

WORKSHOP REPORT

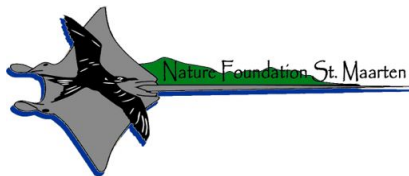
Workshop:

**St. Maarten Nature Foundation
Training and Sea Turtle Assessment**

Dates:

July 30th (Bonaire)
September 21 – 26 (St. Maarten)

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Purpose

To help build in-house capacity regarding both beach and in-water monitoring of sea turtles in St Maarten Sea Turtle Conservation Bonaire (STCB) in partnership with Dutch Caribbean Nature Alliance (DCNA) committed to:

- (1) provide training on Bonaire for the manager of the Nature Foundation about nesting beach monitoring techniques and;
- (2) to conduct an initial assessment in the water in the areas of Simpson Bay and around St Maarten while providing training for staff and volunteers on in water surveys techniques.

Nesting Beach Monitoring training (July 2012)

The manager from the Nature Foundation Tadzio Bervoets, attended one field session on Klein Bonaire on July 30th 2012. Klein Bonaire is Bonaire's index beach and Tadzio was able to participate in one beach patrol instructed by STCB program assistant Sue Willis and field contractor Gielmon Egbreghts where he had hands-on training in the protocols used for beach coverage, nest identification and confirmation, marking and the collection of data in the field. After this session in the field, Tadzio had one in door session with STCB manager Mabel Nava to learn about data management and received data template forms adapted to be used in St Maarten for both nesting beach monitoring and in water surveys. In this session the use of equipment was discussed and preparation for the in water assessment/training session were discussed.

We visited two nesting sites while in St Maarten and assisted in the opening and count of one hatched green turtle nest located on the beach of the Divi Flamingo hotel.



**Tadzio Bervoets opening a
green turtle nests**

Initial Assessment in the areas of Simpson Bay and around St Maarten

For the design of marine turtle foraging ground surveys, some prior insight of the marine habitats under evaluation is essential. Information on typical sea conditions, habitat types, bathymetry, and turtle occurrence should be included in a preliminary evaluation to establish survey feasibility and methodology. Nautical charts, aerial/satellite photos and benthic maps can provide good insight into the types and extent of potential turtle habitats within a given area. However, marine turtles are never homogeneously distributed in benthic habitats, as they tend to assemble where conditions are best. Finding those foraging areas exhibiting greater densities of turtles requires experience and in-water observation. Local fishermen and recreational divers can be valuable sources for such information (STCB protocol manual).

The team that executed the assessment and provided the training for The Nature Foundation staff and volunteers in St Maarten consisted of two STCB staff members (Mabel Nava, Manager and Gielmon Egbreghts, field expert) and one volunteer (Tina Lindeken, long term volunteer). STCB has been performing systematic in-water monitoring of juvenile sea turtles around Bonaire and Klein Bonaire since 2003.



STCB Staff and Volunteer

Two main habitats were assessed for sea turtle foraging activity to give advice to the Nature Foundation on the feasibility of doing ongoing monitoring on foraging sea turtle in those areas.

1. Simpson Bay
2. Areas off the coast of St Maarten

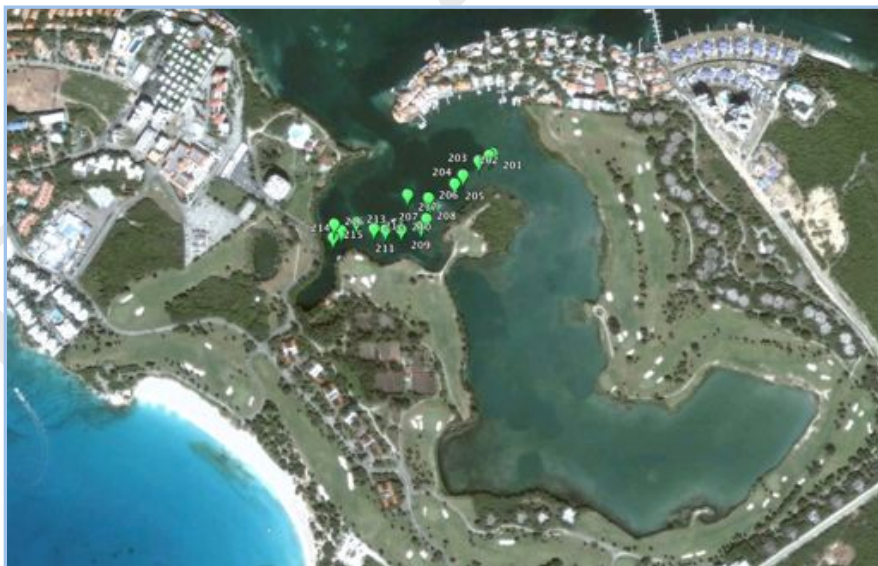
Simpson Bay

Two different types of surveys were performed in the Bay: (1) Boat based turtle sighting consist in observing turtles from the boat. Since turtles need to breathe air their heads can be counted from the boat in certain areas where conditions are favorable such as the calm waters of the bay. Two one hour sessions were performed in two different places of the bay (see map & appendix with coordinates) with no observations recorded during the surveys. (2) Two 30 to 45 minutes in-water visual surveys were performed to characterize the bottom composition on those two areas identified by the manager of the Nature Foundation as potential habitat for sea turtles in the Bay. We looked for the presence of preferred sea grasses by sea turtles and signs of cropped sea grasses which would indicate the presence of foraging sea turtles in those areas. In the first area only the invasive species of seagrass *Halophila*

spinulosa was found with no signs of being cropped. In the second area surveyed the predominant sea grass found was *Halophila spinulosa*. There was presence of *Talassia testudinum* in a very small percentage compare with the *Halophila* (THs99%-Tt1%) there was no cropped grass in the area indicating that sea turtles don't eat from them. The bottom is completely covered with a thick layer of sediment (about 40cm) and scattered around there were pieces of sunken boats, batteries, golf balls and neon color pigmentation on the ground. Pictures and videos are part of this report to backup this information.

It is unlikely that sea turtles are using this particular habitat as foraging grounds, the unmanaged development and ongoing use of this bay with a lack of vision to protect the integrity and balance of this fragile ecosystem has cause tremendous impact in its ecology; the absence of the sea grass species that turtles eat in the Caribbean is just one of the signs of the unhealthy state of this bay as a system. The bay was originally surrounded by mangroves only 20 years ago but to this date you can only see a very small percentage of the coverage. (pers.comment Tadzio Bervoets). The amount of sediment in the bottom is outstanding indicating a high level of pollution.

Seagrasses are very important for the health of the mangrove ecosystem, and the other way around. Seagrasses help mangroves by slowing down the ocean current, allowing the sediments to settle, and providing a calm spot for new mangroves to settle. Mangroves, in turn, help sea grasses by filtering out potentially harmful excess nutrients before they reach the grasses. The absence of mangroves is an important indicator on the health of the seagrasses found in the area. *Halophila stipulacea* is a seagrass which has been introduced to the Mediterranean and more recently the Caribbean most likely through fragments transported by commercial and recreational shipping. Studies suggest that *H. stipulacea* is capable of displacing native seagrasses and associated communities and while yet to be confirmed, the potential threat to biodiversity posed by this rapidly spreading plant is serious. *H. stipulacea* is included in the "100 Worst Invasive Alien Species in the Mediterranean".



One of two areas surveyed in Simpson Bay



Photos from Simpson Bay

Surveyed Areas off the Coast of St. Maarten

Eight (0:23 to 66 minutes) sessions of sighting and/or capture surveys were conducted by snorkeling or diving (with a pony tank) in several potential foraging habitats off the coast of St Maarten with the objective of finding turtles. Surveys followed a fixed transect and or were limited by survey session duration within a defined area. Three to four observers were involved in each survey, swimming parallel to each other in the same direction and supported by a following boat. GPS points were taken at the beginning and end of each session and turtles sighted during transects were recorded. Turtles caught were brought on the boat for tagging, measurement, weighting and photographing the turtle from above. This work served as a Demo and hands on experience for the manager of the Nature Foundation and volunteers. All individual turtle data was recorded on pre-printed heavy paper (“cardstock”) data sheets. After processing, each turtle was returned to the place where it was caught using the GPS receiver and its release time was noted. At the end of the day, all collected data and photographs were reviewed and stored in a secure location.



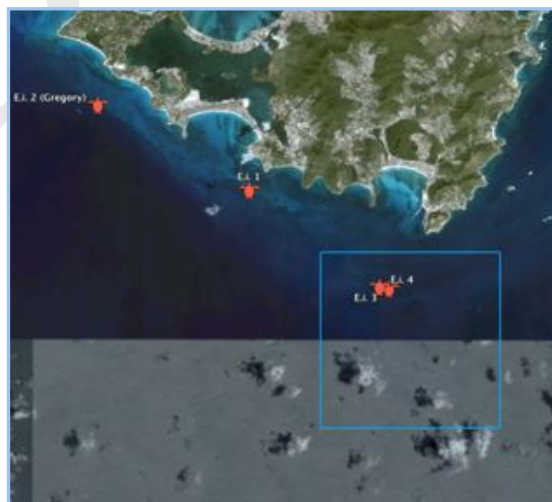
Photos of Assessment off the Coast

During the eight surveys a total of 4 hawksbill turtles were caught and no green turtles, three of the hawksbill were juvenile and one was a male adult that had a front flipper entangled with fishing line. After releasing the entangled flipper the turtle was measured and ID pictures were taken as well as a video of the procedure of removing the lines around the flipper. Flippers entangled by fishing lines end up amputated by the pressure of the lines, which cuts the skin slowly and little by little goes deeper until the limb is completely separated from the body. Turtles are very resilient and live through the process and survive without their limb afterward. Hopefully our intervention was on time to save the limb. The male turtle was in a dive site called Gregory, dive instructor Laszlo Charles who was a volunteer during this session informed us that there are big (adult) turtles living under the barge that is upside down on the bottom of this site at around 45 feet deep. Presumably this is an adult resident and our advice is to share the story with the video and pictures with the dive operations as a means of following up on the health of the turtle when sighted by divers. This is an interesting way to keep them engaged about sea turtle conservation issues and to promote the communication between dive operations and the Marine Park thus increasing the chances to get valuable information while creating partnerships.



Flipper of male hawksbill entangled in fishing line

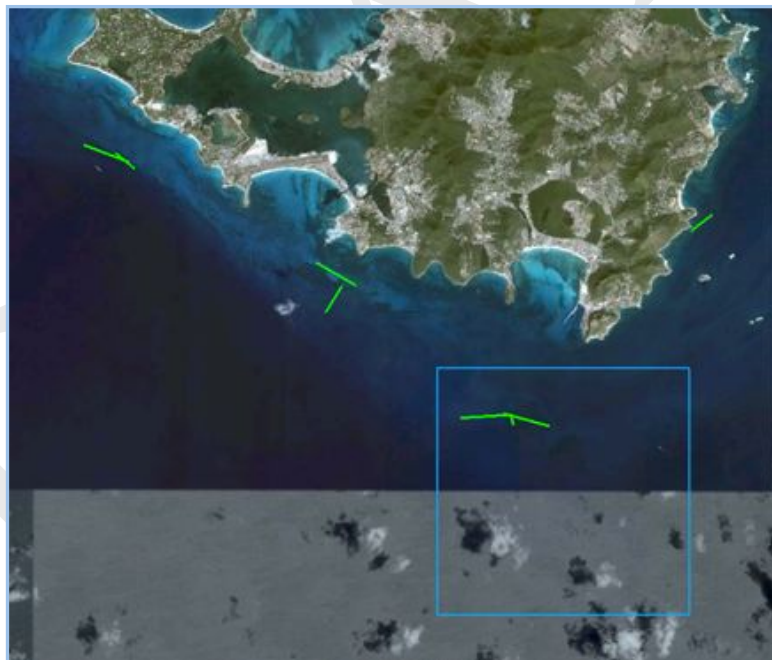
The other three hawksbills were healthy juveniles (41.3-43 cmSCL) the locations considered for conducting the assessment didn't show significant number of individuals to consider conducting in-water turtle abundance index surveys. The habitat is very extensive and turtles seem to be scattered in a wide range. The first hawksbill was caught in (18° 01.763/63° 09.624) and the other two were caught in one area of the Marine Park (17° 59.376-63° 03.281 and 17° 59.403-63° 03.449).



Location of hawksbill turtles caught during the assessment



Transects surveyed off the coast of St. Maarten



Transects surveyed off the coast of St. Maarten with Marine Park Boundary

Summary of results and recommendations:

1. It is recommended to maintain the effort on nesting monitoring and increase the capacity with the support of core volunteers. It is also recommended to increase the knowledge about nesting monitoring techniques by identifying training opportunities for the Manager of the Nature foundation and a key volunteer who could help build in house training for future volunteers. To look out for models that fit the small island and small rookery perspective that can be adapted to the reality of St Maarten e.g. Beachkeepers on Bonaire.
 2. In the area of Simpson Bay no turtles were sighted during our surveys thus indicating that there are not enough individuals to consider conducting netting surveys in those areas. The bottom characterization survey indicated that the local sea grasses that were part of this habitat originally have been exterminated possibly as a consequence of the intense pollution, destruction of the mangroves forests surrounding the lagoon by uncontrolled development and the presence of the invasive seagrass species *Halophila spinulosa*. The seagrass had no signs of being cropped indicating that turtles if present are not feeding on them and no excrements were found either. Anecdotal information gathered from two local people tell the story of a very different lagoon: crystal waters surrounded by Mangroves stands and sea grasses were the habitat of an immense variety of sea life and thus was the source of food of many of the inhabitants of St Maarten. Visual boat-base turtle surveys can be performed in the two spots identified by the manager of the Nature Foundation if capacity allows. These surveys can be done fairly simple by looking for turtle heads from the boat in those two areas; they can be conducted every six months being careful to record all data such as GPS points, date, time, personnel, etc. with the goal of giving reliable information about the absence of sea turtles in the bay which in combination of historical data about the presence of sea turtles in the past can make a strong argument for the need of restoration of the local species and to protect what is left. (interviews of local fisherman should be part of this collection of data)
 3. There was not enough number of individuals sighted and captured per surveyed areas to recommend ongoing index in-water turtle capture surveys. There is information both from the surveys and reports made by dive operations that there are turtles feeding in specific areas off the coast but the feeding areas are so wide-spread that finding hotspots if they exist will take a great effort and thus is not realistic to perform capture surveys for the expected results. The recommendation is to establish **if capacity** allows two to four transects of snorkeling surveys to count turtles following the protocols and the training received during the assessment. These surveys can be performed once a year repeating transects two to three times (one per day). Data should be carefully collected and stored (following the training/protocols). This information can be used to estimate abundance and trends in feeding turtles in those areas and thus can be valuable information to be used for conservation purposes but is of major relevance to estimate the long term availability of funding, permits, manpower and logistics before embarking on a commitment to performing index surveys at turtle foraging grounds. With the emphasis on continuity, substantial consideration should be given to identifying funding sources that can support the surveying effort for several years ahead. Due to the logistics
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involved in conducting foraging ground surveys, the future availability of supporting boats, related infrastructure and manpower should be critically evaluated and weighed in the selection of the survey sites and surveying methodologies. In all cases, investment in training and retention of survey personnel is key to ensure consistency in survey performance and should be the determinant factor on whether to start doing them or not.

4. It can be beneficial to start a sighting-sheet program where divers can record the turtle sightings after their dives. Bonaire has a well established program that can be copied and adapted to the island needs. This program has no scientific value but it is a powerful public awareness program that enhances the work of the Nature foundation in regards of sea turtles.

Acknowledgment to volunteers:

Thanks to the support of volunteers who assisted STCB and DCNA and made this assessment possible, without their work this would not have been possible.



**Tina Lindeken STCB
Volunteer**



**Erik Kruis, St. Maarten Nature
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