world. Our original intention was to use the database as a quick means to identify turtles, but we have found that manually matching the turtles is currently the most efficient method. Nonetheless, we continue to upload our data to IOT in hopes the database will evolve and prove to be an efficient technique for identification and data sharing in the future.

To date, 357 encounters have been documented since 2016, yielding 83 unique individuals. Of the 357 total encounters, 338 were found to be recaptures, yielding a 77.1% recapture rate. These recaptures amounted to 64 individuals being photographed more than once. The most photographed turtle is Nibble (USV0010), who has been documented on 17 occasions. Three turtles that were originally photographed in 2016 were documented in the bay towards the end of 2023, meaning they have been residing in these waters for 7+ years. Gary, USV0047, has the longest documented residence time. First photographed on July 15, 2016 and last documented on August 4, 2023, Gary has been around Maho Bay for over seven years. In addition to tumor status (see next section), this photo catalog also allows us to observe other factors such as growth, changes in pigmentation, and wounds.

## CHANGES IN PIGMENTATION



October 19, 2016



August 6, 2021

Tortuga, USV0007, lost significant pigmentation from 2016 to 2021.



June 9, 2020



August 16, 2022

Sleepyhead, USV0017, gained pigmentation in the facial scales from 2020 to 2022.

## HEALING OF PROPELLOR WOUNDS



October 5, 2020



October 15, 2021



January 24, 2023

Propppy, USV0023, was first observed in 2020 with visible scars from a propellor strike on his left anterior costal scute. By 2023, his scars are barely visible.

## PHYSICAL GROWTH



July 28, 2019



June 20, 2023

The physical growth of Jo, USV0032, is observed from 2019 to 2023.

In collaboration with the University of the Virgin Islands and the Archie Carr Center for Sea Turtle Research, ongoing research projects contribute to our database in the form of photographs and use the database for studies monitoring changes in seagrass species composition, evaluating impacts of the invasive *Halophila* seagrass, observing grazing preferences of individual turtles, as well as investigating the relationship between remoras and sea turtles. This catalog is a valuable tool for the monitoring of the population at Maho Bay.

## FIBROPAPILLOMATOSIS DOCUMENTATION AND MONITORING

Our ID database has been exceptionally useful in documenting the status of fibropapillomatosis (FP) tumors in the foraging population of green turtles at Maho Bay. FP is a potentially debilitating infectious disease that presents as both external and internal tumors on sea turtles, primarily greens. The tumors can interfere with an individual's sight, ability to swim, reproduce, forage, and evade predators. This neoplastic disease, likely caused by the chelonid alphaherpesvirus 5 (ChHV-5), has also been linked to individuals with immunosuppression due to environmental and human-based stressors.

Maho Bay is an important foraging habitat for endangered green sea turtles and the prevalence of FP tumors in this population has anecdotally increased over the past few years. Maho Bay has also gained popularity in visitation in the past few years, leading to an increase in human/turtle interactions. This relationship is noteworthy, as an increase in human visitation includes an array of disturbances including chemical, biological, and physical pollutants, destruction of habitat, increased sedimentation, direct physical harassment of turtles, and other stressors that may potentially suppress an individual's ability to fight disease.



76% of the population with tumors

Stephen Connett

Between 2016-2023, seventy-six percent of the documented population were detected with tumors. While some tumors have grown in size and numbers, some have regressed, and some have disappeared altogether.

**TUMOR GROWTH**



March 30, 2021



August 13, 2022



June 16, 2023

Monitoring Duane, USV0026, from 2021 to 2023 has revealed a dramatic increase in the size of an ocular fibropapillomatosis tumor over time.

**TUMOR REMISSION**



June 9, 2020



August 16, 2021

Scuttle, USV0016, exhibits the remission of an ocular FP tumor from 2020 to 2021.



Due to photographic cataloging efforts, we believe sufficient data has been collected to further analyze the severity of FP tumors in this population. Our team aims to create a baseline by estimating the current status of FP tumors beginning in 2024. This research may aid in future studies assessing tumor causation and other potential links to tumor development and regression.

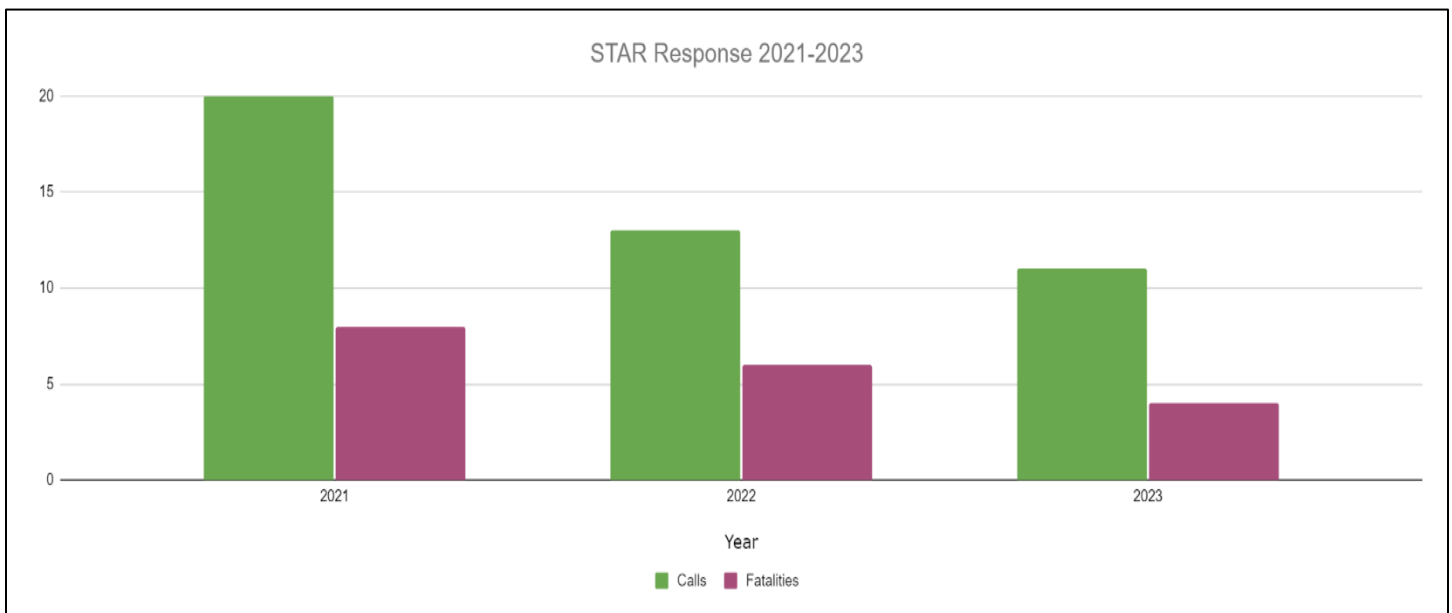
## SEA TURTLE ASSISTANCE AND RESCUE

The collaborative efforts of the Sea Turtle Assistance and Rescue (STAR) network is an invaluable resource that provides rescue and stranding response for sea turtles on all three islands. STAR is a network of territorial and federal agencies, veterinarians, and community volunteers that are trained to respond and document sea turtle stranding events of sick, injured, distressed and deceased turtles in the USVI. Data in the form of a stranding report is collected and if applicable veterinary care and rehabilitation can be provided for live turtles at Canines, Cats and Critters, and Coral World. The STAR hotline number continues to be shared and the network promoted through education outreach. The main goal for 2024 is to solidify a trained stranding response team for St. John.



Since 2021, forty-four St. John based calls have been investigated resulting in 18 fatalities (Figure 8). For the 2023 calendar year, there have been eleven calls through STAR. These calls have consisted of reports of entanglement, disease (FP), unusual behavior/floating, and boat strike injuries. There have been four documented green fatal strandings in 2023 due to neurologic behavior, boat strike and disease/emaciation.

Figure 8. STAR responses showing the number of total calls and fatalities from 2021-2023.



## CONCLUSION

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Since 2015, the Virgin Islands National Park Sea Turtle Program has steadily evolved into the multifaceted program it is today. This would not have been possible without the continued support and partnership between the Virgin Islands National Park and Friends of Virgin Islands National Park. Many of the initiatives are now well established with a sustainable foundation in place to carry out these important conservation efforts. The program continues to collect valuable data on the nesting population of sea turtles on St. John and has expanded on its education outreach and research objectives.

The 2023 season was noteworthy with the documentation of two species of sea turtles utilizing St. John's beaches, four known nesting females returning to the shores, daily to near daily monitoring of 42 beaches by 95 dedicated volunteers, 29 nests being discovered, and almost 2,500 hatchlings making it to the ocean.

All of these efforts could not have been achieved without the Virgin Islands National Park, Friends of Virgin Islands National Park, volunteers, visiting researchers, donors, and the community of St. John. Thank you!



## STAFF

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**Thomas Kelley:** VIIS Chief of Natural Resources

**Willow Melamet:** Sea Turtle Program Coordinator, 2020-present

**Adren Anderson:** Sea Turtle Program Coordinator, July 2016-May 2023;  
remote data management, December 2023-present

**Kaitlyn Cummings:** Education Outreach Specialist November 2023-present

**Katie Ayres:** Sea Turtle Program Educator, January-May 2023, Sea Turtle  
Program Co- Coordinator, June-September 2023, remote data management,  
September-March 2024

**Lyric Vacharat:** Summer Intern, 2022 and 2023



## VOLUNTEERS

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Alasdair Dunlap-Smith	Courtney L Ramey	Heather McGuire	Keryn Bryan	Michele Winchester	Sharp Kemp
Alistair Baird	Craig Morris	Isabella Oesteregaard	Kevin Stewart	Michelle Bransom	Sioban Griffin
Amanda Arquit	Crystal Christy	Janette Baird	Kharis Kennedy	Nancy Borowick	Susan Bradley
Amy Roberts	Debbie Proffitt	Jennifer Stone	Kiko Posada	Nancy Schutt	Susan Stair
Anne Elliot	Denise Carey	John Van de water	Kyle Grimm	Pam Holmes	Tamara Stevens
Ayn Riehle	Devin Murphy	Judy Parzanese	Lani Clark	Paula Smail	Tammy Donnelly
Barbie Devine	Don Watson	Julie Walsh	Leslie McGibben	Pete Geary	Terri Gibney
Beth Simmons	Ed Polachek	Kate Swan	Lila Uzzell	Rachael Fox	Theresa Rellecke
Bev Melius	Eloise Simmons	Katherine Hooven	Linda Suchochleb	Rafe Boulon	Thom Bradley
Bob Hooven	Emily Sturrock	Kathy Guidi	Lindsey Elliot	Rollie Simmons	Tori Bertolino
Brandon McGuire	Eric Fales	Kathy Hilliard	Lori Graham	Ron Vargo	Tracy Pajewski
Bruce Elliot	Erin Hudson	Kathy Vargo	Luke McCain	Ruby Ramos	Trisha Capuano
Caroline Geary	Fernando Ramos	Katie Day	Maggie Day	Sally Nelson	Trista Sigler
Carrie Butcher	Fiona Russell	Kayla Hoffman	Margie Kemp	Sarah Swan	Tutu Singer
Carrie Hoffman	Heather Maccurdy	Keleigh Rees	Mary Vargo	Scott Maccurdy	Valerie Tarr
Chandler Minner	Heather Johnson	Kelly Ginsburg	Meaghan Enright	Scott Simmons	Vielka Teichman

## RECOGNITION

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Caneel Bay Security Team: Patrol support	Margie and Sharp Kemp: Dinghy support	Stephen Connett: Photo research
Lovango Beach Club and Resort: Ferry support	Fiona Russell: Dinghy support	Caroline Rogers: Photo research
Jeff Miller: Boat trips	Claudia Lombard: STAR	Kelly Stewart: Genetics research
Cinnamon Bay Campground: Education outreach support	St. John Hardware: Nesting sign update location	Ocean Surfari: Boat trips