



Research and Monitoring Report 2010

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STCB is a member of



WIDECAST

Wider Caribbean Sea Turtle Conservation Network

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We proudly present our 2010 Sea Turtle Research and Monitoring Report.

Sea Turtle Conservation Bonaire is a non-governmental, non-profit, research and conservation organization that began in 1991. Our mission is to ensure the protection and recovery of Bonaire's sea turtle populations throughout their range.

In 2010, we completed our 8th year of systematic research on the sea turtles of Bonaire. In this report you will read about the methods and results of our sea turtle research and monitoring activities, including nesting beach monitoring, foraging ground surveys, and turtle migration tracking.

Four of the Wider Caribbean's six species of sea turtles are found in the waters of Bonaire. They are: the hawksbill (*Eretmochelys imbricata*), the green turtle, (*Chelonia mydas*), the loggerhead (*Caretta caretta*), and the leatherback (*Dermochelys coriacea*). The hawksbill and leatherback are considered "critically endangered" throughout their global ranges; and the green and loggerhead considered "endangered". Bonaire offers a relatively safe haven for foraging juvenile hawksbill and green turtles, as well as critical nesting grounds for hawksbill, loggerhead, green, and the occasional leatherback.

When STCB was founded in 1991, our sea turtles were threatened by direct harvest, accidental capture, and destruction of nests. Accordingly, our conservation efforts focused on direct protection for sea turtles. Now those threats are overshadowed by problems brought by increasing tourism and development. Using the information we gather in our research and monitoring activities, we are able to identify and implement proactive management and conservation actions to continue to protect Bonaire's sea turtles and their environments. We use our sea turtle conservation efforts also to encourage sustainable development and to emphasize a necessary balance between increasing tourism and development and the preservation of Bonaire's nature and environment.

For more information about our conservation, education, and advocacy activities, please visit our website at: <http://www.bonaireturtles.org/>.

Our important work could not be completed without significant financial support. We would like to acknowledge our flagship funder, WWF-Netherlands and our major 2010 funders, the Dutch Caribbean Nature Alliance (DCNA), Pifworld and STCB-Netherlands. We are also thankful to our many other individual and business donors (Appendix III), to STCB staff and board members (Appendix IV), and the many business partners and volunteers that assisted us (see Appendix V). We especially would like to thank STINAPA-Bonaire for their continuing collaboration and support.

Special thanks go to Gielmon "Funchi" Egbrechts who left STCB at the end of 2010. For eight years, Funchi served as a field specialist conducting turtle surveys, monitoring nesting, teaching Bonaire's youth about the importance of turtles to our island's environment, and acting as a goodwill ambassador for the organization. His work is greatly appreciated and we wish him well on his future path.

Lastly, we would like to acknowledge Dr. Robert van Dam, our scientific advisor who oversees STCB's research efforts and helped substantially in the production of this report.

We hope you find this report informative and that it encourages your interest and support for the sea turtles of Bonaire.

Nesting Beach Monitoring

The beaches of Bonaire and Klein Bonaire were surveyed periodically for sea turtle nesting activity, with emphasis on the most actively used nesting area around "No Name" on Klein Bonaire. No Name beach received the best coverage as it is Bonaire's index beach for measuring annual fluctuations in nesting activity.

Turtle nesting activity was first registered during 2010 on May 12th, when a loggerhead nest was discovered at No Name beach. The first hawksbill nesting of the 2010 season also occurred at No Name on June 1st, where also a very rare leatherback nest was laid on June 7th. 2010 was also a strong green turtle nesting year and the first nest for the species was found at Playa Chikitu on July 12th.

During 2010, a total of 5 loggerhead and 34 hawksbill nests were recorded on No Name beach, with May showing the greatest nesting activity for loggerheads, whereas hawksbills were most active in August (Figure 1).

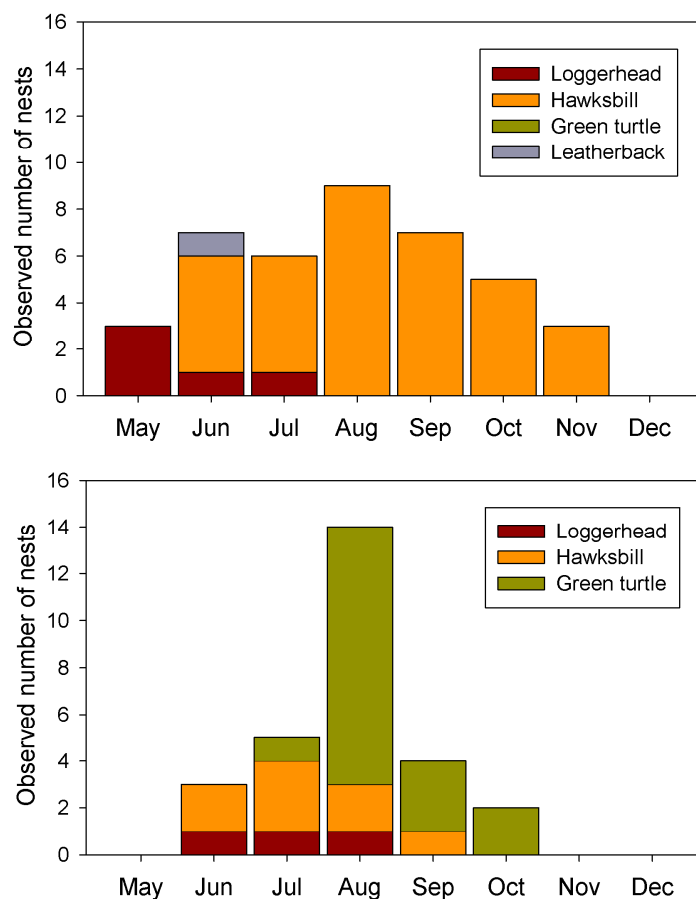


Figure 1. Temporal distribution of nests laid by loggerhead and hawksbill turtles at No Name beach, Klein Bonaire (top) and the beaches of Bonaire (bottom).

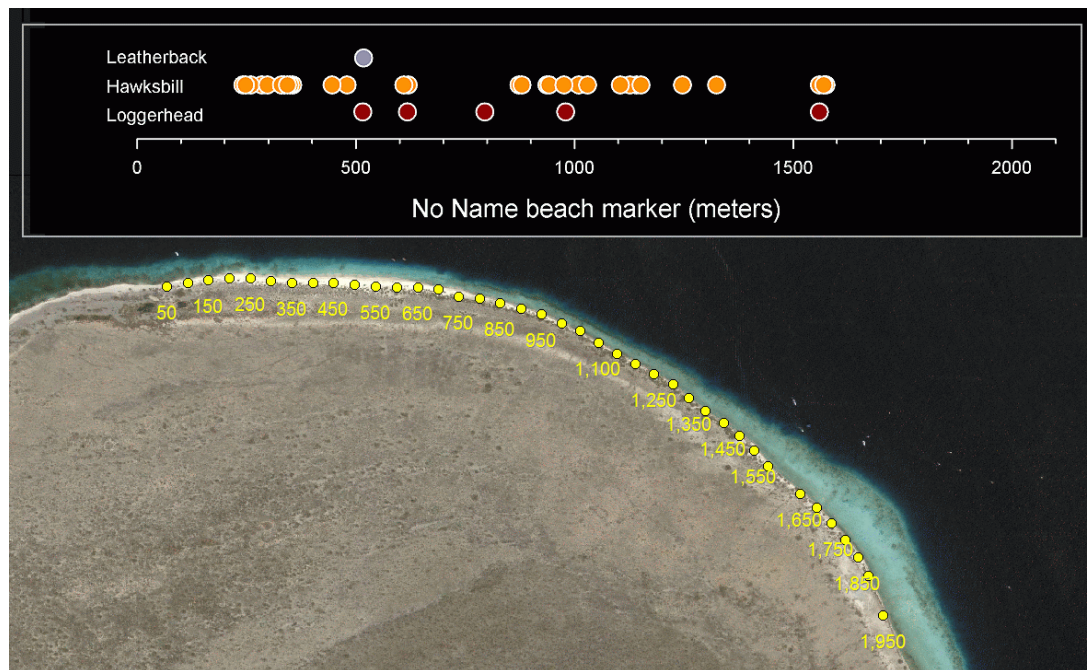


Figure 2. Diagram of individual hawksbill and loggerhead nest locations along No Name beach, Klein Bonaire. Yellow dots indicate beach markers. The visitor huts are located approximately at marker 600.

Hawksbill nests at No Name were laid in clusters around the 300m and 1000m markers, whereas the few loggerhead nests were spread out along the most accessible and sandy sections of the beach (Figure 2). Figure 3 illustrates the 8-year trend in nesting activity for the three species most commonly encountered. For hawksbills and loggerheads, the trend indicates a stable to slight decline in the population.

On the rest of Bonaire nesting activity by loggerhead and hawksbill turtles during 2010 occurred along the southwest coast (3 loggerhead and 4 hawksbill nests), Donkey beach (3 hawksbill nests) and at Boca Onima (1 hawksbill nest).

Green turtle nesting in the Caribbean are known to fluctuate strongly in 2-3 year cycles and this also shows in the nesting activity for the species on Bonaire and 17 green turtle nests were encountered during 2010 (no nests were observed in 2009). Such annual fluctuations are typical for a population consisting of only a limited number of individuals. For all areas, the actual number of turtle nests deposited is probably slightly underestimated, as only nesting activity with confirmed egg presence (determined either shortly after laying or upon hatching) is counted.

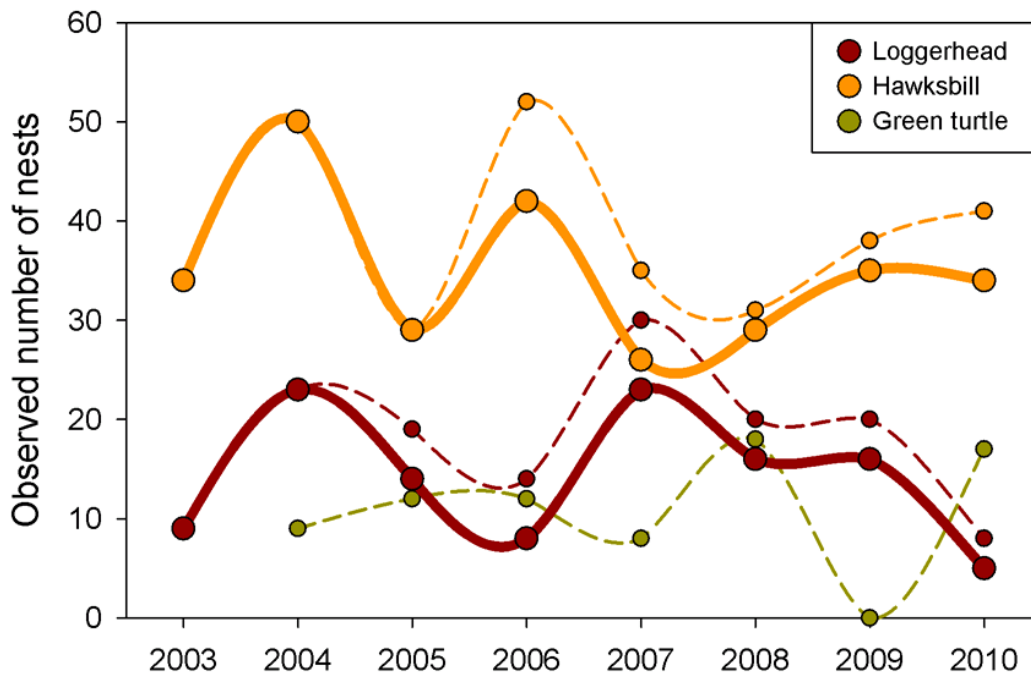


Figure 3. Trend in nest numbers at No Name Beach, Klein Bonaire (solid lines) and totals for all Bonaire and Klein Bonaire nesting beaches (dashed lines).

Nesting size and productivity were measured through nest revisions after hatching. Revision of 6 loggerhead nests, mostly at No Name Beach, yielded an average nest size of 143.7 eggs (range 107 – 169) and average hatching success for these nests was 76.2%. Revision of 36 hawksbill nests (29 nests at No Name beach, 7 at other locations) yielded an average nest size of 144.3 eggs (range 68 – 196) and hatching success of 74.8%. Both hawksbill and loggerhead hatching success rates were slightly higher than in 2009, indicating favorable nest incubation conditions on the beach at Klein Bonaire.

The estimated number of hatchlings produced at the index beach of Klein Bonaire during 2010 can be calculated from the total number of nests, average nest size and average hatching rate. The 5 loggerhead and 34 hawksbill nests laid along No Name resulted in approximately 548 loggerhead and some 3670 live hawksbill hatchlings emerging from their nests. Whereas the number of hawksbill hatchlings emerging from No Name beach in 2010 remained stable, only about 1/3 as many loggerhead hatchlings emerged as compared to 2009, due to fewer nests deposited.

Green turtles laid 17 nests during 2010, all but one at deposited on Playa Chikitu, Washington Park. The remaining nest was laid in coral rubble adjacent to the “Fisherman’s hut” along the southwest coast of Bonaire. This nest fared poorly and only 7% of the eggs hatched. Revision of 15 green turtle nests at Playa Chikitu yielded an average nest size of 114.9 eggs (range 89-134) and a hatching success of 92.3%. An estimated 1800 green turtle hatchlings emerged from the Playa Chikitu nests.

Foraging Ground Surveys

Foraging ground surveys were conducted by snorkeling along the entire west coast of Bonaire, circumnavigating Klein Bonaire, and in front of Lac Bay (figure 4, table 1). In addition, turtle surveys using the netting technique were performed inside Lac Bay. The purpose of these snorkeling surveys is to tag, sample, measure and photograph individual turtles, and to establish catch-per-unit-effort measures of turtle abundance. For comparison, the surveyed area was separated into sectors for comparison as follows: Klein Bonaire, Northwest and Southwest Bonaire, the reef outside of Lac Bay (Southeast), and inside Lac Bay itself.

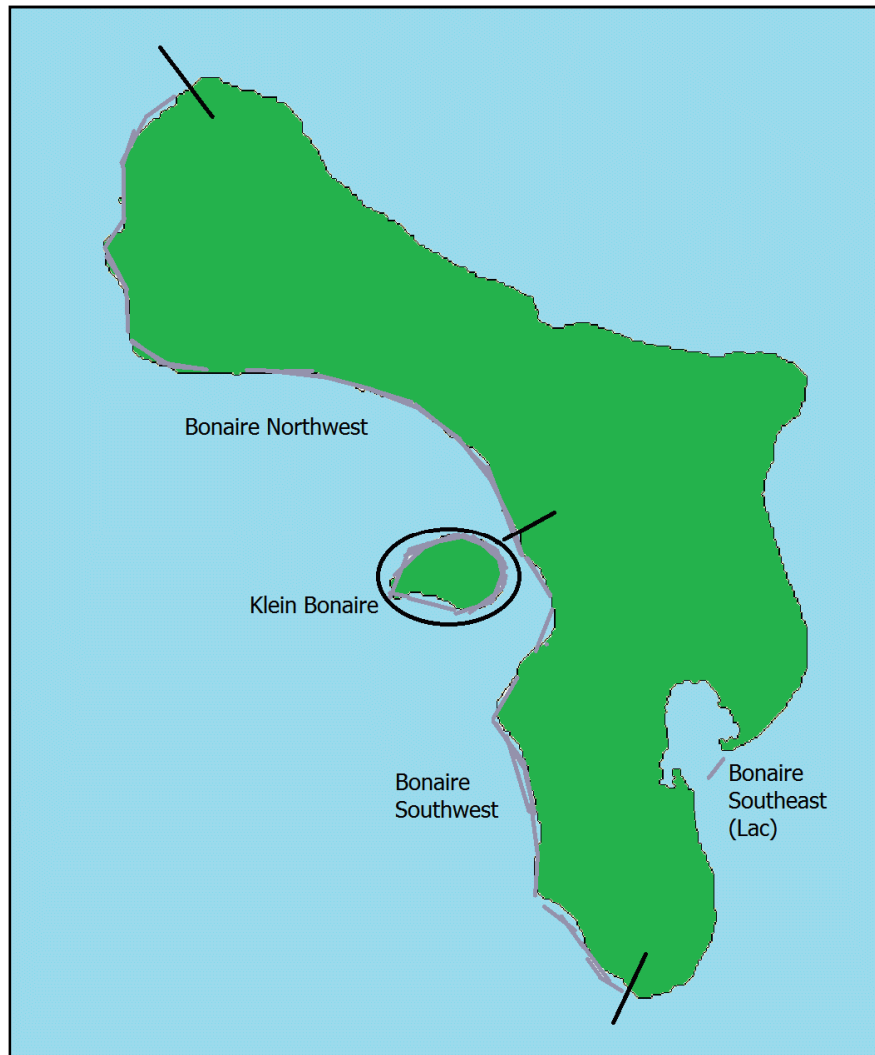


Figure 4. Sectors of coastal areas of Bonaire and Klein Bonaire covered during in-water surveys. Survey tracks are marked in gray (lines connect survey begin and endpoints, but do not necessarily indicate the precise survey tracks).

Table 1. In-water snorkeling survey effort in hours by sector from 2003 to 2010.

	Total survey hours						
	2003	2005	2006	2007	2008	2009	2010
Klein Bonaire	25.9	24.5	17.5	13.2	11.2	8.4	19.9
Bonaire Northwest			38.7	25.2	18.5	24.0	28.2
Bonaire Southwest			23.9	20.2	13.7	15.5	18.7
Bonaire Southeast			14.3	9.9	4.8	4.7	1.4

From 2009 to 2010, green turtle abundance appeared to remain stable in all areas (figure 5), except on the reef outside of Lac Bay where a steady increase has been observed since 2006, which jumped in 2010 (figure 6). With the exception of the Lac Bay animals, the green turtles encountered during snorkeling surveys are mostly immatures smaller than 40 cm straight carapace length (SCL). Locations with particularly high green turtle abundance include Ebo's Reef at Klein Bonaire (associated with the sea grass beds in the shallow lagoon there), Playa Frans, and the Slagbaai area of Washington Park (figure 7). The reef in front of Lac Bay harbors a very high density of animals (for location see figure 9), which are associated with the Lac Bay sea grass pasture foraging grounds.

Hawksbill turtles occur in lower numbers than green turtles throughout Bonaire and Klein Bonaire (figures 5 and 8) and their abundance in 2010, as compared to previous years, appeared to have dropped slightly in the surveyed areas. Similarly as for green turtles, but occurring in a much lower aggregation density but on average in greater body size (figure 10), immature hawksbill turtles are found on the reefs adjacent to Lac Bay, and these animals also use the bay for foraging. Other areas of relatively high hawksbill abundance are the east half of Klein Bonaire, Playa and the southwest tip of Bonaire.

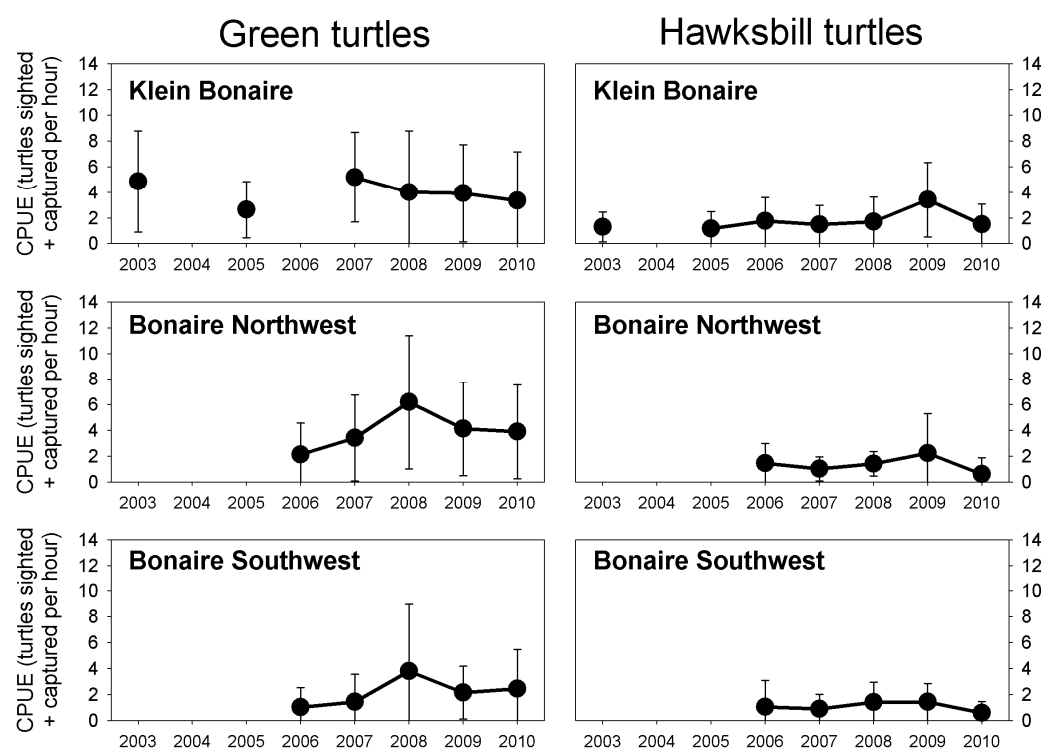


Figure 5. Comparison of 2003-2010 “catch-per-unit-effort” survey results by sector around Klein Bonaire and Bonaire.

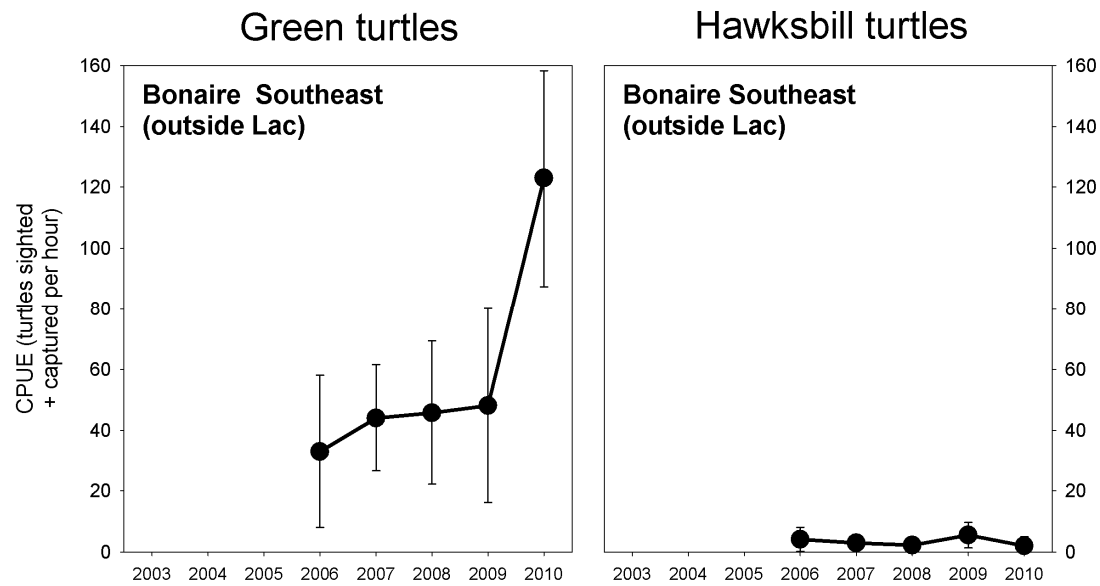


Figure 6. Comparison of 2003-2010 “catch-per-unit-effort” survey results outside Lac on Bonaire’s southeast coast.

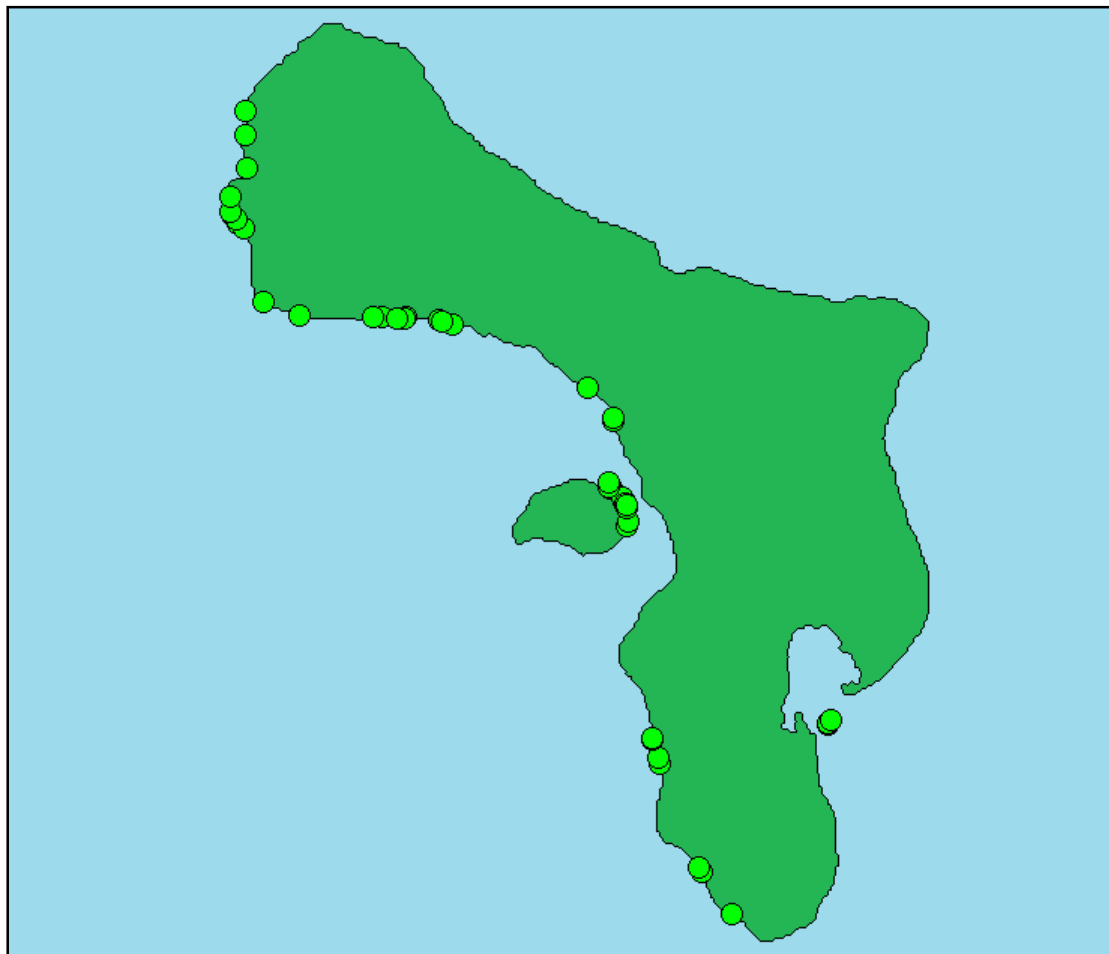


Figure 7. Locations where green turtles were captured during snorkeling surveys around Bonaire and Klein Bonaire.

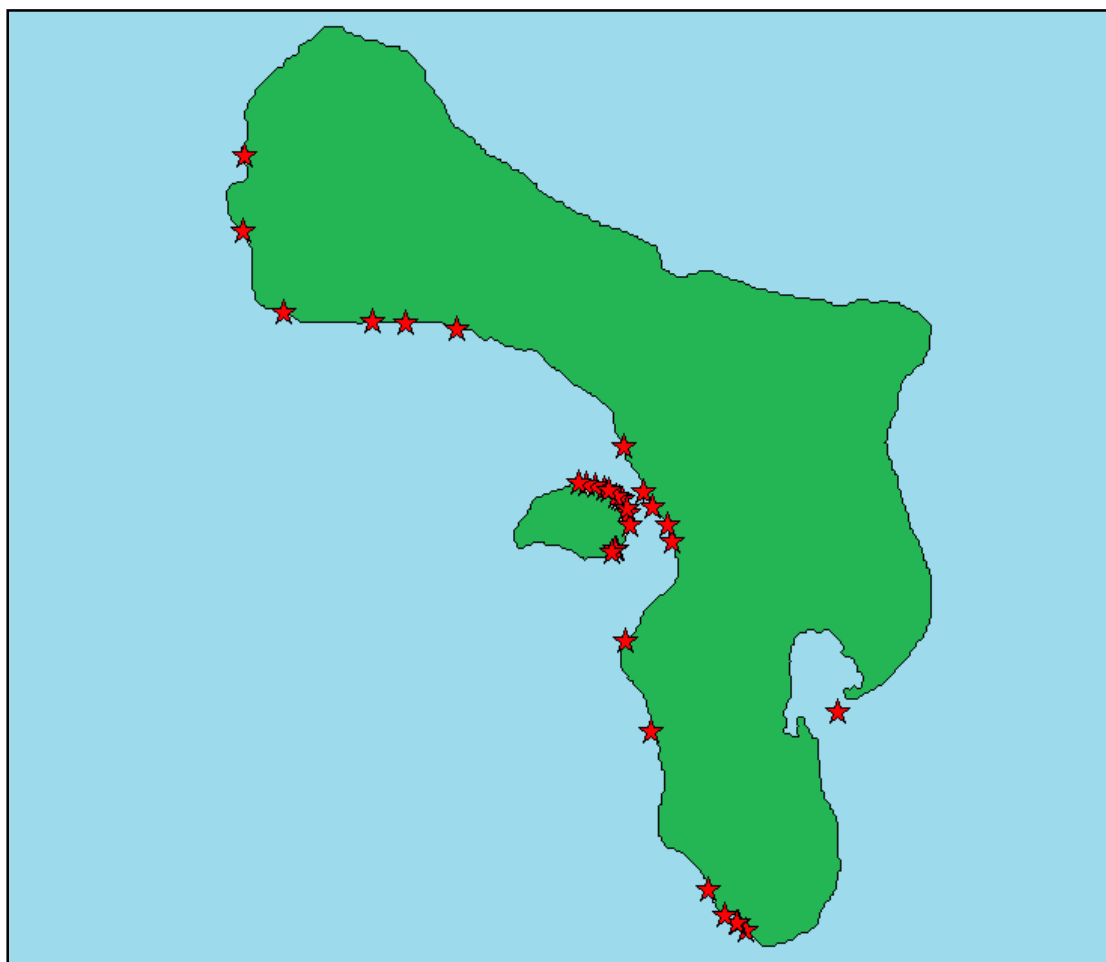


Figure 8. Locations where hawksbills were captured during snorkeling surveys around Bonaire and Klein Bonaire.

Netting surveys were conducted during two periods within Lac Bay: during May and December 2010. A total of 105 green turtles and 7 hawksbills were caught during these surveys. Figure 9 indicates the netting locations, aimed at areas with highest green turtle abundance as determined by observing turtles surfacing to breathe. Table 2 indicates the abundance trends for both species as measured by captures per hour of netting time (“net soak time”). Green turtles are vastly more abundant than hawksbills within Lac and their numbers appear to be stable or increasing slightly. Hawksbill abundance at Lac now appears to be stable, however their low catch rate by netting make it difficult to determine any true abundance trend.

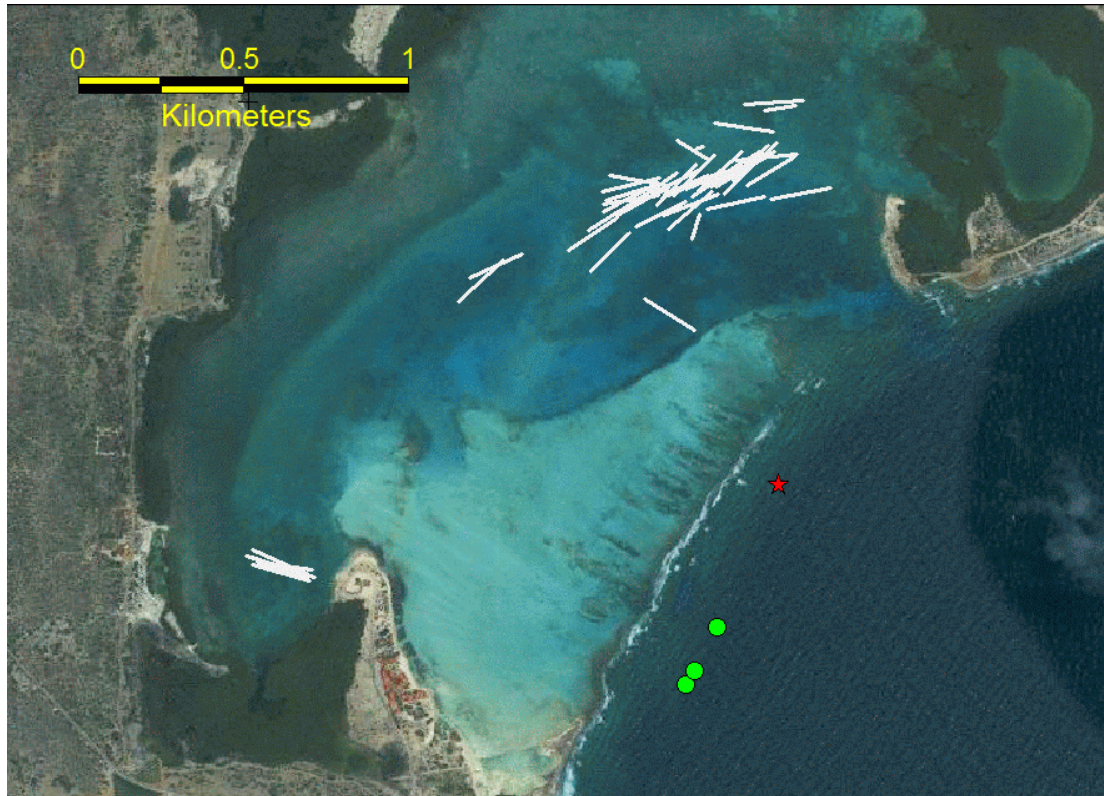


Figure 9. Netting locations inside Lac Bay (white bars indicate net location and orientation), and locations of hand-captured green turtles (green circles) and hawksbills (red stars) on the reefs outside Lac Bay.

Table 2. Comparison of catch-per-unit-effort results for netting surveys conducted at Lac Bay.

	2003	2005	2006	2007	2008	2009	2010
Number of netting sessions	16	13	40	33	37	41	48
Total netting hours ("net soak time")	17.9	8.9	32.9	30.0	24.8	32.0	39.0
Green turtle catches/hour	0.88 ± 0.76	4.38 ± 3.97	2.90 ± 2.25	2.42 ± 1.67	3.00 ± 2.66	3.98 ± 3.42	3.14 ± 2.90
Hawksbill catches/hour	0.10 ± 0.28	no data	0.16 ± 0.39	0.26 ± 0.69	0.35 ± 0.76	0.27 ± 0.73	0.21 ± 0.44

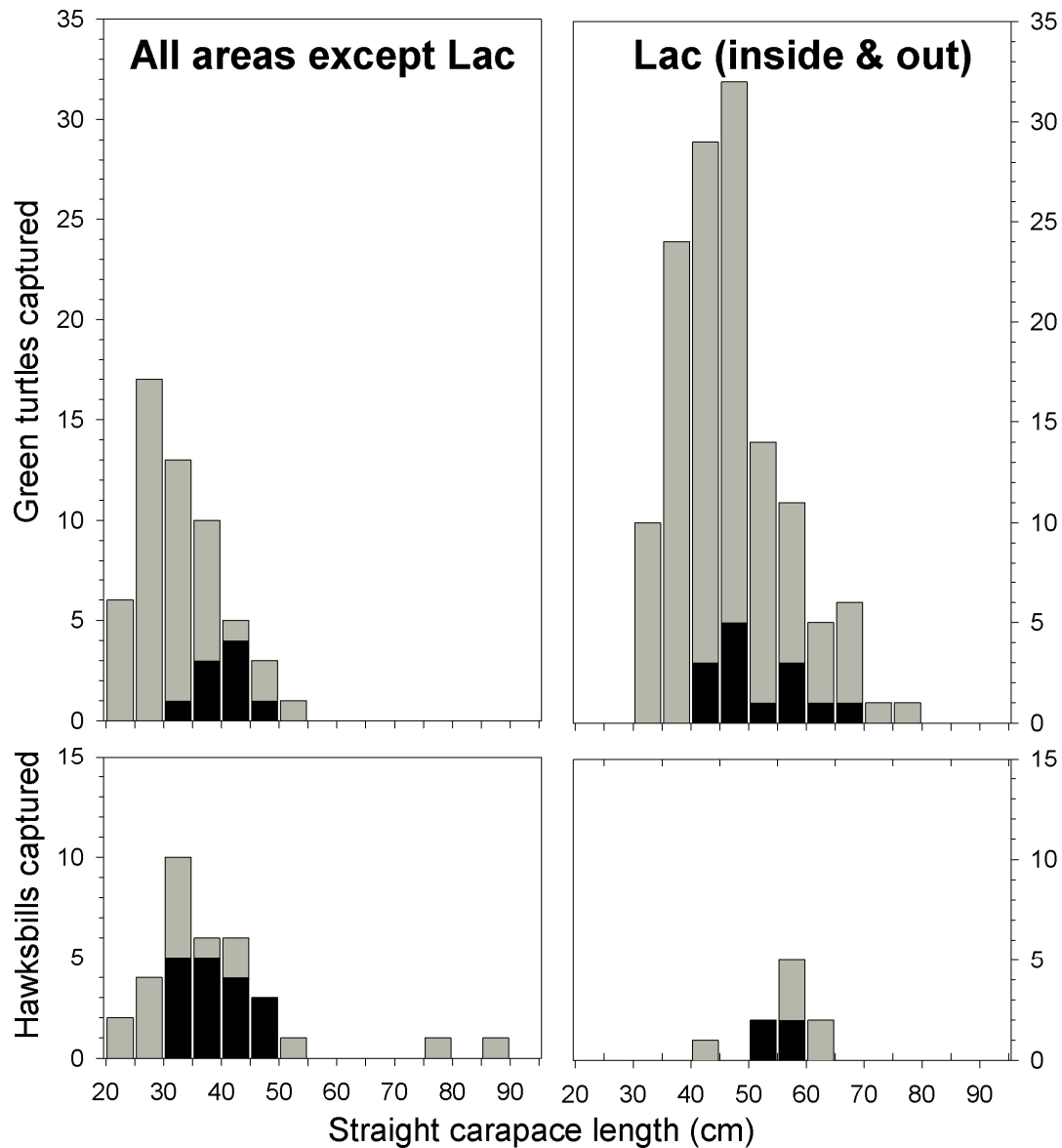


Figure 10. Size distribution of hawksbill and green turtles captured, tagged and measured at Bonaire. Black bars indicate recapture of turtles tagged in previous years.

Combined, the snorkeling and netting surveys yielded a total of 188 individual green turtles and 43 hawksbills, of which 21 green turtles and 20 hawksbills were recaptures (Figure 10). An additional turtle, apparently an adult hybrid between hawksbill and loggerhead was caught briefly on April 21st (figure 11), but the animal could not be tagged or measured.



Figure 11. Gielmon Egbreghts briefly holding an adult turtle, apparently a hawksbill-loggerhead hybrid.

Gathering information on movement and somatic growth rates is possible by recaptures of previously tagged turtles. Our surveys detected one green turtle that had made a significant movement from their original capture location: immature green 08-007, first tagged at Sabadeco on February 11th 2008, was recaptured in Lac Bay on May 6th 2010. Juvenile hawksbill 06-021, tagged in 2006 at Washington Slagbaai, then recaptured at Playa Frans on 27th February 2009, was twice recaptured in 2010: on December 10th during a netting session and December 15th during snorkeling surveys on the reef outside Lac.

Recaptured turtles yielded substantial information on somatic growth rates for green turtles and hawksbills over a wide size range (Figure 12). For both species, animals caught in or near Lac Bay exhibited exceptionally high growth rates, suggesting that Lac Bay has very high quality foraging habitat. Growth rates of turtles living on the reefs along the rest of Bonaire and Klein Bonaire are more in line with those growth rates measured in other Caribbean turtle populations. Recaptured adult hawksbill turtles did not increase significantly in body size, which is normal in such animals.

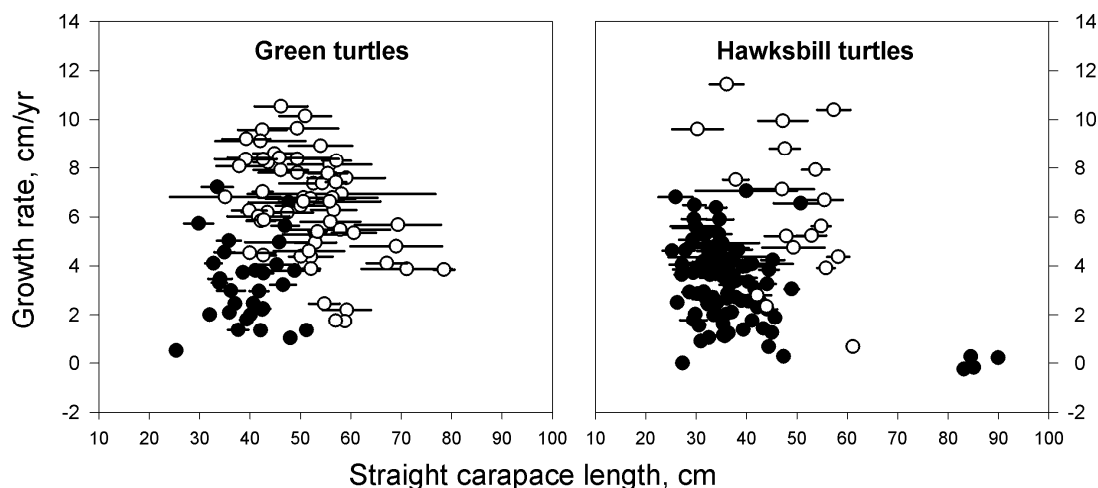


Figure 12. Somatic growth of hawksbill and green turtles recaptured at Bonaire, with turtles captured at Lac Bay indicated with open circles. Horizontal lines indicate the size range over which an individual's growth was recorded.

Comparing the growth trajectories of two individual green turtles is further illustrative of the large habitat quality differences between foraging sites at Bonaire. In February and March 2007, two green turtles were tagged at Playa Frans, 07-027 measuring 24.1 cm SCL and 07-052 measuring 35.6 cm SCL. By November 2009, turtle 07-027 had moved to Lac Bay where it was caught and measured, and

then again on May 10th 2010, now measuring 46.0 cm SCL, an increase of 21.9 cm in little over 3 years. During the same period, turtle 07-052 appears to have remained at Playa Frans, where the animal was recaptured on March 15th 2010 measuring 39.7 cm SCL, an increase of 4.1 cm. The turtle that stayed at Playa Frans exhibits a growth rate only about 1/5th the rate of the now Lac Bay resident green turtle 07-027, where immature green turtles have possibly the highest somatic growth rates measured for wild aggregations anywhere in the world.



Figure 13. Comparison of juvenile green turtles both first captured at Playa Frans in 2007. Turtle 07-027 (left) had moved to Lac Bay by 2009, whereas turtle 07-052 (right) remains at Playa Frans. Turtle 07-027 exhibited growth rates 5 times greater than that of turtle 07-052, indicating superior habitat quality for green turtles at Lac Bay.

Recapture profiles also provide indications of the residency durations by species and habitat location (figure 14). Hawksbills appear to be more persistent than green turtles, and green turtles at Lac Bay remain longer in that habitat than elsewhere. Juvenile green turtles from areas other than Lac are mostly transient, remaining in place for up to two years unless they move to Lac Bay. Older and larger green turtles from Lac are probably underrepresented in the data due to our reduced ability to catch these powerful and fast-swimming animals.

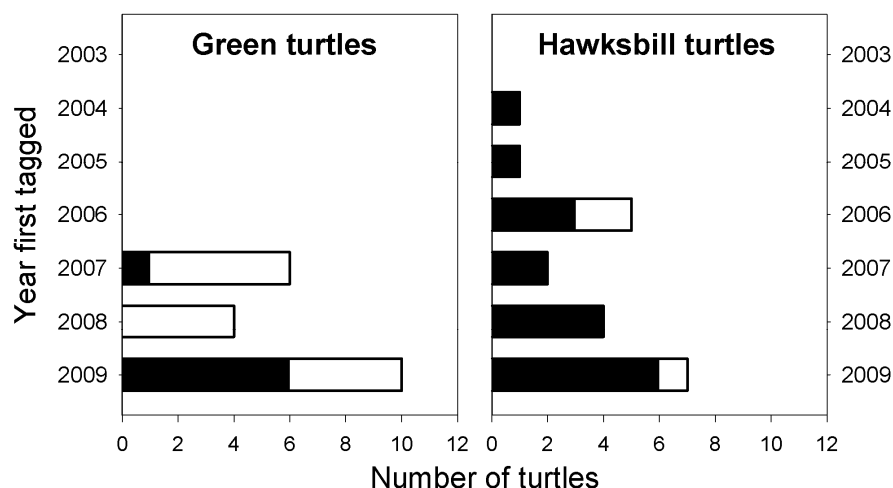


Figure 14. Distribution by year of initial tagging of recaptured turtles encountered during 2010. White-filled bars indicate turtles recaptured at Lac Bay, black bars for turtles elsewhere.

Presence of disease

Fibropapillomatosis occurs in green turtles at Lac Bay and all animals captured there are examined for the presence of external tumors. None of the 133 green turtles examined during the two netting periods in 2010 exhibited evidence of obvious tumors. Several individuals did exhibit small wart-like skin irregularities, but these were not severe enough to be qualified as fibropapillomas. A few green turtles with obvious fibropapilloma tumors were seen during snorkeling surveys on the reef in front of Lac, but none of these animals were caught for detailed examination. The occurrence of fibropapillomatosis in the Lac Bay green turtles has declined and no longer affects as many individuals as observed in 2005-2006 (Table 3).

Table 3. Number of green turtles captured in Lac by survey period and occurrence of visible tumors.

Year	Month	Green turtles	w/FP	Occurrence %
2003	March	14	0	0
2004	March	20	0	0
2005	March	46	8	17.4
2006	March	56	13	23.2
2006	November	37	7	18.9
2007	March	50	8	16.0
2007	November	49	0	0
2008	April-May	55	9	16.4
2008	October-November	48	1	2.1
2008	October-November	48	1	2.1
2009	March-April	44	0	0
2009	November	68	3	4.4
2010	May	79	0	0
2010	December	54	0	0

Satellite tracking

Our satellite-tracking program continued to add to our knowledge of the migratory patterns and behavior of the adult sea turtles that come to Bonaire to mate and nest. After the nesting season, adult male and female sea turtles return to their resident foraging grounds. With satellite transmitters, we are able to learn where these turtles live outside of the nesting season and what routes are taken to return to those sites. Since our satellite-tracking program started in 2003, we have tracked 20 adult turtles as they returned to their resident foraging grounds. It is likely that these turtles were born on Bonaire many years ago, yet now live all around the Caribbean. From our tracking program, we know that our adult turtles can live as far as 2200 kilometers away and as close as Los Roques, only 150 kilometers to the east.

During 2010, new Wildlife Computers model SPOT5 transmitters were placed on two nesting hawksbill turtles at Klein Bonaire and one green turtle at Playa Chikitu, Washington Park. The first turtle, a hawksbill named 'Valley', was encountered at No Name beach, Klein Bonaire, on September

3rd and fitted with a SPOT5 transmitter. This hawksbill nested three more times, then departed to the north on October 14th, swimming for 36 days to reach reefs northeast of Honduras (figure 15). The last transmission for this turtle was received on January 11th 2011 indicating she remained on the same foraging grounds, about 1380 km from Klein Bonaire.

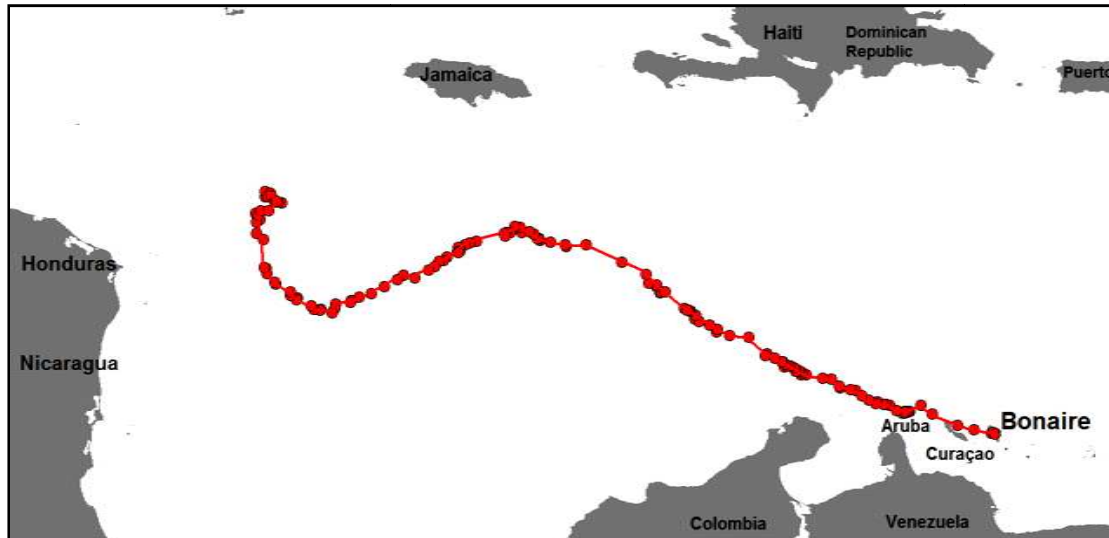


Figure 15. Track of female hawksbill 'Valley' from No Name beach, Klein Bonaire to a reef bank off the coast of Honduras.

On September 20th, a green turtle nesting at Playa Chikitu was fitted with a SPOT5 transmitter. This turtle was named 'Carice' and she laid another nest on October 1st, then departed towards the southeast and continued on to reach the Los Roques Archipelago on October 7th 2010 (figure 16). The last transmission for 'Carice' was received on January 23rd 2011 from the same area, some 175 km from Bonaire.

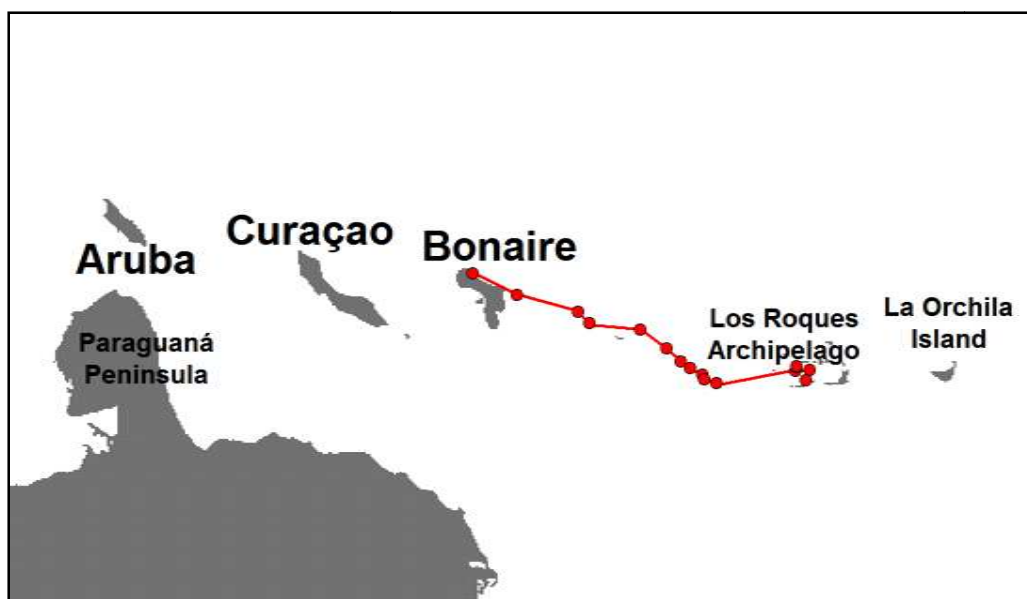


Figure 16. Track of female green turtle 'Carice' from Playa Chikitu, Bonaire to Los Roques, Venezuela.

The last turtle of the season to be tracked was hawksbill 'Piffie', found nesting at No Name beach on October 7th. The turtle departed Bonaire to the north around October 16th, swimming to Puerto Rico and then on to Anegada Island, British Virgin Islands, arriving there on November 23rd (figure 17). The turtle remains on a reef southeast of Anegada, about 840 km from Klein Bonaire, as of the latest transmission on March 6th 2011.

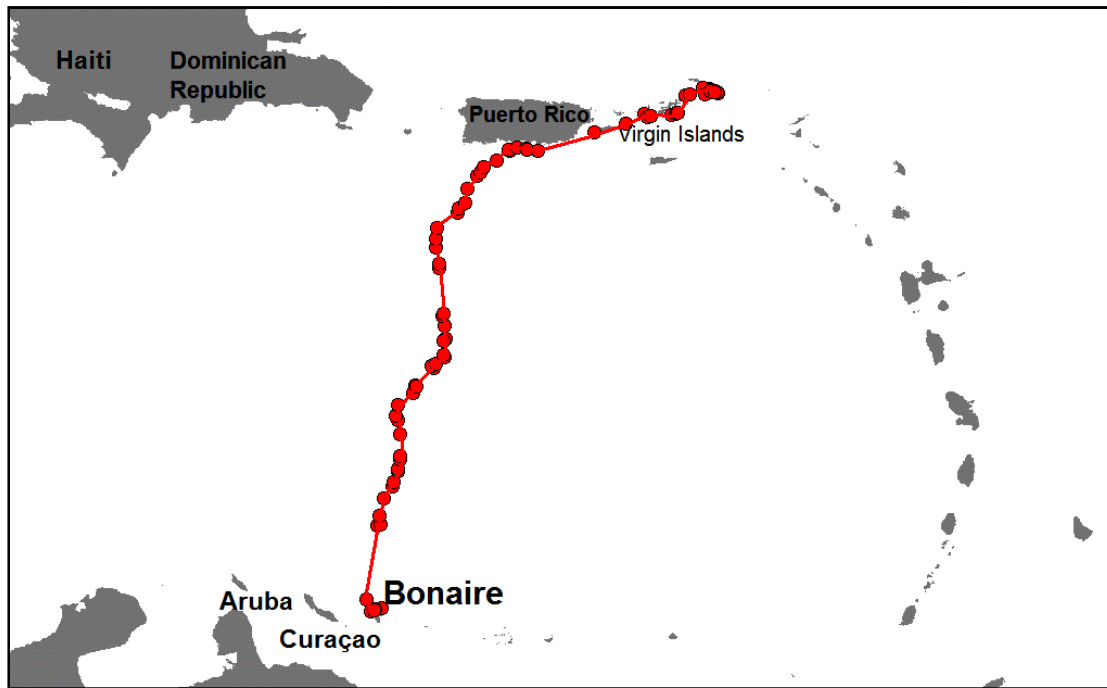


Figure 17. Track of female hawksbill 'Piffie' from No Name beach, Klein Bonaire to Anegada, British Virgin Islands.

Appendix I. List of turtles captured and tagged during 2010.

Green turtles

Date capture	Tag left	Tag right	PIT	Turtle ID	Location	SCL CCL	Weight
19-Jan-10	BBH021	BBH022		09-137	Jerry's reef/sponge	48.4	12.9
1-Feb-10	BBH096	BBH097		10-011	Klein Bonaire	47.7	13.9
10-Feb-10			AVID-716001346	10-015	Karpata	36.3	6.1
12-Feb-10			133936557A	09-029	Karpata	38.2	7.0
12-Feb-10			134956666A	09-148	Karpata	34.4	4.3
12-Feb-10			151347091A	10-018	Reserve	27.3	2.4
12-Feb-10			151347124A	10-019	Reserve	25.5	2.1
12-Feb-10			151348155A	10-020	Reserve	30.8	3.5
12-Feb-10			151347246A	10-022	Reserve	27.4	2.0
17-Feb-10			AVID-039036022	10-023	Salt pier (North)	32.4	4.5
19-Feb-10			151347753A	10-025	Salt pier	25.2	1.9
19-Feb-10			151347155A	10-026	Salt pier	33.1	4.5
19-Feb-10			151347430A	10-027	Playa Lechi	39.6	8.9
1-Mar-10			151347535A	10-030	Reserve	23.0	1.9
1-Mar-10			151347016A	10-031	Reserve	29.4	3.3
1-Mar-10			151348337A	10-032	Reserve	28.8	3.5
3-Mar-10			151347392A	10-035	Klein Bonaire	38.7	7.9
5-Mar-10	BBH100	BBH099		10-036	Klein Bonaire	52.2	17.9
5-Mar-10			133532195A	09-135	Klein Bonaire	35.4	5.5
5-Mar-10			135116251A	09-010	Klein Bonaire	41.2	7.9
8-Mar-10			151347650A	10-040	Klein Bonaire	29.8	3.2
10-Mar-10			151348295A	10-043	Playa Frans	35.3	5.1
10-Mar-10			151347432A	10-044	Playa Frans	24.7	1.9
12-Mar-10			151348387A	10-046	Ladania's leaf	30.9	4.4
15-Mar-10			151348354A	10-047	Playa Frans	23.9	1.8
15-Mar-10			151347333A	10-048	Playa Frans (North)	31.7	4.0
15-Mar-10		BX1255	151347282A	07-052	Playa Frans (North)	39.7	7.1
15-Mar-10			151347714A	10-050	Playa Frans (North)	31.0	3.6
15-Mar-10			151348145A	10-051	Playa Frans (North)	29.7	3.8
17-Mar-10			151347712A	10-052	Bopec	23.4	1.5
17-Mar-10			151348016A	10-053	Bopec (North)	33.9	4.5
19-Mar-10			151348171A	10-054	Salt Pier	30.6	3.7
19-Mar-10			151348305A	10-055	Salt Pier	29.3	3.5
24-Mar-10			151347125A	10-057	Slagbaai	27.7	2.5
26-Mar-10			151347522A	10-058	Atlantis	22.6	1.5
26-Mar-10			151347767A	10-059	Atlantis	26.2	2.5
7-Apr-10			151528771A	10-062	Jerry's reef/sponge	35.8	5.6
7-Apr-10			151536361A	10-063	Jerry's reef/sponge	43.5	10
7-Apr-10	BBG155	BBG156		09-009	Nearest point	42.9	10.7
7-Apr-10			151523075A	10-065	Nearest point	31.8	4.4
7-Apr-10			151532082A	10-067	Ebo's	35.8	5.8
9-Apr-10			151535557A	10-070	Andrea	27.0	2.5
9-Apr-10			151531184A	10-071	Andrea	34.4	6
12-Apr-10			151544333A	10-072	Sabadecco	28.2	2.6
14-Apr-10			151534182A	10-076	Sweet dreams	24.6	2.2
19-Apr-10			151524490A	10-079	Jerry's reef/sponge	29.2	3.6
19-Apr-10			151524590A	10-080	Jerry's reef/sponge	28.3	3.0
19-Apr-10			151527610A	10-081	Jerry's reef/sponge	28.7	3.5
21-Apr-10			151532734A	10-082	Playa Funchi	34.5	5
23-Apr-10			151542442A	10-083	KB	29.6	3.2

Green turtles (continued)

Date capture	Tag left	Tag right	PIT	Turtle ID	Location	SCL	Weight
23-Apr-10	BBH104	BBH103		10-084	KB	49.6	16
23-Apr-10			133731295A	09-140	Knife	41.9	10.5
3-May-10	BBH093	BBH092		09-234	Lac	54.3	20.5
3-May-10	WH1383	BBH106		07-195	Lac	56.0	
3-May-10	WH7441	BBH105		10-088	Lac	55.6	21
3-May-10	BBH108	BBH107		10-089	Lac	47.1	12.8
3-May-10			151551067A	10-090	Lac	44.2	12.1
3-May-10	BBH110	BBH109		10-091	Lac	49.6	15.9
3-May-10	BBH112	BBH111		10-092	Lac	45.6	13.1
3-May-10	BBH114	BBH113		10-093	Lac	48.0	15.4
3-May-10	BBH116	BBH115		10-094	Lac	45.0	11.2
3-May-10	BBH118	BBH117		10-095	Lac	47.8	14.1
3-May-10			151536796A	10-096	Lac	35.6	5.9
3-May-10	BBH128	BBH127		10-098	Lac	54.8	22
3-May-10			151532245A	10-099	Lac	37.4	7
3-May-10	BBH120	BBH119		10-100	Lac	50.0	15.5
3-May-10	BBH122	BBH121		10-101	Lac	44.8	12.1
3-May-10	BBH124	BBH123		10-102	Lac	48.2	14.9
3-May-10	BBH126	BBH125		10-103	Lac	48.6	15.3
3-May-10			151532185A	10-104	Lac	37.2	6.7
4-May-10	BBH133	BBH132		10-105	Lac	45.4	12.4
4-May-10	BBH131	BBH130		10-106	Lac	63.1	37
4-May-10	BBH138	BBH137		10-108	Lac	47.7	14.5
4-May-10	BBH136	BBH135		10-109	Lac	55.3	20
6-May-10	BBH139	WH1398		08-007	Lac	45.0	12.8
6-May-10			151530253A	10-112	Lac	38.7	8
6-May-10			151529674A	10-113	Lac	40.9	8.6
6-May-10	BBH141	BBH140		10-114	Lac	52.7	10.3
6-May-10			151528751A	10-115	Lac	37.6	7
6-May-10			151529702A	10-116	Lac	40.6	9.1
6-May-10	BBH143	BBH142		10-117	Lac	46.5	13.1
6-May-10			151537104A	10-118	Lac	40.6	8.5
6-May-10			151531351A	10-119	Lac	34.5	5.3
6-May-10			151526410A	10-120	Lac	42.0	9.8
7-May-10			151547566A	10-122	Lac	37.1	6.5
7-May-10	BBH148	BBH147		10-123	Lac	45.1	11.3
7-May-10	BBH146	BBH145		10-124	Lac	45.1	13.4
10-May-10			134626795A	09-081	Lac	42.4	11.1
10-May-10	BBH152	BBH153		10-127	Lac	46.1	12.8
10-May-10			151537433A	10-128	Lac	43.0	9.3
10-May-10	WH5964	BBG256		08-070	Lac	47.8	15.2
10-May-10	BBH150	BBH151		10-130	Lac	66.6	41
10-May-10	BBH156	BBH157		10-131	Lac	47.2	14.2
10-May-10			151530437A	10-132	Lac	34.0	5.1
10-May-10			151549333A	10-133	Lac	33.9	5.1
10-May-10	BBH154	BBH155		10-134	Lac	47.1	14.1
10-May-10			151526363A	10-135	Lac	32.1	4.5
10-May-10			135116250A	07-027	Lac	46.0	12.5
11-May-10			151532691A	09-156	Lac	44.0	12
11-May-10	BBH158	BBH159		10-138	Lac	46.6	13.9
11-May-10			151545072A	10-139	Lac	42.5	9
11-May-10			151523120A	10-140	Lac	44.9	11.5

Green turtles (continued)

Date capture	Tag left	Tag right	PIT	Turtle ID	Location	SCL CCL	Weight
23-Apr-10	BBH104	BBH103		10-084	KB	49.6	16
23-Apr-10			133731295A	09-140	Knife	41.9	10.5
3-May-10	BBH093	BBH092		09-234	Lac	54.3	20.5
3-May-10	WH1383	BBH106		07-195	Lac	56.0	
3-May-10	WH7441	BBH105		10-088	Lac	55.6	21
3-May-10	BBH108	BBH107		10-089	Lac	47.1	12.8
3-May-10			151551067A	10-090	Lac	44.2	12.1
3-May-10	BBH110	BBH109		10-091	Lac	49.6	15.9
3-May-10	BBH112	BBH111		10-092	Lac	45.6	13.1
3-May-10	BBH114	BBH113		10-093	Lac	48.0	15.4
3-May-10	BBH116	BBH115		10-094	Lac	45.0	11.2
3-May-10	BBH118	BBH117		10-095	Lac	47.8	14.1
3-May-10			151536796A	10-096	Lac	35.6	5.9
3-May-10	BBH128	BBH127		10-098	Lac	54.8	22
3-May-10			151532245A	10-099	Lac	37.4	7
3-May-10	BBH120	BBH119		10-100	Lac	50.0	15.5
3-May-10	BBH122	BBH121		10-101	Lac	44.8	12.1
3-May-10	BBH124	BBH123		10-102	Lac	48.2	14.9
3-May-10	BBH126	BBH125		10-103	Lac	48.6	15.3
3-May-10			151532185A	10-104	Lac	37.2	6.7
4-May-10	BBH133	BBH132		10-105	Lac	45.4	12.4
4-May-10	BBH131	BBH130		10-106	Lac	63.1	37
4-May-10	BBH138	BBH137		10-108	Lac	47.7	14.5
4-May-10	BBH136	BBH135		10-109	Lac	55.3	20
6-May-10	BBH139	WH1398		08-007	Lac	45.0	12.8
6-May-10			151530253A	10-112	Lac	38.7	8
6-May-10			151529674A	10-113	Lac	40.9	8.6
6-May-10	BBH141	BBH140		10-114	Lac	52.7	10.3
6-May-10			151528751A	10-115	Lac	37.6	7
6-May-10			151529702A	10-116	Lac	40.6	9.1
6-May-10	BBH143	BBH142		10-117	Lac	46.5	13.1
6-May-10			151537104A	10-118	Lac	40.6	8.5
6-May-10			151531351A	10-119	Lac	34.5	5.3
6-May-10			151526410A	10-120	Lac	42.0	9.8
7-May-10			151547566A	10-122	Lac	37.1	6.5
7-May-10	BBH148	BBH147		10-123	Lac	45.1	11.3
7-May-10	BBH146	BBH145		10-124	Lac	45.1	13.4
10-May-10			134626795A	09-081	Lac	42.4	11.1
10-May-10	BBH152	BBH153		10-127	Lac	46.1	12.8
10-May-10			151537433A	10-128	Lac	43.0	9.3
10-May-10	WH5964	BBG256		08-070	Lac	47.8	15.2
10-May-10	BBH150	BBH151		10-130	Lac	66.6	41
10-May-10	BBH156	BBH157		10-131	Lac	47.2	14.2
10-May-10			151530437A	10-132	Lac	34.0	5.1
10-May-10			151549333A	10-133	Lac	33.9	5.1
10-May-10	BBH154	BBH155		10-134	Lac	47.1	14.1
10-May-10			151526363A	10-135	Lac	32.1	4.5
10-May-10			135116250A	07-027	Lac	46.0	12.5
11-May-10			151532691A	09-156	Lac	44.0	12
11-May-10	BBH158	BBH159		10-138	Lac	46.6	13.9
11-May-10			151545072A	10-139	Lac	42.5	9
11-May-10			151523120A	10-140	Lac	44.9	11.5

Green turtles (continued)

Date capture	Tag left	Tag right	PIT	Turtle ID	Location	SCL CCL	Weight
11-May-10	BBH160	BBH161		10-141	Lac	50.6	15.2
11-May-10			151534362A	10-142	Lac	33.3	5
11-May-10			151528016A	10-143	Lac	36.3	6.9
13-May-10	BBH162	BBH163		10-144	Lac	65.7	40
13-May-10	BBH164	BBH165		10-145	Lac	63.4	36
13-May-10	BBH167	BBH166		10-146	Lac	55.3	20
13-May-10	BBH169	BBH168		10-147	Lac	50.8	16
13-May-10	BBH171	BBH170		10-148	Lac	47.1	13.1
13-May-10	BBH173	BBH172		10-149	Lac	52.6	18
13-May-10			151527172A	10-150	Lac	42.4	10
13-May-10	BBH174	BBH175		10-151	Lac	56.2	24
14-May-10			151534341A	10-152	Lac	41.8	9.7
14-May-10	BBH176	BBH177		10-153	Lac	53.5	15.2
14-May-10			151523044A	10-154	Lac (Sorobon)	35.2	6
14-May-10			151545405A	10-155	Lac (Sorobon)	38.0	7.3
14-May-10			151525467A	10-156	Lac (Sorobon)	38.0	7.2
14-May-10			151527573A	10-157	Lac (Sorobon)	40.5	8.4
14-May-10			151533466A	10-158	Lac (Sorobon)	40.3	9.1
14-May-10			151528383A	10-159	Lac (Sorobon)	42.4	10.1
14-May-10			151549063A	10-160	Lac (Sorobon)	43.3	9.5
14-May-10			151531670A	10-161	Lac (Sorobon)	33.0	4.3
14-May-10	BBH178	BBH179		10-162	Lac (Sorobon)	49.9	15.9
18-May-10	BBH049		133955522A	09-096	Lac	46.1	12.5
18-May-10	BBH180	BBH181		10-165	Lac	46.1	12.1
18-May-10			151529793A	10-166	Lac	34.6	5.2
19-May-10		BBG215	151526164A	07-157	Lac	57.8	25
19-May-10	BBH183	BBH182		10-168	Lac (Sorobon)	46.8	12.1
19-May-10			135149754A	08-191	Lac (Sorobon)	45.3	12.9
19-May-10			151543380A	10-170	Lac (Sorobon)	38.3	7.1
16-Jul-10			151526207A	10-171	Klein Bonaire	37.2	6.1
16-Sep-10	BBG155	BBG156		09-009	Ebo's KB	42.9	11.4
20-Sep-10	WH7448	WH7449	sat 52051 - 'Carice'	10-174	Playa Chikitu	102.0	
24-Sep-10			151529091A	10-175	Plaza Resort channe	30.2	3.5
6-Oct-10	WH7460	WH7458	sat 52052 - 'Piffie'	10-176	Klein Bonaire	91.0	
6-Dec-10	WH1344	BBG211		07-150	Lac	58.7	34
6-Dec-10	BBH187	BBH186		10-178	Lac	45.7	11.9
6-Dec-10	BBH189	BBH188		10-179	Lac	48.3	14.2
6-Dec-10			151526060A	10-180	Lac	40.3	8.1
6-Dec-10	BBH190	BBH184		10-182	Lac	61.5	
6-Dec-10	BBH192	BBH191		10-183	Lac	58.9	29
6-Dec-10			151522523A	10-184	Sorobon Pier	38.9	7.4
6-Dec-10			AVID039098837	10-185	Sorobon Pier	35.1	5.6
6-Dec-10			151533261A	10-186	Sorobon Pier	38.4	6.5
6-Dec-10			151530414A	10-187	Sorobon Pier	43.3	10.8
6-Dec-10			151529013A	10-188	Sorobon Pier	40.2	9.3
7-Dec-10	WH1338	BBG206		07-144	Lac	65.9	34
7-Dec-10	BBH200	BBH199		10-190	Lac	46.3	12.1
7-Dec-10	BBH194	BBH193		10-191	Lac	58.9	27
7-Dec-10	BBH196	BBH195		10-192	Lac	53.6	19.0
7-Dec-10	BBH198	BBH197		10-193	Lac	56.0	24
7-Dec-10			151526363A	10-194	Lac	36.8	7.1
7-Dec-10			151532430A	10-195	Lac	34.7	5.5
8-Dec-10			151537510A	10-197	Lac	39.9	8.4

Hawksbill turtles

Date capture	Tag left	Tag right	PIT	Turtle ID	Location	SCL CCL	Weight
8-Dec-10			151534690A	10-198	Lac	43.2	
8-Dec-10			151531367A	10-199	Sorobon Pier	39.6	8.3
8-Dec-10			151533184A	10-200	Sorobon Pier	36.4	6.0
8-Dec-10			151527573A	10-157	Sorobon Pier	44.5	
8-Dec-10			151524214A	10-202	Sorobon Pier	42.3	10.1
8-Dec-10			151532777A	10-203	Lac	39.8	7.1
10-Dec-10			151853513A	10-205	Lac	43.0	10.3
11-Dec-10	BBH202	BBH201		10-206	Lac	63.4	35
11-Dec-10			151528383A	10-207	Lac	46.3	13.2
11-Dec-10	BBH204	BBH203		10-208	Lac	67.9	39
11-Dec-10			151847394A	10-209	Lac	44.8	12.2
13-Dec-10	BBH211	BBH210		10-210	Lac	65.7	42
13-Dec-10			151853572A	10-211	Lac	43.3	
13-Dec-10	BBH208	BBH209		10-212	Lac	49.5	17.1
13-Dec-10			151851492A	10-213	Lac	39.7	9.0
13-Dec-10			151529391A	10-214	Lac	32.1	4.1
13-Dec-10			151851251A	10-215	Lac	41.4	7.5
13-Dec-10	BBH207	BBH206		10-216	Lac	52.8	18.2
14-Dec-10	WH5858	BBG139		08-172	Lac	61.9	31
14-Dec-10			151848722A	10-219	Lac	34.9	5.3
14-Dec-10			151529674A	10-220	Lac	43.6	10.1
14-Dec-10	BBH212	BBH213		10-221	Lac	55.6	22
14-Dec-10			151848026A	10-222	Lac	44.1	11.0
14-Dec-10	BBH215	BBH214		10-223	Lac	51.3	17.8
14-Dec-10	WH7463	BBH216		10-224	Lac	76.4	63
15-Dec-10	BBH221	BBH222		10-226	Outside Lac	50.4	16.7
15-Dec-10	BBH223	BBH224		10-227	Outside Lac	65.8	34
15-Dec-10	BBH156	BBH157		10-228	Outside Lac	51.7	17.5
15-Dec-10	BBH219	BBH220		10-229	Lac	70.3	44
15-Dec-10	BBH218	BBH217		10-230	Lac	47.2	13.2
16-Dec-10			151851721A	10-231	Lac	36.4	6.4
16-Dec-10			151850731A	10-232	Lac	39.5	8.4
16-Dec-10			151535236A	10-233	Lac	39.3	
16-Dec-10			151852040A	10-234	Lac	38.9	7.5
16-Dec-10	BBH226	BBH225		10-235	Lac	51.7	19.0

Appendix II. List of nests observed on Klein Bonaire during 2010.

Activity number	Location stake	Observation date	Species
1	1560	12-May	Cc
2	516	24-May	Cc
3	795	31-May	Cc
4	937	1-Jun	Ei
5	518	7-Jun	Dc
6	942	11-Jun	Ei
7	1142	18-Jun	Ei
8	242	23-Jun	Ei
9	618	28-Jun	Cc
10	285	30-Jun	Ei
11	260	7-Jul	Ei
12	980	14-Jul	Cc
13	336	16-Jul	Ei
14	1010	11-Jul	Ei
15	298	26-Jul	Ei
16	1010	30-Jul	Ei
17	356	2-Aug	Ei
18	356	6-Aug	Ei
19	873	7-Aug	Ei
20	1127	9-Aug	Ei
21	330	20-Aug	Ei
22	1030	20-Aug	Ei
23	1575	20-Aug	Ei
24	620	27-Aug	Ei
25	480	29-Aug	Ei
26	610	3-Sep	Ei
27	1030	6-Sep	Ei
28	446	10-Sep	Ei
29	1247	20-Sep	Ei
30	248	20-Sep	Ei
31	1560	20-Sep	Ei
32	356	27-Sep	Ei
33	1105	2-Oct	Ei
34	350	6-Oct	Ei
35	976	17-Oct	Ei
36	344	22-Oct	Ei
37	1152	5-Nov	Ei
38	1570	22-Oct	Ei
39	1325	12-Nov	Ei
40	880	26-Nov	Ei

During 2010 a total of 5 loggerhead (Cc), 34 hawksbill (Ei), and one Leatherback (Dc) nest(s) were laid on the beaches of Klein Bonaire.

List of nests observed on other Bonaire beaches during 2010.

Activity number	Location stake	Observation date	Species
1	Fisherman's hut	15-Jun	Cc
2	Fisherman's hut	30-Jun	Ei
3	Fisherman's hut	20-Jul	Cc
4	Fisherman's hut	24-Sep	Cm
5	Fisherman's hut	10-Aug	Cc
6	Donkey Beach	10-Jun	Ei
7	Donkey Beach	2-Jul	Ei
8	Donkey Beach	5-Sep	Ei
9	Margate Bay	26-Jul	Ei
10	Margate Bay	10-Aug	Ei
11	Margate Bay	25-Aug	Ei
12	Onima	2-Jul	Ei
13	Playa Chikitu	12-Jul	Cm
14	Playa Chikitu	5-Aug	Cm
15	Playa Chikitu	5-Aug	Cm
16	Playa Chikitu	5-Aug	Cm
17	Playa Chikitu	5-Aug	Cm
18	Playa Chikitu	10-Aug	Cm
19	Playa Chikitu	10-Aug	Cm
20	Playa Chikitu	17-Aug	Cm
21	Playa Chikitu	19-Aug	Cm
22	Playa Chikitu	19-Aug	Cm
23	Playa Chikitu	30-Aug	Cm
24	Playa Chikitu	30-Aug	Cm
24a	Playa Chikitu	9-Sep	Cm
25	Playa Chikitu	17-Sep	Cm
26	Playa Chikitu	23-Sep	Cm
27	Playa Chikitu	10-Oct	Cm

During 2010 a total of 3 loggerhead (Cc), 8 hawksbill (Ei), and 17 green (Cm) turtle nests were laid on the beaches of Bonaire.

Appendix III. 2010 Funders and Donors

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

Flagship Funder 2008 – 2011



www.worldwildlife.org

In 2008, WWF Netherlands expanded its longtime presence on Bonaire by awarding a 3-year grant in support of STCB's work in sea turtle conservation on Bonaire. This grant is administered by STINAPA Bonaire.

Major Funders

Dutch Caribbean Nature Alliance (DCNA)
Pifworld
Sea Turtle Conservation Bonaire – Netherlands

Platinum Donors

Allerd Stikker
Eco Dive Bonaire 2010
Marlene Robinson and Bruce Brabec
Michael and Anne Contratto
Astrid Kromhout and Henkjan Faber
Maduro & Curiel's Bank (Bonaire)

Gold Donors

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Jan and Margreth Kloos

Silver Donors

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P.A. De Wit
Bonnie and David Pascoe
William Holman
Patrick and Hettie Holian
Lia Otterspeer

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Leo Hoogenboom and Zsuzsanna Pusztai
Anonymous contributors

Appendix IV. 2010 Staff and Board(s) of Directors

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Funchi Egbrechts, Field Specialist

Scientific Advisor

Robert van Dam

Intern

Delphine Henkens, University of Louvain-la-Neuve (UCL), Belgium

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Albert de Soet, Advisor and STCB Founder
Guido Wiersma
Tom van Eijck, Advisor, first field project coordinator (1993)

Appendix V. 2010 STCB Partners, Supporters and Volunteers

International Partners

Wider Caribbean Sea Turtle Conservation Network (WIDECAST)
WWF Netherlands (WWF-NL)
Support Bonaire, Inc.

Regional Partners

Dutch Caribbean Nature Alliance (DCNA)
Nature Foundation St. Maarten
Parke Nacional Arikok (Aruba)
Saba Conservation Foundation
St. Eustatius National Parks Foundation
Turtugaruba

Local Partners

Bonaire Department of Environment and Natural Resources (DROB)
CIEE Research Station Bonaire
Jong Bonaire
Progressive Environmental Solutions
RCN Ministry of Economic Affairs, Agriculture and Innovation
RCN Ministry of Infrastructure and Environment
Salba Nos Lora
STINAPA Bonaire
 Bonaire National Marine Park
 Washington-Slagbaai National Park
Tene Boneiru Limpi

Local Business Supporters

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

Administratiekantoor Brandaris
BonPhoto
Botterop Construction Bonaire
Buddy Dive Resort
Captain Don's Habitat
Carib Inn (Bruce Bowker)
CARGILL Salt Bonaire
Harbour Village Marina
Kantika di Amor
Mangrove Kayak Center
NetTech (Jake Richter & Susan Davis)
SELIBON
The Beach Shop at Harbour Village
Wannadive
Woodwind Snorkel Sail

2010 Volunteers

Barbel Heusinkveld
Breno Lobo
Leanne Pinkerton
Leo Hoogenboom
Patrick and Hettie Holian
Ralph 'Moogie' Stewart
Red Berger
SGB students
Tina Lindeken
Anne Zaat
Zsuzsanna Pusztai

And to the many volunteers who helped with our in-water sea turtle surveys: Patrick, Hettie, John, Brenda, Alicia, Kelsey, Colleen, Zag, Laura, Luca, Maggie, Stan, Clive, Margo, Breno, Gregory, Ester, Del, Jose, Monique, Dee, Ramon, Diego, Agapito, Robert, Tina, Osha, Red, Patti, Bert, Brenda, Michelle, Leo, Mike, Linda, Marieke, Tom, Gigi Colleen, Zag, Nat, Sarah, Lotte, Felix, Dexo.

Appendix VI. Ways to donate

You can help protect Bonaire's sea turtle populations by donating to STCB. We welcome – and depend on – the financial support of people like you. Whether it's \$10, \$100, or \$10,000, whatever you give makes an important difference.

Online:

Go to our website at bonaireturtles.org

Donate by mail:

Make check payable to:

Sea Turtle Conservation Bonaire

And mail to:

STCB

PO Box 492,

Kralendijk, Bonaire

Netherlands Antilles

Donate by bank transfer:

To make a donation locally on Bonaire:

Maduro & Curiel's Bank Bonaire

Account name: Sea Turtle Conservation Bonaire

Account number: 101.169.209

To make a donation from the USA:

Beneficiary: Sea Turtle Conservation Bonaire

Account number: 101.169.209

Beneficiary Bank: Maduro & Curiel's Bank Bonaire

Swift code: MCBKANCUBON

Correspondent Bank: Bank of America

Swift Code: BOFAUS3N

To make a donation from Europe:

Beneficiary: Sea Turtle Conservation Bonaire

Account number: 101.169.209

Beneficiary Bank: Maduro & Curiel's Bank Bonaire

Swift code: MCBKANCUBON

Correspondent Bank for Euro: Rado Bank Nederland

Swift Code RABONL2U

To discuss other ideas for giving, please call Manager Mabel Nava at 599-717-2225, or email us at stcb@bonaireturtles.org