

TRACKING SEA TURTLES IN THE BAHAMAS

2015
FIELD
REPORT

Tracking Sea Turtles in the Bahamas

2015 FIELD REPORT

Background Information

LEAD PI: Annabelle Brooks- Cape Eleuthera Institute

PERIOD COVERED BY THIS REPORT: Feb - Nov 2014



The spatial dynamics of sea turtles within foraging grounds on Eleuthera, The Bahamas

Photo credit - Annabelle Brooks, CEI



Dear Earthwatch volunteers,

Thank you so much for helping make 2015 such a successful year for this study. Your efforts were vital in collecting a vast amount of data, despite having to cancel a team due to Hurricane Joaquin, and also allowed us to see some incredible things in the field, including attempted predation events and turtles with missing flippers. Throughout the season, field work was a very exciting and rewarding time.

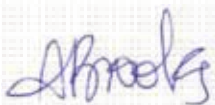
Our research teams completed 175 sea turtle abundance surveys, 255 baited remote underwater video surveys, 229 sea turtles captures, and 8 accelerometer retrievals in 2015. We have gained insight into the seasonal trends of sea turtles and their predators and are able to start addressing some of the larger questions posed by this project.

2015 also marked a new chapter for the sea turtle research program. Evidence of poaching at field sites encouraged us to address the lack of awareness and enforcement of the sea turtle harvest ban. We therefore began a new collaboration with the Bahamas Department of Marine Resources to address this urgent issue. The data collected by Earthwatch volunteers will allow us to assess long-term population trends that will help determine if the regulation is an effective conservation measure.

This project also made it possible for school children from Eleuthera and Nassau to see sea turtles up close and learn more about their ecology and the importance of sea turtle conservation, which helps to raise local awareness and supports community engagement. The staff of the Cape Eleuthera Island School also ventured into the field to experience a day in the life of an Earthwatch volunteer. They were thrilled! These individuals are now part of the wider community of sea turtle advocates and conservationists.

I thank you again for supporting this important work.

Sincerely,



Annabelle Brooks

Scientific research achievements

SUMMARY

175 sea turtle abundance surveys, 255 baited remote underwater video surveys, 229 sea turtles captures and 8 accelerometer retrievals were achieved during 2015. We have gained insight into the seasonal trends of sea turtles and their predators and are able to start addressing some of the larger questions posed by this project. As we complete the third year of research in 2016, the large data set compiled will be analysed and the insight gained will be ready to publish.

GOALS, OBJECTIVES AND RESULTS

Objective 1: Quantifying Sea Turtle Abundance and Distribution

175 abundance surveys were conducted across our sites.

Creeks on the banks side of the island are inhabited by fewer turtles than on the Exuma Sound side and the more are found on the Atlantic coastline (Figure 1). The highest number of sea turtles were encountered at Half Sound, followed by Starved and Rollins creek (Figure 2). Abundance of sea turtles is greater during summer months apart from in Half Sound, where an increased number of sea turtles were encountered during winter months.

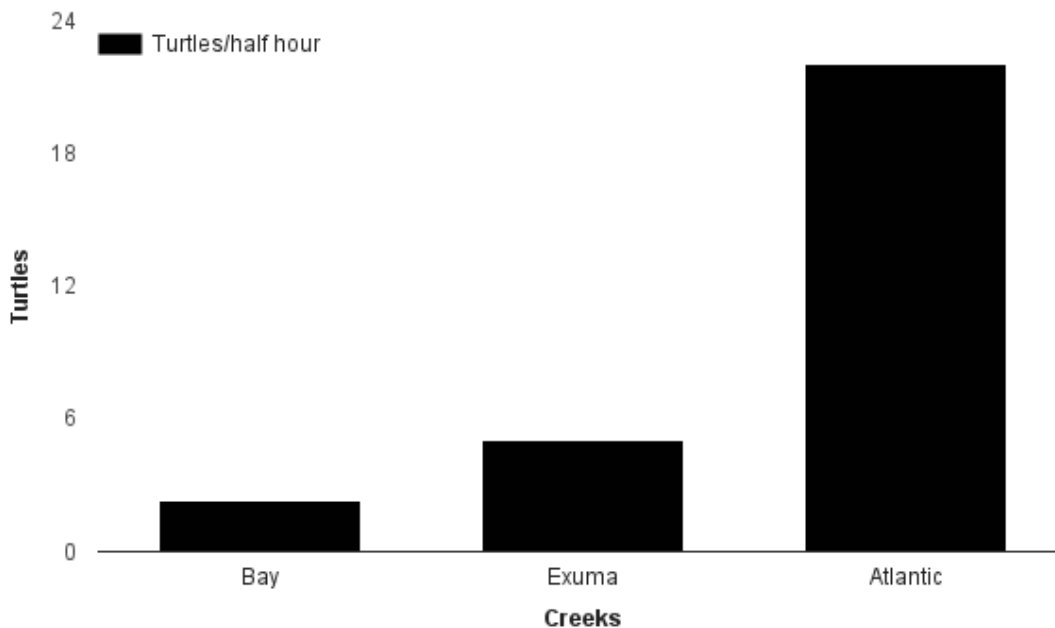


Figure 1. Abundance of sea turtles per hour in surveys across the island.

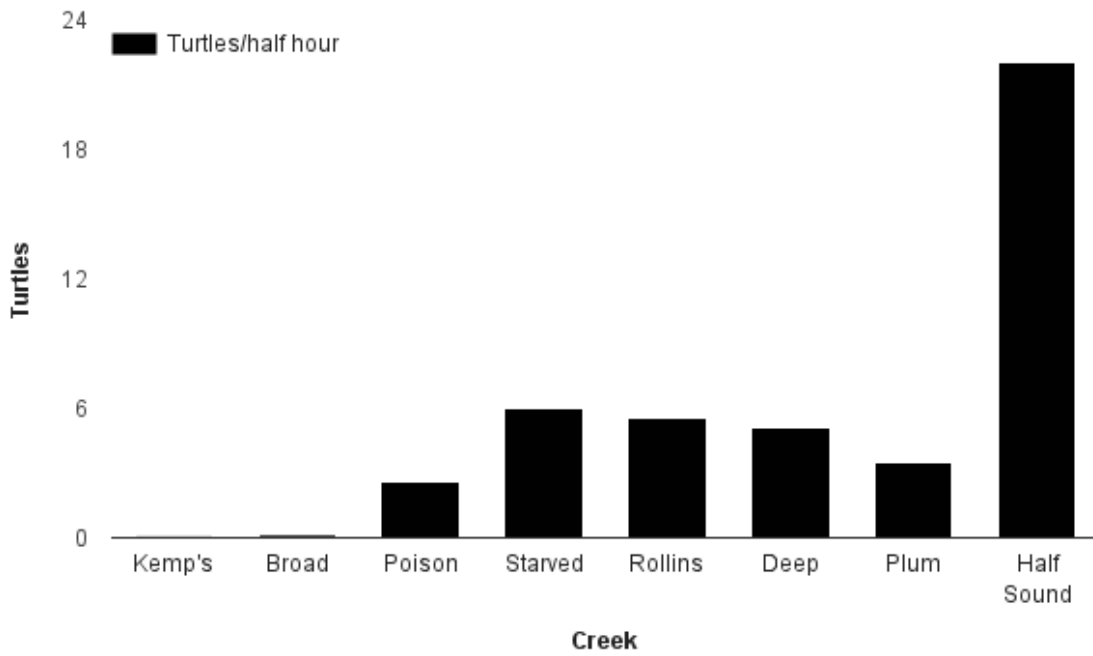


Figure 2. Abundance of sea turtles at creeks across South Eleuthera.

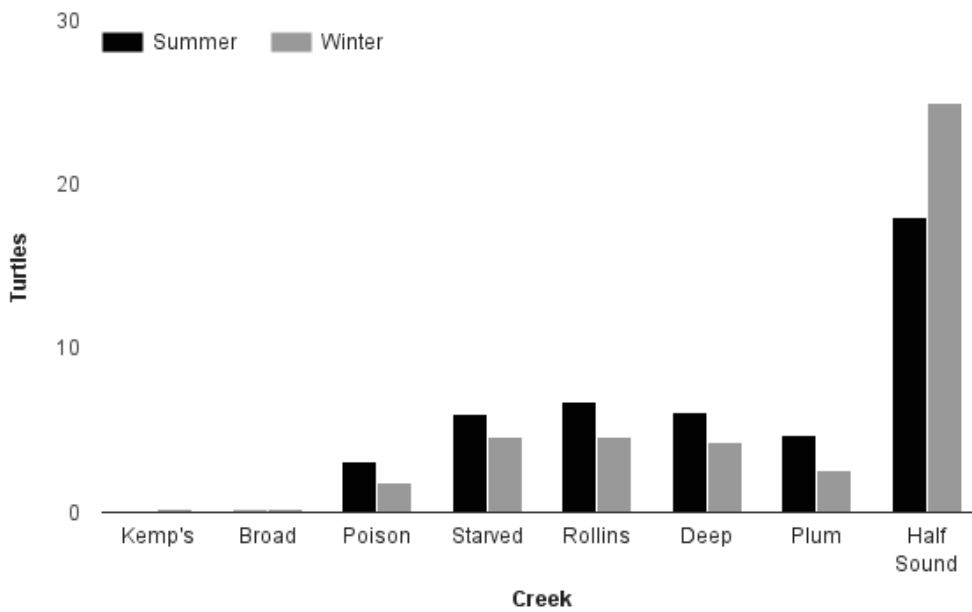


Figure 3. Abundance of sea turtles during summer and winter months across all study sites.

Objective 3: Assessing Predation Risk

Over 510 hours of baited remote underwater video surveys (BRUVS) were collected and analyzed for the presence of predators, species of sharks, within eight sites around South Eleuthera. A total of 77 sharks were encountered, across 8 species. Almost 60% of all sharks were either nurse or Caribbean reef sharks and almost 30% consisted of either lemon or black tip sharks (Figure 4). Species diversity varied among each creek (Figure 2). Half Sound exhibited the most diverse species of sharks, followed by Kemps and Broad Creek. The total number of sharks found in each creek also varied greatly among the creeks (Figure 5).

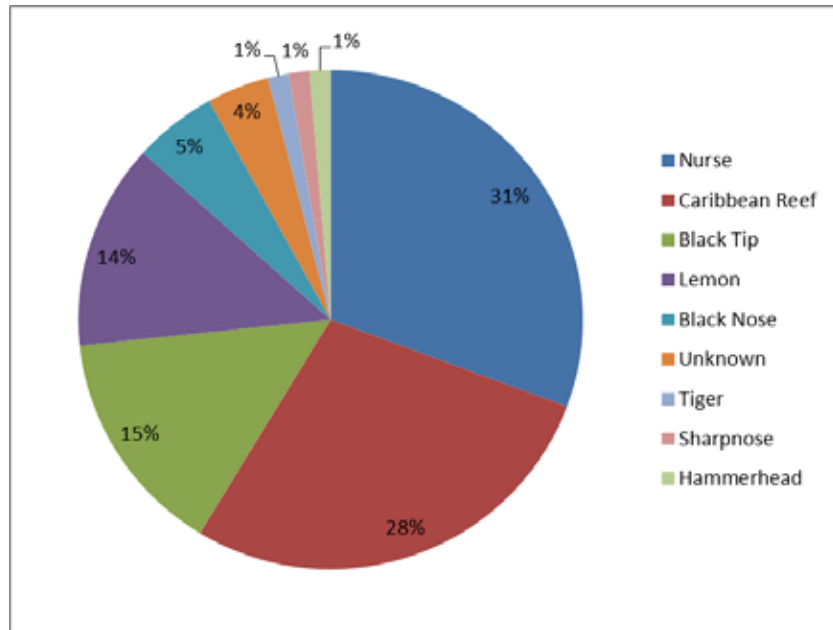


Figure 4: Species diversity of sharks (n=77) viewed on BRUVS from all eight creeks within South Eleuthera

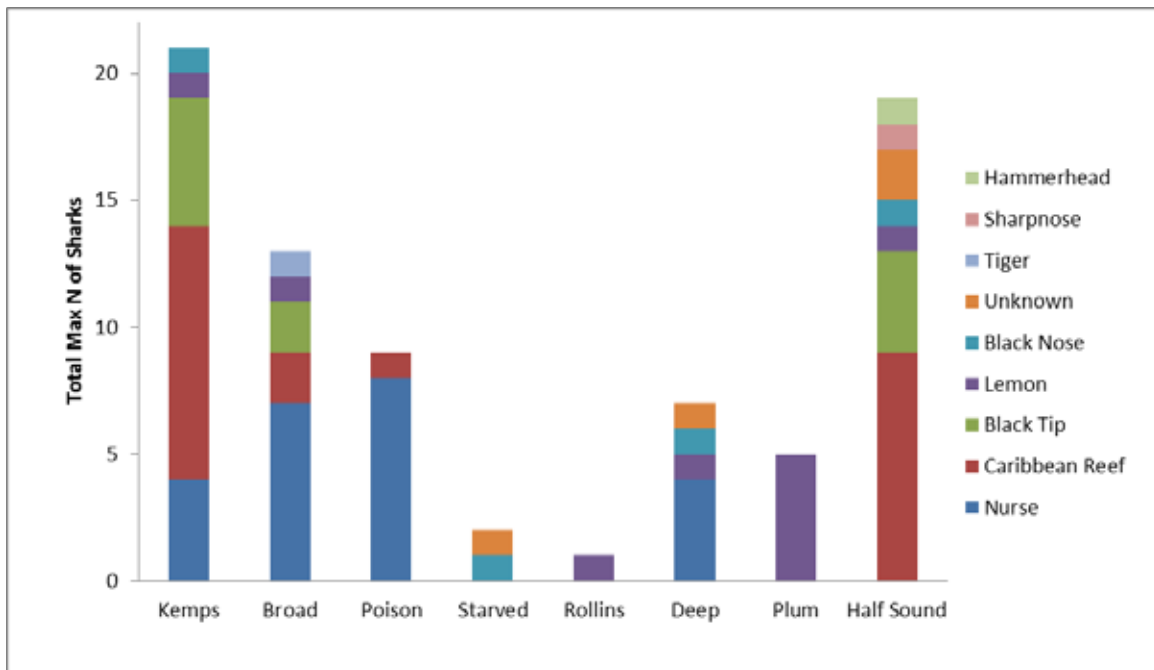


Figure 5: Species diversity of total max number of sharks viewed within each creek

Objective 4: Long-term monitoring

229 turtles were captured during 2015 and 121 (53%) of these were recaptured, previously tagged turtles.

Project Impacts

INCREASING SCIENTIFIC KNOWLEDGE
Total citizen science research hours

48 hours total for expedition (approx. 7-8hours on a full field day)

Peer-reviewed publications

Manuscripts in prep.

Non-peer reviewed publications: Technical reports, white papers, articles, sponsored or personal blog

<http://blog.ceibahamas.org/category/researchprogrms/sea-turtles-researchprograms/>

Presentations: invited paper, panel presentation, keynote speech, plenary address, or other.

Brooks A, Sjoquist J, Miller R and Irschick D. Morphological variation in juvenile green sea turtles (*Chelonia mydas*) around South Eleuthera, The Bahamas. *The 35th International Sea Turtle Symposium, Dalaman, Turkey, April 2015.*

MENTORING
Graduate students

Student Name	Graduate Degree	Project Title	Anticipated Year of Completion
Meagan Gary	MSc.	Home Range and Habitat Use of Immature Green Sea Turtles in a Shallow, Tidal Foraging Ground	2016

Community members

Name of school, organization, or group	Education level	Participants local or non-local
Deep Creek Middle School	Grade 7	Local on Eleuthera
Akhepran International Academy	Middle School	Local from Nassau
Cape Eleuthera Island Shool staff	High-school to college level graduates	Locals from all over Eleuthera

Details on contribution(s)/activity(ies):

Facilitated field excursions and presentations on sea turtles, threat and conservation

PARTNERSHIPS

Partner	Support Type(s) ¹	Years of Association (e.g. 2006-present)
Archie Carr Center for Sea Turtle Research	Collaboration, funding, academic support	2014 - present
Family Island Research and Education	Collaboration	2014 - present
Dr. Duncan Irschick, UMASS Amherst	Collaboration, data, academic support	2015 - present

¹ Support type options: funding, data, logistics, permits, technical support, collaboration, academic support, cultural support, other (define)

CONTRIBUTIONS TO MANAGEMENT PLANS OR POLICIES

Plan/Policy Name	Type ²	Level of Impact ³	New or Existing?	Primary goal of plan/policy ⁴	Stage of plan/policy ⁵	Description of Contribution
Anti-poaching	Agenda	national	New	Species conservation, natural resource conservation	In progress	Partnering with Department of Marine Resources, Bahamas National Trust, Bahamas Reef Environment Education Foundation, Archie Carr Center for Sea Turtle Research, to provide educational support and data for a sea turtle awareness and anti-poaching campaign.

² Type options: agenda, convention, development plan, management plan, policy, or other (define)

³ Level of impact options: local, regional, national, international

⁴ Primary goal options: cultural conservation, land conservation, species conservation, natural resource conservation, other

⁵ Stage of plan/policy options: proposed, in progress, adopted, other (define)

CONSERVING NATURAL AND SOCIOCULTURAL CAPTIAL

Conservation of taxa

Species	Common name	IUCN Red List category	Local/regional conservation status	Local/regional conservation status source
N/A				

In the past year, has your project helped conserve or restore populations of species of conservation significance? If so, please describe below.

Species	IUCN Red List category	Local/regional conservation status	Local/regional conservation status source	Description of contribution	Resulting effect ⁶
N/A					

⁶ Resulting effect options: decreased competition, improved habitat for species, range increased, population increase, improved population structure, increased breeding success, maintained/enhanced genetic diversity, other

Conservation of ecosystems

Habitat type	Habitat significance ⁷	Description of contribution	Resulting effect ⁸
N/A			

⁷ Habitat significance options: nursery, breeding ground, feeding site, corridor, migration path, refuge, winter range, summer range, spring range, fall range or other (define)

⁸ Resulting effect options: extent maintained, condition achieved, restored, expanded, improved connectivity or resilience

Ecosystem services

- Food and water
- Flood and disease control
- Spiritual, recreational, and cultural benefits
- Nutrient cycling

Conservation of cultural heritage

Cultural heritage component ⁹	Description of contribution	Resulting effect
N/A		

⁹ Cultural heritage component options: traditional agriculture, artifacts, building(s), hunting ground or kill site, traditional ecological knowledge and practices, monument(s), oral traditions and history, spiritual site, traditional subsistence living

Research Plan Updates

1. Have you added a new research site or has your research site location changed? No
2. Has the protected area status of your research site changed? No
3. Has the conservation status of a species you study changed? No
4. Have there been any changes in project scientists or field crew? Yes

Details—provide more information for any “yes” answers

New research assistants for 2016

Provide details on any changes to your objectives, volunteer tasks, or methods, include reason for the change.

In research renewal

ACKNOWLEDGEMENTS

I’m indebted to my team of interns, technicians, and research assistants. I also appreciate the support of Stevie Connett and Barbara Crouchley with field work and advice, and Dr. Karen Bjorndal and Dr. Alan Bolten for their time and support with all aspects of this study. I would also like to thank the boathouse team for keeping us on the water and the kitchen team for keeping us well fed!





Earthwatch Institute
114 Western Avenue
Boston, MA 02134
U.S.A.



- **1.800.776.0188**
- info@earthwatch.org
- earthwatch.org
- [facebook.com/earthwatch](https://www.facebook.com/earthwatch)
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