

## **Project Update: January 2013**

### **Background**

In common with many places in Oceania the distances between atolls are considerable and transport is very infrequent and expensive. Resources, including scientific expertise are limited. The Outer Island environments are often healthy, abundant, and near-pristine: the main reasons for this are small human populations and subsistence-cultures that rely on natural resources for all of our needs.

### **Previous Research**

Sea turtles are traditionally known throughout the Cook Islands but there are few data. Surveys were made by Dr George Balazs and Dr Peter Pritchard in the 1960s and 1970s as part of their Pacific-wide assessments. Since then the status of sea turtles in the Cook Islands has been based on data from around 1970: this included the fact that Palmerston Atoll was the most important nesting site nationally. All of the most recent papers cited those earlier data as their sources. The last study of any kind was by Nan Hauser and her interns: this was a 24-day survey at Palmerston (November 2000), when they tagged 11 greens and deployed a tx onto a post-nesting female (NOAA). [www.whaleresearch.org](http://www.whaleresearch.org)

Dr White began his research in March 2009 ~ following an earlier conversation with Dr Colin Limpus who said that *"the Pacific Region needed people to make a long-term commitment to it"*.

### **Honu Cook Islands [www.honucookislands.com](http://www.honucookislands.com)**

This is Dr White's research group and includes Cook Islanders, government scientists, Atoll Councils, and postgraduate researchers from selected universities. We work with four different threads: scientific research; meaningful education; sustainable conservation; and legislation. People are woven through them all.

The author works directly with the Prime Minister's Office; research is authorised by the National Research Committee. The initial permit [#07/09e] has just concluded; the new one [#17/12] covers all 15 Cook Islands and extends until 30<sup>th</sup> November 2015. All of the government departments are extremely pleased with Dr White's research efforts.

Neither the Ministry of Marine Resources nor the National Environment Service has a sea turtle specialist (and they don't want to do this work themselves). Dr White is the Principal Investigator for sea turtles nationally and also the Country Co-ordinator for TREDs. Key results are contributed directly to the Cook Islands National Biodiversity Assessment. CITES permits have been arranged with the Environment Service.

## Findings

i) The Cook Islands were data deficient (e.g. Dethmers *et al.* 2006; Maison *et al.* 2010; NMFS 2010; Wallace *et al.* 2010). **Nesting Aggregations** were allocated into the lowest group (1-25 nesting females per annum): three nesting aggregations are involved: Pukapuka is included with Samoa and American Samoa; **Northern Cooks** has the other atolls; **Southern Cooks** includes Palmerston and the remaining islands.

ii) Detailed results are in White (2012) [www.seaturtle.org](http://www.seaturtle.org)

iii) Green turtle nesting is confirmed on 10 of the islands; some have yet to be surveyed. No hawksbill nesting has been found anywhere (perhaps this has been true for 20 years or so - Meylan & Donnelly 1999 found no information from the Cooks). A small grant was provided by SWOT [www.seaturtlestatus.org](http://www.seaturtlestatus.org)

iv) Sea turtles have been seen on many reefs nationwide. All life-stages of *C. mydas* have been observed but most *E. imbricata* are juveniles - a few adults were seen. If we can keep the habitats safe we may get hawksbill nesting in the coming decades.

v) There are no trend data at all. The first **Index Beach** has been selected at Tongareva and is now being monitored. Research in 2013 is funded by NOAA [NA12NMF4540263]. This atoll is now shown to be the paramount nesting site in the Cook Islands (c. 500 nests per annum) with Palmerston second (c. 100 nests per annum).

vi) Dr White led a month-long expedition to Palmerston (April 2012) - this was funded by the Rufford Small Grants Foundation [RSG # 10964-1]. We found 185 definite nests and 55 possible nests. Some of these nests may have been 5 years old. Inventories were made of 99 nests. Hatching success is high (95%) and predators are rare.

vii) Dr White and a post-graduate researcher (from University of York) went to Rakahanga Atoll for 2 months (July-August 2012). This was the first survey in about 40 years. It was partially funded by the British Chelonia Group and the Ministry of Marine Resources. We found 26 nests dispersed around all four nestable beaches. Four nests were inventoried as part of the teaching programme. Hatching success was 95%. Feral pigs may be predators.

viii) DNA: there are no data, so linkages to other turtle stocks are not known. We are now set up to genetically sample and will contribute results to the Pacific Regional effort (Dr Peter Dutton & Dr Nancy FitzSimmons). Haplotypes will be reported when available.

## Community Outreach

Michael White works closely with the councils and communities on each atoll. Populations are small, often less than 100, and about one-third are young children. Presentations are given so that islanders know why we are on their atoll, what we are trying to discover and how they can

help. Interested people are trained as researchers and science modules and practical skills are taught in the schools. Communities are guided to establish small-scale projects that can monitor sea turtles - the intention is that they will be community-managed in time. The most important task is to provide a support network (some atolls have basic internet now) so that local researchers can ask questions and be provided with timely advice. The Atoll Councils are given guidance on endangered species and their critical habitats. There is a long tradition of customary management (e.g. *Rahui*) whereby the harvest of resources is opened or closed depending on their viability. Honu have not usually been included, but Councils are open to this idea - work in progress!

Direct take is legal/customary/or not prohibited. A prohibition could not be enforced. The most common target is nesting females. It is very easy, flip them over and kill them later. But this provides an educational opportunity stressing 'no nesting females, no more eggs'. A very powerful point for us to use is the fact that honu may take 40-50 years before laying their first nest - most people relate this to themselves, their first baby as a 'grandparent'. A second factor in our favour is that many young people don't want to eat honu. This will depend on each community, so direct take may fade away in a few years. Egg take has practically disappeared already. Thirty years ago most nests were taken for food.

### **Funding**

Resources are extremely limited and very hard to get these days. Global financial crises and a multitude of new grant-seekers, including businesses that exploit environmental issues as a niche market for profit, have worsened this situation.

# Honu o te Kûki Airani

(Sea Turtles in the Cook Islands)

Dr Michael White [www.honucookislands.com](http://www.honucookislands.com)

**Background:** Sea turtles 'Honu' are known traditionally throughout the Cook Islands, as they are in much of Oceania, but there are few scientific data for them. Information falls into two categories: i) surveys from several decades ago (Balazs 1995; Pritchard 1995a; Cetacean Research Centre 2000); ii) recent work based upon those early data (Dethmers *et al* 2006; Maison *et al* 2010; NMFS 2010; Wallace *et al* 2010; Woodrom Rudrud 2010). Palmerston Atoll, Southern Cook Islands, was said to be the main nesting site nationally – based on data from about 1970. This deficiency in data means that the true status of honu is unclear, but they are assumed to be endangered to a greater or lesser degree [www.iucn.org](http://www.iucn.org)



Rakahanga has four nesting beaches: 1: South; 2: South east; 3: North east; 4: North. The school monitors 1 & 2 - & cleans them!



Rakahanga atoll good nesting site for sea turtles in pollen. It is a good nesting site for sea turtles in pollen. It is a good nesting site for sea turtles in pollen. It is a good nesting site for sea turtles in pollen.



We have cleaned the rubbish from our beaches & removed obstructions e.g. fallen trees. We keep most outside lights turned off at night (very little light pollution)



Green turtle hatching

## Conservation in Action



The four strands of our work are: scientific research; meaningful education; sustainable conservation; & legislation people are woven through them all.

Our approach is to: assess all beaches for nesting suitability; quantify nesting & egg-laying seasons; gather data for incubation period, sex-ratios & nest success. Quantify impacts including direct-take. Identify species & life-stages present; also marine habitat use. DNA sampling & morphometrics. We work closely with Islanders: teaching those who are interested; giving community presentations; teaching in schools; advising Atoll Councils on sustainable resource use; initiating community-projects & a support network. Gathering Traditional Knowledge is a vital part of our efforts: this is too precious to lose – we ask permission of the Wisdom-Keepers to integrate this into our science & teach it to our Turtle Rangers™

The Cook Islands EEZ covers 2 million km<sup>2</sup>: foreign industrial fisheries use it all: some turtle bycatch occurs.

Turtles are eaten occasionally, but egg-collection is now rare. Outreach includes safeguarding nesting females – these were the easiest honu to kill.

Our biggest problem is marine pollution: plastics are highly visible, but undoubtedly chemicals will be present too. We have no choice but to burn the plastic.



Photo: Ewan Smith, Air Rarotonga Palmerston Atoll looking South

The author led a month-long expedition to Palmerston Atoll in April 2012 that was funded by the Rufford Trust. We confirmed 185 nests, but some were probably several years old. Hatching success was high (95%, n = 99 nests). Eight Palmerston Islanders were on the research team; three subsequently joined Honu Cook Islands & are monitoring nests & conducting post-hatching nest inventories – this is the first step to establishing a community-led project here. Dr White also advises Palmerston Island Council.

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## Funders:



**Current research:** The author began work in March 2009 & has visited 9 of the 15 Cook Islands, the biggest limitation is very infrequent shipping – often many months between vessels. Research methods & findings have been well described in White (2012). The results so far show that Tongareva Atoll, Northern Cook Islands, is the paramount nesting site (c.500 nests per annum), with Palmerston second (c.100 nests per annum); both atolls now have small-scale research efforts in place with local participation. Rakahanga Atoll only has a few nests, but its people & school are active partners in our work. The medium-term goal is to establish a functional locally-managed turtle project on every atoll



The author's Research Group 'Honu Cook Islands' works closely with National Government & the Councils on each atoll. Dr White is the Principal Investigator for sea turtles in the Cook Islands & provides data directly to the national biodiversity assessment; he is also the country coordinator for TRENDS [www.sprp.org](http://www.sprp.org). The research team includes: Georgia Langdon (Senior Fisheries Officer, Ministry of Marine Resources); Joseph Bridger (Biodiversity & Island Futures, National Environment Service; also CTES permits); Goldeen Nikau, David & Marion Marsters (Palmerston Atoll); Gemma Galbraith (University of York); Pamela Maru (Forum Fisheries Association, Noumea); Tongareva & Rakahanga Atoll Councils. Tina Samson (Office of the Prime Minister) is our direct link to Government & the National Research Council; we also make necessary legislative recommendations.



Associates & Outreach: Dr Peter Dutton (NOAA, San Diego); Dr Nancy FREGIMONT (Columbia University); Dr Guy Bradshaw (New Zealand); Prof. Cullum Roberts & Dr Julie Hootkins (University of York); James Borrell [www.jamesborrell.co.uk](http://www.jamesborrell.co.uk); Non Haarer [www.whalesearch.org](http://www.whalesearch.org); Lily Ventreska & Lara Pours [www.melanesia.org](http://www.melanesia.org); John Roberts [www.cookislands.org.uk](http://www.cookislands.org.uk)



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