



## 31st Annual Symposium on Sea Turtle Biology and Conservation

San Diego, California, USA, 12 - 15 April 2011

*The Next Generation of Research & Conservation*

Home	Sea Turtle Society	Registration Info	Abstracts	Travel & Lodging	Program	Vendors	Travel Grants	Resolut
------	--------------------	-------------------	-----------	------------------	---------	---------	---------------	---------



### Abstract Preview

**Abstract ID:** 3727 **Type:** Poster **Subject:** Population Assessment **Country:** French Polynesia

**Submitted By:** Sebastien Goutenegré (sebgoutenegré@hotmail.com)

#### GREEN SEA TURTLE SCOPING SURVEY ON MOPELIA ATOLL, LEEWARD ISLANDS, FRENCH POLYNESIA

Sebastien Goutenegré<sup>1</sup> and Eve Perrin<sup>2</sup>

<sup>1</sup> Ngo Chelonia Polynesia, Bora Bora, French Polynesia

<sup>2</sup> Université Lyon 1, Lyon, France

French Polynesia consists on 118 islands and atolls spread over a large geographic area. In this area, green sea turtles have historically been observed nesting at Tupai, Bellinghausen Scilly and Mopelia atolls. Based on the available, yet out dated information, it is believed that approximately 100-400 green turtles may nest annually in FP. Turtles tagged at Scilly and Mopelia atolls in the late 70s and early 90s have been recovered in Tonga, New Caledonia, Vanuatu, The Cook islands and Fidji; this tag return information suggest that sea turtles originating from FP migrate west through the West and Central Pacific ocean. Our mission was to organise and conduct a 3 weeks expedition to the isolated atoll Mopelia during the peak of the nesting season in november 2010. Knowing that this atoll is wellknown for poaching activity, the main goal of this expedition was to update data such as tissu samples collecting for genetic analysis, PIT tag nesters and nesting sites recording.

Home	Sea Turtle Society	Registration Info	Abstracts	Travel & Lodging	Program	Vendors	Travel Grants	Resolut
------	--------------------	-------------------	-----------	------------------	---------	---------	---------------	---------

[iConferences.org](http://iconferences.org) • A Service of [SEATURTLE.ORG](http://SEATURTLE.ORG)





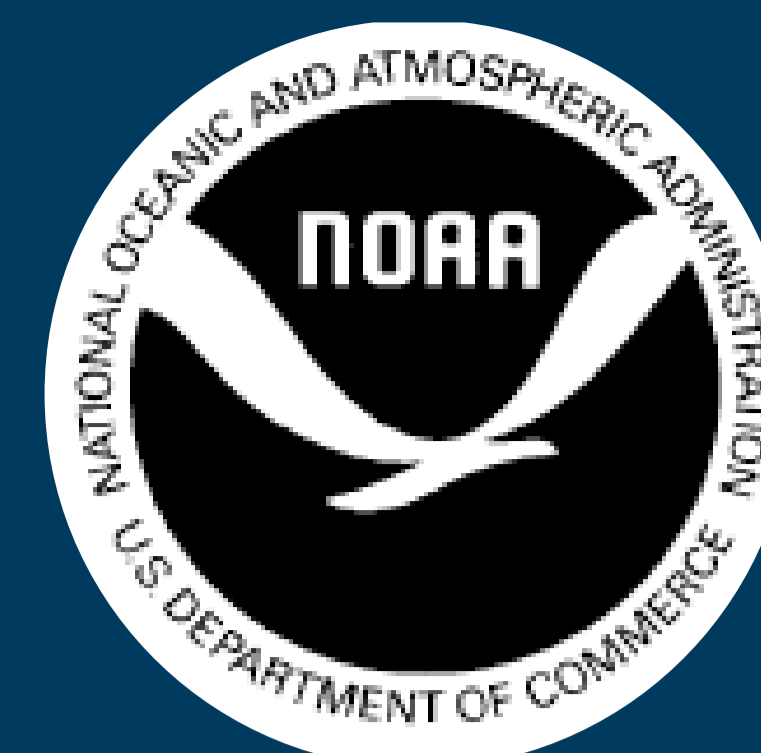
# GREEN SEA TURTLE SCOPING SURVEY ON MOPELIA ATOLL / FRENCH POLYNESIA.

Sébastien Goutenègre\*, Eve Perrin\*, Karen Frutchey\*

\*NGO Chelonia Polynesia, BP 190 Vaitape, 98730 Bora Bora. French Polynesia.

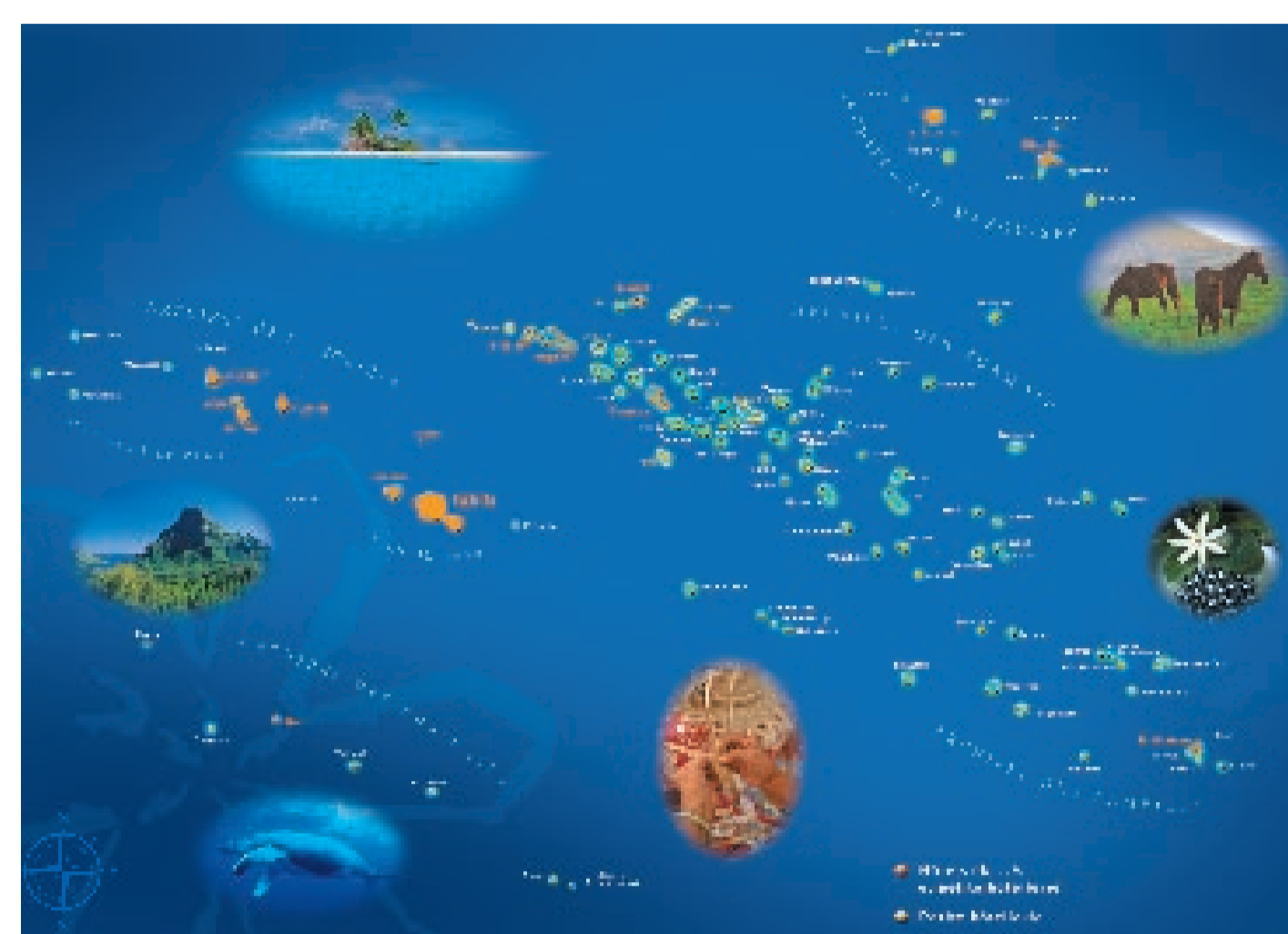
°NMFS/Pacific Island Area Office/NOAA. 1601 Kapiolani Bd. Suite 1110. Honolulu HI96814. USA.

Visit [www.boraboraturtles.com](http://www.boraboraturtles.com) and [www.cheloniapolynesia.com](http://www.cheloniapolynesia.com) • Email: [sebgoutenegre@hotmail.com](mailto:sebgoutenegre@hotmail.com)



## Objectives

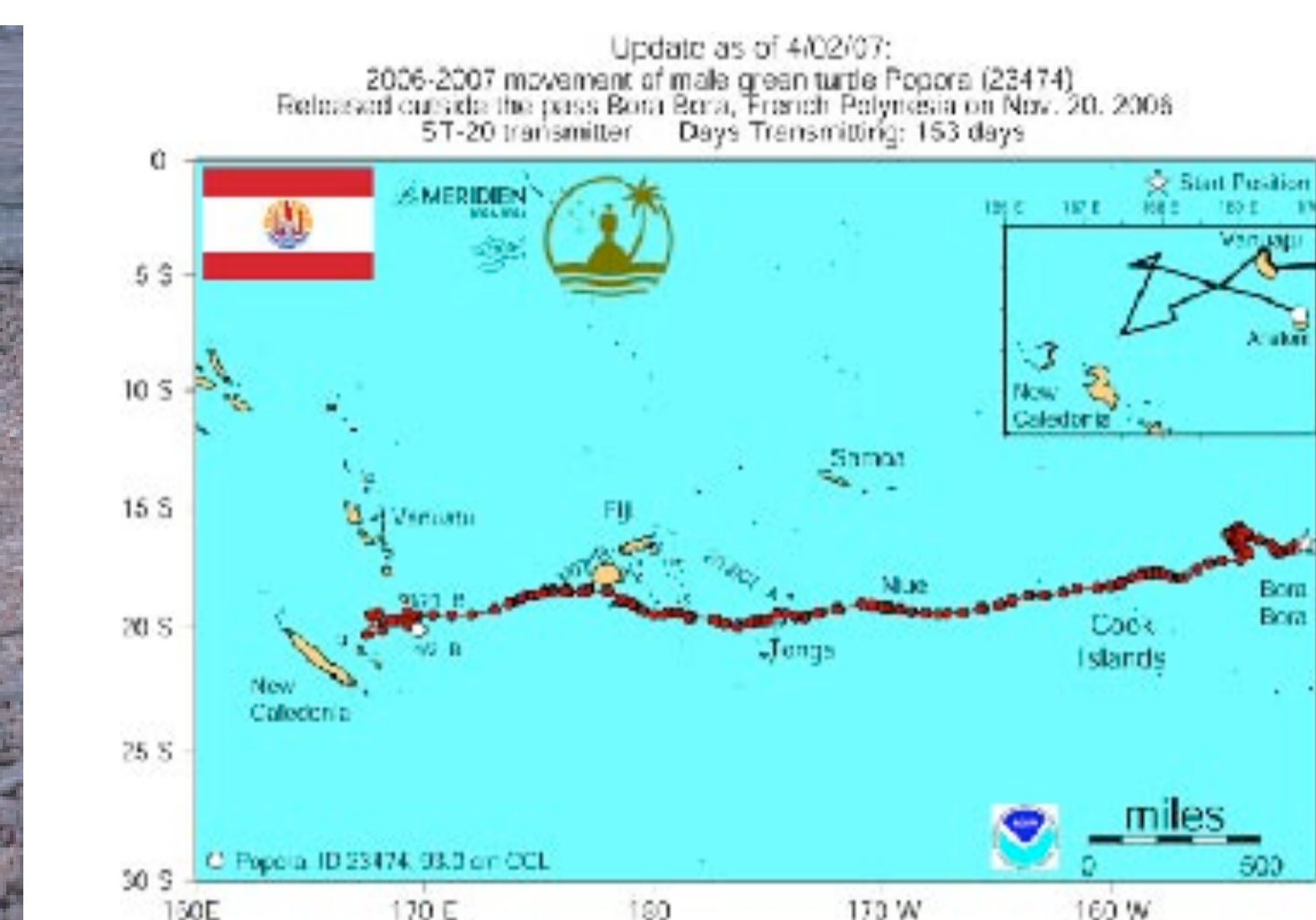
Collect data on a major nesting population of *Chelonia mydas* in French Polynesia.  
Collect tissue samples for genetic analysis, to equip nesters with PIT tag and establish a conservation plan with local people involvements.



French Polynesia, 118 islands.



Mopelia atoll, Leeward Islands.



Migration of adults *Chelonia mydas* in the South Pacific.

## INTRODUCTION

Mopelia atoll (16°48 S and 153°57 W) is located in a remote and seldom-travelled region of the south Pacific at the western limits of French Polynesia, in the Leeward Islands. Bora Bora and Maupiti, two volcanic islands with permanent human habitation, are situated 250-300 km to the east. The benefits of Mopelia are numerous: several colonies of sea birds that nest on the motus (Frigates, terns, Northern Gannet...), and it is also a major nesting site for sea turtles. Green turtles, *Chelonia mydas*, used to nest in a great numbers at Mopelia but considerable declines have occurred during recent decades due mainly to commercial exploitation (meat) for markets in Tahiti (Balazs et al., 1992). Last studies on Mopelia go back up to the 90's. In November 2010, Sébastien Goutenègre (President & sea turtle specialist of the Ngo Chelonia Polynesia), Karen Frutchey (NMFS/ NOAA Hawaii) and Eve Perrin (Biologist of the Ngo Chelonia Polynesia) stayed 3 weeks on the atoll to conduct a survey on Green turtles' nesters population. They collected genetic samples on 10 nesters and 5 older nests (eggs shells, unhatched, bones...), they also PIT tagged, for the first time in French Polynesia, 4 females.

## MATERIALS AND METHODS :

- 3 scientists: Karen Frutchey (NOAA Hawaiï), Sébastien Goutenègre and Eve Perrin (Ngo Chelonia Polynesia).
- Grid on Mopelia's Google Earth map of 7 potential nesting sites, thanks to local people help.
- Equipment used: GPS, measuring tapes, scalpels for tissue sample, eppendorf tubes, compress, Betadine, tags, applicators, Pit tags, scanners.
- Daytime survey: walk all over the atoll to find the places where the turtles nest, using tracks. When a track is detected, we collect information as:
  - the GPS point, type of observation ((tracks) + (nests) + (eggs)).
  - Topography of the site: sand quality (fine, coarse, rock/rubble), colour of sand (light, dark), beach inclination (slightly or medium slope), vegetation (ground cover, bushes, roots, trees), density of vegetation (sparse, moderated, dense).
  - Information about tracks: accessibility to the sea (easy, difficult), type of tracks, tracks' width (cm), freshness of the track (recent, partially visible, faded), and date estimation of the track.
  - Information about the nests: Sun exposition of the nest (shadow, mixed exposure), High of the nest to the sea level (m), Distance to the sea (m).
  - Potential disturbances/threats:
    - \* Predation: index of predation (few, high), predators in the area.
    - \* Erosion: index of erosion.
    - \* Pollution: type of pollution.
- Data collected on older nests, from previous or current nesting season, with hatchlings:
  - GPS point, eggs number, others (yolkless, unhatched), tissue samples (number, position), depth of the nest (cm), distance to the sea (m), tracks type, and identifications of predators.
  - Night time survey: we were collecting data on the turtles from 9 p.m to 3-4-5 a.m depending on nesting activity:
    - GPS point.
    - Turtles' characteristics: specie (*Chelonia mydas*), distinctive signs (barnacles, scars...), dimensions (carapace width (cm), carapace length (cm)), date and place of tagging, tag numbers.
    - Nesting process information: time of way up, time of body pitting, time of start laying, eggs number, time of covering, time of return to the sea, animal's behaviour in presence of human, position of tissue sample (rear flippers or neck), PIT Tag number and position.

## RESULTS

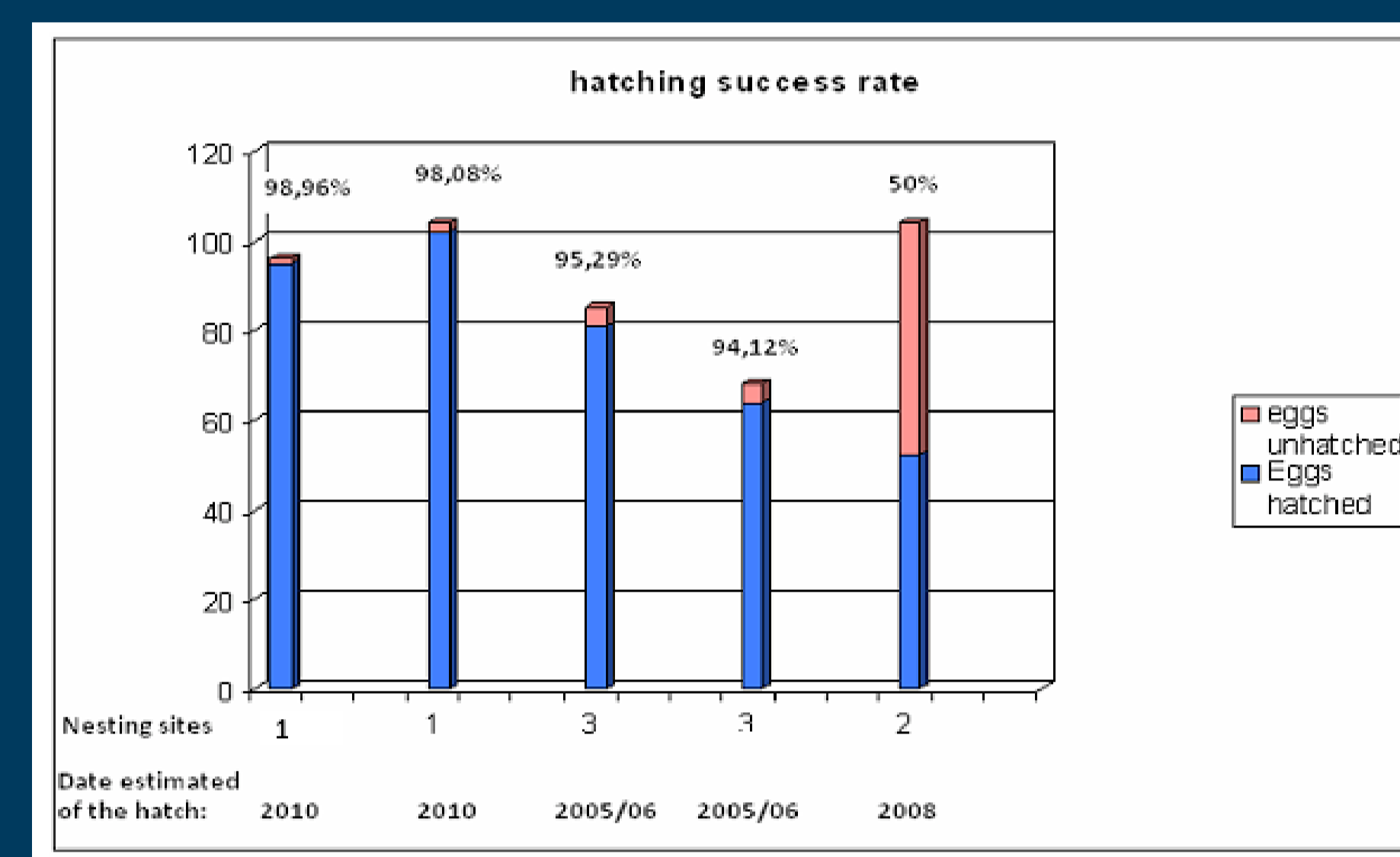
**Nesting sites:**  
7 different nesting sites have been recorded when tracks were found: 5 on the eastern part of the atoll, and 2 on the western part.  
3 sites on the reef side and 3 others in the lagoon, with sandy beaches.  
On the Ocean side, sand is coarse with sometimes rock rubble and light coloured with a medium slope. Usually, turtles try to nest into the bushes. Motu Tavae (site n°6 & 7) is called "Birds Island". There are many predators as: terns, frigates, Northern Gannet. On Motu Tavae, the index of erosion is scarping, and there is lot of pollution as: plastic bottles, ropes, logs...



**Acknowledgments :**  
We would like to thank for their supports the following people:  
Ms Miri Tatarata from the Polynesian ministry of Environment, Ms Irene Kelly (NMFS/NOAA), Mr George Balazs (NOAA), Mr Lui Bell (SPREP), Ms Françoise Claro (MNHN), Mr Denis Le Nohaïc (Le Méridien Bora Bora), Tahiti Yacht Charter company, the incredible Sophie and Kalami Taputu and his family, and the 31st symposium committee.  
Référence Balazs G., Stu P., Landret J-P., 1991, Ecological aspects of green turtles nesting at Scilly atoll in French Polynesia, NOAA Technical Memorandum.

## Hatchlings:

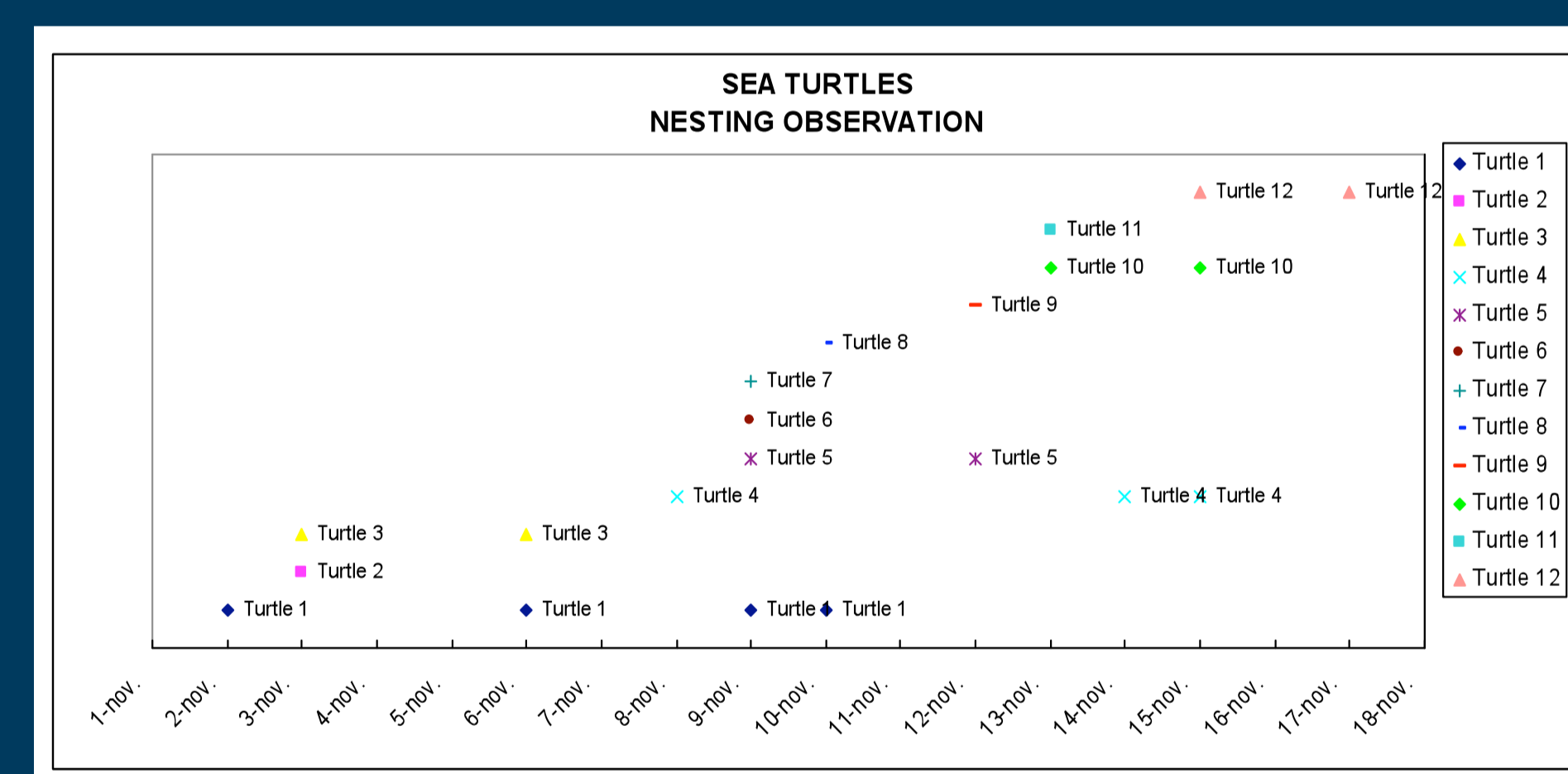
**Fig.1:** Sea turtles hatching success rates on different sites and different estimated dates of hatch.



## Nesters:

10 females tagged + 2 turtles PIT Tagged during the nesting phase.  
Pit tag numbers: 151605214A & 151617223A on rear back flippers.  
**Sea turtles in Mopelia are the first ones being PIT Tagged in French Polynesia.** On the ocean side, sea turtles tried several times to dig a nest. But sometimes, as it is not sandy, they dig in the middle of nowhere in a beach made of coral rocks. They will come back 1 or 2 nights after to try again. One of them came the 2nd of November, the 6th, the 9th, the 10th and probably nested another time. In the night of November 10th, she tried 4 times to dig a convenient nest.

**Fig.2:** Sea turtles observations by date.



## Genetic samples collected:

- 12 skin samples (neck or rear flippers) from nesters.
- 3 egg shell samples from older nests.
- 2 samples from dead hatchlings (1 albinos).
- 2 scute samples from a dead male.

## Discussion / conclusion

Night surveys were conducted for the first time on the atoll of Mopelia at the beginning of the nesting season, from October to February in French Polynesia. Different nesting sites have been recorded, most of them are on the ocean side, however some turtles nest on the lagoon side, easier than on the ocean side. Some older nests have been found with Kalami's help (the patriarch of the family). Hatchling success rate is quite good. It seems that on site n°1 the success rate of incubation is about 99% on recent nests (2010). This site is on the lagoon side, made of sand, protected from predators and erosion. Even though turtles are protected in French Polynesia since 1971, the inhabitants still eat them for special occasion. The real problem is the traffic, uncontrolled illegal trade, on Mopelia. Poachers from other islands catch some adults as sea turtles are mating just outside the seaward edge of the fringing reef. During 3 weeks of work, we have heard by locals that 7 turtles were caught. Animals are resold in Tahiti or other islands (112 KG are estimated 6 680 US \$). That is why during 3 weeks only 12 turtles have been encountered and tagged. Moreover locals told us that a long time ago, on the ocean side, the beach was made of sand, but because of cyclones and erosion, nowadays it is made of coral rubbles on most of beaches which disrupts the digging process. George Balazs worked in Scilly and proposed "Conservation Recommendations". 10 years later some of them are not yet applied on Mopelia.

- The number of turtles caught for food by the residents should be limited to two per month, and preferably should be males.
- The number of people allowed to live on the atoll should be stabilized at the current level or less (10 people).
- Poachers should be apprehended, prosecuted and heavily fined.
- Satellite tagging should be conducted with several nesting turtles to determine migratory routes, speed of travel, and ultimate foraging pasture destinations.

