



*LäjeRotuma Initiative (LRI)*

*"Mobilizing community to manage well their natural resources"*

# SURVEY OF MARINE TURTLES IN ROTUMA



**Progress Report March 2007**

This Project was undertaken with funding from the Australian Government through the Regional Natural Heritage Programme.

"The views expressed herein are not necessarily the views of the Australian Government, and the Australian Government does not accept responsibility for any information or advice contained herein".

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# Acknowledgement

LājeRotuma Initiative (LRI) would like to thank the following people for the assistance, support and hospitality extended to the LRI team during its recent survey of marine turtles in Rotuma for opening their doors, sharing their local knowledge and experiences to the survey team.

## **Chiefs of Rotuma:**

Gagaj Tigarea of Losa village, Itu'ti'u District  
Gagaj Kausiraf of Oinafa District  
Gagaj Raeauas of Motusa District  
Tarterani Rigamoto- Chairman for Council of Rotuma  
District Officer of the Rotuma Island  
Health Inspector - Peni  
Dr John Faitaki  
Nicholas, Hapmak  
*Kaunohoag 'on* Kafoa Olsen  
Sam Fatiaki

LRI would also like to acknowledge the following communities in granting access to record, measure and photograph the turtle shells found at Ahau, Malha'a, Hapmak, Motusa, Losa and Oinafa.

A special mention of the support and dedication of the team of volunteers led by Jacob Itautoka, Neema Nand representing Institute of Marine Resources (IMR), Paul Tomasi, Sumasafu Albert, Thomas Solomone, Ritia Atalifo as well as individuals who assisted in one way or the other providing a snapshot on the status of marine turtles in Rotuma. This is a step in the right direction towards the protection and survival of a species crucial to our cultural heritage as well as keystone to integrity of such an island ecosystem as Rotuma.

LRI acknowledge the technical support provided by the Institute of Marine Resources, University of the South Pacific and WWF South Pacific Program.

Turtle conservation effort in Rotuma is recognized to contribute to continuing national efforts led by Aisake Batibasaga at the Fisheries Division, Ministry of Agriculture, Fisheries and Forests, in terms of providing a current status of turtle nesting areas in Fiji.

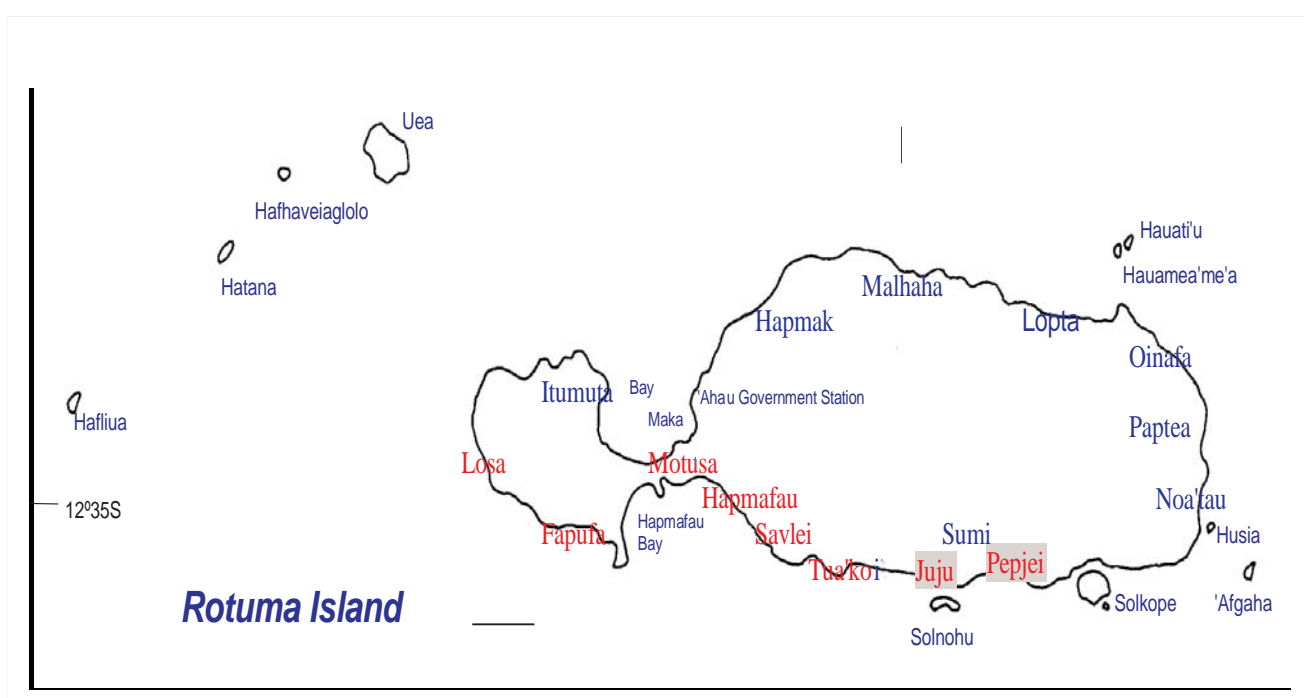
**PROJECT TITLE:** 07-045 Marine Turtle Conservation in Fiji, Tuvalu and Vanuatu

**OBJECTIVE:** Assist with the conservation of endangered marine turtles in Fiji.

**EXPECTED OUTCOME:** Increased knowledge of marine turtle status in Fiji

**OUTPUT/ ACTIVITY:** Survey of marine turtles in Rotuma, Fiji.

**LOCATION:** Rotuma is a volcanic island with an estimated population of 1300 people living in an island area of 43 km<sup>2</sup> located at latitude 120 south and longitude 1770 east, about 465 km north of the Fiji Islands.



Source: N'Yeurt *et al.* 1996 : Bibliography of Rotuma

Figure 1. Map of Rotuma. Key : Red marked village names indicate project sites after consultation and assessment of environmental conditions. Juju, Pepjei district are coastal rehabilitation sites.

## TURTLE PROJECT BACKGROUND:

Sea turtles have been a cultural keystone species for many of the cultures in Oceania. The increasing threat to the survival of turtles mainly due to marine pollution, over-fishing and destructive fishing methods has created an urgency to protect these age old marine creatures. Rotuma's geographical isolation proves an interesting case study to determine the range of turtle species found in Fiji and increase the knowledge of marine turtle status in Fiji.

According to a Turtle Factsheet by WWF four of the 7 turtle species in the world are found in Fiji which includes Loggerhead turtle (*Caretta caretta*), Hawksbill turtle (*Eretmochelys imbricate*), Green turtle (*Chelonia mydas*) and Leatherback turtle (*Dermochelys coriacea*).



**Photograph 1. A baby turtle found at Hatana Island.**

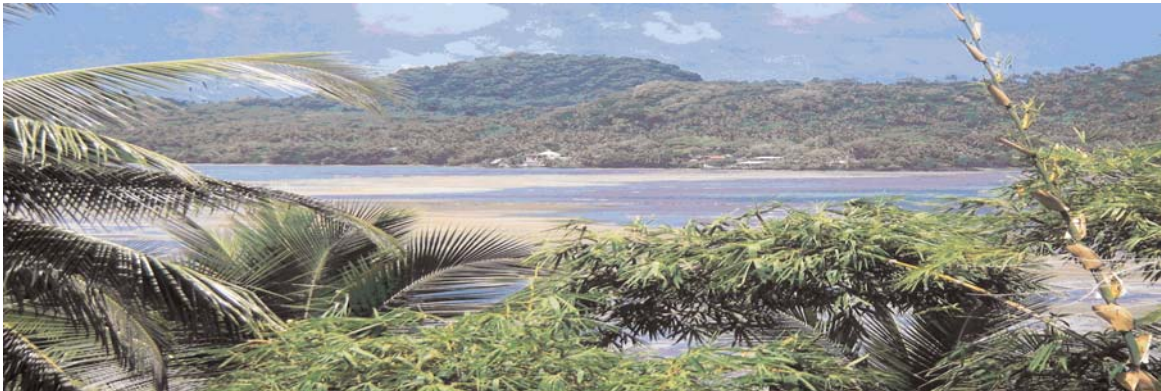
### **Field Notes from each village survey:**

#### **Motusa:**

Thomas Solomone, an LRI volunteer diver based on the island living in Motusa mentioned that the turtle species found in Rotuma waters are the Hawksbill and Green turtles.

People have been killing turtles for food and for the purpose of ceremonies such as the church and communal gatherings. There was a recorded number of sea turtle spearing at Solroroa and Uea ranging during the period of 1970 to 1985. The turtle meat was sold for \$2.00 a kilo.

Located at Motusa is the most extensive seagrass meadow found in Maka Bay and a known turtle feeding ground. Villagers at Motusa also indicated that the turtles love to feed on the green algae. Despite the frequent sighting of turtles in the area by the villagers, there were no turtle shells recorded and measured by the LRI survey team.



**Photograph 2. A View to Maka Bay.**



**Photograph 3. Green weed/ marine algae found at Maka Bay - Motusa.**

## Malha'a:

Turtles were rarely seen around the reefs of Malha'a and there were no nesting beaches found within this area. Interestingly, an area in the district is named after turtles and called Mo'ag Hoi which literally translates as 'refuge for turtles to hide'. According to a village elder, in times past, turtles were normally spotted in the area, however, this is not the case today.

An awareness program was carried out by the LRI team which also highlighted the 5-year turtle ban on sea turtles. Fishermen reported that there could be 3-4 turtles spotted in one fishing trip within the boundaries of Malha'a fishing area. Turtle shells were measured to determine its size and enabled a positive identification on the kind of turtle species it used to be.



Photograph 4a-c..Turtle shells found at Malha'a District.

## Oinafa:

It was recorded that fishers at Oinafa often come across turtles when out fishing. It is also a known fact that people continue to eat turtles, but most of them hide this. Some of the fishermen has indicated that the Hawksbill and Green turtles are the kind of turtles they encounter when out fishing, particularly around the waters of Haua Island off of Oinafa village. It is probably a foraging area for turtles.

The narrow coastline along Oinafa district is fringed by reef with prolific growth of diverse marine algae and seaweed, an even popular collection area for gleaning the varied edible seaweed like *Eucheuma*. The Oinafa jetty where the grounded vessel M.V. Bulou ni Ceva is anchored awaiting towage from its owners has been reported to be leaking bilge oil, thus possibly contaminating an important reef area.

A villager reported that when he cleaned his caught turtle, intestine contents contained red matter which was the red seaweed abundantly found growing at Lopta, Oinafa reef areas. This clearly indicates that turtles are known to forage in the area. It is possibly also a nesting beach as in the year 2000, a female turtle nested on the side of the road some fifty meters from the hightide mark and laid about 200+ eggs in which all hatched and were seen to be returning to the sea.

There were three villagers who took hatchlings to rear them at home. It was reported that two of the villagers released the hatchlings a few months later but the third villager who took forty five turtle hatchlings was unsuccessful in rearing them.

A turtle shell was found and measured. Photographs were taken of the turtle shells and there was an unusual shell (Photograph 5b) observed, presumed to be a cross-breed between a Hawksbill and a Green turtle.



Photograph 5a-c. Youth holding a turtle shell, located at Oinafa

Haua Island overlooking the Oinafa jetty.

### Ahau / Hap'mak:

A known community that continues to catch turtles despite their knowledge of the turtle ban. There are a number of fisherman in the village of Hapmak skilled in the art of catching turtles. Ahau is a government station located on the hill overseeing Hapmak on one end of the slope and Maka Bay at Motusa on the other side. Both communities are under the jurisdiction of Itu'ti'u district. Turtle shells were found and one of the shells measured were recorded to be the largest turtle shell found so far and identified as a Green turtle shell.



Photograph 6a Green turtle shell

Photograph 6b.Hawksbill turtle shell.

### Hatana Island:

This island is owned by a clan in Losa, a small village tucked away from the rest of the villages on Rotuma and under the jurisdiction of Itu'ti'u district. According to legend, Hatana is sacred as it is the burial ground for the founder of Rotuma and is protected by the two stone gods which can be found in the centre of the island. Hatana is also a known seabird sanctuary with its wildlife relatively protected by its upraised reef that is constantly pounded by oceanic waves. This is a known nesting ground for turtles.

During the field team's visit to Hatana, tracks of baby turtles were found. Nesting period was said to be during the month of November to January and the trip visited this known nesting site missing the timing of turtles caught

nesting on the beach. Most of the nests were found under the shrubs and trees where it is cooler (and sand temperature below 28 degrees Celcius). An old nest was dug out and egg shells were found.

On Hatana's beach, three hatchlings were found but only one hatchling survived. The two dead hatchlings were found near the low tide mark, presumably eaten by crabs or killed by the impact of pounding huge waves onto the raised limestone reef which surrounds Hatana. These hatchlings were identified as Green turtles. From the tracks found on Hatana beach, it was estimated that there were more Green turtles than Hawksbills found.



Photograph 7a. Hatchling



Photograph 7b. Turtle tracks



Photograph 7c. Turtle nesting

## RESULTS:

### Turtle Shell Collection

#	Species	CCL (cm)		Year Caught	Comments
		Min	Max		
1	Hawksbill	-	54	Weeks ago	Scutes on the shell was falling apart, but the color was visible
2	Hawksbill	76.5	79	9-10 yrs ago	
3	Hawksbill	47	47.7		
4	Hawksbill	49.5	50		
5	Green	49	49.9		
6	Green	53	53.5		
7	Green	94.5	94.8		Shell was varnished and in good shape. All scutes were intact as was the color.
8	Hawksbill	34	37.1	2002	
9	Logger / green	67	68	2006	There was an extra scute on the shell, possibly a hybrid.
10	Hawksbill	30	32	2004	Scutes falling apart

#### Note:

These turtle shells were found at Malha'a, Hap'mak , Oinafa and Ahau and approved by its owners to take measurements and pictures.



## Nesting Beach Survey

<b>Date of Survey:</b> 22 / 01 / 07	<b>Island Survey:</b> Rotuma
<b>Observer:</b> Jacob, Neema, Paul, and Sumasafu	<b>Beach Survey:</b> Hatana
<b>Time Started:</b> 08:30 am	<b>Time Ended:</b> 01:00 pm

Number of successful nests	Number of False Nests	Number of New nests	Number of Old Nests	Reasons	Number of crawls for hatchlings	Number of crawls for adult turtles.
52	3	21	31	The 3 false nests identified could have been historical but the current eroded condition of the beach (exposed beach rock) makes it difficult to believe turtles continue to nest at the area.	500+ crawls were identified and 60% were noted as greens and 40% were hawksbill	1 Female crawl was spotted on the other side of the island, it was believed to be a Green female turtle.
These had 21 new nests and 34 old nests						
Total number of nests was 55.	3	21	31			

**Note:**

Hatana is the only known turtle nesting sight. The other nesting sight identified by the community of Oinafa during 2004 have had no nesting observed since then. Old nests are defined as historically known sites by communities and new nests are those sites recorded by the field team during this survey trip.

### Number of turtles sighted in Rotuma

#	Turtle sighted	Day and Date	Location and place	Description
1	2	22 / 01 / 07	On a trip to the small island of Hatana in between Losa and Hatana.	There was no ID made on the two turtles
2	1	25 / 01 / 07	On the district of Malha'a	No ID made on the kind of species.
3	4	10 / 01 / 07	Hun Solo at the District of Motusa.	3 hawksbills 1 green
4	9	07 / 02 / 07	They were spotted at the District of Oinafa.	There was no ID of the species.
<b>Total</b>	<b>16</b>			

**Note:** The turtles sightings at Rotuma was during the month of January to February, 2007.



This turtle shell has four scutes and was identified as a green turtle

This shell has an extra scute on the shell which identified as a loggerhead turtle

Photograph 8.

**Note:**

It is uncertain whether this shell is a hybrid or an abnormal turtle. As demonstrated by Photograph 8, the shell has an extra scute.

Turtle tagging was impossible to do because of the timing of the visit to Rotuma during the month of February. For Rotuma, the nesting period is known to be from the month of November to early February. At this period, turtles can be spotted at night or early morning hours while they are still feeding.

**The Challenge:**

Not everyone in the communities were freely providing us their collection of turtle shells, for the fear of being prosecuted.

**The Next Steps:**

For the next two to three months, after the initial collection of baseline turtle information regarding the mapping of important turtle areas for nesting, foraging and feeding, planning is underway to coordinate an island-wide stakeholder development of marine turtle conservation and awareness plans for Rotuma. This will not be developed in isolation from the pending proposal to the Council of Rotuma about the island's Development Plan which natural resources management makes up a crucial component. LRI is hopeful that in partnership with the leading stakeholders representative of all community groups on Rotuma as well as the Fiji Rotuman community, an island ecosystem approach is taken to address management and governance of its limited resources compounded by the potential impacts of climate change.

## Budget Outline

Expenditure Item	Basis of calculation	RNHP Funding	IMR Contribution	LäjeRotuma Contribution
<b>Output 1.2 Survey of marine turtles in Rotuma</b>				
	Local boat transport, Per diem & allowances (4 people return boat trip 205, 4 people * 4weeks * 78/ wk, 2 people * 4 weeks* 20/wk allowance)	2,227		
	Awareness expenses	1,176		
	Boat rental & fuel	392		
	IMR & LRI staff time	3,795	1,035	5, 881
<b>Sub total</b>			<b>1,035</b>	<b>5,881</b>

## Expenses Breakdown

General Category of expenditures	Cost (FJD)
Demonstration/ Exhibits	\$128.90
Resource Persons	\$910.00
Administration costs (incl. phone, email, postage, printing)	\$222.63
Inter-island transportation	\$1084.00
Island Transportation	\$501.32
Food Costs	\$580.98
Accommodation	\$150.00
Contingency	\$175.57
<b>TOTAL COSTS INCURRED October 2006- February 2007</b>	<b>\$3,753.00</b>
<b>Less sub-grant Output 1.2 Survey of marine turtles in Rotuma</b>	<b>\$3,795.00</b>
<b>Remaining Balance</b>	<b>\$42.00</b>