St John, USVI Report

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July, 2024

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Please cite this report as follows:
Eanes, S. Webb, WA. (2024) Year 2 St John Report. The Hawksbill Project.

About the Hawksbill Project

The Hawksbill Project is a non-profit focused on helping community-based projects and local governments improve their capacity to conduct in-water sea turtle research to inform conservation strategies.

Introduction

Year 2(024)

From July 1st-12th, 2024, The Hawksbill Project (THP) conducted its second in-water hawksbill survey around the island of St. John, U.S. Virgin Islands (USVI). St. John is the smallest and least populated of the USVI, covering 19 square miles, two-thirds of which are national park. Located 40 miles east of Puerto Rico, it lies between St. Thomas, USVI and the British Virgin Islands.

This report summarizes the results of our 2024 work and reflects on lessons learned.

Introduction

Overview

In 2024, the majority of research was conducted out of a small Boston Whaler with a team of five (four divers and one captain).

We spent roughly 9.5 days in the water, observing 15 hawksbills and capturing 10. Of those 10, five were recaptures from our 2023 season. Data collection for captured turtles included biometric measurements (weight/size), PIT and flipper tagging, and tissue samples for genetic testing.

To standardize the amount of effort required to conduct sea turtle research, we calculate the Catch Per Unit Effort (CPUE). CPUE is calculated by dividing the total numbers of turtles captured by the total effort expended (number of researchers in the water multiplied by the number of days in the field). The lower the number, the more effort required to capture turtles. Using CPUE allows us to compare our efforts and findings across field seasons.

Overall, our 2024 research highlighted the challenges of surveying turtles on the northside of St John, a lack of uniformity in how sea turtles use benthic habitats, and key areas on the south side for targeting conservation.

2024 Field Season	
Observed	15
Captured	10
Catch Success Rate	66%
Days in Water	9.5
CPUE	.33

Recapture Highlight

We recaptured the smallest turtle from 2023 - “Deb” (hawksbill #5). In the span of one year their weight increased by **194%**, their width by **50%**, and their length by **44%**!

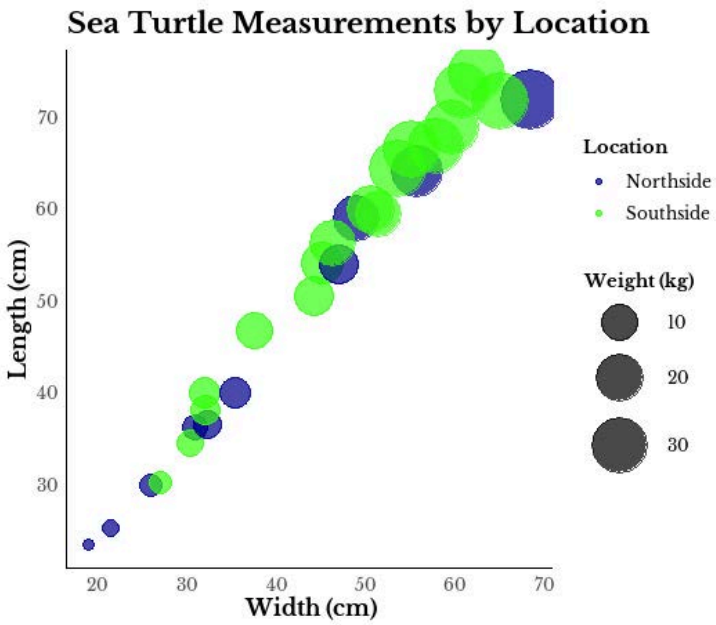
Both times, they were caught amidst the reef in shallow water on the northside. Safe and clearly well-fed.

Introduction

Overview

Not only were turtles generally more difficult to find on the northside compared to the south, but they also tended to be smaller. Over the first two years of our study, there has been a substantial difference in sizes of turtles sampled on either side of St John. Depending on the metric, southside hawksbills were between 19%-31% larger than those on the north.

In our third year, we will explore differences by comparing the areas in relation to benthic composition, degree of development, boat traffic, temperature, and water quality based on available data.



This graph highlights the size differences in turtles caught on the north side (denoted in blue) and the southside (denoted in green). With few exceptions hawksbills were both larger and more abundant on the southside In fact, the shell for the largest turtle from the northside is the result of an enlarged shell from a boat strike, a condition referred to as “bubble butt syndrome.”

Key Hawksbill Biometrics (2023 - 2024)

	Northside (n= 10)	Southside (n=17)	Overall (n=27)
Avg Weigth (kg)	11.13	16.02	13.9
Avg Length (cm)	44.1	56.27	53.2
Avg Width (cm)	38.57	47.75	44.35

The Northside of St John

Still a "Needle in a Haystack"

In the first year of the study (2023), THP labeled the experience of looking for hawksbills on the Northside (NS) a "Needle in a Haystack". In the second year of the study, the Northside continues to be very challenging, from a scientific monitoring, and sampling perspective. The Northside of St. John is comprised of numerous bays and cays and has extensive habitat for hawksbills. From Steven's Cay directly to the west of Cruz Bay, to Johnson's Reef in the middle of the Northside, all the way to Newfound Bay in the far east, there is substantial suitable benthic cover. However, the apparent low density of hawksbills sea turtles on this side of the island, makes interactions time and labor intensive.

In 2023, due to weather and trip logistics, seven days were spent sampling the Northside. During this time, 11 hawksbills were observed, with seven captured and sampled. In 2024, 4.5 days were spent on the NS, and only 5 interactions occurred, with three hawksbills being captured and sampled. The five hawksbill interactions were almost all unique. To highlight just how unpredictable sea turtle work is, on our first day of the study we captured a new small juvenile hawksbill in Frank's Bay within 45 minutes of entering the water. Just a few days later a team of four spent roughly 7 hours in the water across the northside without spotting a single turtle.

Northside St John		
	2023	2024
Observed	11	5
Captured	7	3
Catch Success Rate	64%	60%
Days in Water	7	4.5
CPUE	.26	.158

Social media can help reduce some uncertainty. For instance, on the second day, we focused primarily on Leinster Bay, Mary's Creek and Waterlemon Cay. It yielded new hawksbill, a turtle THP knew was in the area since 2023 after coming to our attention through a YouTube video (link here).

The Northside of St John

Still a “Needle in a Haystack”

The third day on the NS was significant, as it marked the first recapture in the study’s history. In west Haulover Bay, a small hawksbill was captured and through our records it was revealed to be hawksbill #5 which was originally caught in Mennebeck Bay in July 2023. The final two days of the study on the NS were mostly fruitless. A juvenile hawksbill was observed off of Windswept Beach inbetween Maho and Cinnamon and another hawksbill was observed from the research boat in Denis Bay

Overall, 4.5 days were spent on the NS with a grand total of 5 interactions, a number far less than expected given the sheer amount of suitable habitat. New for 2024 was the sampling of habitat south of Turner Bay (Car Ferry Bay), including Great Cruz Bay and Chocolate Hole.

The Northside of St John

Expectation vs Reality

In 2023, six research days on the northside led to 11 interactions and seven sampled turtles. This meant coming into 2024 our expectations were tempered with the reality: finding hawksbill on the NS of St. John is a combination of location, timing, and luck.

The NS of St. John is a vast area and less effort was put into the NS in 2024 than in 2023, therefor, less interactions and captures were expected. Two of the three captured hawksbills were observed and captured within one hour of entering the water, while the remaining 2.5 days were thorough searches lasting up to seven hours with interactions measured in seconds or no interactions at all.

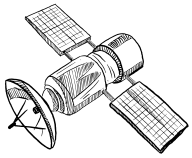
The silver lining for the 2024 research trip was the documentation of two new hawksbills (Frank Bay and Leinster Bay) and a single recapture. The recapture provided biometric growth data and documented movement of hawksbill #5 from Mennebeck Bay to Haulover Bay (giving us some idea of home range/habitat usage). The NS in summation is still very much a needle in a haystack.

THP hoped to see more recaps than we did, but the addition of two new turtles brings the total NS hawksbills over both sampling periods to nine, and raises the possibility of recaptures in 2025. It is interesting to note the number of hawksbills found on YouTube videos in areas sampled but never observed or documented. Several Youtube videos exist from Maho, and Caneel showing juvenile hawksbills, but through two years only a single hawksbill has been documented in either habitat.

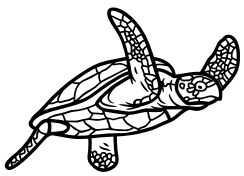
The Southside of St John

Sustained Success

In both 2023 and 2024 the Southside (SS) area had more hawksbill interactions and captures. In 2023 THP managed four days on the SS due to adverse weather (five days was desired). Those four days accounted for 10 captures and 13 interactions. In 2024, five days on the SS led to 7 captures and 10 interactions. The goal of the second year for THP was:



Attach a satellite to the largest turtle in Round Bay (observed there in 2023).



Recapture hawksbills from 2023.

Sample new hawksbills

The Southside of St John

Narrowed Focus

Based on our southside goals, and our experiences in 2023, we narrowed our efforts to three main areas: Round Bay (including Long, Hanson, Haulover, and Elk bays), Rams Head to Reef Bay, and Coral Harbour Point.

The Southside continues to be the area that allows for the most observations, interactions, and documentation/sampled hawksbill turtles. Through two years, a total of nine days have been spent on the SS with a total of 17 turtles sampled and 23 interactions (compared to the NS 11.5 days, 10 turtles sampled, 16 interactions). Round Bay and the Rams Head/Saltpond to White Cliffs areas are guaranteed habitats to observe hawksbill turtles

Southside St John		
	2023	2024
Observed	13	10
Captured	10	7
Catch Success Rate	77%	70%
Days in Water	4	5
CPUE	.526	.636

Discussion

Interesting Observations

Hawksbill turtles are thought to spend most of their time within coral reef habitats, but this study has documented turtles over several different types of habitat (example: hard bottom substrate) with a special focus on sea grass beds. Sea grass beds, a habitat thought to be primarily occupied by threatened Caribbean green sea turtles, has led to multiple hawksbill interactions and captures, including the largest hawksbill we've documented so far. For instance, on our final day on the southside we captured an approximately 70lb turtle resting in roughly three feet of water over a sea grass bed.

These unexpected interactions have led to us sampling more in sea grass beds around St. John but also makes the randomly distributed hawksbill population of St. John more difficult to locate

Round Bay

Round Bay continues to be the location in St. John for large hawksbills. This year we managed to capture only one of the previously documented hawksbills from 2023: hawksbill #17 was tagged in July 2023 (although with great certainty hawksbill #15 was seen in between South Haulover and Hanson Bay). It is important to note that 3 of the 5 days sampling the SS were spent in Round Bay. The lopsided amount of time spent in Round Bay was due to the desire to attach a satellite tag on an adult female hawksbill. This goal wasn't realised due to equipment and timing issues BUT five points need to be acknowledged as it relates the Round Bay marine habitat:

1. **Hawksbill #17.** The largest turtle sampled in 2023 was sampled again in 2024 and has reached 75cm in length. This means this turtle is classified (by NOAA) as an adult hawksbill. This is very interesting and the reason for the desire for hawksbill #17 to be satellite tagged. The goal is to gain potential insight into this turtle as she has reached adulthood. Is this her adult habitat? Where is her natal beach? How often does she migrate? These are questions THP would like to be able to answer.

Discussion

Interesting Observations

2. **THP captured and sampled a new hawksbill in Round Bay.** This is fantastic news because as mentioned in 2023, Round Bay has substantial reef habitat to support several hawksbill therefor the presence of any new hawksbills (to THP) in the Round Bay habitat is a welcome sight. It is important to mention that while this turtle is not on the adult cusp, as were the previous four turtles, it was a large subadult. Despite several days in Round Bay a small hawksbill has yet to be documented.

3. **Elk Bay.** It is necessary to mention that Elk Bay, the bay furthest to the west in Round Bay is a fantastic example of the enigma that is St. John. Elk Bay is large, with a plethora of suitable habitat for hawksbill turtles and yet in the two years of research in Round Bay, only a single hawksbill has been observed/documented in Elk Bay.

4. **Green Turtles in Long Bay.** THP spent two weeks focused on hawksbill turtles but in the future we would like to highlight the number of green turtles in the Long Bay habitat. This is clearly a very important habitat for green turtles AND as it is outside the Virgin Islands Coral Reef National Monument, boat anchors, boat traffic, and overall bay usage should be considered by managing agencies of St. John.

5. **Protected park boundaries** - The Virgin Islands Coral Reef National Monument boundaries split south Haulover and leave half of south Haulover, Hanson Bay, and Long Bay unprotected. THP feels very strongly these bays should be protected. During our field work we witnessed one mega yacht's anchor dragging while in Hanson Bay in addition to multiple anchor scars on the reef structure and sea grass beds. Additionally the residents of the yacht where coming and going very quickly in their motorboat, posing a potential problem to wildlife and slow moving sea turtles.

Saltpond to Reef Bay

Saltpond through White Cliffs is the potential "hotspot" for St. John. In two years THP has documented (interacted or captured) 11 different hawksbill turtles. This is the area that guarantees human/hawksbill interactions. Long-term monitoring projects must consider the cost of any project and the ROI. The SS provides the best "bang for your buck"

Next Steps

Goals for 2025

1. **The Eastend:** In two years of research we have not been able to sample the far east end of St. John including Flanagan Island. The exposure of the peninsula to the Summer winds means conditions need to be perfect (and a boat and captain capable enough to brave the conditions) to sample.

2. **John's Folly** - very similar to the Eastend, conditions need to be favourable to sample this area.

3. **Fish Bay to Chocolate Hole** - yet to be sampled. Needs to be done.

4. **Satellite Tags** - sat tags are a huge goal for 2025. The difficulty with satellite tags involves finding a hawksbill large enough to attach the tag (this specifically means hawksbills in Round Bay).

Conclusion

“So Much Habitat”

“**So much habitat**” is how THP would describe the benthic cover for hawksbills around the island of St. John. This creates a double edge sword for conservation researchers and managers. The sheer volume of reef habitat, combined with the revelation of hawksbills and seagrass, creates a possible scenario where hawksbills are using all habitat types, thus expanding the search area to everywhere. Two years into the study and the simplest thoughts are:

See us in the News for 2024:
The St Thomas Source
The VI Consortium
The Virgin Islands Daily News

1. The Northside is a conundrum. Timing, luck, number of people in the water. All factors to consider when assessing the NS for hawksbill turtles.

2. The Southside is shaping up to be the hotspot for St. John. Whether in Saltpond or Round Bay, Little Lameshur, or Hanson Bay, the likelihood of a hawksbill interaction is greater than anywhere else

Acknowledgements

Teamwork Makes the Dream Work

Sea turtle research is a collaborative effort. Our 2024 season was made possible by the generous support of several individuals and organizations: Friends of the Virgin Islands National Park and the Baird Foundation provided direct financial support. Concordia Eco Resort and Love City Lofts supplied essential housing accommodations. The University of the Virgin Islands Sea Turtle Research and Conservation Project contributed satellite tags, a boat, and partial gas funding. Rays of Gratitude provided labor. The Tap Room offered much appreciated meals after a long day in the water.

Their contributions were instrumental in making the second year of this study possible.

Thanks to the VI Daily News, St Thomas Source, and VI Consortium for coming out of the boat with us and writing about our work.

Finally, a big thank you to our 2024 in-water team including: Scott Eanes, Alex Webb, Paul Jobsis, Jess Michaels, Andrew McGregor, Miles Brill, Linda Suchoschelb, Carl Baker, Willow Melamet, Dr. Larry Wood, and Anna Bennett.

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