

TURKS AND CAICOS ISLANDS TURTLE PROJECT

Project coordinator: Dr Peter Richardson, Marine Conservation Society



Photo: Amdeep Sanghera/MCS



LOCATION: Turks and Caicos Islands

PROJECT DURATION: November 2008 to present (ongoing).

SPECIES: Green turtle (IUCN: endangered); hawksbill turtle (IUCN: critically endangered)

PROJECT AIM & OBJECTIVES

The Turks and Caicos Islands Turtle Project (TCITP) was established in 2008 to fully engage stakeholders in developing a durable turtle fishery management regime that facilitates traditions of use and includes appropriate measures for the protection of the larger size-classes and breeding adult turtles in TCI waters. The objectives were as follows:

1. Work with fishers to protect the adult and sub-adult green and hawksbill turtles found in Turks and Caicos Islands (TCI) waters through the participatory development and implementation of a management plan and revised legislation to regulate the traditional turtle fishery;
2. Generate and publish novel data on the behaviour and ecology of adult and sub-adult green and hawksbill turtles in TCI waters using contemporary satellite telemetry research methodology;
3. Raise local and regional awareness of marine turtle conservation needs through public and school educational and media outreach programmes that promote TCITP research and in particular the satellite tracking project;
4. Promote and develop a citizen volunteer scheme to contribute to marine turtle nesting beach and foraging habitat monitoring.

PROGRESS

1. Work with fishers to protect the adult and sub-adult green and hawksbill turtles found in Turks and Caicos Islands (TCI) waters.

The Marine Conservation Society (MCS) continues to coordinate the collaborative Turks and Caicos Islands Turtle Project (TCITP). Since 2008, the project has involved biological and social research, as well as extensive stakeholder engagement within TCI communities, with important contributions from the Department of Environment and Maritime Affairs, the University of Exeter Cornwall Campus, and Duke University in North Carolina, USA. The TCITP is coordinated by Dr Peter Richardson based at the MCS headquarters in Ross on Wye, while field activities were managed by TCITP Officer Amdeep Sanghera, who was based in South Caicos, TCI. South Caicos is considered to be the 'Fishing Capital' of TCI, although fishing communities in Providenciales, Grand Turk, North and Middle Caicos were also involved in the project.

The TCITP assessed the nature and status of the TCI turtle fishery. This assessment was coordinated by NERC-funded University of Exeter PhD student Tom Stringell, and involved comprehensive sampling of turtles landed at key fish landing sites around the islands, and extensive sampling of turtles stocks available to fishers at index turtle foraging sites. Scientific papers have either been published (e.g. Stringell et al. 2013 see http://www.seaturtle.org/PDF/StringellTB_2013_OceanCoastManage.pdf) or are in review.

In parallel with this research, the TCITP carried out an assessment of the importance of the fishery to the South Caicos community. The demographic nature of the fishery was

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characterised through ethnographic recording at the dockside, while a commodity-chain analyses was carried out on turtles landed in South Caicos and subsequently tracked as they entered chains of consumption within and beyond the South Caicos community.

In 2010, Duke University researchers Prof. Lisa Campbell and Dr Gabriel Cumming adapted their Community Voice Method (CVM) stakeholder engagement project to capture and record views of community members about future management of the traditional TCI turtle fishery. CVM involves a staged process of filmed questionnaire interviews with a selected sample of relevant stakeholders; subsequent transcription and analysis of interview footage to produce a 30 minute documentary (see <http://communityvoicemethod.org/turks-caicos/>) summarising the most often expressed views and opinions; playback of the documentary during structured stakeholder workshops, which are designed to discuss future management scenarios and any community concerns raised in the documentary. The film was screened 22 times around the islands, with some screenings followed by workshops involving a total of approximately 270 participants (see also http://www.ioseaturtles.org/pom_detail.php?id=135).

The discussions in the workshops were recorded, and then considered alongside the biological and social research data in the production of draft proposed management measures produced in early 2011. These draft measures were then subject to further feedback from 75 identified turtle fishermen during one-to-one interviews later that year. Feedback from these interviews resulted in additional amendments to the draft management measures. These were then formally recommended as proposed legislative amendments by MCS and DEMA to a newly-elected TCI Government Minister of Environment in March 2013. These legislative amendments were finally approved in February 2014 and came into force in July 2014 (see attached announcement from DEMA).

The new regulations are detailed below:

- Revised minimum size limit of 18 inches shell length and a new maximum of 24 inches shell length for all landed green and hawksbill turtles;
- New eight-month closed season for hawksbill turtles coinciding with the lobster open-season and the peak hawksbill nesting season;
- New ban on capture of all other marine turtle species found in the Caribbean;
- New ban on the export of all turtle products;
- New requirement for all captured turtles to be landed live;
- New ban on keeping of live turtles in the TCI unless for purposes of rescue and rehabilitation.

As part of their monitoring of all fisheries undertaken in TCI waters, DEMA have responsibility to monitor fisher compliance with the new regulations and maintain a presence at the main fish landing sites where turtles are landed. In addition to this effort, MCS is now seeking funding to return Amdeep Sanghera back to the TCI full-time to manage an outreach and awareness programme for TCI fishing communities to promote the new regulations and further develop a culture of compliance.

The TCI multi-disciplinary approach using comprehensive biological and social research, as well as contemporary stakeholder engagement, has been presented at various international conferences and symposia during the project, and each time PTES support has been acknowledged. The project was presented at the World Conference on Marine Biodiversity (Aberdeen 2011); World Fisheries Congress (Edinburgh 2012); Western Indian Ocean Marine Science Association 8th Scientific Symposium (Maputo 2013); 34th International Sea Turtle

Symposium (New Orleans 2014); Seventh Signatory State Meeting of the Indian Ocean and South East Asia Memorandum of Understanding on Marine Turtle Conservation (Bonn 2014).

Generate and publish novel data using contemporary satellite telemetry research methodology

The TCITP deployed a total of 17 satellite transmitters on adult hawksbill turtles (4), adult green turtles (2) and sub-adult green turtles (11). The tags were funded by the National Marine Aquarium (1), the British Chelonia Group (2), companies and private individuals (6) and the PTES (8).

Adult hawksbill turtles: These four turtles (3 males, 1 female) were all landed by fishers in South Caicos for consumption, and bought by the TCITP for inclusion in the satellite tracking project. All these turtles were in breeding condition when tagged and released. The tags on these turtles performed the longest tracking durations, yet none of these turtles ventured beyond TCI waters. These turtles demonstrated that TCI's remnant hawksbill breeding population included members resident in TCI waters. Under the previous harvest regulations, these turtles were subject to legal harvest year round in TCI waters and therefore vulnerable to the traditional fishery. The female turtle was tracked for the longest duration (1474 days) of all the turtles in this tracking project, and in that time performed two nesting seasons, with the tracking data suggesting she nested 5 times during both seasons. This data has been submitted by Stringell et al. and is currently in review. All these tags were funded by the PTES.

Adult green turtles: Both these turtles were females, with one purchased from fishers in South Caicos after being landed for consumption, while the other was tagged after nesting on Gibb's Cay close to Grand Turk. Shortly after this turtle was tagged she commenced a migration east and eventually settled on seagrass beds just south of St Croix, US Virgin Islands, where she remained until her tag ceased transmissions (total tracking = 96 days). The other adult female green was released close to where fishers reported catching her close to East Caicos. There she remained for a few months before embarking on an epic 6,000km migration through the territorial waters of 14 Caribbean states before returning to East Caicos. This turtle then remained at her same East Caicos foraging ground before transmission ceased (total tracking = 317 days). This was the first animal ever to be satellite tagged in and tracked from the TCI, and consequently became somewhat of a 'celebrity' known as Suzie. Suzie's journey was published by Richardson et al (2010) (see <http://www.seaturtle.org/mtn/archives/mtn127/mtn127p26.shtml>), and was also submitted with the other adult green turtle tracking data by Stringell et al. and is currently in review. Suzie's tag was funded by the PTES.

Sub-adult green turtles: The sub-adult age class of marine turtles is relatively poorly studied, particularly through the use of satellite telemetry, as they spend all their time at sea. Our unique access to these animals through our excellent working relations with local fishers gave us an exciting opportunity to focus our latter tracking resources and efforts on this size-class. Sub-adult turtles are routinely targeted by the TCI fishery, and belong to a size-class of priority conservation importance with respect to population recovery.

Eleven sub-adult green turtles were tracked between 2009 and 2014, with tracking durations ranging from 101 to 496 days (mean tracking = 286 days). These turtles showed a range of behaviours at their seagrass foraging sites, from high site fidelity to consistent roaming between preferred foraging grounds. Three of these turtles migrated beyond TCI waters, with one turtle

migrating to Cuba before transmissions ceased, one turtle migrating to North Carolina and then out into open-ocean before transmissions ceased. One turtle performed a complete 'developmental migration', i.e. the turtle migrated from a foraging site in TCI, headed south and eventually settled at a foraging site on the Columbian coast before transmissions ceased (total tracking = 496 days). This turtle's tag was funded by PTES as part of the continuation grant, along with two other tags attached to sub-adult green turtles.

The sub-adult tracking data was presented by Dr Richardson to the 34th International Symposium on Sea Turtle Conservation in New Orleans in 2014 (see attached pdf). The study was very well-received, and after feedback from the scientific community at the symposium, the TCITP project team decided to seek funds to double the sample size before publication, to make the study more robust in terms of verifying some of the exciting, provisional findings. MCS is now seeking funding to deploy more satellite tags on sub-adult green turtles in TCI waters during 2015. Analysis and publication of all the data will occur after any new tag we include in the study ceases transmission. If MCS is unsuccessful in securing more funds for this element of the project we will start analysis of existing data for publication in Summer 2015.

Raise local and regional awareness of marine turtle conservation

Prior to each Community Voice Method film screening, Amdeep Sanghera gave a presentation summarising our current knowledge of marine turtles in the TCI and their conservation needs. Amdeep's full time presence in the TCI interacting with various stakeholder groups, also significantly increased community awareness of marine turtle conservation and management in the Islands. We promoted the satellite tracking through posting of tracking maps in public places, and publication of articles in local publications (see <http://www.pagegangster.com/p/JQpql/41/>; <http://www.pagegangster.com/p/ts4vq/33/>; <http://www.timespub.tc/2012/10/go-gilbert-and-david/>). The tracking promotion changed some fishers' perspectives on managing their fishery, with some fishers acknowledging the need to responsibly manage what they realised was a regionally shared resource.

MCS intends to leave a legacy with two incomplete elements of this project. In the original proposal, we detailed the production of two sets of resources to increase community awareness, namely a 'Turtles of TCI' photo booklet and customised measuring tapes. We decided to delay production of both these resources until we were sure that our recommended legislative changes had been gazetted and come into force. We have also revised our plans, and while we still intend to start production on the booklet, we intend to produce a t-shirt with the funds allocated for measuring tapes. We believe that t-shirts are more likely to be used (worn) by fishers for longer than measuring tapes, and will be worn at the dockside, where we want to reinforce the promotion of the new regulations. We have therefore agreed on a turtle design and humorous slogan 'Size matters in the TCI' on the front of the t-shirt, with a summary of the new regulations on the back (see draft design in attachment). We are now finalising the design and hope to have the t-shirts ready for distribution by DEMA to fishers at the fish landing sites. We would like to include the logos of MCS, PTES and DEMA on the back of the t-shirts (not in draft).

We will start production of the booklet this year, which will include many of the photographs we have taken through the years of turtles and turtle fishers, and will also include graphic representations of the tracking data and a section promoting the new regulations. We have produced a story with partners the Lempen Puppet Theatre that highlights the need to manage the turtle populations wisely and can be presented as a play by school pupils. We are now seeking funding to send the Lempen Puppet Theatre to TCI in 2015 to tour TCI schools with the

booklet, and hold theatre workshops with pupils which focus on the story and its conservation messaging. Distribution of the booklet and the t-shirt will not be dependent on this tour, and will be coordinated in TCI by our partners at DEMA.

Promote and develop a citizen volunteer scheme

Before Amdeep left TCI in Summer 2013, he had established a functioning network of volunteers on Grand Turk and South Caicos, who continue to provide data on observed local turtle nesting activities. The participants include dive operators, other tour operators, local institutions and private individuals, and the data they opportunistically report is now sent to the DEMA Conservation Officer based on Grand Turk.

CONCLUSION

The TCITP has provided a successful working model of how a multi-disciplinary approach to conservation can engage resource users in the management of the resources on which they depend. The work carried out to date has led to the adoption of new turtle fishery legislation in TCI, but this is the first stage of a broader project to improve management of this traditional turtle fishery and contribute to regional turtle conservation. We acknowledge that more work is needed to further develop and nurture a culture of compliance amongst TCI fishermen, and to support effective enforcement by DEMA officers. We are currently seeking funds for this next stage and, ideally, we would have preferred to have funds in place now to maintain the momentum of the project. In future we would plan accordingly.

One key lesson this project provides is the importance of ensuring that the project has a recognisable and respected human face, provided in this case by TCITP Officer Amdeep Sanghera. With Amdeep embedded in, and very much part of, the South Caicos community for over 2 years, we were able to tailor our planned project activities to be accessible to and involve the fishers with who we were working with. Through an ongoing presence and conversation maintained by Amdeep with the fishing communities, those that would most likely be affected by the outcomes of our project were constantly aware of the project intentions, practices, requirements and progress. While a potential drawback of this personality-led approach is over-reliance on the personality, if the person fulfilling the role does it well as Amdeep did, then the risks associated with community withdrawal and apathy are greatly reduced.

One final drawback of multi-disciplinary conservation approach, involving extensive stakeholder engagement, is that a precedent is set and expectations of stakeholders about similar projects are raised. We intend to maintain our presence in TCI and promote the new regulations to fishing communities, but we also want to build on the methods we used in TCI to address other pressing marine conservation issues there. Now we have trialled this approach we feel it is essential that DEMA and other local partners are fully trained and have the sufficient capacity to engage in future, similar multi-disciplinary approaches, and our ongoing work will involve a strong local capacity-building element.

Reference

Stringell TB, Calosso MC, Claydon JAB, Clerveaux W, Godley BJ, Lockhart KJ, Phillips Q, Ranger S, Richardson PB, Sanghera A, Broderick AC (2013) Marine turtle harvest in a mixed small-scale fishery: Evidence for revised management measures. *Ocean and Coastal Management* 82:34-4.

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ADJUSTED WORKPLAN

October 2014 T-shirt design
 Booklet drafting

November T-shirt printing (in TCI)
 Booklet finalisation

December Booklet printing (in TCI)
 Booklet and T-shirt distribution in TCI

PROJECT SPEND TO OCTOBER 2014 (PTES funds only)

Category	Item	Value (£)	Spend (£)	Remaining (£)
Field equipment:	Satellite telemetry equipment	6,700	6,700	0
Research costs	12 months Service Argos satellite time	6,000	6,000	0
Travel (including fuel)	Boat charter for capture and release	2,400	2,400	0
Consumables:	TCI Turtle booklet (Lempen Puppet Theatre story production cost £2000)	8,000	2000	6000
	TCI turtle measuring tapes	1,200	0	1200
Insurance:	Liability and insurance	700	700	0
Total		25,000	17,800	7200