



SWIOFP C5 Sea Turtle Training Course

31st August to 2nd September 2010

Venue: Kélonia, L'observatoire des tortues marines, La Réunion



Organised by IFREMER and Kélonia



MEETING REPORT – 8 September 2010

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EXECUTIVE SUMMARY:

A three-day meeting of SWIOFP Component 5, Streamlining Biodiversity, was conducted between 31 August and 2 September, at Kélonia, L'observatoire de tortues marines, La Réunion. This training meeting falls into the SWIOFP C5 objectives and was closely related to SWIOFP C5 projects identified by National coordinators of C5 as a priority to enlist SWIOFP support for the next two years. Technical specialists from each of the nine member countries of SWIOFP participated.

Participants were provided with updated summaries of the status marine turtles throughout the region, with special emphasis on interactions with fisheries operations and regional cooperation. Technical training provided by 5 specialists from the region underscored the fundamental need for long-term monitoring and standardisation of protocols, with special emphasis on species identification, genetic analysis, and satellite tracking. National priorities within the SWIOFP context were identified for short and mid-term work; programmatic conclusions and recommendations at the regional level were agreed upon in an effort to promote greater efficiency within and between SWIOFP programmes and also to nurture greater collaboration and synergy between the Sea Turtle programme of C5 and other related initiatives within the Southwest Indian Ocean, in particular the Indian Ocean Sea Turtle MoU and its Western Indian Ocean Marine Turtle Task Force.

PARTICIPANTS

The training was provided by:

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Mira HURBUNGS – Divisional Scientific Officer – Albion Fisheries Research Centre, (Ministry of Fisheries & Rodrigues (Mauritius) SWIOFP Regional coordinator Component 5 (RCC5)

(mhurbungs@mail.gov.mu) and **Veemala CHELUMBRUN** – Acting secretary of the SWIOFP

Regional coordinator Component 5 (vchelumbrun@mail.gov.mu) contributed in the logistic of the training and in clarifying the SWIOFP C5 structure and project priorities to the participants.

Invited Delegates

- **François BEUDARD** (Union of Comoros) Marine Park of Moheli

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- **Berthin Pierre RAKOTONIRINA** (Madagascar) Institut Halieutique et des Sciences Marines (IHSM) – Marine Turtle Program coordinator

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STRUCTURE AND ORGANISATION OF THE TRAINING COURSE

National reports:

A representative of each of the 9 countries presented a national report summarizing the status and knowledge of sea turtles, within their country, particularly monitoring and fisheries interactions; the presentations followed the guidelines provided by *Regional Coordinator of the Component 5 RCC5* (Appendix 1). These documents were transmitted to the SWIOFP *RCC5* and are available with the *RCC5*.

The Training medium was in English, and translations were provided in French and Portuguese whenever needed. The program and time schedule are provided in Appendix 1.

Training modules

The workshop was conducted in English, and translations were provided in French and Portuguese whenever needed. The program and time schedule are provided in Appendix 2. Specific presentations and instructions were provided on the following topics:

- **The roles of other regional organizations** – an explanation was provided on organizations that are highly relevant to marine turtle research and conservation in the region, particularly MTTF of IOSEA and MTSG;
- **Long-term monitoring** – an overview on the importance of marine turtles as flagship species, theoretical context and value throughout the region, and the critical need for long-term monitoring and standardization of protocols;
- **Species identification** – didactic descriptions using the high quality educational facilities in Kélonia, for distinguishing the 5 species of marine turtles found in the Southwest Indian Ocean Region;
- **Practical on species identification and the need for standardization** – each participant independently identified and measured 4 different carapaces, illustrating individual variation in measurements and species identification;

- **Individual identification** – a summary of flipper tags, the protocols and recommended ISO country codes as per IOSEA, and also an innovative approach to photo-identification developed at Kélonia;
- **Introduction to indicators of population abundance** – a summary commonly used standardized protocols for assessing long-term trends in abundance (primarily counts on nesting beaches) and an example of in-water transects;
- **Data storage and management** – a description of details involved in creating and maintaining a data base, with coding, management, and quality control, involving regional projects, with the offer for collaboration for the future;
- **Introduction to genetic studies** – a background on the theoretical context, application, and protocols used for sampling tissues for molecular genetics, and the value of this information for defining management units;
- **Introduction to satellite tracking** – background and protocols – a summary of the ARGOS satellite tracking system and protocols used in attaching transmitters to turtles and accessing and utilizing Argos position data;
- **Practical on tagging, tissue collection and attachment of satellite transmitter** – participants were provided a detailed, interactive, display of handling turtle, flipper tagging, sampling tissue, and attaching a satellite transmitter.

Participants were provided with a CD containing powerpoint files of all presentations as well as all the national reports.

Detailed Priorities per countries

In addition to the specific training, the workshop was also an opportunity for participants to identify – on the basis of their technical experience – detailed priorities based on the revised priority list developed during the C5 meeting in August. This present list highlights several project activities that were identified as highly relevant to marine turtles and considered to be essential tasks for achieving the objectives of Component 5 over the next two years. In order to implement these projects, representatives from each country explained their priorities and provided details accordingly. Table 1 shows a summary of the priorities identified during these detailed discussions.

Priorities related to sea turtles projects identified by country

XXX	High
XX	Medium
X	Low
	no interest

	1st priority
	2nd priority
	3rd priority

	Observers deployment strategy		BC-3 (Rabip Bycatch Assessment)			ST 1 (migration and connectivity) - Satellite tracking (10 tags)					
	Ranking		Ranking	Where?	leader	Ranking	Species	Why?	Where?	when?	leader
Comoros	X	on foreign vessels	X	local net fisheries of the 3 islands,	MPA	XXX	Cm	nesting / postnesting migration, identification of foraging grounds (out of the nesting peak)*	Itsamia' beaches	January - march	ADSEI (local association) / MPA
Mauritius	XX	longliners (LL) and purse seiners (PS), on foreign vessels	XX	Bank handline fisheries and St Brandon	ALBION	XXX	Cm	Postnesting migration, identification of foraging ground	St Brandon	2011 (summer) - 2 trips?	ALBION
Tanzania	XX	commercial prawn trawlers (if reopen), foreign (european) vessels	X	South of Rufiji Delta (need to confirm available information)	collaboration "sea sense" and TAFIRI	XXX	Cm	Postnesting mig. / public awareness	Distributed along the coast (4 mafia, 4 temeke, 2 zanzibar (partnership with hotel?) - to be validated depending on the objectives)	peak - (april - may 2011)	sea sense
Seychelles	XXX	foreign vessels, LL				XXX	(1) Ei (Inner Islands) / (2) Cm? (Aldabra)	Building national collaboration / Post Nesting for Ei	Aldabra + inner islands ?	?	to be validated by a national meeting
Mozambique	XX	Shrimp trawlers (sofala bank)	XXX	4 areas to be identified with the leader IIP, gillnet and beach seiners	IIP	XXX*	(1) Cc (6 tags?) / (2) Cm (2-4 tags?)	PostNesting mig / public awareness	PPMR (South) Cc / Vamizi, Primeras & Segundas (Cm)	Jan-Feb 2011 (Cc) / April-June 2011 (Cm)	AICM
South Africa	XX	Increase presence on national vessels (shrimp trawlers) and deploy on foreign vessels (longliners)	XXX	Insist on a loggerhead bycatch assessment for artisanal fisheries in east african countries (Kenya, Tanzania, Moz.)	contribution to the effort of other countries	XXX*	Cc	Interesting behavior (MPA effectiveness)/ interaction with fisheries / Post Nesting migration -	Northern beaches (Kwazulu Natal)	Dec-Jan 2011	KZN
Kenya	XXX	Foreign Vessels	XX	Shrimps trawlers, ring nets	KMFRI, Fisheries Department	XXX	Cm	Post Nesting migration*	to be defined later	April (peak)	KMFRI / WWF?
Madagascar	X	Shrimp trawlers, foreign vessels. (LL., PS.)	XXX	Traditional net fishing and shark fisheries (West and South coast)	WWF WCS IHSM Blueventures NGO	XX	(1) Cm / (2) Ei	Postnesting migration on monitored sites	Iranja (NW) / Barren (W)	Nov2010 - Feb 2011	IHSM / WWF / CNDO

	ST 1 (migration and connectivity) - Genetics					ST2 Initiation/improvement of local monitoring at hot spots					BC1 and OP2 (TEDs)		O1 - Protocols	Foot note
	Genetics (immatures)	Genetics (nesting)	Why?	Where?	Leader	Ranking	Why	Where?	How?	Leader	Ranking	What?	Ranking	
Comoros	XXX	X	Follow ongoing program, identification of Juvenils's origin	Itsamia foraging ground	ADSEI / MPA	XXX	Known hot spot, but no data	Nioumachoi + islets	tracks countings / full season individual tagging on nesting peak	MPA			X	* + Communication /awareness
Mauritius	XXX	XXX	Nesting population characterisation, no logistic and knowledge for immature	St brandon + oportunistic in Mainland	ALBION	XXX	Nothing is known in St Brandon, and probably a hot spot for Cm	St Brandon	track counts / tagging nesting females / genetics	ALBION			X	
Tanzania	XXX		natal origin of immature population	temeke district + oportunistic places	sea sense + collaborations	XXX*		Rufiji Delta	inwater sightings / habitat mapping	Sea sense + collaboration (UDSM?)	XXX	facilitate TED trials and implementation	XX	*Foraging Policy for TEDs
Seychelles	XXX		confirm structure of seychelles nesting populations / juveniles origin	inner islands	SNPA	XX		Outer islands	Quick assesment	NGOs			XXX	
Mozambique	XXX	XXX	nesting - key area between 2 stocks (Cm)	primera & segunda (Cm) / + oportunistic sites over the country (Dc+Cc) /+ Sofala bank via observers	AICM + IIP	XX*	Encouraging ongoing initiatives on known hotspot, but low available data	Inhambane	Building capacities for monitoring : increasing the effort (nb of monitors...)	AICM	XXX	Validate and give support to the efficiency of TEDs / implement existing law	X	* Strategy to be validated
South Africa	XXX	XX	origin of bycatch (foraging + nesting) (Cc)	south african waters (+ bycatch on vessels and shark nets)	NCCS / Cooperation	X**		On foraging habitat	No need for SWIOFP support at this time		XXX	Evaluation + implementation of TEDs in the 4 SA vessels in activity	X**	* to be validated (GPS / Argos ?) **cooperation with Mozambique.
Kenya	XX	XX	Origine of bycatch + nesting stock characteristics	Ngwana	KMFRI	XXX	Encouraging ongoing initiatives on known hotspot, but low available data	Mgwana	Implement continuous monitoring instead of punctual	Fisheries department / KMFRI	X	Evaluation + encouraging implementation of TEDs	XXX	*contact ongoing KWS/WWF Satellite tagging project
Madagascar	XX	XX	origin of juveniles and subadults	Barren	WWF / IHSM / Kélonia	XXX	Encouraging ongoing initiatives on known hotspot, but low available data	Barren	Increasing effort	WWF/IHSM / Museum de genève (MHNG)	XX	Reinforce and apply the law	X	

OVERALL CONCLUSIONS OF THE WORKSHOP

The following conclusions represent the consensus of all workshop participants

1).Conclusions specific to C-5 projects related to marine turtles, and other general SWIOFP activities that are highly relevant to marine turtles:

1- Strategy for observer deployment – RMU:

- The strategy for observer deployment under the overall SWIOFP Project, in particular the establishment of priorities for each of the components needs to be clarified. There is an urgent need for SWIOFP officers/administrators to define the responsible coordinators for these actions and to guarantee that they are executed in a timely manner. In terms of C5, there is a pressing need to make the most effective use of SWIOFP observers to increase knowledge about marine turtle by-catch in the region.
- There is a clear and pressing need for increased – even basic - knowledge about by-catch on foreign vessels that operate under licence within the EEZs of each of the SWIO countries, particularly as relates to marine turtle by-catch.

- On-board observers must carry out systematic sampling of all marine turtle by-catch for collection and storage of biological tissues, especially for genetic and isotope work; all observers must be adequately trained (in theory this training is included in the terms of reference of the Observer Training initiative).
- All on-board observers, particularly on foreign vessels, must have guaranteed independence and safety.

2- Development of regional fisheries glossary – C1:

- There is a pressing need to develop a comprehensive glossary of fishing gears and fishing methods for all countries in the SWIO (this should be undertaken by Component 1).

3- BC-3 (Rapid By-catch assessment) – C5:

- This activity was clearly identified as a priority by workshop participants, mainly because it provides an opportunity under the SWIOFP to collect basic information on by-catch in artisanal/small scale fisheries; such information is rarely available, and it is thought that these fisheries have a higher impact on marine turtles than industrial fisheries in all SWIO countries.
- A glossary of fishing gears and methods in the SWIO Region must be available for the efficient execution of this activity (see topic 2; this should be developed by C 1).

4- ST1 (Satellite tracking issue) – C5:

(The following conclusions are based on the assumption that each country will be provided with at least 10 satellite transmitters for marine turtle work).

- Because of the relatively small number of tags available for each country, the deployment strategy of most countries needs to be discussed among the actors who work on turtles, and then approved by the respective NCC5.
- Clear priorities for deployment of satellite tags need to be developed, taking into account logistical facilities for transportation to tagging sites and dealing with equipment, and especially the abundance of turtles and the probability of finding animals on which transmitters can be attached.
- Because of the widespread popular appeal of satellite tracking studies, and their unique value for communications and raising awareness, these projects need to be associated with public education and awareness campaigns.

5- ST1 (Genetic studies of marine turtles) – C5:

- Two approaches were suggested:
 - o Identify a national leader who will be responsible for the study, particularly carrying out the analysis, presumably in an institute within the country.
 - o Develop a collaborative arrangement with a reputable lab, preferably within the region (excluding IFREMER/Kélonia) to carry out the analysis; the benefit of engaging a postgraduate student for this activity was emphasised.
- It will be important to involve as many collaborators as possible in sampling in order to increase the size of samples in both time and space, and to continue the sampling for 2 years.

6- ST2 (Monitoring of marine turtle hot spots) – C5:

- There needs to be increased capacity and sampling for effort in ongoing monitoring activities in order to increase knowledge about population abundance, and establish foundations for long-term trend analysis.

7- BC1 & OP2 (BRD, specifically TED) – C5:

(The following conclusions were agreed on by participants from those countries that have bottom trawlers operating within their respective territorial waters and EEZs: Kenya, Madagascar, Mozambique, Tanzania, and South Africa)

- There need to be field trials to give fishing companies, captains, and crews hands-on experience with TEDs so that they can see firsthand the real effects of TEDs on prawn CPUE (and neutralize anti-TED propaganda).
- Trials must be implemented carefully so that captains and crew are cooperative and objective, and not biased with predetermined ideas about the outcomes.
- Despite the fact that mandatory TED laws are in place in four of the five countries that have prawn trawling (not in Tanzania), there is a general problem of implementation, at-sea inspections, and sanctions; hence, participants requested the assistance of SWIOFP to encourage governments to develop more effective implementation.

8- O1 (Harmonization protocols) – C5:

- Participants expressed the need for a SWIO workshop on harmonization and standardisation of protocols. This initiative must be integrated with related initiatives of other organizations, such as WIO-MTTF/IOSEA.
- Once regional standards are developed, national workshops need to be held to promote and implement harmonization and standardisation of the protocols

II). General Conclusions

- 1- The most momentous conclusion is that over the past two years there has been little effective communication between respective NCC5 and technicians in each country who are responsible for implementing the project. Most of the workshop participants were not aware of basic structure, organisation, or operations of SWIOFP, or even about the objectives of C5 in general or the approved projects under C5 related to marine turtles. They pointed out the urgent need to be kept informed by their respective NCC5 of decisions, advances, and other activities relevant to the marine turtle projects of C5; at the same time they recognised the need to provide timely reports of their activities to their respective NCC5.
- 2- There is need to strengthen collaboration between all work done on turtles under the SWIOFP and related activities of the Western Indian Ocean – Marine Turtle Task Force of the Indian Ocean and Southeast Asian Marine Turtle MoU (MTTF/IOSEA).
- 3- All C5 turtle projects must be implemented in collaboration with national stakeholders (e.g., various government departments, academic and research organisations, representatives of the fishing and tourism industries, educational organisations, non-governmental organisations, and members of civil society) to

strengthen multisectoral collaboration and buy-in, while at the same time insuring scientific quality and independence of the work.

- 4- A follow-up workshop should be organised within a year, including the same participants to evaluate progress, and strengthen regional collaboration in the implementation of the activities defined during the present workshop.
- 5- Each workshop participant must send a brief progress report on the activities described herein to their respective NCC5 no later than 15 January 2011, with a copy to all workshop participants; the NCC5 will then forward the report to the respective Focal Points to inform the RCC5.
- 6- SWIOFP should take the lead in organizing a by-catch workshop in cooperation with all relevant players in SWIOFP and also IOTC, IOC and IOSEA. This workshop must provide continuity and follow-up to the FAO workshops on "*Interactions Between Sea Turtles And Fisheries Within An Ecosystem Approach To Fisheries Management*" (held in April 2006, in Zanzibar, Tanzania and November 2007, in Majunga, Madagascar).

A report of this training workshop, including the priorities of project activities identified by participants, will be sent by each participant to their respective NCC5 no later than 10 September 2010.

EVALUATIONS OF THE WORKSHOP

Rapid evaluations of the workshop were provided by participants on the final day. The analysis of the answer is still ongoing and the result of this evaluation will be transmitted to RMU, RCC5, NCC5 and participants of this workshop before 10 September.

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Organised by IFREMER and Kélonia

Guidelines of Report for Presentation at the SWIOFP Marine Turtle Training

Each country will have to prepare a draft report (minimum 10 pages) on sea turtle knowledge, monitoring and fisheries interaction within their country, including, wherever possible the information listed below. A copy of the document has to be sent to the RCC 5, Mira Hurbungs (mhurbungs@mail.gov.mu) by each NCC5 at least 1 week before the training.

Each country will make a powerpoint presentation on the report on the first day of the training.

Please, provide the PDF copy of all references cited in the report (grey literature is also welcomed)

INFORMATION TO BE INCLUDED IN THE REPORT/PRESENTATION

1- Sea turtle biology, ecology and behaviour knowledge (per species)

- a. Nesting habitat – distribution, abundance and trends,
- b. Feeding habitat – distribution, abundance and feeding habitats characteristics,
- c. Current knowledge on migration behaviour,
- d. Level of knowledge on juvenile stage (behaviour, migration patterns, size at recruitment...).

2- Main threat known and mitigating measures

a. Threats

- i. On land and at sea due to human interaction other than fishing activities
- ii. Fisheries interactions
 1. Trawlers
 2. Long line
 3. Nets
 4. Artisanal fisheries
 5. Purse seine

b. Mitigating measures

3- Main research program undertaken/ongoing and data available

- a. Nesting - monitoring and long term monitoring,
- b. Feeding - monitoring,
- c. Genetic stock assessment,
- d. Satellite telemetry and migration pattern.

4- Cooperation

- a. With other countries
- b. With IOSEA-MTTF and MTSG/IUCN
- c. Expectations within the SWIOFP project and beyond
 - i. Sites identified for long-term monitoring and why
 - ii. Genetic stock assessment of nesting/foraging and juvenile marine turtle (where, when and why)
 - iii. nesting turtles migration/ interaction with fisheries (satellite tag deployment) – where, when and why

SWIOFP COMPONENT 5

Training workshop on sea turtle monitoring

Venue: *Kélonia Center, La Réunion*

August 2010

DAY1: Sharing experience

2 Transfers Hotel – Kélonia: 8h00 and 8h30

9H00: Welcome

- **La Réunion**
- **Opening the training – identification of objectives – (regional C5 coordinator)**

9H30: Visit of Kelonia Center, the Sea Turtle Observatory of Reunion Island – 2 groups, French and English speaking (and Portuguese if needed).

- The biology of the sea turtle

⇒ *13mn movie*

- Sea turtle history: links and interaction human/turtle
- Research on sea turtle in the SWIO: past, present and future

⇒ *Live sea turtle in tanks*

10H30: Coffee break

11H00: The regional Role of MTTF, IOSEA and MTSG

11H30: Presentation of past or/and ongoing programme on sea turtle per country (30mn/country including questions) 1/3

Presentation and discussion around sea turtle research in each country: experience, practice and protocol used

⇒ *Each country will have to present and submit a full paper on sea turtle population status, available data and ongoing scientific program following a model proposed by SWIOFP-C5.*

- *South Africa*
- *Mozambique*

12H30: Lunch time

14H00: Country presentations 2/3

- *Tanzania*
- *Kenya*
- *Comoros*

- *Madagascar*

16H00: Coffee break

16H30: Country presentations 3/3

- *Seychelles*
- *Mauritius*
- *La Réunion*

18H00: end of day 1

DAY2: Implementing long term monitoring – Theory and practice

2 Transfers Hotel – Kélonia: 7h40 and 8h10

8H30: Short game

9H00: How and why to start long term monitoring?

- Global overview of methods to estimate sea turtle population
- Importance of long term monitoring of key indicators of the population status within a region
- Importance of standardised data collection
- Importance of sharing standardized data for a regional management

9H45: Species identification

⇒ 4 of the 5 species known to occur in the SWIO will be shown “live” in the Kélonia tanks at different stage of life

⇒ Identification of key identification points per species

⇒ Presentation of the “Species Identification Key” to be used by non expert

10H30: Coffee break

11H00: Results of the game and Standard length measurement protocol

⇒ Practice on several species carapace

11H30: Individual identification protocol

⇒ Identification of individual using classic metallic tagging and photo-identification; Codification to be used per Countries/IOSEA

12H30: Lunch time

14H00: Collection of standardised long term indicators of population abundance

- Tracks count method
- Nests count method
- Nesting females count method
- At sea count method

⇒ *Using Ultra Light Aircraft to estimate sea turtle population at sea*

15H30: Coffee break

16H00: Data storage, data quality management: the example of the Eparses islands, Comores and Mayotte

17H00: The SWIOFP sea turtle spatial dynamic project

17H30: End of day 2

DAY3: Characterisation of a population

2 Transfers Hotel – Kélonia: 7h40 and 8h10

8H30: Genetic approach and tissue collection

- Population genetic: what for?
- Genetic sampling method
- Isotope tissue samples collection method

9H30: Telemetry approach

- How does it work?
- Satellite tags
- How to attach a satellite tag?
- How to download and map the data?

10H30: Coffee break

11H00: Training on live animals

- *Tissue collection*
- *Tag attachment on carapace. A satellite tag will be attached on a live loggerhead by-caught by a longliner.*

12H30: Lunch time

14H00: Discussion; adaptation of protocols (longterm monitoring, tissue sampling and satellite tagging) to SWIO countries 1/2

15H00: Coffee break

15H30: Discussion 2/2

18H00: End of the training