

VIRGIN ISLANDS NATIONAL PARK

SEA TURTLE MONITORING AND PROTECTION PROGRAM

2019 Season Report

December Issue



The Virgin Islands National Park (VINP) Sea Turtle Monitoring and Protection Program, funded by the Friends of the Virgin Islands National Park, is proud to report yet another successful nesting season. While the official season runs from July-November, new nests are currently being discovered, and several nests are incubating.

The aim of the program is to conduct island-wide nesting surveys and foster awareness for sea turtle conservation. This season, the program continued to implement and expand on nest protection strategies, collect nesting data, maintain and grow a devoted volunteer base, participate in multiple education outreach opportunities, and make exciting discoveries.

Which turtles call St. John home?

Sea turtles have been swimming the world's oceans for over 200 million years. Today, there are seven recognized species of sea turtles; all of which are threatened, endangered, or critically endangered by national (Endangered Species Act) and international (International Union for the Conservation of Nature) classifications. Four of the seven species have been known to nest in U.S. Virgin Islands: hawksbills, greens, leatherbacks, and loggerheads. Hawksbills, greens, and leatherbacks have been documented nesting on St. John.

Hawksbill (*Eretmochelys imbricata*)

Hawksbill sea turtles contribute to the majority of nests on St. John. While these turtles can nest year-round, the peak of the nesting season is from August to November in the Virgin Islands. During this time, these turtles will return to their natal beaches and deposit between 3-5 nests at 13-14 day intervals. Each nest contains around 100-200 ping-pong sized eggs that incubate for around 55-75 days.

This is the smallest of the sea turtles in the USVI; reaching between 24-35 inches and averaging 100-150 pounds. This turtle gets its name from the narrow and pointed beak that resembles a hawk's bill. This turtle is found near reefs, feeding predominantly on sponges.



Hawksbill sea turtles are internationally listed as Critically Endangered and nationally listed as Endangered, mostly due to human induced threats. Aside from the common threats of all sea turtles, global hawksbill populations have been severely reduced due to overharvest for their desirable shells.

Green (*Chelonia mydas*)



Green turtles are commonly found along the shores of St. John foraging on sea grasses. The average length of an adult is around 40 inches and can weigh somewhere between 200-500 pounds. Due to a diet of sea grasses, this turtle gets its name from the greenish color of their fat.

Green turtles are internationally listed as Endangered, and nationally listed as Threatened. These turtles are commonly poached for their meat and eggs.

Leatherback (*Dermochelys coriacea*)

Leatherback sea turtles are the largest of all turtles. Adults can exceed 9 feet in length and weigh more than 2000 pounds. These turtles are roughly the size of a Volkswagen Beetle! They feed primarily on jellyfish, and will often mistakenly ingest plastic debris floating in the water. Leatherbacks, unlike other sea turtles, do not have a hard shell--hence the name. This flexible carapace gives them the ability to dive to depths greater than 3900 feet.

Although these turtles spend the majority of their time in the open water, leatherbacks have been known to nest on St. John. Trunk Bay was named after the large 'trunk-like' turtles using the area as a nesting ground.



Nationally listed as Endangered, and internationally ranked Critically Endangered, these turtles face a variety of threats ranging from entanglement in fishing gear to the harvest of eggs.

Beach Monitoring



Regular beach monitoring for sea turtle nesting activity was conducted by 32 trained volunteers from late June-November, in which 36 beaches were monitored between 1 and 7 days a week. Beaches with higher historical numbers of nesting activities were monitored more frequently than beaches with no known activity. Beach patrols were conducted during the early hours of the morning and consisted of walking the length of the assigned beach looking for signs of sea turtle crawls, nest depredations, emergences, stranded turtles and unusual activity. Although the volunteer commitment technically lasts until November, several volunteers are currently monitoring beaches and documenting signs of emergence and nesting. Volunteers have logged 724 hours and counting!

Nesting Activity

Thirty-six nesting activities were observed on 10 beaches between July 22nd and December 16th, comprised of 29 confirmed nests and 7 dry runs. Hawksbills laid all but one nest, which was laid by a green turtle.

Nesting sites

A noteworthy success of this season's beach monitoring program was the documentation of nesting on several beaches that have not yet been recorded or have not been recorded in recent history. This documentation may be a result of the increased volunteer effort to monitor more beaches.

Screening

All of the confirmed nests were screened against predators using a 36" x 36" metal screen with 2" x 4" openings. These screens are intended to deter predators from digging in to the nest, but allow hatchlings to escape through the openings. These screens have proven to be successful, noticeably deterring dogs and mongoose from depredating the nests over the past 3 years. In several cases, both dog and mongoose tracks, as well as evidence of digging, have been observed around the periphery of the protective screen. However, one screened nest was partially depredated by mongoose digging through the screen as well as from the side. In response, a smaller mesh screen was added to this nest and the remaining nests on this beach. The additional screening, as well as concentrated mongoose eradication efforts by the NPS proved to be effective in protecting the remaining eggs in the compromised nest, as well as the other nests on the beach.

Due to this depredation, the screening technique may be slightly altered for next season. Screening nests has proven to be an effective method to increase nest success rates. Paired with eradication efforts and frequent monitoring, we aim to protect all nests from depredation.

Relocations

The program is proud to report the success of the first official nest relocation this season. 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 for the 2019 season.

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 will ensure that the eggs are not disturbed after the embryo has attached to the shell wall.

The original nest was laid on an inland sloping section of beach 4 feet below the previous night's high tide line, and 35 feet below the storm surge high water mark. The eggs were carefully removed from the cavity and placed in a new cavity mimicking the inner dimensions of the *in situ* nest. The orientation of each individual egg was maintained to the best ability during the transfer. The relocation site was chosen based on the maximum safety from sea inundation and erosion, keeping the original site selection in consideration. This nest had a successful incubation, and yielded a hatch success of 81%, which average for hawksbill nests in the USVI.



Green sea turtle nesting was first documented in 2017, and has been observed each subsequent year.



Excavations

Following emergence, nests are excavated to determine hatch and emergence success. Hatch success is the percentage of eggs that hatch; emergence success is the percentage of hatchlings that make it out of the nest cavity. Unhatched eggs are opened to determine the developmental stage (see chart below).

Twenty-four of the 29 nests have shown signs of emergence and have been excavated. These nests have revealed an average hatch success of 70.8% and emergence success of 66.9%, with a range from 0% to 99.3%. The average hatch success of hawksbill nests was 70.9% and emergence success of 66.9%. The one green turtle nest had a hatch success of

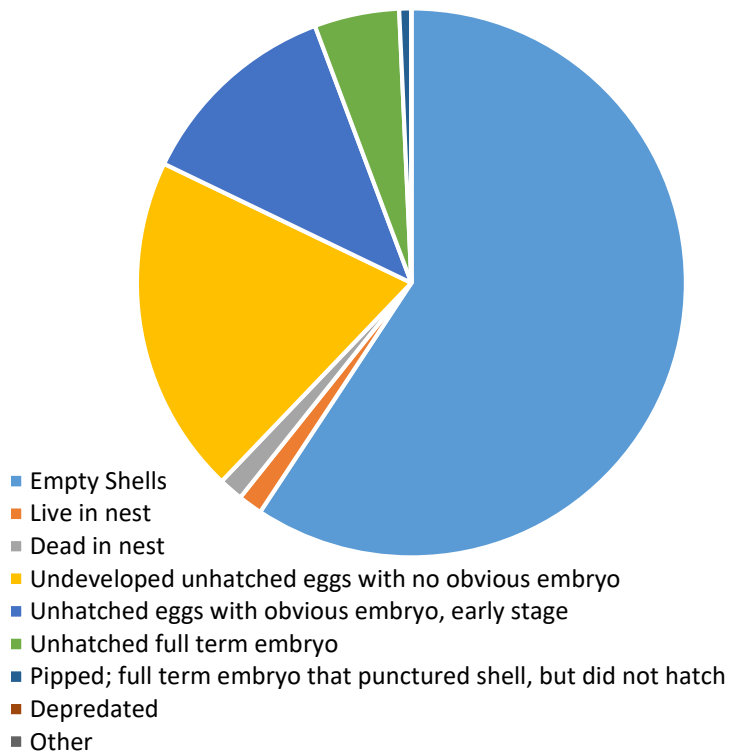
69% and emergence success of 68.1%. Nine nests had a hatch success over 80 percent, and six had a hatch success over 90 percent. Ninety-seven hatchlings have been found live in the nest during excavation, and released to the ocean. According to the excavations, 2,317 hatchlings have made it to the sea so far this season!

Storm Loss

While peak hawksbill nesting season occurs during hurricane season, it is not uncommon for nests to be affected by storms. Fifteen of the nests were inundated by sea water, and one was partially lost, physically removing about half of the nest and contributing to the complete mortality of developing eggs in the remainder of the nest. Storms deposited up to 8 inches of sand on many nests and removed several screens. It is uncertain whether these inundation events led to a lower success rate without further analysis and the inclusion of several environmental factors. such as water retention time, temperature, substrate material, etc.

Nest Contents

n=24



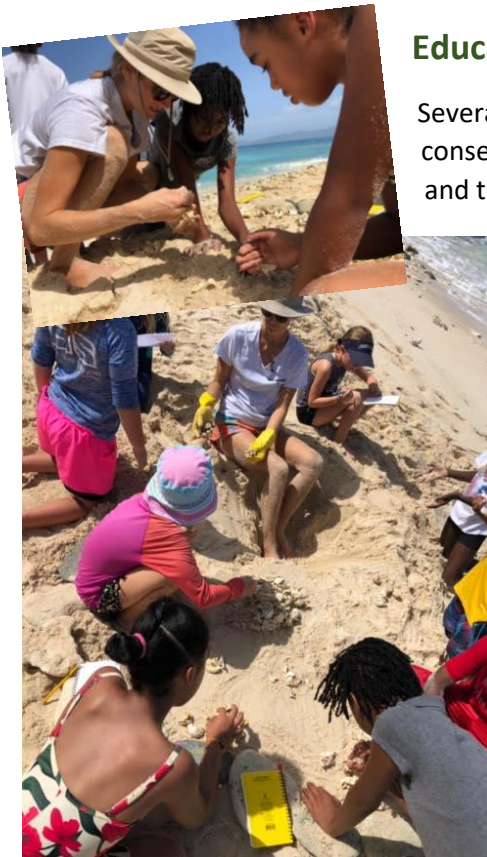
Volunteer Programs

In addition to beach monitoring, volunteers had the opportunity to assist and lead a number of events including nest screenings, relocations, excavations, and night watches. These activities were well attended and furthered the training and knowledge of volunteers.

A three-day sea turtle workshop was planned for a subset of the volunteer base to gain hands-on experience in sea turtle nesting and conservation activities on St. Croix. Programs were planned with the U.S. Fish and Wildlife Service Sandy Point National Wildlife Refuge as well as the National Park Service Buck Island Reef National Monument. Unfortunately, Tropical Storm Karen hit at the time the workshop was scheduled and the trip was cancelled. Plans are in motion for a similar trip in 2020 outside of hurricane season.

One of the greatest successes of this season was the continued involvement of dedicated volunteers. Over the past few years, return volunteers have become more knowledgeable and involved in the program. This season, volunteers have felt comfortable taking on more responsibilities and have been trained to screen and excavate nests.

The interaction of trained volunteers has decreased the response time to confirm and screen nests and has likely increased the discovery of a greater number of nests. The rate of detection anecdotally appears to be directly related to the frequency of monitoring by trained individuals. This network of diligent volunteers has significantly improved the efficacy of the program, and hints at a brighter future.



Education Outreach

Several education outreach programs were conducted to spread awareness of sea turtle conservation. Interpretive snorkel programs were held in collaboration with Reef 2 Peak and the Friends of the VINP Seminar Series to educate the public on observational etiquette as well as provide general information on the life history of sea turtles. Participation in the Earth Day Fair reached over 200 students from all of the schools on St. John. The Youth Conservation Corps, as well as the Friends of the VINP Trail Crew participated in a hands-on day of training and practical skills associated with sea turtle research and conservation. Interactive school programs for a variety of grade levels took place both on the beach and in the classroom, educating children of the biology and ecology of sea turtles, as well as giving students the opportunity to assist in nest excavations and practical data collection. In addition, non-volunteering members of the community were present and enthusiastically engaged in a number of nest excavations and emergence viewings.



Conclusion

The program could not be more proud of the results of this successful season. For a second year, the highest detection of nests in over a decade were discovered by an outstanding volunteer group, revealing the success and momentum carried over from last season's record breaking year. The program was able to protect nests from depredation, relocate a nest in imminent danger of total loss, maintain regular beach patrols, expand a dedicated volunteer base, promote conservation through education outreach, and collect information to be used to enhance our knowledge of sea turtles to build upon future conservation management strategies.



Thank you!

Thank you to all of the supporters of the VINP Sea Turtle Monitoring and Protection Program funded by the Friends of the Virgin Islands National Park. Thanks to all Friends employees, NPS personnel, and to all the wonderful volunteers that made this program possible!

